REPORT

WALKER ENVIRONMENTAL GROUP INC.

NIAGARA FALLS, ONTARIO

AIR QUALITY ASSESSMENT REPORTS (DRAFT): SOUTHWESTERN LANDFILL PROPOSAL ENVIRONMENTAL ASSESSMENT

RWDI # 1800160

February 21, 2020

SUBMITTED TO

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REPORT

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NIAGARA FALLS, ONTARIO

AIR QUALITY-HAUL ROUTE STUDY | SOUTHWESTERN LANDFILL PROPOSED ENVIRONMENTAL ASSESSMENT

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1 INTRODUCTION

An Environmental Assessment ("EA") is being prepared by Walker Environmental Group Inc. ("Walker") under Ontario's *Environmental Assessment Act ("Act") for the 'provision of future landfill capacity at the Carmeuse Lime (Canada) Ltd. (Carmeuse) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario'.*

This is one in a series of technical studies that have been completed by qualified experts to examine the potential effects of the proposed landfill site on the environment, all in accordance with the requirements set out in the Approved Amended Terms of Reference ("ToR") dated May 10, 2016. This report accompanies and supports the Environmental Assessment Report prepared by Walker.

Note that Walker has carried out extensive consultation with government agencies, Indigenous groups and interested members of the public regarding this study; details are provided separately in the EA report.

2 PURPOSE & OBJECTIVES

The purpose of this study is to complete an Air Quality impact assessment of the landfill haul routes proposed by Walker.

The overall **objectives** of the study are listed below, in general accordance with the requirements for the assessment of an undertaking as set out in Section 6.1(2)(c) of the Environmental Assessment Act, and as specifically detailed in Section 8.1 of the ToR:

a) Describe the **environment potentially affected** by the proposed undertaking, including both the existing environment as well as the environment that would otherwise be likely to exist in the future without the proposed undertaking.
b) Carry out an evaluation of the **environmental effects** of the proposed undertaking, using the relevant environmental assessment criteria set out in the ToR (see **Appendix B**).
c) Carry out an evaluation of any additional impact management actions that may be necessary to **prevent, change or mitigate any (negative) environmental effects.**
d) Prepare a description and evaluation of the **environmental advantages and disadvantages** of the proposed undertaking, based on the net environmental effects that will result following mitigation.
e) Prepare monitoring, contingency and impact management plans to **remedy the environmental effects** of the proposed undertaking.

3 THE PROPOSED UNDERTAKING

The landfill proposed by Walker is described in detail in the *Environmental Assessment Report*. Following is a brief summary for the benefit of the reader, highlighting aspects of the proposal most relevant to this study.

The landfill is to be located on a portion of Carmeuse's landholdings at its Beachville Quarry Operations in the Township of Zorra, Oxford County. Approximately 17.4 million m^3 of solid, non-hazardous waste and daily/intermediate cover will be deposited within a footprint of about 59 ha. The balance of the 81.6 ha site will be comprised of buffer areas for monitoring, maintenance, environmental controls and other necessary infrastructure. (**Figure 1**).

Landfill construction will proceed progressively in a series of cells, generally from north-to-south (**Figure 1**). The former quarry floor will be backfilled to within about 30 to 40 metres below ground surface with engineered fill, and then a *Generic Design Option II – Double Liner system (as specified by the Ministry of Environment, Conservation & Parks in the Landfill Standards under O. Reg. 232/98*; see **Figure 2**) will be constructed across the bottom and up the sides of the landfill to contain and collect leachate (**Figure 3**). Up to 850,000 tonnes per year of solid, non-hazardous waste, and up to 250,000 tonnes per year of daily/intermediate cover soils[1] will then be placed and compacted above the liner in a series of small working areas approximately 0.2 ha in size at any given time, in order to minimize the exposed waste. Waste will be covered with soil on a daily basis, and a final cap with vegetation will be applied when the landfill reaches its final height, which peaks at about 15 m above ground (**Figure 4).** A landfill gas collection system will also be installed as the landfill/cell development progresses.

Most of the supporting infrastructure for the landfill will be located in the buffer area along the northern site perimeter, including the leachate and gas treatment plants. Leachate collected from the liner system will be treated on-site and the clean effluent from the treatment plant will be discharged into the Patterson-Robbins Drain next to the treatment plant. Clean precipitation and groundwater that has not come into contact with waste will be segregated and treated in stormwater management ponds before being discharged from the site (**Figure 1**). Landfill gas will be collected in a network of extraction wells and pipes. Initially the landfill gas will be flared (combusted), but when the quantities permit the gas will be beneficially utilized as a renewable fuel.

The site will be open for waste deliveries from 7:00 a.m. to 5:00 p.m. on weekdays and from 7:00 a.m. to 1:00 p.m. on Saturdays, but closed on Sundays and statutory holidays. On-site construction activities may start up to one hour before opening and continue up to two hours after closure. The primary designated haul route (i.e., for all waste trucks except deliveries from the local area, if any) is from Highway 401 north along County Road #6, then west into the quarry property; trucks will then follow a newly constructed haul route across the quarry site to a landfill site entrance at the northwestern corner of the site (**Figure 5**). Vehicle traffic, including waste trucks as well as construction vehicles and staff, is expected to average approximately 210 trips per day.

Nuisance controls will include speed enforcement, regular haul road cleaning (on- and off-site), litter fencing and pick-up, and bird/pest management, with a public complaints reporting and response system.

[1] *The daily/intermediate cover soil could consist of acceptable and suitable waste soils, and would be reported as waste, so the total reported waste receipts could be up to 1,100,000 tonnes per year.*

There will be monitoring programs for equipment operations, leachate, groundwater, surface water, air emissions, gas, noise, and particulates (dust).

The landfill is anticipated to receive waste for approximately 20 years commencing in about 2023. After closure, maintenance and operation of the relevant environmental controls and monitoring will carry on during the post-closure period, until there is no further risk of environmental contamination. The end-use is assumed to be passive green space and agriculture, but the design is flexible to accommodate other potential end-uses.

This assessment will consider the potential impacts to sensitive receptors in the vicinity of the site resulting from tailpipe emissions from the proposed landfill haul route traffic and on-site roadways. The assessment considers combined impacts from sources of like contaminants: the Carmeuse process kilns, Carmeuse haul route traffic and on-site roadways, the landfill gas flare, the leachate treatment system, fugitive emissions from the landfill mound, and background traffic from County Road 6.

The contaminants of concern include toluene, formaldehyde, benzene, sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (TSP, PM_{10} and $PM_{2.5}$), and benzo(a)pyrene (BaP). Particulate matter from all landfill sources, including the contribution from haul routes, is assessed in the accompanying Dust Study. All other contaminants of concern are assessed in this Haul Route Study.

The haul route assessment considered a waste filling rate of 850,000 tonnes per year of solid, non-hazardous waste, of which 70% consisted of biodegradable material. This waste was assumed to be distributed evenly throughout the landfill over the course of the 20-year lifespan, with filling occurring for 5 years within each Stage, as follows:

- **Stage 1**: 2023-2027;
- **Stage 2**: 2028-2032;
- **Stage 3**: 2033-2037; and,
- **Stage 4**: 2038-2042.

Each Stage of the landfill will accommodate approximately 5 cells. The gas collection system consisting of both vertical and horizontal extraction wells will be progressively installed in each cell as the cells are developed and filled. The landfill gas collection system was assumed to have an 85% collection efficiency for Stages of the landfill under final cover and conservatively assumed be 50% for the current active Stage. All collected landfill gas was assumed to be combusted in an enclosed flare.

Approximately 250,000 tonnes of waste soil will be imported per year to be used as daily cover for the active landfill cell. This waste soil is in addition to the 850,000 tonnes per year of solid, non-hazardous waste. The haul route assessment also considered the presence of a waste soil storage pile with a footprint area of up to 32,500 m², present in one of two locations, depending on the current Stage of operations.

The leachate treatment plant will be located to the northwest of the landfill area. The leachate treatment plant will consist of a 3,000 m² aeration pond, a 15,500 m² raw leachate holding pond, a leachate treatment building, a 2,000 m² effluent holding pond, and a 4,100 m² polishing wetland.

This assessment considers impacts in stages 1 and 3 of the landfill lifespans. These stages represent the worst-case scenarios for haul route related emissions.

4 ENVIRONMENTAL ASSESSMENT CRITERIA & INDICATORS

The **environmental assessment criteria**, as approved in the ToR, are tabulated in **Appendix B**, **Table B-1**. In the table, check marks indicate which technical studies are assigned primary ("lead") responsibility for assessing each of the criteria. Following are the EA criteria which are assigned to this study:

EA Criteria	Definition/Rationale
Effects due to exposure to air emissions.	Waste disposal facilities can produce gases containing contaminants that degrade air quality if they are emitted to the atmosphere. Other operations, such as leachate collection facilities, can also produce emissions that could degrade air quality in the vicinity of the site. Air quality in the vicinity of the site should meet regulated air quality standards in order to protect public health.
Effects due to fine particulate exposure.	Construction, operation, and truck haulage activities at a waste disposal facility can lead to increased levels of particulate (dust) in the air. Airborne fine particulate is a health concern in certain size ranges exposure durations.

Furthermore, the criteria for this EA were designed to be cross-disciplinary to permit an assessment of cumulative effects. **Table B-2** in **Appendix B**, from the ToR, illustrates some (though not necessarily all) of the key interconnectivities between the studies. As a result, this study provides input/data to additional environmental criteria that will be addressed through studies conducted by other experts including (but not limited to):

EA Criteria	Definition/Rationale
Disruption to use and enjoyment of residential properties	Odour from the Site Odour from Trucks Movement of Waste Off-Site (litter) Site Location Particulate Matter from the Site (including normal landfilling operations, construction activities, earth movements and on-site and off-site vehicle movements) Landfill gas from the Site Blowing Litter from the Site
Disruption to use and enjoyment of public facilities and institutions	Odour from the Site Odour from Trucks Movement of Waste Off-site (litter) Site Location Particulate Matter from the Site (including normal landfilling operations, construction activities, earth movements and on-site and off-site vehicle movements) Landfill gas from the Site Blowing Litter from the Site
Disruption of Farm Use	Odour from the Site Odour from Trucks Movement of Waste Off-site (litter) Site Location Particulate Matter from the Site (including normal landfilling operations, construction activities, earth movements and on-site and off-site vehicle movements) Landfill gas from the Site Blowing Litter from the Site
Property value impacts	Impacts on Property Values
Loss/disturbance of terrestrial ecosystems	Impacts to Wildlife/Birds Impacts to Terrestrial Habitat Impacts on Wetlands
Loss/disturbance of aquatic ecosystems	Impacts on Fish/Aquatic Habitat Impacts on Wetlands

Indicators identify how the potential environmental effects will be measured for each criterion. Following are the indicators that were applied to each of the primary EA criteria addressed in this assessment:

EA Criteria	Proposed Indicators/Measures
Effects due to exposure to air emissions	Ontario Regulation 419 Standards and Guidelines, Ambient Air Quality Criteria, Canadian Air Quality Objectives (CAAQS) and MECP Guidance Documents (Odour)
Effects due to fine particulate exposure	Ontario Regulation 419 Standards and Guidelines, Ambient Air Quality Criteria, Canadian Air Quality Objectives (CAAQS)

5 STUDY DURATIONS

Two main **study durations** (or time frames) for this proposed landfill have been identified in the ToR:

Operational Period: The time during which the waste disposal facility is constructed, filled with waste, and capped. These activities are combined since they occur progressively (i.e., overlap) on a cell-by-cell basis, and they have a similar range of potential effects (e.g., there is heavy equipment active on the site).

Post-Closure Period: The time after the site is closed to waste receipt. Activities are normally limited to operation of control systems, routine property maintenance and monitoring, and thus have a more limited range of potential effects.

The approved EA Criteria in **Table B-1, Appendix B** indicate the relevant study duration(s) associated with each of the criteria used in this assessment.

In addition, **common reference** periods or milestone dates were also defined for the operational period of the landfill. The haul route study considered only the operational period assuming that tailpipe impacts will be negligible following closure and rehabilitation efforts. The study periods considered in this study were:

Baseline (Est. 2019)	Just prior to the start of landfill construction and operation, representing the existing baseline conditions.
Landfill Stage 1 (Est. 2023 – 2027)	Conditions during filling operations of the landfill stage 1 and construction of the stage 2 liner.
Landfill Stage 3 (Est. 2033 – 2037)	Conditions during filling operations of the landfill stage 3 and construction of the stage 4 liner.

6 STUDY AREAS

For the purposes of this EA, three general **study areas** were established in the ToR:

On-Site and in the Site Vicinity: On-site includes the proposed waste disposal facility plus the associated buffer zones. Site vicinity is the area immediately adjacent to the waste disposal facility property that is directly affected by the on-site activities. Its size is variable depending on the particular criteria being addressed.

Along the Haul Routes: The primary route along which the waste disposal facility truck traffic would move between a major provincial highway and the proposed waste disposal facility site entrance, plus the properties directly adjacent to these roads.

Wider Area: The broader community, generally beyond the immediate site vicinity. Depending on the particular criteria this may include neighborhoods, local municipalities, the Oxford County, or the Province of Ontario.

The tables of approved EA Criteria in **Appendix B** indicate the relevant study area(s) associated with each of the criteria in this assessment.

Although these three general study areas were common across all of the studies, their actual physical boundaries were not necessarily identical for every study or criterion; a flexible approach was used and the study area boundaries were adjusted as the work progressed to ensure that they adequately encompassed the significant effects of the proposed landfill.

For this assessment, the final study area considered activities that were on-site and in the site vicinity. For the purposes of this study, the on-site and in the site vicinity area extends to approximately 5 kilometers from the proposed landfill. This is based on the maximum extent of air quality effects that can be anticipated. Since there are sources of like emissions from the Carmeuse site, the Carmeuse site is not included in the receptor grid. Impacts were predicted for off-property receptors using a joint landfill and Carmeuse property line. The receptor grid used for the haul route modelling is illustrated in **Figure 6**. In all, the final study areas include the main haul route extending from Hwy 401 to the site entrance located approximately 4.5 kilometers West on 37th line (County Road 6, CR6), the existing Carmeuse operations and future quarry site, and the landfill operations area.

Where appropriate and relevant, common receptor points were also selected collaboratively by the technical experts so that the potential overlapping, or cumulative effects of the proposed landfill could be assessed at these common receptor points. Of the 50 common receptor points selected, a total of 43 were identified as relevant receptors for the Air Quality discipline. An additional receptor point ZOR-13, was not identified as a receptor for air quality but has been included at the discretion of the air quality team. Only receptors representing residential locations or other locations where human activity regularly occurs were used to assess compliance with the criteria. The common discrete receptor points for air quality used for the landfill site and the haul route modelling are illustrated in **Figure 7**.

7 METHODOLOGIES

This assessment considered the potential impacts to sensitive receptors in the vicinity of the site resulting from tailpipe emissions from the proposed landfill haul route traffic and on-site roadways. The assessment considered combined impacts of like contaminants from other emission sources including: the Carmeuse process kilns, Carmeuse haul route traffic and on-site roadways, the landfill gas flare, the leachate treatment system, fugitive emissions from the landfill mound, and background traffic from County Road 6. The assessment considered the baseline operating scenario and two future operating scenarios.

The contaminants of concern include toluene, formaldehyde, benzene, sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (TSP, PM_{10} and $PM_{2.5}$), and benzo(a)pyrene (BaP). Particulate matter from all landfill sources, including the contribution from haul routes, is assessed in the accompanying Dust Study. All other contaminants of concern are assessed in this Haul Route Study.

This haul route air quality assessment evaluated each of these contaminants against their applicable ambient criteria over various averaging periods, as per the list provided in the "Southwestern Landfill Proposal Environmental Assessment Air Quality Assessment Work Plan", February 16, 2018 (the Workplan). This list was developed through consultation with the Ministry of the Environment, Conservation, and Parks (MECP).

The haul route assessment was conducted for the following scenarios:

- Baseline (current conditions, no landfill);
- Landfill Stage 1 (2023-2027) operations (with and without landfill); and,
- Landfill Stage 3 (2033-2037) operations (with and without landfill).

The post-closure scenario has been omitted as haul route sources from the proposed waste disposal site after closure and rehabilitation were considered to be insignificant.

To predict the impact from emissions of the contaminants listed above it was necessary to consider all sources of potential emissions from both the landfill operations and existing Carmeuse quarrying operations. Typical emission sources of the aforementioned contaminants would include:

- On-site roadways – tailpipe and roadway emissions from the landfill traffic and Carmeuse on-site traffic.
- Off-site roadways – tailpipe and roadway emissions from the landfill traffic, Carmeuse traffic, and local traffic along CR6.
- Stack emissions – emissions from the landfill gas flare and Carmeuse kilns.
- Fugitive emissions – emissions from landfill aeration pond, leachate pond, waste soil pile, landfill cover, and Carmeuse blasting.

The prediction of potential impacts related to the release of the contaminants from the proposed landfill site consisted of the following steps:

- Determination of reasonable worst-case locations for various existing and future emission sources;
- Determination of maximum contaminant emission rates for these sources;
- Numerical modelling of the emissions and atmospheric dispersion processes to predict maximum concentrations at various sensitive receptors around the site; and
- Determination of potential mitigation measures to address any predicted exceedances of the ambient criteria.

7.1 Hours of Operation

The hours of operation for the proposed landfill operations and the existing and future quarry operations are as follows:

- Landfill Operation: 07:00 h to 19:00 h
- Quarry Operation: 06:00 h to 16:00 h

Landfill operations will begin at 07:00 h with waste being delivered to the active face until approximately 17:00 h. For the last two hours (17:00 h to 19:00 h), non-waste receipt operations and daily cover delivery to the active face will be completed.

7.2 Emission Sources

During the concurrent operation of the landfill and quarry, several areas are expected to be subject to vehicle traffic or produce like emissions, including:

- Tailpipe emissions from local traffic along CR6 and the vehicles associated with the landfill and Carmeuse operations: waste transfer on and off site, idling vehicles, active face equipment, liner construction materials import, waste soil import, quarry haul routes, quarry finished goods haul routes, and overburden removal;
- Emissions from Carmeuse processing kilns;
- Fugitive emissions from the contaminated soil stockpiles and leachate ponds;
- Fugitive emissions from the landfill mounds; and
- Landfill gas (LFG) flaring.

Each of these sources are discussed in the following sections.

7.2.1 Tailpipe Emissions

Emissions from roadways are generated from two mechanisms, combustion byproducts, and fugitive emissions generated from vehicles travelling along the road. This assessment evaluates tailpipe emissions only, as fugitive emissions are limited to particulate matter which are considered in the accompanying Dust Study.

Estimates of contaminant emission rates from vehicle operation were obtained using the United States Environmental Protection Agency's Motor Vehicle Emission Simulator (MOVES). MOVES is a model that has been developed for the purpose of estimating vehicular emissions using computer simulation techniques based on extensive previous testing of a wide range of vehicles. MOVES 2014b was used to generate vehicle emission factors for the baseline (2019) and future operating years (2027 and 2037).

Tailpipe emissions for idling vehicles were developed for baseline (2019) and future operating years (2027 and 2037). Idling vehicles were considered at two locations: at the weigh scale, representing vehicles waiting to enter the site, and at the landfill working face, representing trucks waiting to unload waste. As a modelling conservatism, it was assumed that two vehicles were continuously idling at each of these two locations from 07:00 h to 17:00 h. Idling emissions were generated in values of gram per hour.

Tailpipe emissions for landfill equipment, construction equipment, and off-highway trucks were developed using MOVES 2014b. These emissions were generated using the MOVES non-roads option. This option is designed specifically for calculating emissions of non-road sources and produces emission factors in terms of gram per horsepower-hour. The horsepower of all off-road equipment was based on equipment used at a similarly sized landfill. The horsepower of the off-highway trucks was based on typical quarry trucks.

7.2.2 Carmeuse Kilns

Carmeuse currently operates two rotary fired kilns and were included in the roadway assessment as a source of like contaminants; the kilns exhaust benzene, nitrogen oxides, SO_2, and CO. Kiln emission rates were provided by Carmeuse in their emission summary and dispersion modelling (ESDM) report dated January 13, 2017 provided by Carmeuse August 15, 2019. The kilns are located in the Carmeuse processing area to the southeast of the proposed landfill. As a modelling conservatism, it was assumed that the kilns operate continuously year-round.

7.2.3 Contaminated Soil Stockpiles

The proposed landfill would receive contaminated soils that require disposal at approved facilities from off-site locations. Contaminated soil can be used as daily cover. Much of this soil is petroleum fuel-contaminated and contains trace amounts of benzene. VOC emissions were determined through source testing conducted at Walker's South Landfill, collected in October 2019 using flux chamber analysis. Details on emission rate development are provided in the supporting landfill gas assessment. The contaminated soil is stockpiled in one of two locations, with a maximum footprint area of 32,500 m^2.

7.2.4 Leachate Treatment System

The proposed leachate plant located to the northwest of the landfill area would consist of an aeration pond, a raw leachate holding pond, a leachate treatment building, an effluent holding pond, and a polishing wetland. Both the aeration pond and the raw leachate holding pond are sources of benzene. The leachate treatment building was assumed to be placed under negative pressure and include appropriate controls such that emissions from this operation are considered negligible relative to the other leachate sources. The proposed effluent holding pond and polishing wetland contain treated leachate and are not expected to be sources of benzene. Emissions of benzene were calculated using flux chamber source testing from Walker's East Landfill aeration pond, as used for the South Landfill EA. Details are provided in Section 7.4.5.

7.2.5 Landfill Mound under Final Cap

The proposed landfill mound under final cap is the portion of the landfill where waste is no longer being deposited. This area is characterized by the presence of a landfill cap and LFG collection system.

As the waste begins to decompose, VOCs including benzene and toluene, are generated. The LFG collection system serves to extract the LFG from the mound, thus reducing the amount of LFG available to escape through the surface of the mound. In addition, the cap material attenuates and limits the ability of the LFG to be released through the surface of the landfill. However, even with the LFG collection system and cap in place, some LFG is released to the atmosphere through the final cap. The overall LFG collection efficiency from areas under final cap is assumed to be 85%, with the remaining 15% of the gas released through the surface of the landfill. For the interim cover areas, 50% of the LFG was assumed to be collected with the remaining 50% emitted. As a conservative approach, the entire active stage of the landfill was assumed to be under interim cover for the purposes of this assessment.

Only the biodegradable portion of the landfilled waste decomposes to produce VOCs; 70% of the total waste received (excluding waste soils) was conservatively assumed to be biodegradable. Emissions of benzene were estimated using the United States Environmental Protection Agency (EPA)'s landfill gas model LANDGEM. Further details regarding the landfill gas modelling are provided in the supporting landfill gas assessment.

7.2.6 Landfill Gas Flaring

The gas collected by the proposed LFG collection system in the final cover area of the landfill feeds into the landfill gas flare where it is combusted and released to atmosphere. Nitrogen oxides, CO, SO_2, benzene, and toluene would be released through the flaring stack. Of these, nitrogen oxides, CO, and SO_2 are by-products of combustion. Emission factors for combustion byproducts from the US EPA AP-42 Chapter 2.4 guidance document, "Municipal Solid Waste Landfills", were used to calculate the emission rates.

Benzene and toluene emissions were calculated based on the total quantity of landfill gas collected, the concentration of each individual compound in the landfill gas, and the destruction efficiency of the flare. VOCs not destroyed during the combustion of the landfill gas are released to atmosphere. The flare was assumed to have a destruction efficiency of 98% for all VOC compounds, including benzene and toluene, based on AP-42. This 98% destruction efficiency is conservative relative to the expected 99.9% destruction efficiency for trace organic compounds.

7.3 Assessment Scenarios

The assessment of impacts resulting from the proposed landfilling activities focused on emissions generated from the following landfilling activities:

- Tailpipe emissions from landfilling operations: waste and waste soil import, landfill haul routes, liner construction, idling vehicles, and working face equipment;
- Fugitive landfill gas releases from landfill stages under final cover;
- The waste soil storage piles;
- The raw leachate storage pond;
- The leachate aeration pond; and,
- Flaring.

The potential impacts from the significant sources were assessed at various stages of landfill operation, as described in **Section 5**. The future build scenarios were assessed by determining emissions associated with the significant emission sources identified for each scenario and determining the potential off-site impacts through dispersion modelling. Both existing conditions and future baseline conditions on-site were considered in order to predict the change in off-site impacts resulting from the landfill operation.

An overview of the modelled scenarios assessed in this study is presented in **Table 1**. The locations of these sources are presented in **Figure 8**.

Table 1: Summary of Modelled Scenarios

Scenario Assessed		2019 Baseline	Stage 1: 2027 Future Baseline	Stage 1: 2027	Stage 3: 2032 Future Baseline	Stage 3: 2032
Sources Modelled	Aeration Pond			X		X
	Leachate Pond			X		X
	Stage 1 Cover			X		X
	Stage 2 Cover					X
	Stage 3 Cover					X
	Stage 4 Cover					
	Contaminated Soil Stockpile			X		X
	Landfill Gas Flare			X		X
	Landfill Haul Route (Off-site)			X		X
	Landfill Haul Route (On-site)			X		X
	Landfill Idling Trucks			X		X
	Landfill Working Face Equipment			X		X
	Liner Construction Vehicles			X		X
	Carmeuse Kilns	X	X	X	X	X
	Carmeuse Quarry Haul Routes	X	X	X	X	X
	Carmeuse Overburden Removal	X	X	X	X	X
	Carmeuse North Entrance	X	X	X	X	X
	Carmeuse South Entrance	X	X	X	X	X
	Local Traffic Along CR6	X	X	X	X	X

Stages 2 and 4 were excluded from this assessment because they did not represent the worst-case scenarios for landfill operations. Based on the location of sources relative to the property line and sensitive receptors it was determined that stages 1 and 3 represented the reasonable worst-case scenarios.

7.4 Emission Calculations

7.4.1 On-site and Off-site Roadways

7.4.1.1 Tailpipe Emissions

Estimates of contaminant emission rates from vehicle operation were obtained using the US EPA's Motor Vehicle Emission Simulator (MOVES). MOVES is a model that has been developed for the purpose of estimating vehicular emissions using computer simulation techniques based on extensive previous testing of a wide range of vehicles. MOVES 2014b was used to generate vehicle emission factors for the baseline (2019) and future operating years (2027 and 2037).

MOVES allows the user to generate emission factors by time of day, which accounts for diurnal fluctuations in temperature and relative humidity. In the present analysis, four sets of emission factors were generated – morning (0600 h to 0900 h), mid-day (09:00 h-16:00 h), evening (16:00 h-019;00 h), and overnight (1900:h -06;00 h). The average of these emission rates was applied to the model providing a singular emission rate for all times of day. A summary of the key input parameters for the MOVES 2014b model are presented in **Table 2**.

Table 2: MOVES 2014b Input Parameters

Input Parameter	Value
Pollutants	Toluene, Formaldehyde, Benzene, SO_2, CO, NO_2, and Benzo(a)Pyrene.
Operating Years	2019, 2027, and 2037
Evaluation Month	January
Ambient Temperature	Minimum Temperature (F) = 15.44 Maximum Temperature (F) = 28.58 (Canadian Climate Normals)
Altitude	Low
Relative Humidity	At 6:00 LST = 83.5 At 15:00 LST = 75.9
Vehicle Population	MOBILE6.2C Default
Age Distribution	MOVES Default
Fuel Program	Ontario/ Quebec
Vehicle Speed	0 km hr^{-1}, 35 km hr^{-1}, and 80 km hr^{-1}

In the MOVES 2014b vehicle emission model, contaminant emission rates are expected to decrease over future years. This change in emission rates for a given vehicle category over time is due to fleet turnover, through which older vehicles built to less stringent emission standards are replaced by newer vehicles to comply with more stringent standards. For this reason, the model was set up to calculate emission rates for the existing year, and each of the future years relating to future scenarios. Emissions from vehicle tailpipes vary with the speed at which the vehicle is travelling. Therefore, the vehicle speed for each roadway section was determined. The posted speed limits were assumed to represent the average vehicle speed along each roadway segment. Onsite roadways were assumed to have a maximum speed limit of 35 km/h. **Table 3** provides a summary of the speeds associated with each roadway segment considered in the modelling.

MOVES 2014b produces emission factors in grams per vehicle mile traveled (g/VMT). These emission factors were converted to grams per vehicle kilometer traveled (g/VKT) by multiplying the g/VMT factors by 0.621. A Summary of the emission factors generated by MOVES 2014b are provided for Stage 1 and Stage 3 in **Appendices C1 and C2**, respectively.

It should be noted that the emission factor provided in **Appendix C** are based on January ambient temperatures (minimum and maximum climate normal), which results in higher emission factors compared to warmer temperatures at other times of year. This is done to ensure that reasonable worst-case emissions are considered in the study.

Exhaust emissions vary widely by type of vehicle, so the MOVES model provides emission factors for thirteen vehicle types. Four of these vehicle types were used for this assessment: Passenger cars (Light), Light commercial trucks (Medium), Combination long haul trucks (Heavy), and Single unit short haul trucks (Triaxle). Emission factors were applied to roadway segments based on the vehicle types on that roadway. For roadways with mixed vehicle fleets, an aggregated emission rate was determined using the weighed average of each vehicle type to produce a composite emission factor for each pollutant, representing the average vehicle. The vehicle class used on each roadway segment is detailed in **Table 3**. Details on the determination of appropriate vehicle class is discussed in subsequent sections.

A gram per second (g/s) emission rate was calculated for each roadway segment. This emission rate is based on the tailpipe emission factor developed using MOVES 2014b as well as the length of the roadway segment and the number of vehicles travelling upon it. The hourly traffic distribution was considered for every roadway within the modelling domain. **Appendix D** provides details on the traffic counts on every roadway segment of every hour of the day for the baseline, Stage 1, and Stage 3 scenarios.

Roadways were modelled as line volume sources, meaning that the roadway segments were broken up into a number of volume sources. The emission rate calculations consider a single vehicle travelling across the entire length of the roadway segment. Emissions are divided over the number of individual volume sources that make up each line volume source representing a road segment.

Table 3 provides as summary of the number of volume sources associated with each road segment. **Appendices E1 and E2** provided details on emission rates of every contaminant from each road segment during each stage of the landfill.

Table 3 provides a summary of all roadway segments considered in the assessment.

Table 3: Summary of Roadway Parameters used in MOVES Model

Haul Route Segment ID	Link Description	Vehicle Speed (km hr^{-1})	Vehicle Type	Segment Length (m)	Number of Volume Sources
P_GATE1	Paved area at the weight scale entrance	35	Heavy/Triaxle	443	14
UP_LF_2	Unpaved road from gatehouse to BF int S3	35	Heavy/Triaxle	85	3
UP_S2_2_MAIN	Road segment from stage 2 active face to main LF road	35	Heavy/Triaxle	245	8
UP_S1	Unpaved road to stage 1 - Waste soil and waste	35	Heavy/Triaxle	407	13
UP_S2_C	Unpaved road into stage 2 construction area	35	Heavy/Triaxle	75	3
UP_MAIN_1	Main landfill haul route to active faces.	35	Heavy/Triaxle	357	11
UP_S4_C	Unpaved road leading to stage 4 construction area	35	Heavy/Triaxle	322	10
UP_S3	Unpaved road leading to the stage 3 active face	35	Heavy/Triaxle	241	8
P_N_ENTER_1	Paved Section of the north entrance for finished goods	35	heavy	181	6
P_NORTH_2	Paved North Entrance second paved section	35	heavy	178	6
UP_NORTH_1	North Entrance unpaved section	35	heavy	479	15
P_NORTH_3	North Entrance Third Paved Section	35	heavy	539	17
P_SOUTH_1	Paved south entrance	35	Triaxle	256	8
UP_SOUTH_2	South entrance unpaved road in working area	35	Triaxle	758	24
P_SOUTH_2	Paved road leading out of the working area and to CR6	35	Triaxle	396	13
UP_S1_WSPILE	Unpaved Road to Stage 1 waste soil pile	35	Heavy/Triaxle	270	9
UP_S3_WSP	Stage 3 Waste soil pile to active face haul route	35	Heavy/Triaxle	83	7
UP_MAIN_2	Main haul route section 2, stage 1 to stage 2	35	Heavy/Triaxle	51	2
UP_MAIN_3	Unpaved main haul route, stage 2 to stage 3	35	Heavy/Triaxle	203	7
UP_MAIN_4	Unpaved main haul route stage 3 to stage 4	35	Heavy/Triaxle	480	15
UP_QRY_PC	Unpaved road leading to the primary crusher	35	Off-Highway	598	19
UP_QRY_OB	Stage 1 - Overburden removal and quarry hauling	35	Off-Highway	541	17
UP_QRY_S1_2	Stage 1 - Quarry haul route	35	Off-Highway	555	18
UP_OB_S1	Stage 1 - overburden removal	35	Off-Highway	629	20
UP_BF_S1_S2	Stage 1 - overburden transfer to S2 for backfill	35	Off-Highway	875	28
UP_QRY_S3	Stage 3 - Quarry haul route	35	Off-Highway	1662	52
UP_S3_OB	Unpaved road for overburden removal	35	Off-Highway	1480	46
P_CR6_LG	County road 6	80	Heavy/Triaxle	4422	138
P_HAULROUTE	Paved section of the LF Haul route	35	Heavy/Triaxle	1657	52
UP_HAUL	Unpaved portion of the haul route	35	Heavy/Triaxle	1042	33
EQUIP_S1	Equipment at Stage 1 Active Face	5	n/a	30	1
S3_EQUIP	Equipment at Stage 3 Active Face	5	n/a	30	1
UP_S3_OB_NLF	Unpaved road for OB removal for stage 3 no landfill	35	Off-Highway	1494	47
UP_NLF_OB_S1	Unpaved road for OB removal for stage 1 no landfill	35	Off-Highway	1662	52
P_CR6B	CR6 roadway background traffic only	80	Country Road 6	4424	138

Note: Equipment operating at 5 km/h includes working face equipment. Emissions from these sources are discussed in Section 7.4.2.

7.4.1.2 Vehicle Traffic

Traffic distribution data was obtained from three information sources including: the Facility Characteristic Assumption (FCA) Report [i] (now incorporated into the accompanying Environmental Assessment Report, Section 7.2) for traffic related to landfilling operations; the Carmeuse quarry for traffic related to quarry operations; and HDR Corporation (HDR), for background traffic on public roadways. Details on the traffic data used in the vehicle emissions modelling is provided below.

Proposed Landfill:

The FCA document details the approximate daily vehicle traffic and vehicle type related to landfilling operations. Traffic is not present on all roadways at all times so traffic volumes were distributed based on time of day and activity. **Appendix D** provides a detailed breakdown of operating times for all landfilling activities. In general, landfill related traffic is expected to operate from 07:00h to 19:00h. A summary of all traffic related to landfilling operations in detailed in **Table 4**.

Table 4: Estimated Landfill Traffic Volumes for Landfill Operations

Required Service	Vehicle Type	Trips per Day
Waste Import (Long-haul)	Tractor Trailer	79
Waste Import (Short-haul)	Collection Truck (Triaxle)	75
Soil Import (Long-haul)	Dump Trailer	21
Soil Import (Short-haul)	Triaxle	7
Liner Clay	End Dump - Tractor Trailer	7
Leachate Collection Stone	End Dump – Tractor Trailer	3
Misc. Construction Materials	Tractor Trailers	1
Misc. Construction Materials	Tandem Delivery Truck	1
Soil Delivery to Working Face	Triaxle Truck	30

Note: *Trips/day noted in the above table is defined as a vehicle entering the facility, these values were doubled in the assessment to consider vehicles both leaving and entering the site.

Landfill traffic is dominated by tractor trailers and triaxle trucks, tailpipe emissions were based on a 50% tractor trailer and 50% triaxle truck mix. Landfill operation traffic includes the landfill haul route extending from the exit at Country Road 6 and Hwy 401 (exit 222), through to the site entrance, and all on-site landfill roadways as shown in **Figure 8**. Traffic counts include vehicles entering the site but do not account for the traffic passes as the vehicles leave, however, both the incoming and outgoing vehicle pass was considered in the hourly traffic passes calculations.

Carmeuse Operations Traffic Data:

Traffic on the Carmeuse site is dominated by three areas, the northern finished goods loop, the south entrance finished goods loop, and the quarry and overburden removal roadways. Carmeuse traffic estimates for the finished good areas were provided by staff at Carmeuse and is based on current operating capacities. At this time no significant changes in capacity are expected during the operating lifetime of the landfill.

A summary of the estimated onsite Carmeuse traffic for shipping of finished goods is detailed in **Table 5**. The north and south entrances were modelled as heavy and triaxle respectively.

Table 5: Estimated Carmeuse Traffic Volumes for Carmeuse Operations

Haul Route	Vehicle Type	Trips per Day
North Entrance	Tractor Trailer	12
South Entrance	Triaxle	90

Daily vehicle trips were equally distributed over the operating hours of the quarry from approximately 06:00 h – 16:00 h. These operating times apply to all Carmeuse operations. Traffic counts included vehicles entering the site but did not account for the traffic passes as the vehicles leave. When calculating emissions and as a modelling conservatism, it was assumed that all of the vehicles entering the site would leave through the same entrance.

For the purposes of this assessment the quarry and overburden removal haul routes were modelled as off-highway vehicles and emissions were based on typical quarry equipment observed while onsite. A total of three quarry haul trucks and three overburden removal haul trucks were assumed to be operating continuously during the quarry operating hours. For the quarry and overburden removal activities traffic passes are not considered because emission rates are provided in gram per horsepower hour and depend on the quantity and horsepower of the vehicles rather than the number of traffic passes. The emissions from each off-highway vehicle were evenly distributed along its entire on-site route. Further details are provided in Section 7.4.2.

The exact path of the quarry and overburden haul routes were provided by Carmeuse. The overburden haul route was adjusted for the future build scenario to assume that the overburden is brought to the next landfill cell construction face to be used as backfill. This is a conservative assumption since the construction face is closer to the property line than the designated overburden stockpile area. For the future no build scenario haul routes were adjusted, and the designated overburden stockpile location was assessed. Carmeuse sources for the current baseline, future baseline and future build scenarios are detailed in **Figure 9**.

Background Traffic Data:

Impacts from public traffic along County Road 6 (CR 6) between the landfill site entrance and the Hwy 401 W exit 222 was included in the assessment. HDR provided current (2019) hourly traffic counts and a breakdown of vehicle classes: Automobiles (Light), Medium, and Heavy, as a percentage of total traffic. HDR provided current and future traffic counts for 5 tube count study locations. An hourly distribution was only provided for 2019 traffic. Using the peak hourly traffic volumes provided for 2019 and future 2033, a growth factor was calculated. Assuming that the hourly traffic distribution would be similar in future years, the calculated growth factor was used in conjunction with the 2019 traffic distribution, to produce a future 2033 hourly traffic distribution. **Table 6** details the results of the 5 tube count studies.

Table 6: Summary of Hourly Traffic Movements based on Tube Count Data

Intersection	2019 CR6 Traffic no LF, no Carmeuse			2033 CR6 Traffic, No LF, No Carmeuse			Percent Growth		
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy
Country Road 2 and Dundas	356	60	155	419	69	178	18%	15%	15%
SWLF Haul Route Driveway	356	60	155	414	70	180	16%	16%	16%
Carmeuse Truck Driveway	356	62	158	420	69	178	18%	12%	12%
Beachville Road	306	63	161	361	71	182	18%	13%	13%
Karn Road	355	64	164	417	72	186	17%	13%	13%

For the assessment of CR6 traffic volumes, the Carmeuse Truck Driveway tube counts were selected. This location best represents the traffic along CR6 overlapping with the study site. Hourly traffic distributions for both the current (2019) and future (2033) are available in **Appendices F1 and F2**. An aggregated tailpipe emission rate was created for CR 6 based on a weighted average of light, medium and heavy vehicles. **Table 7** outlines the vehicle class distribution used to determine the aggregated emission rate and the corresponding MOVES 2014b vehicle class.

Table 7: Summary of County Road 6 Traffic Distribution

Vehicle Class	Percentage of Traffic
Light	63%
Medium	10%
Heavy	27%

7.4.2 Working Face Equipment, Constructions Equipment, and Off-Highway Trucks

Tailpipe emissions from the landfill working face equipment, landfill construction equipment, and quarry off-highway trucks were estimated using MOVES 2014b. MOVES 2014b has the ability to predict tailpipe emissions from non-road equipment for the specified sector and fuel type. **Table 8** provides the non-roads parameters used in MOVES 2014b.

Table 8: Non-Roads MOVES 2014b Input Parameters

Input Parameter	Value
Pollutants	Toluene, Formaldehyde, Benzene, SO_2, CO, NO_2, and B(a)P
Operating Years	2027 and 2037
Evaluation Month	January
Region	National
Fuel Type	Non-Road Diesel
Sectors	Construction and Industrial

Emission rates are generated in terms of equipment horsepower and equipment process. For this assessment only emissions from the running engine exhaust were considered. A summary of the MOVES 2014b outputs is provided in **Appendix G**.

Working face equipment is detailed in Section 3.10 of the Walker's Environmental Facility Characteristics Assumptions Report, revision 03. Construction equipment estimates were provided by Walker's Environmental. The horsepower ratings of the equipment were based on the similarly sized Walker's South Landfill. The horsepower and quantity of off-highway trucks was based on the typical quarry equipment as observed onsite. Off-highway trucks are used by the existing Carmeuse operation for overburden removal and quarry material transport. **Table 9** outlines the type, number and horsepower of the equipment used in this assessment.

Table 9: Non-Roads Equipment Summary

Activity	Equipment Type	MOVES Equipment ID	Horsepower (Hp)	Number of Units
Working Face	Bulldozer	Crawler	347	2
	Excavator	Excavator	303	1
	Compactor	Crawler	523	5
Liner Construction	Bulldozer	Crawler	347	2
	Excavator	Excavator	303	1
	Compactor	Crawler	523	2
	Loader	Tractors/Loaders/Backhoes	380	1
Overburden Removal	Off-Highway Trucks	Off-Highway Trucks	825	3
Quarry Material Hauling	Off-Highway Trucks	Off-Highway Trucks	825	3

All equipment was assumed to be operating simultaneously for the entire operating period of the landfill (07:00h – 19:00h). Tailpipe emissions from the working face equipment, construction equipment, and off-highway trucks are summarized in **Appendix G.**

7.4.3 Carmeuse Kilns

Emissions and source parameters from the Carmeuse kilns were obtained from Emission Summary and Dispersion Modelling Report tables dated January 13, 2017 provided by Carmeuse August 15, 2019. The source information was taken directly from these tables, with no alterations made by RWDI. A copy of the Carmeuse Source Summary Table is provided in **Appendix H**.

7.4.4 Waste Soil Piles

Emissions from the waste storage piles were based on flux chamber VOC sampling conducted at the Walker South Landfill, collected in October 2019. The average measured concentration for each VOC was used. Emissions are modelled as a flux rate ($g/m^2/s$), this emission rate was applied over the entire waste soil storage area.

Please refer to the supporting landfill gas assessment titled, "Air Quality-Landfill Gas Study: Southwestern Landfill Proposal Environmental Assessment," for full details on the waste soil piles emission rates and testing.

7.4.5 Aeration and Leachate Pond (Leachate Treatment Facility)

Emissions from the proposed aeration pond and leachate holding ponds at the leachate treatment facility were based on sampling conducted at the Walker East Landfill aeration pond, as used for the South Landfill EA. These emission rates were used directly in the modelling for both the aeration pond and the raw leachate holding pond with a 30% control efficiency placed on emissions from the aeration and leachate ponds representing the control of benzene emissions using VOC control technologies. Emission controls are applied in order to meet compliance requirements of the landfill gas assessment. Emissions are modelled as a flux rate (g/m²/s), this emission rate was applied over the entire aeration pond area.

Please refer to the supporting LFG assessment report for full details on the waste soil piles emission rates and testing.

7.4.6 Landfill Cap

The emission rates for benzene and toluene released through fugitive emissions of landfill gas from the final cap area of the landfill mound were based on the quantity of landfill gas released by the landfill and the concentration of each individual contaminant in this gas.

U.S. EPA's LANDGEM landfill gas emission estimation model is the most direct method to determine first-order emission rates of VOCs and Sulphur's from the proposed landfill. It is also recommended by the MECP; however, it has been demonstrated to generate conservative estimates of VOC emissions. LANDGEM was used to calculate landfill gas generation for each stage of the landfill. Inputs to LANDGEM include the methane generation rate (k), the methane generation potential of the waste (Lo), the concentration of methane in the LFG, and the waste deposition history of the landfill. The k and Lo values were obtained from the MECP's "Interim Guide to Estimate and Assess Landfill Air Impacts". A filling rate of 850,000 tonnes of waste per year for the 20-year life of the landfill was entered into LANDGEM.

The total landfill gas produced by year expressed in m^3/year, as output from the LANDGEM model, was then adjusted by a factor of 70% to account for the expected proportion of biodegradable material in the waste. For the areas under final cap, 85% of the generated LFG is collected with the remaining 15% emitted through the final cap area. For areas under interim cover, 50% of the generated LFG was assumed to be collected with the remaining 50% emitted through the interim area.

The concentrations of benzene and toluene within the landfill gas were based on the worst-case concentration between U.S. EPA default values from AP-42 Chapter 2.4 (draft and final versions) and the maximum concentration measurements of landfill gas composition at the Walkers East and South Landfills, in Niagara Falls, Ontario, taken in 2018.

The emission rates for each of the target LFG compounds from the existing landfill mound were calculated by applying the maximum concentration (milligrams per m^3) to the amount of LFG released fugitively from the landfill (in m^3 per year). These emission rates were converted to flux rates (in g/m²/s) by dividing the total emission rate by the footprint area for each stage of the landfill.

Please refer to the supporting LFG assessment report for full details on the waste soil piles emission rates and testing.

7.4.7 Landfill Gas Flare

All collected LFG gas will be sent to the flare, which was assumed to have a destruction efficiency of 98% for VOC's based on the US EPA AP-42. This 98% destruction efficiency is conservative relative to the expected 99.9% destruction efficiency for trace organic compounds. The concentration of VOCs in the raw landfill gas were determined as described in the **Appendix J**. The emissions of each individual contaminant were determined by applying the contaminant concentration to the total volume of LFG flared and reducing the predicted emissions by the 98% destruction efficiency.

The combustion byproducts, nitrogen oxides, CO, and SO_2, were assessed using emission factors provided in the US EPA AP-42 Chapter 2.4. Emissions are presented in kilograms per million dry standard cubic metres of methane gas. Emission calculations conservatively used total LFG collected, not total methane when determining emissions of combustion byproducts for each study period. **Table 10** summarizes the emission factors used to calculate the emission rates.

Table 10: Summary of Emission Factors used to Determine Landfill Gas Flare Emissions

Contaminant	Emission Rate	Units
Nitrogen Dioxide	631	kg per 10^6 dscm of landfill gas
Carbon Monoxide	737	kg per 10^6 dscm of landfill gas
Sulphur Dioxide	106	kg per 10^6 dscm of landfill gas
Benzene	24.04	mg per m^3 of landfill gas
Toluene	148	mg per m^3 of landfill gas

Please refer to **Appendix J** for full details on the LFG emission calculations for the flare.

7.5 Dispersion Modelling

The haul road impacts from the proposed landfill operations were determined using a dispersion model and reasonable maximum emission rates. Dispersion modelling was performed using the U.S. EPA's AERMOD dispersion model (AERMOD), version 16216r, to predict concentrations of contaminants emitted from the concurrent Walker landfill and Carmeuse operations at various receptors in the vicinity. The AERMOD model is an advanced dispersion model that has been approved for use in Ontario by the MECP. AERMOD is a steady-state Gaussian model that is capable of handling multiple emission sources. Within the model, receptor grids as well as discrete receptor locations of interest can be considered. The modelling assessment was conducted in accordance with MECP Guideline A11: "Air Dispersion Modelling Guideline for Ontario", February 2017.

Additional elements of the dispersion modelling assessment are discussed in the following sections.

7.5.1 Sources Modelled

The emission sources included in the dispersion model were the landfill haul routes (on and off site), liner construction material haul routes, idling landfill vehicles, working face equipment, landfill gas flare, fugitive emissions from the landfill mound, leachate treatment aeration and leachate holding ponds, Carmeuse finished goods haul routes, Carmeuse quarry and overburden haul routes, Carmeuse process kilns, and local traffic along CR 6. All roadways were modelled using line volume sources; idling and working face equipment tailpipe emissions were modelled using volume sources; the landfill mound, aeration pond, and leachate holding pond were modelled as area sources; and, the Carmeuse kilns and landfill flare were modelled as point sources. All modelled sources were assumed to emit maximum contaminant emissions concurrently throughout the entire modelled period.

For the majority of the landfill life, landfilling operations will be occurring below grade although the final landfill mound will extend 15 m above grade. Sensitivity testing was conducted with landfill sources at grade, as well as at elevated heights of 15 m (top of landfill mound above grade) and 7.5 m (mid-height of landfill mound). The maximum values were found to occur with the landfill at grade, so all landfill area sources were modelled at grade. Emissions are higher at grade because in the Gaussian dispersion model concentration tend to be highest along the center line of plume as it disperses. With a source release height at grade, the center line of the plume remains close to the ground and the plume has less time to disperse. With elevated sources, the plume begins higher and disperses both vertically and laterally as it travels downwind, producing lower concentrations due to enhanced atmospheric mixing .

Modelled sources for the current baseline, future baseline, and future build scenario are shown in **Figure 9**.

7.5.2 Meteorological Data

Five years of local meteorological data (2013-2017) were used in the AERMOD model. The meteorological data set was developed specifically for the study site by the MECP's Environmental Monitoring and Reporting Branch (EMRB) and provided on January 21, 2019. The data set was based on wind-sector dependent land use specific to the landfill site, surface meteorological data collected from Environment and Climate Change Canada's London Airport station, and upper air meteorological data from the U.S. National Weather Service's Detroit station. The data set provided by the EMRB was used directly in the model, with no changes or alterations conducted by RWDI.

7.5.3 Area of Modelling

Emissions from haul routes were assessed at sensitive receptor locations located off site, not at the property line. All common receptor points identified for the EA were included in this study, however, only receptors representing residential locations or other locations where human activity regularly occurs were used to assess compliance with the criteria. For all cases, humans were assumed to be present at these receptors for 24-hours per day. These discrete receptors were modelled at flagpole heights of 1.5 m above grade. The locations of these discrete receptors are shown on **Figure 7**.

In addition, the modelling was performed using a receptor grid covering the site-vicinity and regional study areas to produce isopleths of predicted concentrations. The receptor grid covers the lands within approximately 3 to 5 kilometers of the site sources. These receptor grid results were only used for visual representation of the predicted impacts; the grid results were not used for comparison to the guidelines.

7.5.4 Terrain Data

Terrain information for the area surrounding the proposed landfill was obtained from the MECP Ontario Digital Elevation Model Data web site. The terrain data is based on the North American Datum 1983 (NAD83) horizontal reference datum. These data were run through the AERMAP terrain pre-processor to estimate base elevations for receptors and to help the model account for changes in elevation of the surrounding terrain. The base elevations for the landfill sources were based on elevation drawings from the FCA report. The base elevations for the quarry extraction sources were obtained from figures provided by Carmeuse.

7.5.5 Building Information

The Building Profile Input Program (BPIP) is used to calculate the effects of building downwash on point sources, such as stacks. The LFG flare and Carmeuse kilns are the only point sources in the study area; building downwash was considered for these sources.

7.5.6 Averaging Periods Used

The results from the dispersion model, which represent ½-hour, 1-hour, 24-hour, and annual averaging periods, were compared with the applicable ambient air quality guidelines. A conversion factor of 1.2 was used to convert 1-hour results to ½-hour averages, based on guidance provided in the MECP's "Procedure for Preparing an Emission Summary and Dispersion Modelling Report", March 2018.

8 DATA COLLECTION

Data used to quantify haul route and like contaminant emissions of toluene, formaldehyde, benzene, SO_2, CO, NO_2, and BaP from the site were collected either through approved roadway emission estimation models, published emission factors, field data from testing conducted at the Walker's East and South Landfills in Niagara Falls, Ontario, traffic data collected by HDR, and documents provided by Carmeuse. The following sections provides details regarding the data collection.

8.1 Background Data

8.1.1 Landfill Gas Composition

A key input to the LFG emission calculations was the measured composition of VOCs within the landfill gas. These data were provided by Walker, based on analysis performed in 2018 on the raw LFG from the WEG East and South Landfills in Thorold, Ontario.

8.1.2 Carmeuse Sources

Stationary source information for Carmeuse manufacturing operations were obtained from an Emission Summary and Dispersion modelling report conducted by Stantec (Stantec, 2010), with updated ESDM tables dated January 13, 2017. This information was used as input information for the Carmeuse Kiln sources. The data from these tables were used as is and no changes were made by RWDI.

Figures depicting the locations of current and future quarry and overburden haul routes were provided by Carmeuse.

8.1.3 Traffic Data

Landfill traffic data was obtained from the Facility Characteristics Assumptions (FCA) Report, revision 3, dated March 5, 2019. The FCA report provided details on all landfill operation traffic as well as the equipment operating at the active faces.

Carmeuse traffic data was obtained through correspondence with Carmeuse personnel and communicated via email. Traffic data is based on current operational capacity and is not expected to change significantly over the lifetime of the landfill. Traffic data was applied to the North and South finished goods loops, quarry haul routes, and overburden removal haul routes.

Local traffic was provided by HDR for all tube count sampling locations along with current and future traffic counts for light, medium, and heavy vehicles. HDR provided the 2019 hourly traffic distribution. RWDI conducted data analysis on the raw data to determine the most applicable data for the study site.

8.2 Field Data

8.2.1 Ambient Air Quality Monitoring

8.2.1.1 Volatile Organic Compounds

A one-year ambient monitoring program for VOCs was used to determine the ambient background air quality concentrations near the proposed landfill site for use as the baseline condition for the assessment. Samples for VOCs were collected at three ambient monitoring stations, as shown in **Figure 8**. The results from these data were used to establish background ambient levels.

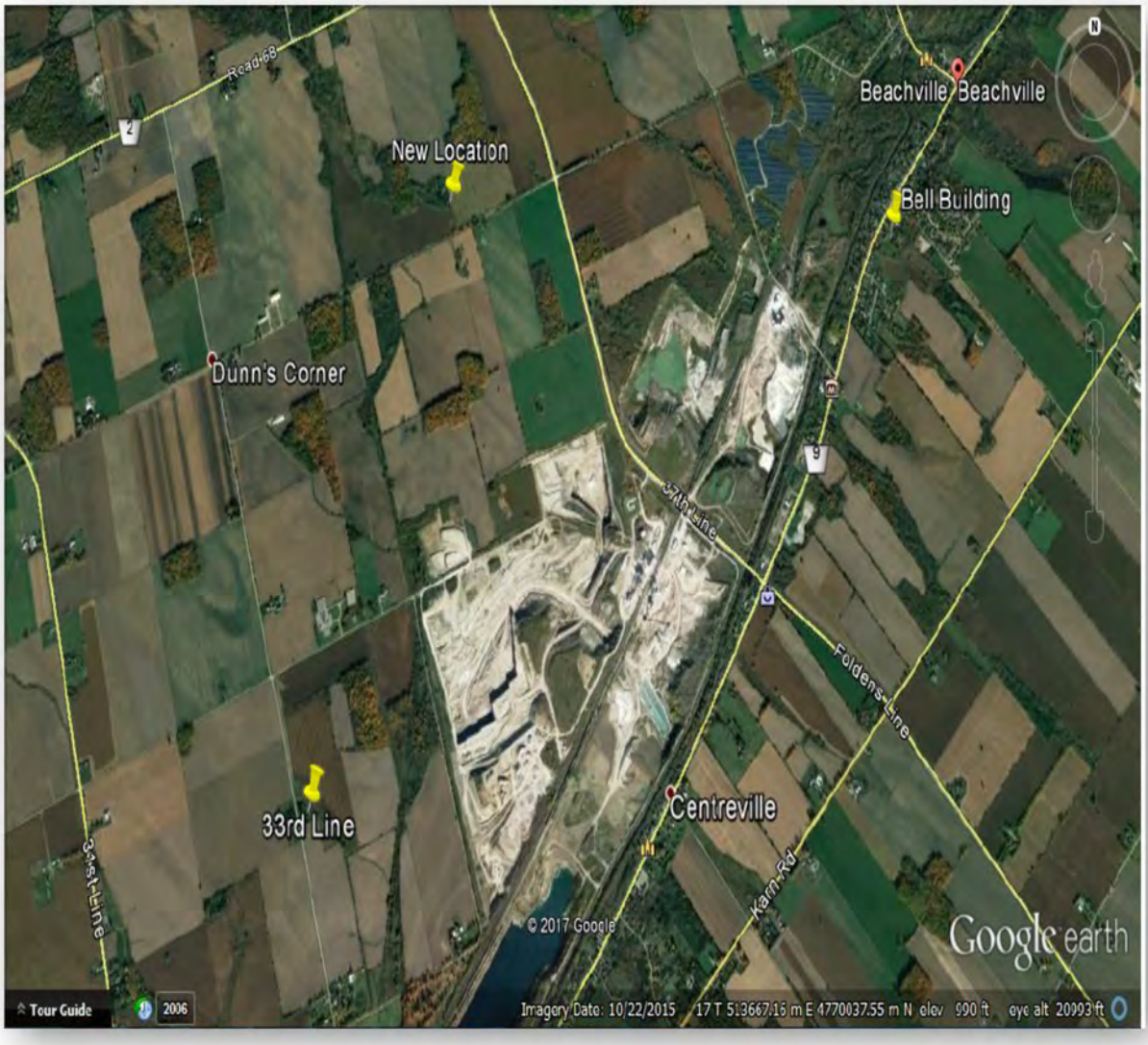

Figure 8: Location of Ambient Monitoring Stations

The samples were collected and analyzed using methods defined in U.S. EPA Method TO-14/15 using evacuated canisters. Sampling for VOCs were collected over 24-hour durations (midnight to midnight, Eastern Standard Time (EST)) once every six (6) days in concurrence with the National Air Pollution Surveillance schedule provided by the U.S EPA and as outlined by the MECP. Sampling methodologies followed the Standard Operating Procedures (SOPs) as noted in the current version of the MECP Operations Manual, as amended. The list of VOCs monitored is presented in **Table 11**.

Table 11: List of VOCs in Ambient Monitoring Program

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanal
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
75-71-8	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
5989-27-5	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-06-2	Ethylene Dichloride	108-90-7	Chlorobenzene
156-59-2	1,2-Dichloroethylene (cis)	74-87-3	Chloromethane
75-34-3	1,2-Dichloroethane	78-92-2	2-Butanol
156-60-5	1,2-Dichloroethylene (trans)	75-27-4	Bromodichloromethane
111-65-9	Octane	79-34-5	1,1,2,2-Tetrachloroethane
79-00-5	1,1,2-Trichloroethane	106-46-7	Dichlorobenzene
75-43-4	Dichlorofluoromethane	75-00-3	Chloroethane

A summary of the monitoring data results is provided in **Appendix J.**

8.2.2 Regional Ambient Background

Nitrogen oxides, CO, SO_2, B(a)P, and formaldehyde were not included in the ambient monitoring plan. Instead, ambient background concentrations of these contaminants were obtained from the MECP Air Quality in Ontario reports for 2014, 2015, and 2016 and through the Environment and Climate Change Canada's National Air Pollution Surveillance (NAPS) ambient monitoring database. For 1-hour, 8-hour, and 24-hour averaging periods, the 90th percentile, 3-year average values were used. For annual averaging periods, a 3-year average was used. Background concentrations are detailed in **Appendix K**.

9 ENVIRONMENT POTENTIALLY AFFECTED BY THE UNDERTAKING

Section 6.1(2)(c)(i) of the Act requires a *"description of the environment that will be affected or might reasonably be expected to be affected, directly or indirectly"*. Section 8.2 of the ToR describes the methodology by which the environment potentially affected by the proposed landfill is to be developed, notably including both the existing environment as well as the environment that would be expected to exist in the future without the proposed undertaking (i.e., the environmental baseline conditions, or the *"do nothing"* alternative).

9.1 Baseline Assumptions

9.1.1 Land Use Forecast

In order to address cumulative effects, in accordance with the methodology set out in Section 8.2 of the Approved Amended Terms of Reference, this study will compare the potential effects of the proposed landfill at its different stages of development to the forecast baseline conditions at that same period of time (i.e., the "do nothing" alternative). In order to guide the forecasting of future baseline conditions, MHBC Planning on behalf of Walker has provided a set of working assumptions regarding future land uses (including community growth, other industrial activities such as quarrying, etc.) at the site, in the surrounding area and in the broader community (Land use Assessment Report (Draft); January 2020).

- Existing Conditions (Section 4.0);
- Aggregate Operations (Section 5.0); and
- Land use Forecast (Section 6.0).

Based on the land use forecast, there are no new sources of LFG contaminants predicted to be developed in the future.

9.1.2 Climate Change Forecast

Another set of common assumptions that were established for the purpose of this EA is the potential for climate change, so that these could be considered in the individual studies of the potential effects of the proposed landfill. These assumptions are detailed in Walker's *Environmental Assessment Report* and basically adopt the guidance in the Ontario Ministry of Natural Resources and Forestry's *Climate change projections for Ontario: An updated synthesis for policymakers and planners.*

Minister's Amendment #12 to the Approved Amended Terms of Reference required that climate change should be considered in this environmental assessment. The following table summarizes the mean climate change (temperature and precipitation) assumptions to be considered during this study, where relevant.

Table 12: Climate Change Forecast (McDermid et al. 2015)

	Temperature (°C)			Precipitation (mm)		
	Annual	**Summer**	**Winter**	**Annual**	**Summer**	**Winter**
2011-2040	+2.3	+2.0	+2.2	+52.0	-2.7	+28.3
2041-2070	+3.9	+3.2	+4.5	+87.0	-2.5	+34.9
2071-2100+	+4.8	+4.1	+5.5	+89.0	-4.4	+46.8

The Ministry of Natural Resources and Forestry document from which the data is sourced includes other information that can be used if and where appropriate in this and other studies.

The modelling considers a five-year set of hourly meteorological data. Predicted impacts are based on the worst-case conditions within this data set. The future wind climate and meteorological conditions are not expected to change to a degree that would affect the predicted values reported in this haul route air quality assessment.

9.2 Environmental Baseline Conditions

9.2.1 Existing Conditions

Baseline conditions were assessed to show predicted impacts on discrete receptors. The baseline conditions were assessed by combining the ambient background concentration, determined through either the ambient air quality monitoring program or from the regional ambient background data, with modelled concentrations from the existing Carmeuse quarry operations and local background traffic along CR6. Baseline results provide a reasonable basis for comparison to the future baseline scenario. Baseline conditions were modelled using the standard methodology described in section 8. Sources included in the baseline assessment are shown in **Figure 9**.

Impacts were predicted at sensitive receptors, results are presented in **Appendix L**.

The baseline concentrations for most haul route air quality parameters are below their respective ambient air quality criteria at the sensitive receptor locations. The exceptions to this are 24-hour B(a)P (242% of its criteria), and annual B(a)P (447% of its criteria). These exceedances are caused by elevated ambient background concentrations and elevated modelled concentrations resulting from background traffic along CR6. The ambient background concentrations for B(a)P were based on NAPS data from Simcoe, Ontario. This station was the closest station representative of the area that monitored B(a)P.

9.2.2 Future Baseline Conditions

Two future baseline conditions were considered in this assessment, one for the stage 1 (2027), and the second for stage 3 (2037). These future baseline scenarios were used for comparison of impacts with and without landfill operations. Future baseline scenarios considered the future Carmeuse operations as well as future background traffic along CR6. Although capacity of the Carmeuse quarry is not anticipated to change throughout the lifetime of the landfill, the configuration of quarry haul routes and overburden removal change to support the change in location of the active quarry face. Kiln locations and stack configurations were assumed to be the same in all future scenarios. Sources considered in the future baseline case are shown in **Figure 9**.

The maximum modelled off-site concentrations predicted at each of the sensitive receptors for the future baseline conditions are summarized in **Appendix M.** The "Without Landfill" scenario presented in **Appendix M** includes the combined modelled impacts from the Carmeuse operations as well as future background traffic along CR6.

10 EVALUATION OF THE PROPOSED LANDFILL

Section 6.1 (2)(c) and (d) of the Act, and the ToR, require an evaluation of:

- The effects that will be caused on the environment;
- The actions necessary to prevent, change, mitigate or remedy the effects on the environment; and
- An evaluation of the advantages and disadvantages (net effects) to the environment.

This section presents the assessment of these matters as it relates to haul route study, and for each of the EA criteria related to this study.

10.1 Effects due to Exposure to Air Emissions

10.1.1 Potential Effects

The maximum modelled concentrations predicted at each of the sensitive receptors are summarized in **Appendix N.** The results presented represent the single highest concentration modelled over the five-year period, all other predicted concentrations were less than this amount.

The ambient background concentration reflects the measured levels during the ambient monitoring program. Where monitoring data was unavailable, MECP and NAPS data was used as described in Section 8.2. The maximum modelled concentration represents the combined contribution from all landfill sources, the Carmeuse roadways and kilns, and background traffic along CR 6. The ambient background concentration and the modelled concentration are summed together and compared to the applicable criteria. The ambient background concentrations for benzene and toluene, based on the ambient air quality monitoring program, include the contribution from the Carmeuse kilns and roadways, as they are existing sources. By considered the emissions from the kilns and roadways in the modelling there is a potential to 'double count' the Carmeuse emissions; however, the model results indicated that the contribution from the kilns and roadways were small relative to the fugitive landfill sources. This is a conservative approach but does not affect the assessment meaningfully.

The dispersion modelling analysis was completed for each contaminant at each of the identified air quality receptors. Some of the receptors represented residential locations, while others represented other key points of interest, such as intersections, wetlands, etc. These non-residential receptors often have residences in the vicinity, so they have been included in the modelling. The modelled results for all receptors for each contaminant for each scenario are presented in **Appendix M**. The maximum predicted concentration occurring at the worst-case residential receptor for each contaminant for each stage are presented in **Appendix N**.

The results indicated that the 24-hour and annual levels of B(a)P were predicted to exceed their applicable criteria at a residential receptor off-site. All other contaminants were below their respective criteria.

Contour plots illustrating the results presented in Section 10.1.1 are provided in **Appendix O**.

Additionally, the results at the top 10 residential discrete receptors are summarized for B(a)P in **Appendix P**.

For 24-hour B(a)P, the ambient background concentration alone represents 63% of the criteria. The remainder of the B(a)P concentrations is dominated by the modelled background concentration from traffic along County Road 6. For annual B(a)P, the background concentration exceeds the standard on its own, with the CR 6 background traffic again being the dominant modelled contributor. For both 24-hour and annual B(a)P concentrations the landfill contribution to off-site impacts is well below the criteria. Therefore, the predicted exceedances are a result of the ambient background concentration and the modelled contribution from CR 6 traffic.

The predicted contribution from the addition of landfill operations to residential receptors are below the assessment criteria. Exceedances of criteria for B(a)P were predicted to only occur when emissions from the proposed landfill were combined with other sources and background ambient concentrations.

The modelling considered a five-year set of hourly meteorological data. Predicted impacts are based on the worst-case conditions within this data set. The future wind climate and meteorological conditions are not expected to change to a degree that would affect the haul route assessment.

10.1.2 Potential for Cumulative Effects

The potential for cumulative effects has been addressed through the inclusion of the Carmeuse kilns, quarry and overburden removal haul routes, and finished good roadways as well as background traffic along CR 6 in the dispersion model and through the addition of ambient background data to the modelled results when comparing to the criteria. As described above, the cumulative effects for B(a)P are dominated by the ambient background concentration, based on regional data from Simcoe, and by the contribution from background traffic along CR 6. The cumulative effects are included in the results presented in Section 10.1.

10.1.3 Additional Mitigation Recommendations

Exceedances of the B(a)P criteria at residential receptors is caused by elevated ambient background concentrations of this contaminant. The modelled B(a)P concentrations are dominated by background traffic along CR 6. The predicted contribution from the addition of landfill operations to residential receptors are below the assessment criteria. Exceedances of the criteria were only predicted to occur when emissions from the proposed landfill are combined with other sources and the background concentrations in particular. Therefore, no additional mitigation is recommended in relation to this environmental assessment .

Mitigation measures considered in the haul route assessment have been recommended through the odour and landfill gas studies. These recommended mitigation measures also affect sources of benzene; therefore, the mitigation has also been applied to the haul route assessment.

The recommended mitigation measures in support of the LFG air quality and landfill odour studies included the following:

- Using a cover or other control technologies to reduce the surface area of the leachate ponds by a minimum of 30%;
- Progressive installation of the LFG collection system;
- Flaring or otherwise combusting all collected LFG;
- Ensuring emergency measures are in place should a power failure or lightning strike occur that disrupts the flare (including notification to staff or alarm system); and
- Maintaining the landfill gas collection system under negative pressure and sending the collected gas to the LFG collection system.

Dispersion modelling was conducted to assess the benefit of implementing these additional mitigation strategies for LFG reduction. The results from the modelling assessment are presented in Section 10.1.4 of the landfill gas study. The potential effects from the haul route study already considered the impact of these landfill gas-related mitigation

10.1.4 Net Effects

No additional mitigation measures were developed specifically to reduce off-site concentrations along the haul route. All contaminants were found to be below their applicable criteria with the exception of B(a)P; however; these exceedances of the 24-hour and annual averaging periods were caused by elevated background concentrations and any mitigation to on-site emissions would have no impact on the background concentrations. Therefore, no additional mitigation measures are necessary to control haul route emissions resulting from operation of the proposed landfill. The above listed mitigation measures are required to meet the criteria of the supporting odour and LFG assessments, not the haul route air quality assessment. Therefore, the net effects are

Under Regulation 419/05 (Reg. 419), facilities are required to comply with MECP Standards and Guidelines at points at and beyond the property line of the facility. The impacts presented in this EA should not be used for direct comparison to the Reg. 419 limits, as there are key differences in the way the EA assessment is conducted versus a Regulation 419 assessment, most notably the inclusion of background concentrations but also relating to the sources considered and assumptions made. For instance, Reg. 419 excludes the contribution from motor vehicles when comparing to the standards and does not include consideration of cumulative effects. For the landfill, the only identified source of emissions of the contaminants of concern in the haul route assessment that would be subject to Reg. 419 requirements would be the landfill gas flare. The fugitive emissions from the landfill gas mound, while not requiring a permit under Reg. 419, would typically be included in a Reg. 419 assessment as a source of like emissions. Based on the landfill gas study, the predicted impacts of benzene and toluene are below criteria when only the landfill sources are considered. For combustion by-products, the landfill gas flare was not a significant contributor to off-site concentrations; therefore, the landfill is considered to be capable of achieving Reg. 419 compliance. This will be confirmed when the detailed design is developed and applications for the Reg. 419 permits are being completed. At that time, additional design changes or mitigation measures may be incorporated to ensure that compliance under Regulation 419 is maintained at the property line under all scenarios.

10.1.5 Summary

The results indicate that the 24-hour and annual concentrations of B(a)P were predicted to exceed their respective ambient criteria at residential receptors along the haul route, based mostly on combined ambient background and modelled non-Project values.

The maximum predicted landfill contributions were found to be below their criteria and do not significantly contribute to the existing concentrations.

11 MONITORING, CONTINGENCY & IMPACT MANAGEMENT RECOMMENDATIONS

11.1 Monitoring & Contingency Plans

Based on the results of the dispersion modelling assessment, no monitoring is recommended, since impacts from Walker-related activities are relatively minor.

11.2 Impact Management

This section provides recommendations for managing any residual negative effects of the landfill construction that cannot be directly mitigated.

No further impact management activities are required, although there are serval best practices that are recommended to further reduce emissions as follows:

- When purchasing new equipment select low emission vehicles;
- Keep vehicle fleet well maintained and well serviced;
- Minimize on-site idling of vehicles;
- Routinely monitor waste vehicles arriving to the site in unfit or un-maintained conditions; and
- Proper staging and planning for internal vehicles at the site and site sequencing.

12 REFERENCES

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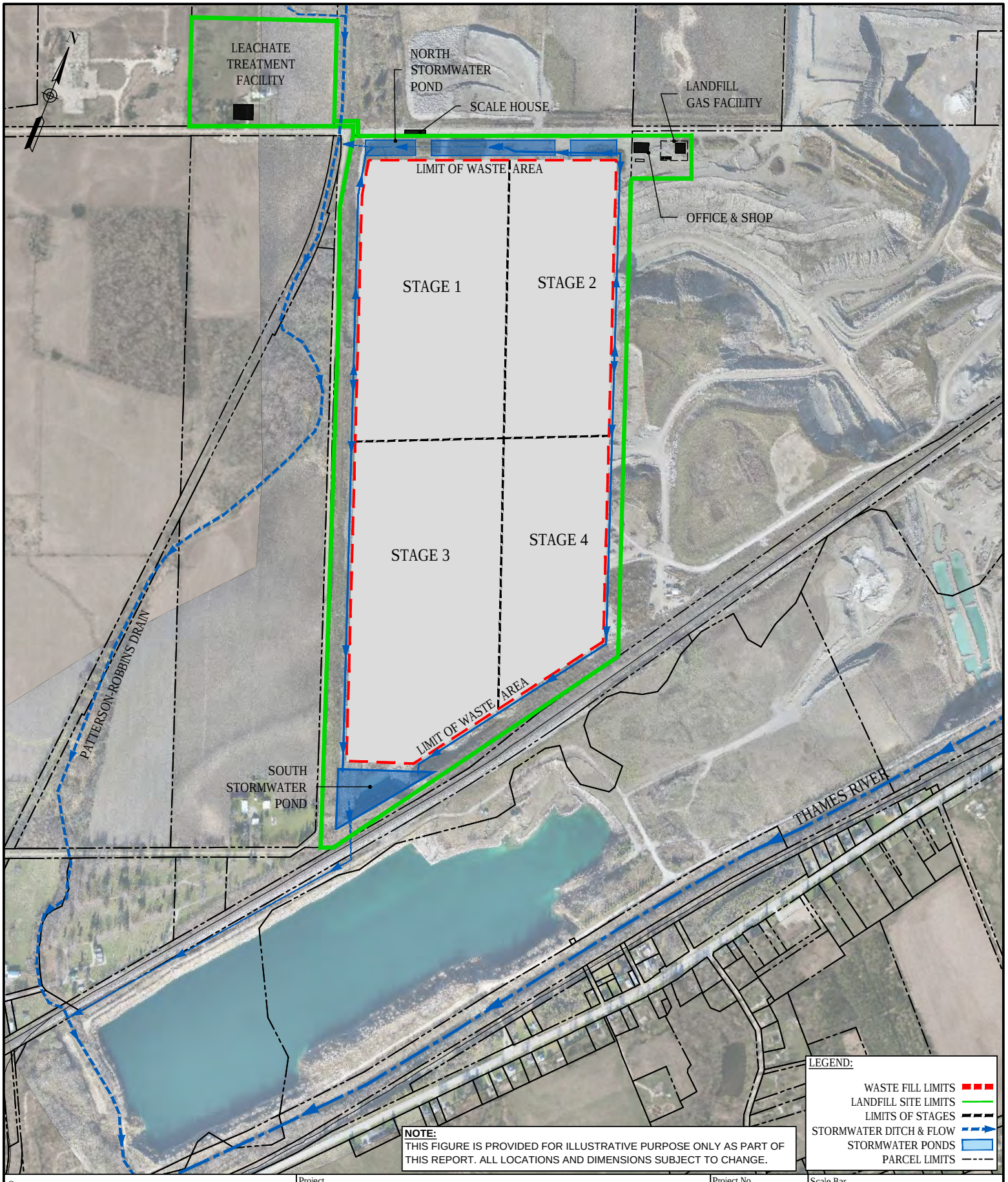
FIGURES



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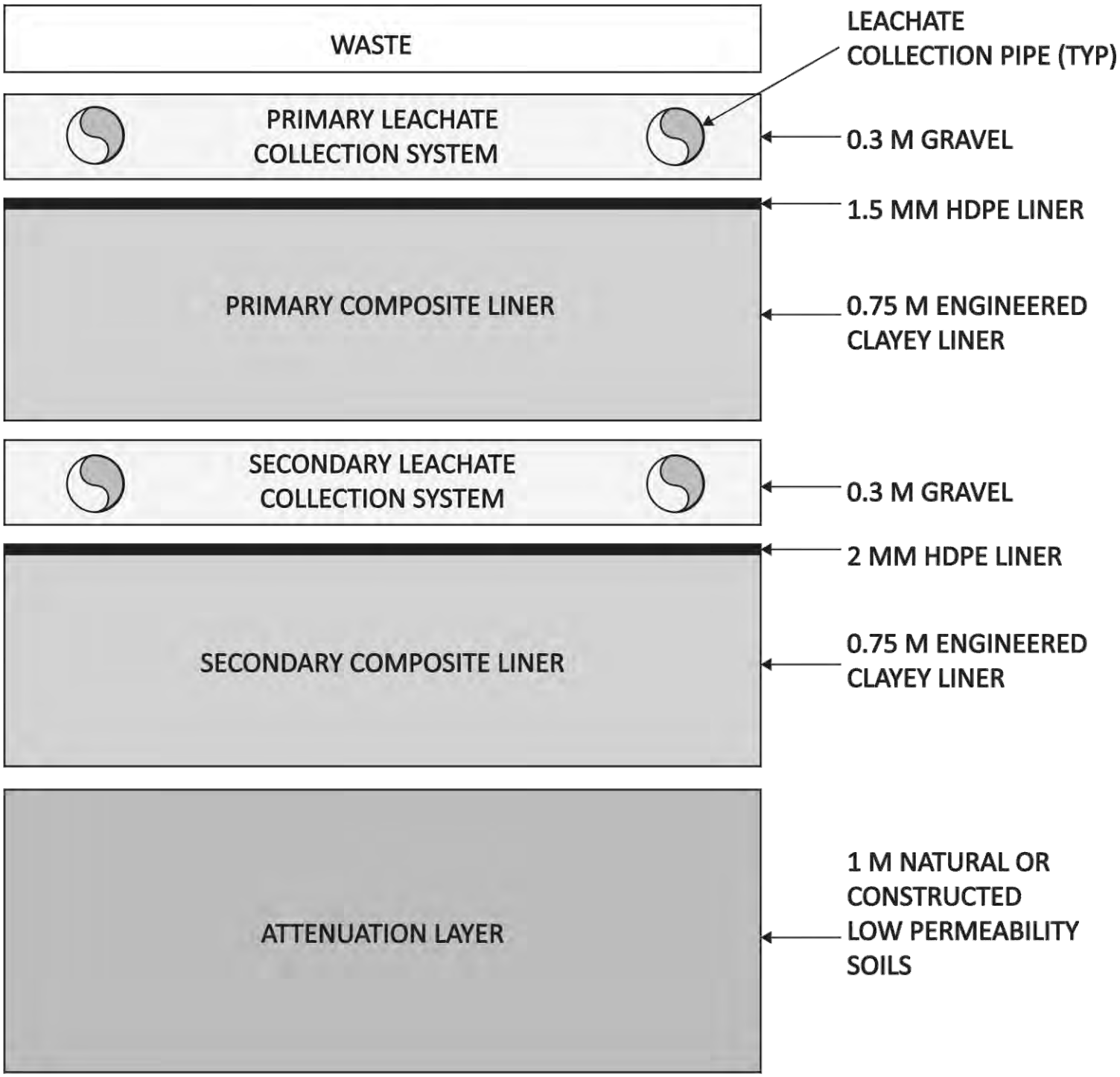

NOTE:
THIS FIGURE IS PROVIDED FOR ILLUSTRATIVE PURPOSE ONLY AS PART OF THIS REPORT. ALL LOCATIONS AND DIMENSIONS SUBJECT TO CHANGE.

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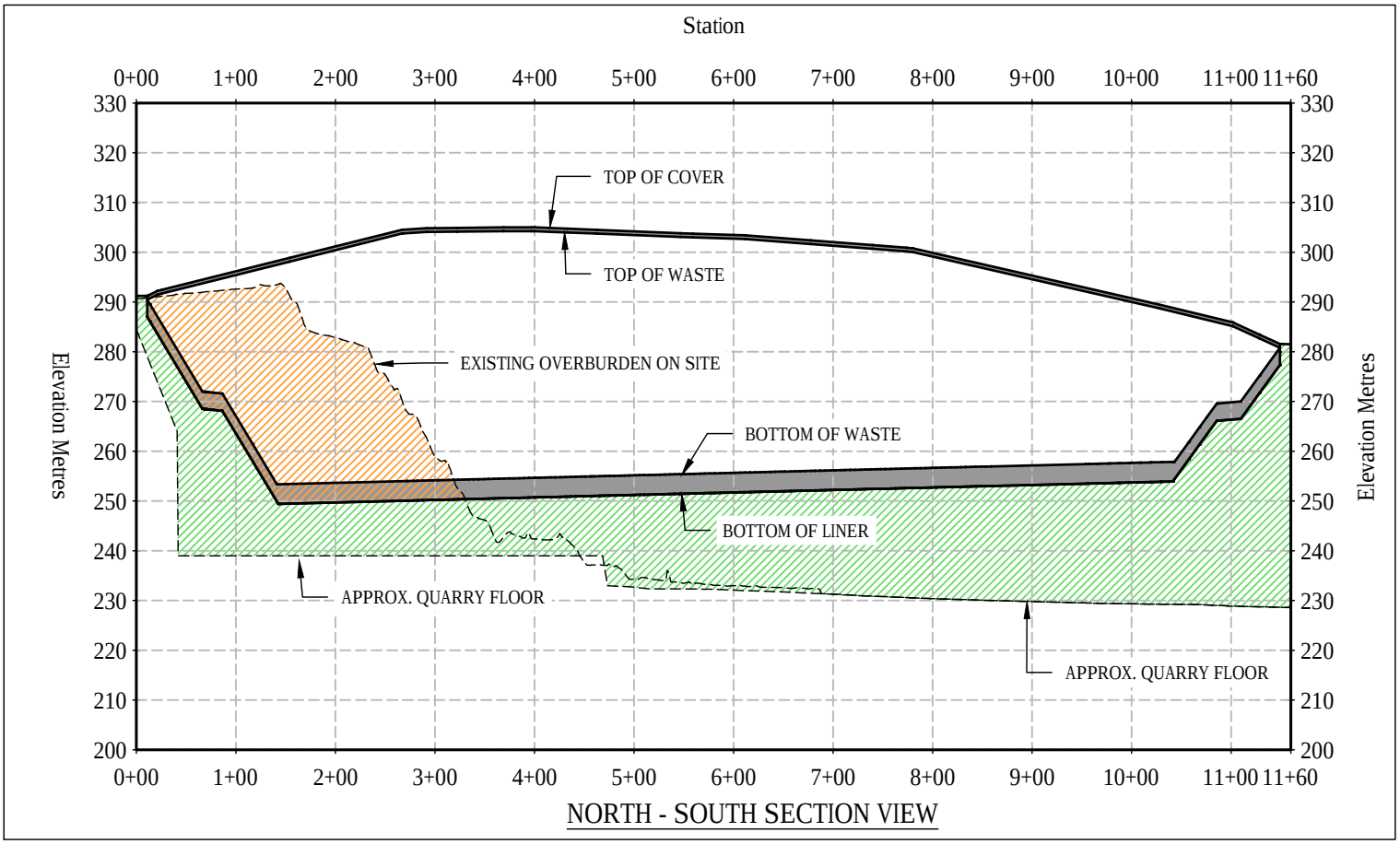
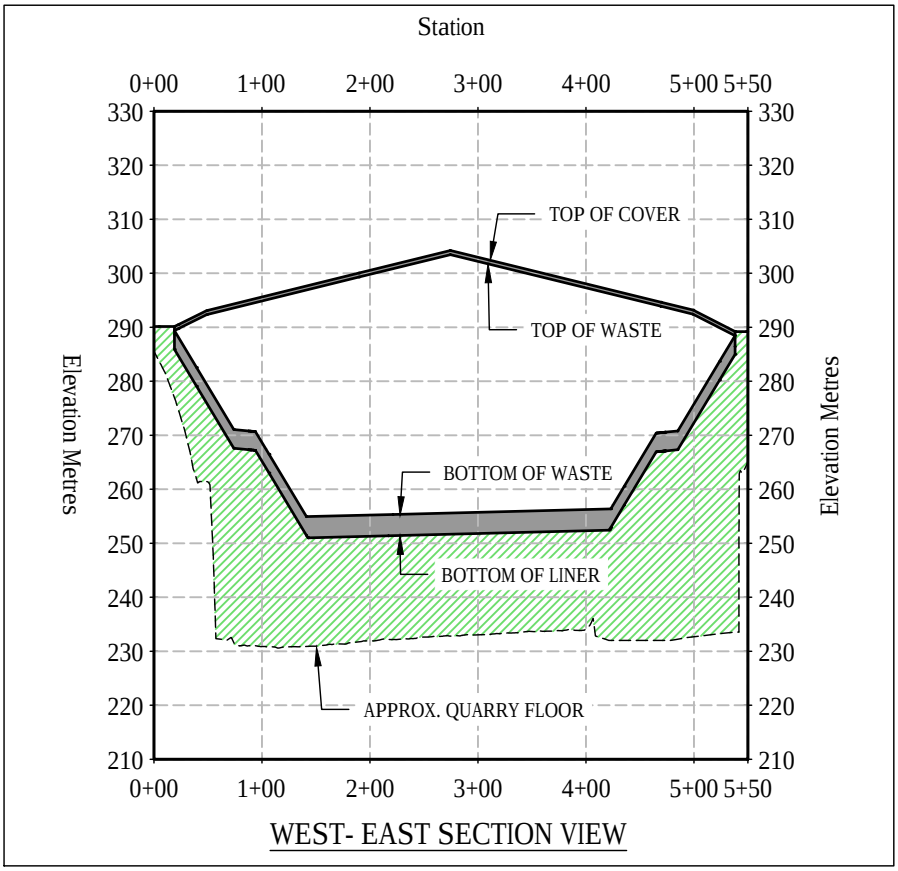


NORTH - SOUTH SECTION VIEW



WEST- EAST SECTION VIEW

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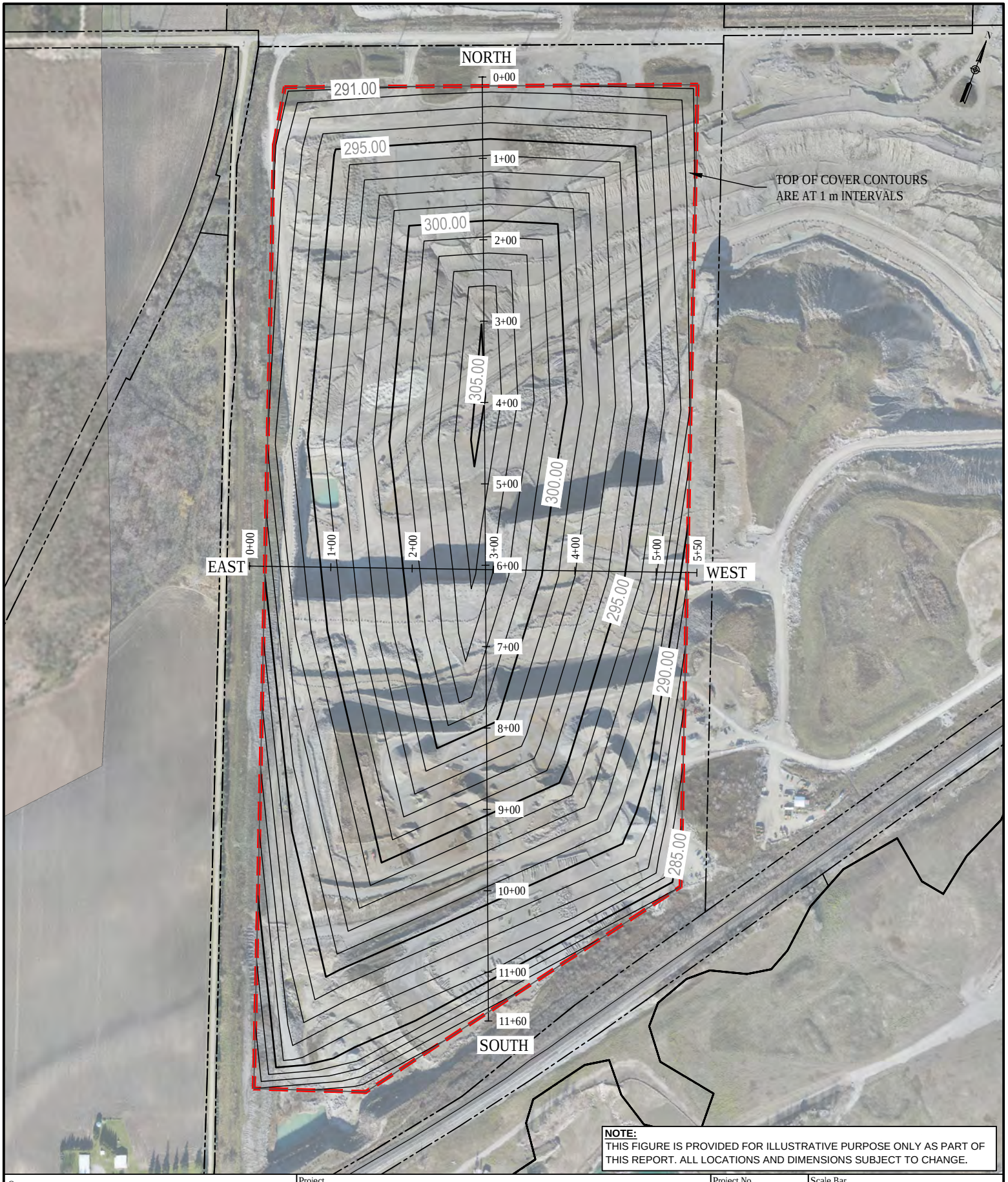

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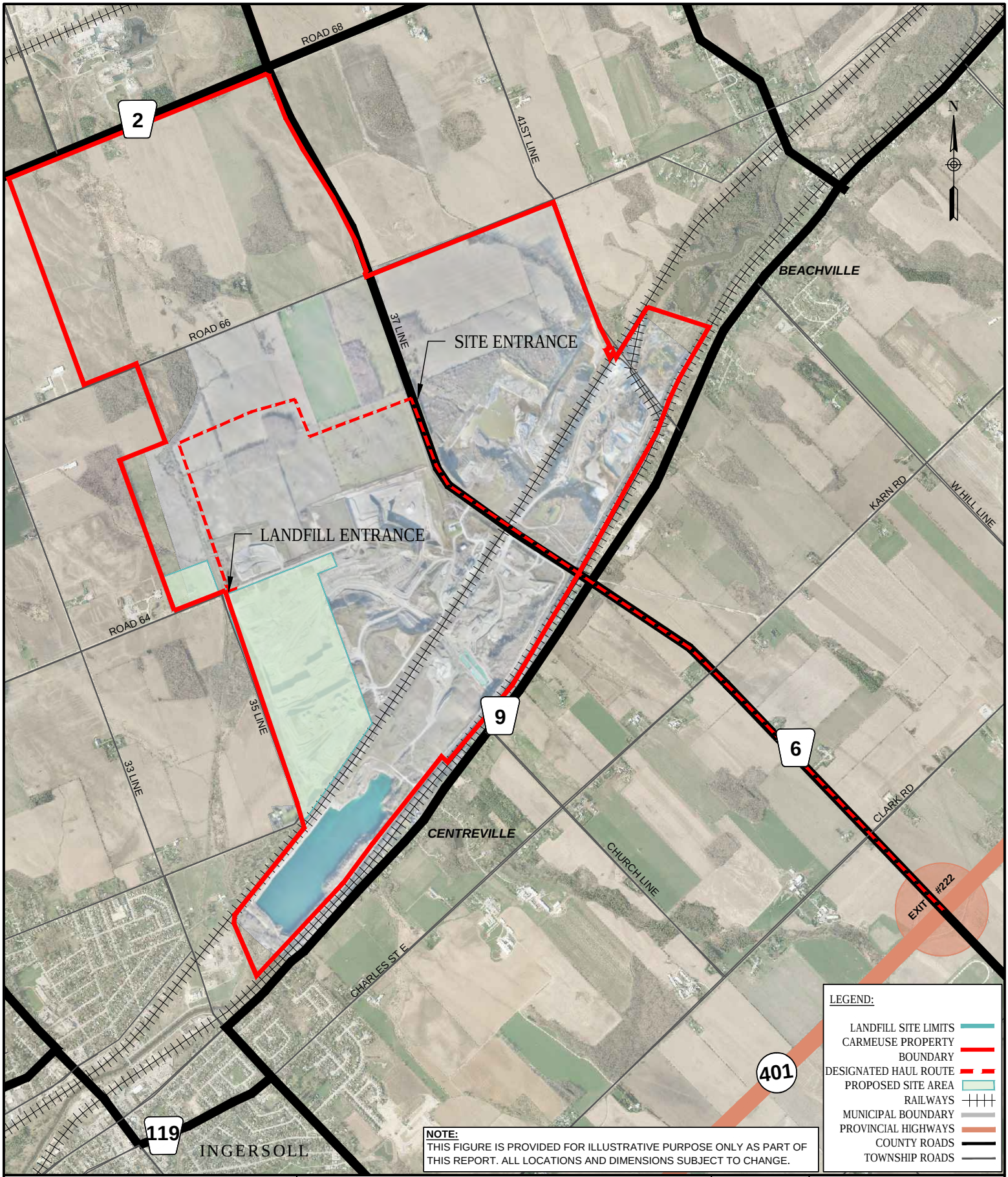

NOTE:
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Owner: walker environmental

Project: **SOUTHWESTERN LANDFILL**

Drawing: **SITE LOCATION & HAUL ROUTE**

Project No.	Scale Bar	
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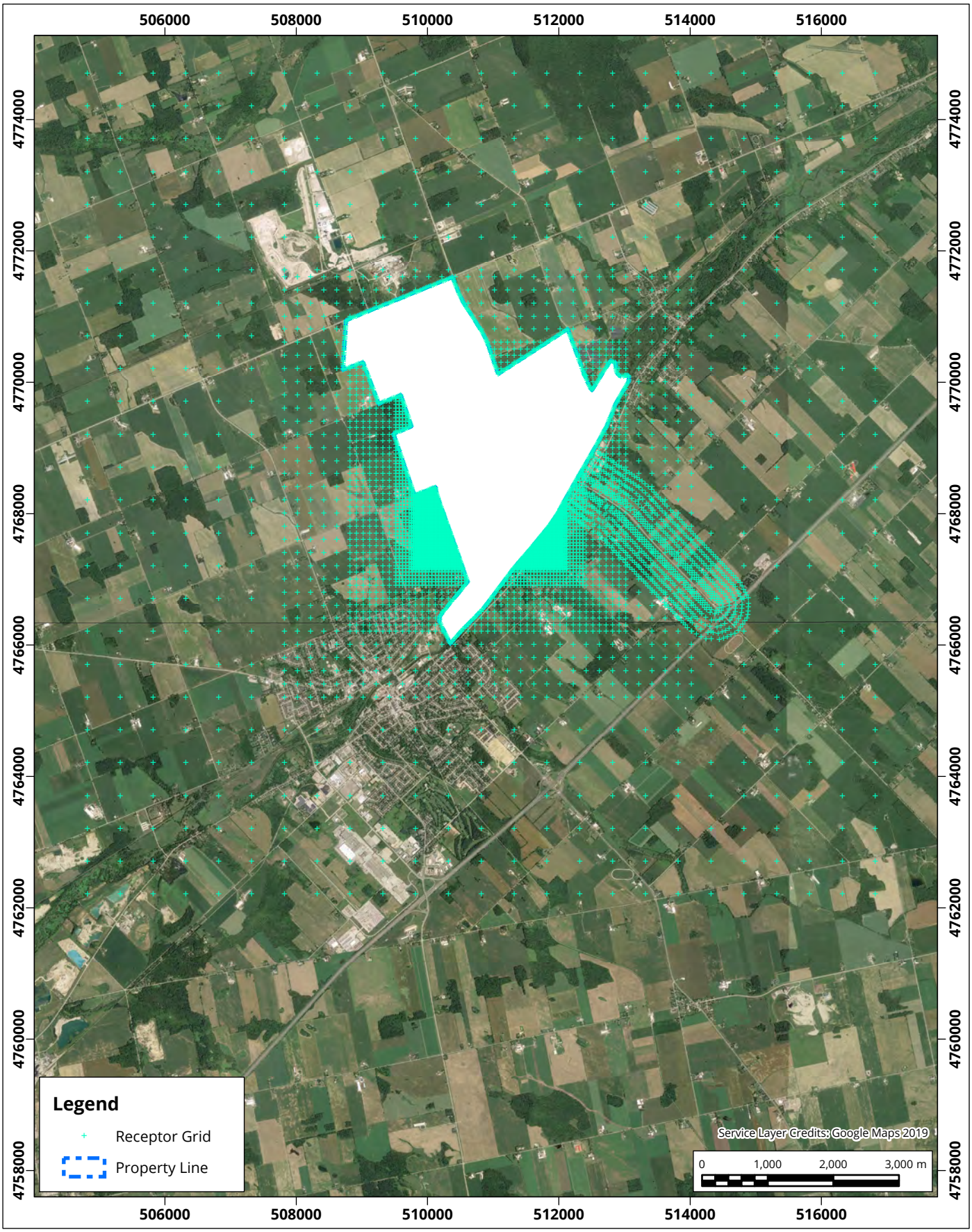

Modelled Receptor Grid

True North

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

Project #: 1800160

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Exact Scale:	1:80,000
Date Revised:	Dec 19, 2019

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx

Discrete Receptor Locations

True North

Map Projection: NAD 1983 UTM Zone 17N

WEG Southwestern Landfill- Beachville, Ontario

Project #: 1800160

Drawn by: MDKB	Figure: 7
Exact Scale:	1:70,000
Date Revised:	Dec 16, 2019

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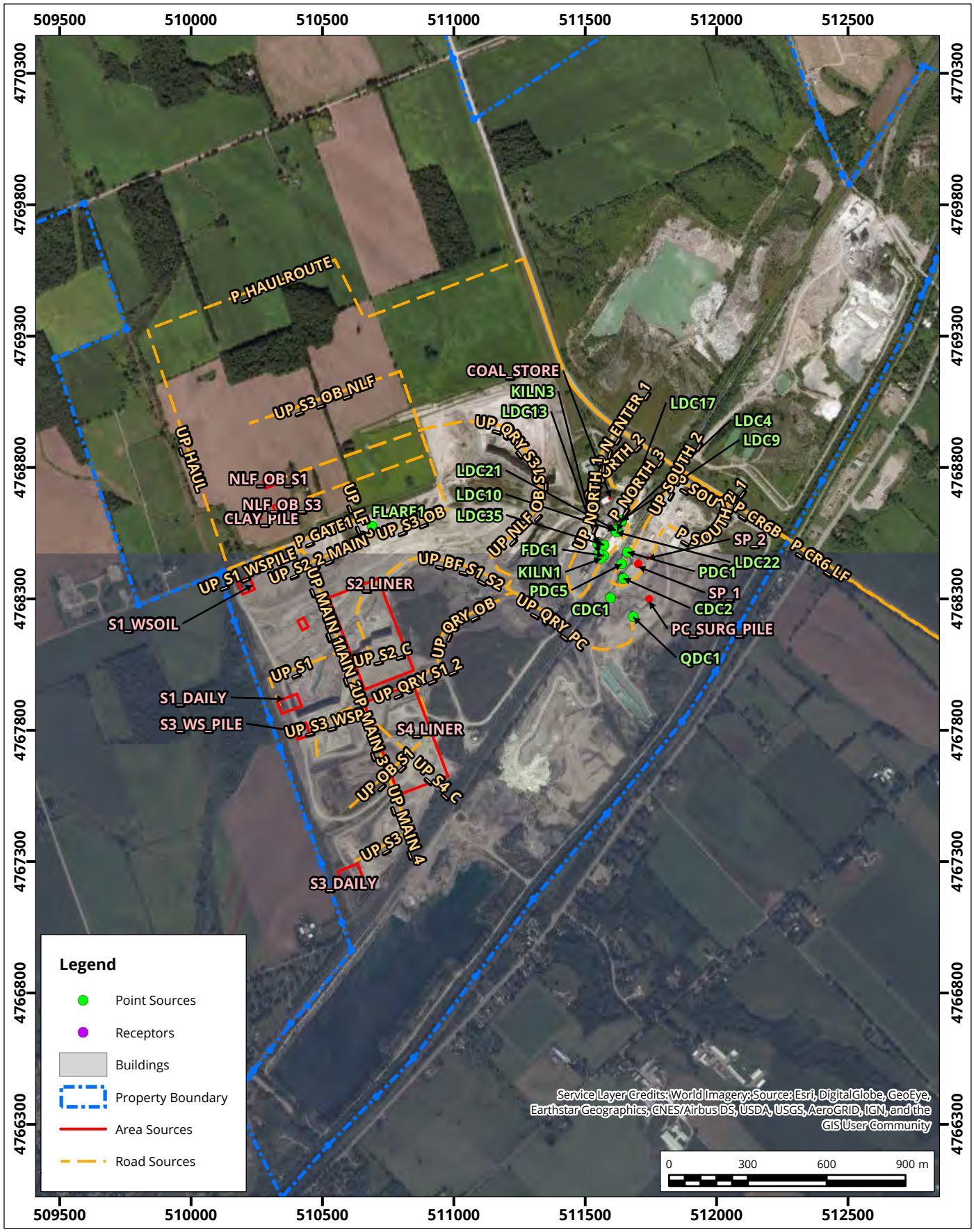

Site Plan Showing Significant Sources, Buildings, and Property Boundary

True North

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwestern Landfill - Beachville, Ontario

Project #: 1800160

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Date Revised:	Dec 20, 2019

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3	P_NORTH_3
4	P_N_ENTER_1
5	P_SOUTH_1
6	P_SOUTH_2
7	UP_NORTH_1
8	UP_OB
9	UP_QRY_PC
10	UP_SOUTH_2

KILN3
KILN1

Legend

- Point Sources
- Line Volume Sources
- Buildings
- Property Line

Service Layer Credits: World Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Site Plan Showing Significant Sources, Buildings, and Property Line
Baseline 2019

Map Projection: NAD 1983 UTM Zone 17N
Walker's Southwest Landfill - Beachville, Ontario

True North

Project #: 1800160

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Approx. Scale:	1:15,000
Date Revised:	Feb 14, 2020

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KILN3
KILN1

Legend
- Point Sources
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- Buildings
- Property Line

Service Layer Credits: World Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Site Plan Showing Significant Sources, Buildings, and Property Line
Stage 1 - 2023 - 2027, Future No Build

Map Projection: NAD 1983 UTM Zone 17N
Walker's Southwest Landfill - Beachville, Ontario

True North

Project #: 1800160

Drawn by: DJH	Figure: 9b
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Date Revised:	Feb 14, 2020

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23	UP_QRY_S3
30	UP_S3_OB_NLF
33	UP_SOUTH_2

KILN3
KILN1

Legend
- Point Sources
- Line Volume Sources
- Buildings
- Property Line

Service Layer Credits: World Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 250 500 750 m

Site Plan Showing Significant Sources, Buildings, and Property Line
Stage 3 - 2033 - 2037, Future No Build

Map Projection: NAD 1983 UTM Zone 17N
Walker's Southwest Landfill - Beachville, Ontario

True North

Project #: 1800160

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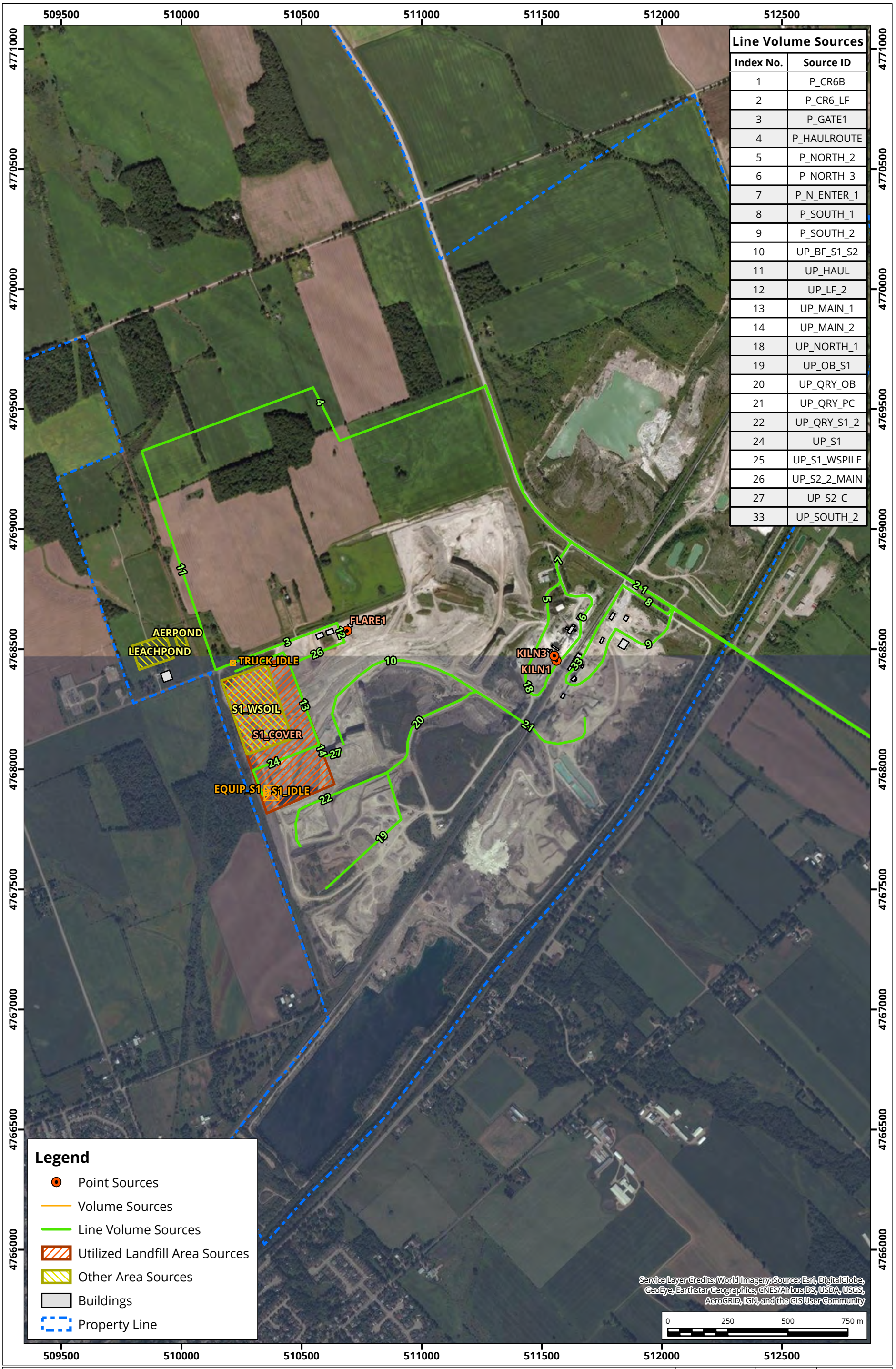

Site Plan Showing Significant Sources, Buildings, and Property Line

Stage 1 - 2023 - 2027, Future Build

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Project #: 1800160

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9	P_SOUTH_2
11	UP_HAUL
12	UP_LF_2
13	UP_MAIN_1
14	UP_MAIN_2
15	UP_MAIN_3
16	UP_MAIN_4
18	UP_NORTH_1
21	UP_QRY_PC
23	UP_QRY_S3
26	UP_S2_2_MAIN
28	UP_S3
29	UP_S3_OB
31	UP_S3_WSP
32	UP_S4_C
33	UP_SOUTH_2

AERPOND
LEACHPOND
TRUCK_IDLE
FLARE1
S2_COVER
S1_COVER
S3_WSOIL
S3_COVER
S3_IDLE
S3_EQUIP
KILN3
KILN1

Legend

- Point Sources
- Volume Sources
- Line Volume Sources
- Utilized Landfill Area Sources
- Other Area Sources
- Buildings
- Property Line

Service Layer Credits: World Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 250 500 750 m

Site Plan Showing Significant Sources, Buildings, and Property Line

Stage 3 - 2033 - 2037, Future Build

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Project #: 1800160

Drawn by: DJH	Figure: 9e
Approx. Scale:	1:15,000
Date Revised:	Feb 14, 2020

APPENDIX A:
GLOSSARY OF TERMS

13 GLOSSARY OF TERMS USED IN AIR IMPACT ASSESSMENTS

ADT	Average daily traffic
AADT	Annual average daily traffic
AAQC	Ambient Air Quality Criteria as defined by the Ontario Ministry of the Environment, Conservation and Parks
AERMOD	An air dispersion model developed by AERMIC to support the US EPA's regulatory modelling programs. AERMOD is the next-generation air dispersion model that incorporates concepts such as planetary boundary layer theory and advanced methods for handling complex terrain.
Baseline	Refers to the existing air quality surrounding the landfill. The baseline is used to determine if there will be a change in the existing environment before the proposed landfill.
CO	Carbon monoxide; a regulated air pollutant and product of incomplete combustion
Conservative	Implementing a number of assumptions in an analysis that are intended to lead to a deliberate over-estimation of impacts
Clod Samples	Refer to the large clumps of native or typical soil at the landfill typically used for cover.
Deposition Routine	Refers to dust particles that travel downwind in a plume, larger particles fall out of the air through gravitational settling and other factors and are not replaced. Using this deposition routine provides a simulation of this process. By doing so, a more realistic prediction of dust impacts is produced.
Dustfall	Refers to larger particles that settle at a sufficient rate to produce a dust film on surfaces. Dustfall is a nuisance due to its soiling nature.
Flux Chamber	Is a stainless-steel vessel of volume 0.5 m2. It is used to measure minute emissions from near passive sources that do not have any mechanical fans to discharge the contaminants of interest.
g/veh/mi	Grams of emissions per vehicle per mile traveled
HC	Hydrocarbons; generally defined in terms of volatile organic compounds (VOC's) and semi-volatile compounds (SVOC's)
MECP	Ontario Ministry of the Environment, Conservation and Parks
NO	Nitric oxide; an air pollutant and constituent of NOX generated by combustion
NO2	Nitrogen dioxide; an air pollutant and regulated constituent of NOX generated by chemical or photochemical reactions generally involving NO

NOX	Total oxides of nitrogen; a generic air pollutant category that includes the sum of all NO and NO2 concentrations
O3	Ozone; a photochemical oxidant generally formed in the presence of sunlight, oxides of nitrogen and reactive hydrocarbons
Odour	Odour can generally be described as a person's perception to a particular smell. This may be considered a "good" or "bad" smell as a subjective observation from a particular person. An odour is deemed as a nuisance, if it is detected and considered to be unpleasant. When odour levels are elevated and occur frequently, they can be construed as an adverse effect.
Odour Unit	One odour unit is the concentration at which 50% of a population will detect an odour.
PAHs	Polycyclic aromatic hydrocarbons; a class of airborne contaminants that exist with both solids and gaseous fractions; individual species include fluoranthene and benzo(a)pyrene
ppm, ppmv	Parts per million by volume; unit of concentration; mixing ratio
PM10	Inhalable particulate matter; airborne particles of aerodynamic diameter less than 10 microns
PM2.5	Respirable particulate matter; airborne particles of aerodynamic diameter less than 2.5 microns
SO2	Sulphur dioxide; an air pollutant usually associated with the combustion of sulphur-laden fuel
Tedlar Bags	A bag used to collect air samples that is comprised of a skin is made from inert materials like Teflon to minimize any chemical reactions that may compromise the sample
TSP	Total suspended particulates; airborne particulate matter that is generally small (less than about 44 microns in diameter) enough so as not to be greatly affected by gravitational forces
µg/m3	Micrograms per cubic metre; a unit of concentration
U.S. EPA	The United States Environmental Protection Agency
VMT	Vehicle miles traveled
VOCs	Volatile organic compounds; a class of airborne gaseous contaminants that includes individual chemical species such as vinyl chloride, benzene, xylenes, etc.

APPENDIX B:

ENVIRONMENTAL ASSESSMENT CRITERIA AND STUDIES

(FROM THE APPROVED AMENDED TERMS OF REFERENCE)

Table B-a-EA Criteria Table

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
	Public Health & Safety																			
1	Explosive hazard due to combustible gas accumulation in confined spaces.	Gas produced within a waste disposal facility (e.g., methane) can move through the ground and accumulate in confined spaces (e.g., manholes, basements, etc.) on or immediately adjacent to the waste disposal facility. There is potential for the gas to combust, creating an explosion and fire hazard.							☑							✓			✓	✓
2	Effects due to exposure to air emissions.	Waste disposal facilities can produce gases containing contaminants that degrade air quality if they are emitted to the atmosphere. Other operations, such as leachate collection facilities, can also produce emissions that could degrade air quality in the vicinity of the site. Air quality in the vicinity of the site should meet regulated air quality standards in order to protect public health.		☑						☑						✓			✓	✓
3	Effects due to fine particulate exposure.	Construction, operation, and truck haulage activities at a waste disposal facility can lead to increased levels of particulate (dust) in the air. Airbourne fine particulate is a health concern in certain size ranges exposure durations.		☑						☑						✓	✓		✓	
4	Effects due to contact with contaminated groundwater or surface water.	Contaminants associated with a waste disposal site have the potential to seep into the groundwater or surface water. This could pose a public health concern if it enters local drinking water supplies, or if it mixes with surface water.							☑	☑						✓			✓	✓
5	Flood hazard.	The construction of a waste disposal facility can disrupt natural surface water drainage patterns, causing a potential for increased flooding.							☑							✓			✓	✓

			Studies Addressing the Criteria														Study Areas				Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape		On-Site & Site Vicinity	Along the Haul Routes	Wider Area		Operational Period	Post-Closure Period
	Public Health & Safety																					
6	Disease transmission *via* insects or vermin.	Insects and vermin drawn to a waste disposal facility may have the potential to transmit diseases.						☑									✓				✓	✓
Public Health & Safety (continued)																						
7	Potential for traffic collisions.	The risk of traffic collisions may increase along the haul routes to the waste disposal facility. This includes the risk to pedestrian, bicycle and farm machinery.												☑				✓			✓	
8	Aviation impacts due to bird interference.	Birds may be attracted to waste disposal facilities. This can pose a risk of bird strikes on aircraft in the vicinity of the site, especially during take-off and landing altitudes.					☑										✓				✓	
Social and Cultural																						
9	• Displacement of residents from houses.	Any residents living on a future waste disposal site will have to relocate, which can cause inconvenience and stress to the residents.											☑				✓				✓	✓
10	Disruption to use and enjoyment of residential properties.	Potential nuisance effects associated with the waste disposal facility operation, or traffic moving to and from the waste disposal facility along the haul route, may disturb the daily activities and uses of residential properties. Disturbances could result from noise, dust, litter, odour, visibility,											☑				✓	✓			✓	✓
11	Disruption to use and enjoyment of public facilities and institutions.	Potential nuisance effects associated with waste disposal facility operations, or traffic moving to and from the waste disposal facility, may disturb the daily activities at community facilities. Disturbances could result from noise, dust, litter, odour, visibility, birds and traffic congestion.											☑				✓	✓			✓	
12	Disruption to local traffic networks.	Increased traffic volume resulting from a waste disposal facility could disturb the overall traffic flow along the haul routes, and effectively reduce the available road capacity.												☑				✓			✓	
13	Visual impact of the waste disposal facility.	Development and operation of a waste disposal facility can affect the visual appeal of a landscape.													☑		✓				✓	✓

			Studies Addressing the Criteria														Study Areas				Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape		On-Site & Site Vicinity	Along the Haul Routes	Wider Area		Operational Period	Post-Closure Period
	Public Health & Safety																					
14	Nuisance associated with vermin.	Waste disposal facilities can attract vermin and birds, which can be a nuisance and lead to a decrease in property enjoyment by area residents. Vermin and birds can also be a nuisance to agricultural operations.											☑				✓				✓	
Social and Cultural (continued)																						
15	Displacement/disturbance of cultural/heritage resources.	Cultural resources (including heritage buildings, cemeteries and cultural landscapes) are an important component of human heritage. These non-renewable cultural resources may be displaced by the construction of a waste disposal facility. The use and enjoyment of cultural resources may also be disturbed by the ongoing operation and traffic. Disturbances could result from noise, dust, odour, visibility, birds, litter and traffic congestion.				☑											✓	✓			✓	✓
16	Effects on land resources, traditional activities or other interests of Aboriginal Communities.	Major new developments of any type may have positive or negative effects on the interests of Aboriginal Communities (i.e., businesses opportunities, joint ventures)											☑						✓		✓	✓
17	Displacement/destruction of archaeological resources.	Archaeological resources are non-renewable cultural resources that can be destroyed by the construction and operation of a waste disposal facility.			☑												✓				✓	
18	Level of public service provided by the waste disposal facility.	The presence of a waste disposal operation within a municipality can provide an increased level of public service (e.g., convenient access to waste disposal services) to local residents and businesses, as well as those in the broader community(ies).						☑											✓		✓	✓
19	Effects on other public services.	The presence of a waste disposal facility may have positive or negative spin-off effects on other public services in the community (e.g., leachate trucking, waste water treatment capacity, if there is discharge to the sewer system).						☑										✓	✓		✓	✓

			Studies Addressing the Criteria														Study Areas				Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape		On-Site & Site Vicinity	Along the Haul Routes	Wider Area		Operational Period	Post-Closure Period
	Public Health & Safety																					
Social and Cultural (continued)																						
20	Changes to community character/cohesion.	Community character and cohesion refer to physical characteristics, social stability, attractiveness as a place to live and patterns of social interaction. A waste disposal facility may actually or perceptually interfere with these important community attributes.											☑				✓	✓	✓		✓	✓
21	Compatibility with municipal land use designations and official plans.	A waste disposal facility has the potential to affect the viability of present and future land uses, which may have an effect on planning decisions made in the surrounding community.									☑						✓		✓		✓	✓
Economics																						
22	Displacement/disruption of businesses or farms.	Any on-site businesses or farms would be displaced by a waste disposal facility, and there could be financial losses as a result of relocation. Some types of businesses located in the site vicinity or along the haul routes may suffer financial losses due to the potential nuisance effects or perceived effects associated with the operation of a waste disposal facility such as noise, litter, dust, odour, visibility, birds, vermin and traffic congestion.						☑									✓	✓			✓	
23	Property value impacts.	The establishment and operation of a waste disposal facility may adversely affect property values in the site vicinity or along the haul routes.						☑									✓	✓			✓	✓
24	Direct employment in waste disposal facility construction and operation.	A waste disposal facility may create new employment opportunities both in the construction and day-to-day operation.						☑											✓		✓	
25	Indirect employment in related industries and services.	A waste disposal facility has the potential to have impacts on employment opportunities in local firms supplying products or services directly, or as secondary suppliers.						☑											✓		✓	

			Studies Addressing the Criteria														Study Areas				Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape		On-Site & Site Vicinity	Along the Haul Routes	Wider Area		Operational Period	Post-Closure Period
	Public Health & Safety																					
Economics (continued)																						
26	New business opportunities related directly to waste disposal facility construction and operation.	A large capital project, such as the construction and operation of a waste disposal facility, can create new opportunities for local businesses supplying products or services.						☑											✓		✓	
27	New business opportunities in related industries and services.	New opportunities may be created for local businesses, or as secondary suppliers to industries working for the waste disposal facility (e.g., restaurants, gas stations, machine shops, repair shops, welding shops, equipment rentals, etc.).						☑											✓		✓	
28	Public costs for indirect liabilities.	Some public services may have to be upgraded to accommodate the establishment and operation of a waste disposal facility (e.g., snow removal, sewer and water connections, etc.).						☑											✓		✓	✓
29	Effects on the municipal tax base.	A waste disposal facility has the potential to affect municipal tax revenues from the site it occupies.						☑											✓		✓	✓
30	Effect on the cost of service to customers.	The costs of constructing a waste disposal facility will effect the price of tipping fees to the site. This affects the cost of service to customers in Oxford county and the province.						☑											✓		✓	
31	Effects on the provincial/ federal tax base.	A waste disposal facility has the potential to affect provincial/federal tax revenues.						☑											✓		✓	✓
Natural Environment & Resources																						
32	Loss/displacement of surface water resources.	Construction of a waste disposal facility may cause the removal of all or part of a natural stream or pond.							☑								✓				✓	
33	Impact on the availability of groundwater supply to wells.	A waste disposal facility can impact the availability of groundwater supply if groundwater is pumped from aquifers or if recharge to aquifers is reduced.							☑								✓				✓	✓
34	Effects on stream baseflow quantity/quality.	The presence of a waste disposal facility has the potential to affect the quality or quantity of baseflow to surface water.							☑								✓				✓	✓

			Studies Addressing the Criteria														Study Areas				Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape		On-Site & Site Vicinity	Along the Haul Routes	Wider Area		Operational Period	Post-Closure Period
	Public Health & Safety																					
Natural Environment & Resources (Continued)																						
35	Loss/disturbance of terrestrial ecosystems.	Terrestrial ecosystems refer to the land-based habitats connected through the vegetation cover; their protection and integration maintains and regulates ecological health. Waste disposal facility operations and/or traffic may remove or disturb the functioning of these systems.					☑										✓	✓			✓	
36	Loss/disturbance of aquatic ecosystems.	Aquatic ecosystems refer to the water-based habitats connected through the surface water; their protection and integration maintains and regulates ecological health. Waste disposal facility operations may remove or disturb the functioning of these systems.					☑										✓				✓	
37	Displacement of agricultural land.	The establishment of a waste disposal facility has the potential to displace existing or potential agricultural resources, including the loss of prime agricultural land.	☑														✓				✓	✓
38	Disruption of farm operations.	The establishment and operation of the waste disposal facility may affect agricultural crop or livestock production and related agriculture activities	☑														✓	✓			✓	✓
39	Sterilization of industrial mineral resources.	The establishment of a waste disposal facility may limit the opportunity to extract industrial mineral resources located beneath the site.									☑						✓				✓	✓
40	Displacement of forestry resources.	The establishment of a waste disposal facility may limit the opportunity to utilize forestry resources on or near the site.									☑						✓				✓	✓
41	Loss/disruption of recreational resources.	Waste disposal facility operations and traffic may displace/disrupt existing recreational resources in the area, which could adversely affect the community at large. Disturbances could result from noise, dust, odour, visibility, birds and traffic congestion. Recreational resources include naturalist and interpretive opportunities.											☑				✓	✓			✓	✓

APPENDIX C1:
2027 MOVES 2014b Roadway Outputs

Appendix C1: Averaged Emission Rates Based on Speed and Vehicle Class - Stage 1

Km to Mile Conversion Factor	1.6 km per mile
Hour to Seconds	3600 s/hr
CR6 Traffic Distribution	63% Light
	10% Medium
	27% Heavy

Vehicle Type		**Contaminant Emission Rate by vehcle Speed (km/hr)**														
		TSP			**PM10**			**PM2.5**			**Benzene**			**Carbon Monoxide**		
		0	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**
		g/s	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**
light	PassengerCar	1.33E-05	4.60E-02	1.40E-02	1.33E-05	4.60E-02	1.40E-02	1.18E-05	8.32E-03	3.56E-03	7.86E-07	4.60E-04	3.57E-04	2.68E-04	1.03E+00	6.32E-01
medium	LightCommercialTruck	1.60E-05	5.27E-02	1.65E-02	1.60E-05	5.27E-02	1.65E-02	1.45E-05	1.10E-02	5.24E-03	1.92E-06	9.79E-04	7.19E-04	7.93E-04	1.48E+00	1.00E+00
heavy	CombinationLongHaulTruck	7.27E-04	4.94E-01	1.84E-01	7.27E-04	4.94E-01	1.84E-01	6.69E-04	2.50E-01	1.21E-01	9.23E-06	1.97E-03	1.12E-03	3.10E-03	1.16E+00	7.44E-01
Triaxle	SingleUnitShortHaulTruck	3.00E-04	2.12E-01	7.50E-02	3.00E-04	2.12E-01	7.50E-02	2.76E-04	7.12E-02	3.74E-02	1.19E-05	5.49E-03	1.83E-03	2.28E-03	2.41E+00	1.45E+00
Heavy/Trixale for LF	Landfill Traffic (Heavy/Trixale)	5.14E-04	3.53E-01	1.29E-01	5.14E-04	3.53E-01	1.29E-01	4.73E-04	1.61E-01	7.93E-02	1.05E-05	3.73E-03	1.48E-03	2.69E-03	1.78E+00	1.10E+00
CR6		--	--	5.95E-02	--	--	5.95E-02	--	--	3.51E-02	--	--	5.98E-04	--	--	7.00E-01

* Distrubution is indexed from the scaled hourly breakdown for 2033.

Appendix C1: Averaged Emission Rates Based on Speed and Vehicle Class - Stage 1

Km to Mile Conversion Factor	1.6 km per mile
Hour to Seconds	3600 s/hr
CR6 Traffic Distribution	63% Light
	10% Medium
	27% Heavy

Vehicle Type		**Contaminant Emission Rate by vehcle Speed (km/hr)**														
		Formaldehyde			**Sulphur Dioxide**			**Toluene**			**Benzo(a)Pyrene**				**Oxides of Nitrogen**	
		0	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**
		g/s	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**
light	PassengerCar	2.70E-07	1.63E-04	1.27E-04	1.21E-05	3.59E-03	2.61E-03	1.34E-06	7.36E-04	5.66E-04	6.22E-09	1.47E-06	1.04E-06	2.30E-05	5.00E-02	5.24E-02
medium	LightCommercialTruck	2.76E-06	7.12E-04	4.79E-04	1.59E-05	4.70E-03	3.51E-03	3.39E-06	1.63E-03	1.18E-03	4.25E-09	2.17E-06	1.59E-06	1.51E-04	1.38E-01	1.37E-01
heavy	CombinationLongHaulTruck	1.06E-04	2.30E-02	1.29E-02	1.75E-05	1.13E-02	8.48E-03	8.60E-06	1.96E-03	1.06E-03	1.35E-07	1.86E-05	7.48E-06	9.83E-03	4.17E+00	3.07E+00
Triaxle	SingleUnitShortHaulTruck	6.29E-05	1.57E-02	8.00E-03	2.31E-05	9.32E-03	5.93E-03	1.68E-05	8.44E-03	2.70E-03	4.78E-08	8.73E-06	5.56E-06	3.75E-03	1.40E+00	9.26E-01
Heavy/Trixale for LF	Landfill Traffic (Heavy/Trixale)	8.43E-05	1.94E-02	1.05E-02	2.03E-05	1.03E-02	7.21E-03	1.27E-05	5.20E-03	1.88E-03	9.15E-08	1.37E-05	6.52E-06	6.79E-03	2.79E+00	2.00E+00
CR6		--	--	3.57E-03	--	--	4.26E-03	--	--	7.61E-04	--	--	2.81E-06	--	--	8.64E-01

* Distrubution is indexed from the scaled hourly breakdown for 2033.

APPENDIX C2:
2037 MOVES 2014b Roadway Outputs

Appendix C2: Averaged Emission Rates Based on Speed and Vehicle Class - Stage 3

Km to Mile Conversion Factor	1.6 km per mile
Hour to Seconds	3600 s/hr
CR6 Traffic Distribution	63% Light
	10% Medium
	27% Heavy

Vehicle Type		**Contaminant Emission Rate by vehcle Speed (km/hr)**														
		TSP			**PM10**			**PM2.5**			**Benzene**			**Carbon Monoxide**		
		0	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**	**0**	**35**	**80**
		g/s	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**	**g/s**	**g/vkt**	**g/vkt**
light	PassengerCar	8.10E-06	4.46E-02	1.31E-02	8.10E-06	4.46E-02	1.31E-02	7.17E-06	7.15E-03	2.79E-03	2.69E-07	2.08E-04	1.67E-04	9.81E-05	5.22E-01	3.49E-01
medium	LightCommercialTruck	9.79E-06	5.04E-02	1.50E-02	9.79E-06	5.04E-02	1.50E-02	8.81E-06	8.89E-03	3.84E-03	4.05E-07	3.29E-04	2.83E-04	3.50E-04	7.37E-01	5.27E-01
heavy	CombinationLongHaulTruck	8.07E-05	2.92E-01	7.90E-02	8.07E-05	2.92E-01	7.90E-02	7.43E-05	6.40E-02	2.50E-02	2.44E-06	6.08E-04	3.05E-04	1.11E-03	3.23E-01	2.07E-01
Triaxle	SingleUnitShortHaulTruck	5.74E-05	1.65E-01	4.80E-02	5.74E-05	1.65E-01	4.80E-02	5.26E-05	2.95E-02	1.27E-02	5.47E-06	2.87E-03	8.84E-04	1.16E-03	1.27E+00	7.75E-01
Heavy/Trixale for LF	Landfill Traffic (Heavy/Trixale)	6.91E-05	2.29E-01	6.35E-02	6.91E-05	2.29E-01	6.35E-02	6.34E-05	4.68E-02	1.89E-02	3.96E-06	1.74E-03	5.95E-04	1.13E-03	7.94E-01	4.91E-01
CR6		--	--	3.09E-02	--	--	3.09E-02	--	--	8.80E-03	--	--	2.16E-04	--	--	3.30E-01

* Distrubution is indexed from the scaled hourly breakdown for 2033.

Appendix C2: Averaged Emission Rates Based on Speed and Vehicle Class - Stage 3

Km to Mile Conversion Factor	1.6 km per mile
Hour to Seconds	3600 s/hr
CR6 Traffic Distribution	63% Light
	10% Medium
	27% Heavy

Vehicle Type		Contaminant Emission Rate by vehcle Speed (km/hr)														
		Formaldehyde			Sulphur Dioxide			Toluene			Benzo(a)Pyrene			Oxides of Nitrogen		
		0	35	80	0	35	80	0	35	80	0	35	80	0	35	80
		g/s	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/s	g/vkt	g/vkt
light	PassengerCar	9.64E-08	7.44E-05	5.97E-05	9.61E-06	2.84E-03	2.06E-03	4.15E-07	3.20E-04	2.57E-04	3.78E-09	8.50E-07	6.26E-07	3.63E-06	1.63E-02	2.23E-02
medium	LightCommercialTruck	1.51E-06	3.52E-04	2.42E-04	1.31E-05	3.88E-03	2.89E-03	6.89E-07	5.18E-04	4.43E-04	2.61E-09	1.28E-06	1.00E-06	4.44E-05	4.44E-02	4.90E-02
heavy	CombinationLongHaulTruck	4.11E-05	1.02E-02	5.14E-03	1.69E-05	1.09E-02	8.15E-03	5.67E-06	1.41E-03	7.10E-04	1.71E-10	7.15E-08	3.89E-08	3.17E-03	1.52E+00	1.04E+00
Triaxle	SingleUnitShortHaulTruck	2.91E-05	7.70E-03	3.84E-03	2.25E-05	9.07E-03	5.78E-03	9.73E-06	4.74E-03	1.53E-03	2.50E-09	7.60E-07	1.15E-06	1.48E-03	6.54E-01	4.51E-01
Heavy/Trixale for LF	Landfill Traffic (Heavy/Trixale)	3.51E-05	8.97E-03	4.49E-03	1.97E-05	9.97E-03	6.97E-03	7.70E-06	3.08E-03	1.12E-03	1.34E-09	4.16E-07	5.95E-07	2.32E-03	1.09E+00	7.43E-01
CR6		--	--	1.43E-03	--	--	3.77E-03	--	--	3.97E-04	--	--	5.09E-07	--	--	2.95E-01

* Distrubution is indexed from the scaled hourly breakdown f

APPENDIX D:
Stage Based Road Traffic Variations

Appendix D: Assessment Roadway Traffic Passes

Daily Operations:	Time of Day:	Number of Trucks per Hour:	Source of Data:
Soil Drop off needs to occur over the course of the entire day (10 hours). (0700-1700)	0700-1700	5.6	The FCA documents page 12, section 3.3 specifies that there will be a total of 28 trucks per day used for soil importing. (doubled for # of passes)
Landfill Waste is delivered to the active face of the landfill (0700-1700)	0700-1700	30.8	The FCA documents page 12, section 3.3 specifies that there will be a total of 154 trucks per day used for waste importing. (doubled for # of passes)
Construction vehicles are used in the construction of the next stage of the landfill (0700-1900) working on the next stage	0700-1900	2.4	The FCA documents page 12, section 3.3 specifies that there will be a total of 12 trucks per day used for construction material importing.
Soil Delivered at the working face for final cover (Last two hours of the day 1700-1900.	1700-1900	30	Based on the 800 MG required for daily cover the minimum number of loads would be 30. (doubled for # of passes)
North Entrance Trucks for Quarry finished goods pickup (Operate 5 days a week, 12 months a year)	0600-1600	2.4	Daily total from Consultation with Martin Christopher of Carmeuse. Blue Con and Oxford bring 12 trucks a day, 5 days a week and 12 months a year from 0600 - 1600. Haul route is a loop so overlap only occurs at the paved entrance. (doubled for # of passes) Email: K:\1800160\4. Analysis\14 AQ Analysis\08 Reference Material\11 180815 Updated Carmeuse Data from Chris
North route Trucks for Quarry finished goods pickup (Operate 5 days a week, 12 months a year)	0600-1600	1.2	This line accounts for the other 3 sections of the loop that only have a single pass.
South Entrance Trucks for Quarry finished goods pickup (Operate 5 days a week, 12 months a year)	0600-1600	9	Daily total from Consultation with Martin Christopher of Carmeuse. Federal White bring 90 trucks a day, 5 days a week and 12 months a year from 0600 - 1600. Haul route is a loop, no overlap occurs. Email: K:\1800160\4. Analysis\14 AQ Analysis\08 Reference Material\11 180815 Updated Carmeuse Data from Chris
Overburden Trucks	0600-1600	1	Emissions are based on g/hp-hr opposed to g/vkt. Number of traffic passes are not considered, instead it is assumed that three of the overburden trucks are located anywhere on site during the operating time of the quarry. The three vehicles are considered in the emission rate calculation so only one traffic pass is considered here.
Quarry Trucks	0600 - 1600	1	Emissions are based on g/hp-hr opposed to g/vkt. Number of traffic passes are not considered, instead it is assumed that three of the quarry trucks are located anywhere on site during the operating time of the quarry. The three vehicles are considered in the emission rate calculation so only one traffic pass is considered here.
CR6	All Day	Hourly Data Used	Hourly traffic data from a tube count sampling anaylsis was used. This study looked at daily traffic over the course of a week in may. For our assessment the day with the highest vehicle count was selected to ensure the worst case scenario was captured (May 8, 2019). Tube counts were conducted in 2018 so the values had to be scaled up to reflect growth in the future year 2033. 2033 was selected because it is the only future year that noise had peak hourly data for. In order to determine an approperiate growth factor we compared the 2019 light, medium, and heavy peak hour counts and the 2033 light, medium, and heavy peak hour projected values provided by the traffic consultant. It was assumed that this growth could be applied to the hourly traffic data in order to scale up the traffic passes. It was assumed that the hourly traffic distrubtion would remain the same in 2033 as in the 2018 tube counts. New values were determined by applying the calculated growth the all hourly values for their approperiate vehicle classes. Details are avaliable in the "hourly breakdown scaled" tab of this workbook.
Idling Trucks	0700 - 1700	2	It was assumed that during operating hours two trucks were idling at each of the idling sources (Gate and working face) at all times during landfilling activities from 0700 - 1700 each day.
Blasting	1200-1300	1	The Carmeuse contact indicated that blasting occurs every 10 days. To be conservative this model assumes 1 blast a day at 1200.
Working Face Equipment	0700 - 1900	1	Working face equipment passes were based on six pieces of equipment operating at once, completing a pass every two minutes. Operating 0700 - 1900.
For the preliminary assessment the operations will be assumed to occur 7 days a week during the operating hours specified above			

Stage 1:

Source ID	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
P_GATE1	0	0	0	0	0	0	0	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	2.4	2.4	0	0	0	0
UP_LF_2	0	0	0	0	0	0	0	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	2.4	2.4	0	0	0	0
UP_S2_2_MAIN	0	0	0	0	0	0	0	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	2.4	2.4	0	0	0	0
UP_S1	0	0	0	0	0	0	0	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30	30	0	0	0	0
UP_S2_C	0	0	0	0	0	0	0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	0	0	0	0
UP_MAIN_1	0	0	0	0	0	0	0	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	32.4	32.4	0	0	0	0
UP_S4_C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P_N_ENTER_1	0	0	0	0	0	0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	0	0	0	0	0	0	0
P_NORTH_2	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
UP_NORTH_1	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
P_NORTH_3	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
P_SOUTH_1	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
UP_SOUTH_2	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
P_SOUTH_2	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
UP_S1_WSPILE	0	0	0	0	0	0	0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	30	30	0	0	0	0
UP_S3_WSP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_MAIN_2	0	0	0	0	0	0	0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	0	0	0	0
UP_MAIN_3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_MAIN_4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_QRY_PC	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_QRY_OB	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0
UP_QRY_S1_2	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_OB_S1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_BF_S1_S2	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_QRY_S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_S3_OB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P_CR6_LG	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
P_HAULROUTE	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
UP_HAUL	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
P_CR6B	37	27	30	34	45	127	343	443	412	328	323	340	353	335	377	429	489	442	300	216	178	147	127	85
UP_S3_OB_NLF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_NLF_OB_S1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
TRUCK_IDLE	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
S1_IDLE	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
S1_S2_BLAST	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
S2M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MR1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S4C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MR2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MR3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EQUIP_S1_TP	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
S2_CONST_TP	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
S4_CONST_TP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S3_EQUIP_TP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EQUIP_S1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
	37	27	30	34	45	127	343	443	412	328	323	340	353	335	377	429	489	442	300	216	178	147	127	85

Stage 3:

Source ID	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
P_GATE1	0	0	0	0	0	0	0	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	2.4	2.4	0	0	0	0
UP_LF_2	0	0	0	0	0	0	0	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	2.4	2.4	0	0	0	0
UP_S2_2_MAIN	0	0	0	0	0	0	1	40	40	40	40	40	40	40	40	40	40	38.8	2.4	2.4	0	0	0	0
UP_S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_S2_C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_MAIN_1	0	0	0	0	0	0	1	39.8	39.8	39.8	39.8	39.8	39.8	39.8	39.8	39.8	39.8	38.8	2.4	2.4	0	0	0	0
UP_S4_C	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	2.4	2.4	2.4	0	0	0	0
UP_S3	0	0	0	0	0	0	0	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30	30	0	0	0	0
P_N_ENTER_1	0	0	0	0	0	0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	0	0	0	0	0	0	0
P_NORTH_2	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
UP_NORTH_1	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
P_NORTH_3	0	0	0	0	0	0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0
P_SOUTH_1	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
UP_SOUTH_2	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
P_SOUTH_2	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0
UP_S1_WSPILE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_S3_WSP	0	0	0	0	0	0	0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	30	30	0	0	0	0
UP_MAIN_2	0	0	0	0	0	0	1	40	40	40	40	40	40	40	40	40	40	39	2.4	2.4	0	0	0	0
UP_MAIN_3	0	0	0	0	0	0	1	40	40	40	40	40	40	40	40	40	40	39	2.4	2.4	0	0	0	0
UP_MAIN_4	0	0	0	0	0	0	0	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30	30	0	0	0	0
UP_QRY_PC	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_QRY_OB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_QRY_S1_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_OB_S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_BF_S1_S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP_QRY_S3	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_S3_OB	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
P_CR6_LG	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
P_HAULROUTE	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
UP_HAUL	0	0	0	0	0	0	0	39	39	39	39	39	39	39	39	39	39	39	2	2	0	0	0	0
P_CR6B	37	27	30	34	45	127	343	443	412	328	323	340	353	335	377	429	489	442	300	216	178	147	127	85
UP_S3_OB_NLF	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
UP_NLF_OB_S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRUCK_IDLE	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
S3_IDLE	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
S3_S4_BLAST	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EQUIP_S3	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
S2M	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
MR1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
S4C	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
MR2	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
MR3	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
EQUIP_S1_TP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2_CONST_TP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S4_CONST_TP	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
S3_EQUIP_TP	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
EQUIP_S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	37	27	30	34	45	127	343	443	412	328	323	340	353	335	377	429	489	442	300	216	178	147	127	85

APPENDIX E1:
2027 Detailed Tailpipe Emission Rates

Appendix E1: Detailed Roadway Emission Rates - Stage 1 Tailpipe Emissions

Source ID	Description	Gross Power Rating (kW)	Number Of Units	Traffic Passes [2] Hourly (#/h)	Traffic Passes [2] Daily (#/d)	Segment Length [3] (m)	Mean Vehicle Speed (km/h)	Load Factor [4] (%)	Benzene (g/vkt)	Benzene (g/kW-h)	Carbon Monoxide (g/vkt)	Carbon Monoxide (g/kW-h)	Formaldehyde (g/vkt)	Formaldehyde (g/kW-h)	Sulphur Dioxide (g/vkt)	Sulphur Dioxide (g/kW-h)	Toluene (g/vkt)	Toluene (g/kW-h)	Benzo(a)Pyrene (g/vkt)	Benzo(a)Pyrene (g/kW-h)	Oxides of Nitrogen (g/vkt)	Oxides of Nitrogen (g/kW-h)
Mobile Equipment																						
P_GATE1	Paved area at the weight scale entrance	n/a		1	0	443	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_LF_2	Unpaved road from gatehouse to BF int S3	n/a		1	0	85	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_S2_2_MAIN	Road segment from stage 2 active face to main LF road	n/a		1	0	245	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_S1	Unpaved road to stage 1 - Waste soil and waste	n/a		1	0	407	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_S2_C	Unpaved road into stage 2 construction area	n/a		1	0	75	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_MAIN_1	Main landfill haul route to active faces.	n/a		1	0	357	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_S4_C	Unpaved road leading to stage 4 construction area	n/a		0	0	322	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_S3	Unpaved road leading to the stage 3 active face	n/a		0	0	241	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
P_N_ENTER_1	Paved Section of the north entrance for finished goods	n/a		1	0	181	35		1.97E-03		1.16E+00		2.30E-02		1.13E-02		1.96E-03		1.86E-05		4.17E+00	
P_NORTH_2	Paved North Entrance second paved section	n/a		1	0	178	35		1.97E-03		1.16E+00		2.30E-02		1.13E-02		1.96E-03		1.86E-05		4.17E+00	
UP_NORTH_1	North Entrance unpaved section	n/a		1	0	479	35		1.97E-03		1.16E+00		2.30E-02		1.13E-02		1.96E-03		1.86E-05		4.17E+00	
P_NORTH_3	North Entrance Third Paved Section	n/a		1	0	539	35		1.97E-03		1.16E+00		2.30E-02		1.13E-02		1.96E-03		1.86E-05		4.17E+00	
P_SOUTH_1	Paved south entrance	n/a		1	0	256	35		5.49E-03		2.41E+00		1.57E-02		9.32E-03		8.44E-03		8.73E-06		1.40E+00	
UP_SOUTH_2	South entrance unpaved road in working area	n/a		1	0	758	35		5.49E-03		2.41E+00		1.57E-02		9.32E-03		8.44E-03		8.73E-06		1.40E+00	
P_SOUTH_2	Paved road leading out of the working area and to CR6	n/a		1	0	396	35		5.49E-03		2.41E+00		1.57E-02		9.32E-03		8.44E-03		8.73E-06		1.40E+00	
UP_S1_WSPILE	Unpaved Road to Stage 1 waste soil pile	n/a		1	0	270	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_S3_WSP	Stage 3 Waste soil pile to active face haul route	n/a		0	0	83	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_MAIN_2	Main haul route section 2, stage 1 to stage 2	n/a		1	0	51	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_MAIN_3	Unpaved main haul route, stage 2 to stage 3	n/a		0	0	203	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_MAIN_4	Unpaved main haul route stage 3 to stage 4	n/a		0	0	480	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_QRY_PC	Unpaved road leading to the primary crusher	615.2	3	1	0	598	35	59%	1.97E-03	2.69E-03	1.16E+00	1.17E-01	2.30E-02	1.45E-02	1.13E-02	4.76E-03	1.96E-03	1.88E-03	1.86E-05	2.22E-07	4.17E+00	2.98E+00
UP_QRY_OB	Stage 1 - Overburden removal and quarry hauling	615.2	3	1	0	541	35	59%	1.97E-03	2.69E-03	1.16E+00	1.17E-01	2.30E-02	1.45E-02	1.13E-02	4.76E-03	1.96E-03	1.88E-03	1.86E-05	2.22E-07	4.17E+00	2.98E+00
UP_QRY_S1_2	Stage 1 - Quarry haul route	615.2	3	1	0	555	35	59%	1.97E-03	2.69E-03	1.16E+00	1.17E-01	2.30E-02	1.45E-02	1.13E-02	4.76E-03	1.96E-03	1.88E-03	1.86E-05	2.22E-07	4.17E+00	2.98E+00
UP_OB_S1	Stage 1 - overburden removal	615.2	3	1	0	629	35	59%	1.97E-03	2.69E-03	1.16E+00	1.17E-01	2.30E-02	1.45E-02	1.13E-02	4.76E-03	1.96E-03	1.88E-03	1.86E-05	2.22E-07	4.17E+00	2.98E+00
UP_BF_S1_S2	Stage 1 - overburden transfer to S2 for backfill	615.2	3	1	0	875	35	59%	1.97E-03	2.69E-03	1.16E+00	1.17E-01	2.30E-02	1.45E-02	1.13E-02	4.76E-03	1.96E-03	1.88E-03	1.86E-05	2.22E-07	4.17E+00	2.98E+00
UP_QRY_S3	Stage 3 - Quarry haul route	615.2	3	0	0	1662	35	59%	0.00E+00	2.69E-03	0.00E+00	1.17E-01	0.00E+00	1.45E-02	0.00E+00	4.76E-03	0.00E+00	1.88E-03	0.00E+00	2.22E-07	0.00E+00	2.98E+00
UP_S3_OB	Unpaved road for overburden removal	615.2	3	0	0	1480	35	59%	0.00E+00	2.69E-03	0.00E+00	1.17E-01	0.00E+00	1.45E-02	0.00E+00	4.76E-03	0.00E+00	1.88E-03	0.00E+00	2.22E-07	0.00E+00	2.98E+00
P_CR6_LG	County road 6	n/a		1	0	4422	80		1.48E-03		1.10E+00		1.05E-02		7.21E-03		1.88E-03		6.52E-06		2.00E+00	
P_HAULROUTE	Paved section of the LF Haul route	n/a		1	0	1657	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
UP_HAUL	Unpaved portion of the haul route	n/a		1	0	1042	35		3.73E-03		1.78E+00		1.94E-02		1.03E-02		5.20E-03		1.37E-05		2.79E+00	
EQUIP_S1	Equipment at Stage 1 Active Face	n/a		1	0	30	5		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
S3_EQUIP	Equipment at Stage 3 Active Face	n/a		0	0	30	5		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_S3_OB_NLF	Unpaved road for OB removal for stage 3 no landfill	615.2	3	0	0	1494	35	59%	0.00E+00	2.69E-03	0.00E+00	1.17E-01	0.00E+00	1.45E-02	0.00E+00	4.76E-03	0.00E+00	1.88E-03	0.00E+00	2.22E-07	0.00E+00	2.98E+00
UP_NLF_OB_S1	Unpaved road for OB removal for stage 1 no landfill	615.2	3	1	0	1662	35	59%	3.73E-03	2.69E-03	1.78E+00	1.17E-01	1.94E-02	1.45E-02	1.03E-02	4.76E-03	5.20E-03	1.88E-03	1.37E-05	2.22E-07	2.79E+00	2.98E+00
P_CR6B	CR6 roadway background traffic only	n/a		1	0	4424	80		5.98E-04		7.00E-01		3.57E-03		4.26E-03		7.61E-04		2.81E-06		8.64E-01	

[1] ID should reflect Source ID or Route ID, as appropriate.
[2] Where applicable, this value reflects travel in both directions (e.g., 1 round-trip = 2 passes)
[3] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[4] Load Factors from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010
[5] Emissions are input on either a vehicle distance or power rating basis. Load factor applies only to emissions based on power ratings.
[6] Applicable only for TSP, PM10 and PM2.5 emissions from mobile equipment. Emissions rates for NOx and stationary sources do not change.
[7] Emission factors were determined using the US EPA Traffic Model MOVES 2014a.

APPENDIX E2:
2037 Detailed Tailpipe Emission Rates

Appendix E2: Detailed Roadway Emission Rates - Stage 3 Tailpipe Emissions

Source ID	Description	Gross Power Rating (kW)	Number Of Units	Traffic Passes [2] Hourly (#/h)	Traffic Passes [2] Daily (#/d)	Segment Length [3] (m)	Mean Vehicle Speed (km/h)	Load Factor [4] (%)	Benzene (g/vkt)	Benzene (g/kW-h)	Carbon Monoxide (g/vkt)	Carbon Monoxide (g/kW-h)	Formaldehyde (g/vkt)	Formaldehyde (g/kW-h)	Sulphur Dioxide (g/vkt)	Sulphur Dioxide (g/kW-h)	Toluene (g/vkt)	Toluene (g/kW-h)	Benzo(a)Pyrene (g/vkt)	Benzo(a)Pyrene (g/kW-h)	Oxides of Nitrogen (g/vkt)	Oxides of Nitrogen (g/kW-h)
Mobile Equipment																						
P_GATE1	Paved area at the weight scale entrance	n/a		1	1	443	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_LF_2	Unpaved road from gatehouse to BF int S3	n/a		1	1	85	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_S2_2_MAIN	Road segment from stage 2 active face to main LF road	n/a		1	1	245	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_S1	Unpaved road to stage 1 - Waste soil and waste	n/a		0	1	407	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_S2_C	Unpaved road into stage 2 construction area	n/a		0	1	75	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_MAIN_1	Main landfill haul route to active faces.	n/a		1	1	357	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_S4_C	Unpaved road leading to stage 4 construction area	n/a		1	1	322	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_S3	Unpaved road leading to the stage 3 active face	n/a		1	1	241	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
P_N_ENTER_1	Paved Section of the north entrance for finished goods	n/a		1	1	181	35		6.08E-04		3.23E-01		1.02E-02		1.09E-02		1.41E-03		7.15E-08		1.52E+00	
P_NORTH_2	Paved North Entrance second paved section	n/a		1	1	178	35		6.08E-04		3.23E-01		1.02E-02		1.09E-02		1.41E-03		7.15E-08		1.52E+00	
UP_NORTH_1	North Entrance unpaved section	n/a		1	1	479	35		6.08E-04		3.23E-01		1.02E-02		1.09E-02		1.41E-03		7.15E-08		1.52E+00	
P_NORTH_3	North Entrance Third Paved Section	n/a		1	1	539	35		6.08E-04		3.23E-01		1.02E-02		1.09E-02		1.41E-03		7.15E-08		1.52E+00	
P_SOUTH_1	Paved south entrance	n/a		1	1	256	35		2.87E-03		1.27E+00		7.70E-03		9.07E-03		4.74E-03		7.60E-07		6.54E-01	
UP_SOUTH_2	South entrance unpaved road in working area	n/a		1	1	758	35		2.87E-03		1.27E+00		7.70E-03		9.07E-03		4.74E-03		7.60E-07		6.54E-01	
P_SOUTH_2	Paved road leading out of the working area and to CR6	n/a		1	1	396	35		2.87E-03		1.27E+00		7.70E-03		9.07E-03		4.74E-03		7.60E-07		6.54E-01	
UP_S1_WSPILE	Unpaved Road to Stage 1 waste soil pile	n/a		0	1	270	35		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_S3_WSP	Stage 3 Waste soil pile to active face haul route	n/a		1	1	83	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_MAIN_2	Main haul route section 2, stage 1 to stage 2	n/a		1	1	51	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_MAIN_3	Unpaved main haul route, stage 2 to stage 3	n/a		1	1	203	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_MAIN_4	Unpaved main haul route stage 3 to stage 4	n/a		1	1	480	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_QRY_PC	Unpaved road leading to the primary crusher	615.2	3	1	0	598	35	59%	6.08E-04	2.55E-03	3.23E-01	9.75E-02	1.02E-02	1.37E-02	1.09E-02	4.74E-03	1.41E-03	1.78E-03	7.15E-08	2.05E-07	1.52E+00	2.96E+00
UP_QRY_OB	Stage 1 - Overburden removal and quarry hauling	615.2	3	0	0	541	35	59%	0.00E+00	2.55E-03	0.00E+00	9.75E-02	0.00E+00	1.37E-02	0.00E+00	4.74E-03	0.00E+00	1.78E-03	0.00E+00	2.05E-07	0.00E+00	2.96E+00
UP_QRY_S1_2	Stage 1 - Quarry haul route	615.2	3	0	0	555	35	59%	0.00E+00	2.55E-03	0.00E+00	9.75E-02	0.00E+00	1.37E-02	0.00E+00	4.74E-03	0.00E+00	1.78E-03	0.00E+00	2.05E-07	0.00E+00	2.96E+00
UP_OB_S1	Stage 1 - overburden removal	615.2	3	0	0	629	35	59%	0.00E+00	2.55E-03	0.00E+00	9.75E-02	0.00E+00	1.37E-02	0.00E+00	4.74E-03	0.00E+00	1.78E-03	0.00E+00	2.05E-07	0.00E+00	2.96E+00
UP_BF_S1_S2	Stage 1 - overburden transfer to S2 for backfill	615.2	3	0	0	875	35	59%	0.00E+00	2.55E-03	0.00E+00	9.75E-02	0.00E+00	1.37E-02	0.00E+00	4.74E-03	0.00E+00	1.78E-03	0.00E+00	2.05E-07	0.00E+00	2.96E+00
UP_QRY_S3	Stage 3 - Quarry haul route	615.2	3	1	0	1662	35	59%	6.08E-04	2.55E-03	3.23E-01	9.75E-02	1.02E-02	1.37E-02	1.09E-02	4.74E-03	1.41E-03	1.78E-03	7.15E-08	2.05E-07	1.52E+00	2.96E+00
UP_S3_OB	Unpaved road for overburden removal	615.2	3	1	0	1480	35	59%	6.08E-04	2.55E-03	3.23E-01	9.75E-02	1.02E-02	1.37E-02	1.09E-02	4.74E-03	1.41E-03	1.78E-03	7.15E-08	2.05E-07	1.52E+00	2.96E+00
P_CR6_LG	County road 6	n/a		1	0	4422	80		5.95E-04		4.91E-01		4.49E-03		6.97E-03		1.12E-03		5.95E-07		7.43E-01	
P_HAULROUTE	Paved section of the LF Haul route	n/a		1	0	1657	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
UP_HAUL	Unpaved portion of the haul route	n/a		1	0	1042	35		1.74E-03		7.94E-01		8.97E-03		9.97E-03		3.08E-03		4.16E-07		1.09E+00	
EQUIP_S1	Equipment at Stage 1 Active Face	n/a		1	0	30	5		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
S3_EQUIP	Equipment at Stage 3 Active Face	n/a		0	0	30	5		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
UP_S3_OB_NLF	Unpaved road for OB removal for stage 3 no landfill	615.2	3	1	0	1494	35	59%	1.74E-03	2.55E-03	7.94E-01	9.75E-02	8.97E-03	1.37E-02	9.97E-03	4.74E-03	3.08E-03	1.78E-03	4.16E-07	2.05E-07	1.09E+00	2.96E+00
UP_NLF_OB_S1	Unpaved road for OB removal for stage 1 no landfill	615.2	3	0	0	1662	35	59%	0.00E+00	2.55E-03	0.00E+00	9.75E-02	0.00E+00	1.37E-02	0.00E+00	4.74E-03	0.00E+00	1.78E-03	0.00E+00	2.05E-07	0.00E+00	2.96E+00
P_CR6B	CR6 roadway background traffic only	n/a		1	0	4424	80		2.16E-04		3.30E-01		1.43E-03		3.77E-03		3.97E-04		5.09E-07		2.95E-01	

[1] ID should reflect Source ID or Route ID, as appropriate.
[2] Where applicable, this value reflects travel in both directions (e.g., 1 round-trip = 2 passes)
[3] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[4] Load Factors from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010
[5] Emissions are input on either a vehicle distance or power rating basis. Load factor applies only to emissions based on power ratings.
[6] Applicable only for TSP, PM10 and PM2.5 emissions from mobile equipment. Emissions rates for NOx and stationary sources do not change.

APPENDIX F1:
Current Hourly Traffic Distribution

Appendix F1: 2019 Baseline Hourly Traffic Distributions

2019 Hourly Traffic Volumes

Time of Day	Sum of Automobiles	Sum of Medium Trucks	Sum of Heavy Trucks	Sum of ALL
12 AM	13	3	16	32
1 AM	5	2	17	24
2 AM	9	6	11	26
3 AM	3	6	21	30
4 AM	14	11	14	39
5 AM	44	27	40	111
6 AM	129	94	76	299
7 AM	164	127	95	386
8 AM	129	101	130	360
9 AM	101	72	114	287
10 AM	88	84	111	283
11 AM	106	82	109	297
12 PM	93	98	119	310
1 PM	101	73	119	293
2 PM	120	92	118	330
3 PM	161	118	95	374
4 PM	221	121	82	424
5 PM	202	111	70	383
6 PM	136	70	54	260
7 PM	88	51	49	188
8 PM	76	27	52	155
9 PM	61	32	35	128
10 PM	58	20	32	110
11 PM	35	13	26.00	74
Grand Total	**2157**	**1441**	**1605**	**5203**

APPENDIX F2:
Future Hourly Traffic Distribution

Appendix F2: Future Scaled Hourly Traffic Distribution

2033 Hourly Traffic Volumes

Time of Day	Sum of Automobiles	Sum of Medium Trucks	Sum of Heavy Trucks	Sum of ALL
12 AM	15	3	18	37
1 AM	6	2	19	27
2 AM	11	7	12	30
3 AM	4	7	24	34
4 AM	17	12	16	45
5 AM	52	30	45	127
6 AM	152	106	85	343
7 AM	194	143	107	443
8 AM	152	113	146	412
9 AM	119	81	128	328
10 AM	104	94	125	323
11 AM	125	92	122	340
12 PM	110	110	134	353
1 PM	119	82	134	335
2 PM	142	103	132	377
3 PM	190	132	107	429
4 PM	261	136	92	489
5 PM	239	125	79	442
6 PM	161	79	61	300
7 PM	104	57	55	216
8 PM	90	30	58	178
9 PM	72	36	39	147
10 PM	68	22	36	127
11 PM	41	15	29.18	85
Grand Total	**2547**	**1617**	**1801**	**5966**

APPENDIX G:
Summary of MOVES 2014b Non-Roadway Outputs

Appendix G: Summary of MOVES 2014b Non-Roadway Outputs

2027 Non-Road Equipment Emission Rates

Source Type	Hp	Sulfur Dioxide (SO2)	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Benzo(a)pyrene particle	Toluene	Formaldehyde	Benzene	Sulfur Dioxide (SO2)	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Benzo(a)pyrene particle	Toluene	Formaldehyde	Benzene
		7446-09-5	630-08-0	10102-44-0	50-32-8	108-88-3	50-00-0	71-43-2	7446-09-5	630-08-0	10102-44-0	50-32-8	108-88-3	50-00-0	71-43-2
		(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})
Bulldozer	347	3.62E-03	1.14E-01	3.19E-01	1.32E-07	6.89E-04	4.79E-03	8.52E-04	3.49E-04	1.09E-02	3.07E-02	1.27E-08	6.64E-05	4.62E-04	8.21E-05
Excavator	303	3.54E-03	2.51E-02	1.24E-01	4.13E-08	2.88E-04	1.61E-03	2.71E-04	2.98E-04	2.11E-03	1.05E-02	3.48E-09	2.42E-05	1.35E-04	2.28E-05
Compactor	523	3.62E-03	1.14E-01	3.19E-01	1.32E-07	6.89E-04	4.79E-03	8.52E-04	5.26E-04	1.65E-02	4.63E-02	1.92E-08	1.00E-04	6.96E-04	1.24E-04
Loader	379.6	4.39E-03	4.43E-01	9.79E-01	3.60E-07	3.80E-03	3.38E-02	4.99E-03	4.63E-04	4.67E-02	1.03E-01	3.80E-08	4.01E-04	3.56E-03	5.26E-04
Off-Highway Trucks	825	3.55E-03	8.74E-02	2.23E+00	1.65E-07	1.40E-03	1.08E-02	2.01E-03	8.13E-04	2.00E-02	5.10E-01	3.79E-08	3.21E-04	2.48E-03	4.60E-04

Equipment Type	EQUIP_S1_TP	S2_CONST_TP	S4_CONST_TP	S3_EQUIP_TP
Number of Bulldozers	2	2	2	2
Number of Excavators	1	1	1	1
Number of Compactors	5	2	2	5
Number of Loaders	0	1	1	0

Contaminant ID	CAS Number	EQUIP_S1_TP	S2_CONST_TP	S4_CONST_TP	S3_EQUIP_TP
Sulfur Dioxide (SO2) (g s^{-1})	7446-09-5	3.63E-03	2.51E-03	0.00E+00	0.00E+00
Carbon Monoxide (CO) (g s^{-1})	630-08-0	1.06E-01	1.04E-01	0.00E+00	0.00E+00
Oxides of Nitrogen (NOx) (g s^{-1})	10102-44-0	3.03E-01	2.68E-01	0.00E+00	0.00E+00
Benzo(a)pyrene particle (g s^{-1})	50-32-8	1.25E-07	1.05E-07	0.00E+00	0.00E+00
Toluene (g s^{-1})	108-88-3	6.57E-04	7.58E-04	0.00E+00	0.00E+00
Formaldehyde (g s^{-1})	50-00-0	4.54E-03	6.01E-03	0.00E+00	0.00E+00
Benzene (g s^{-1})	71-43-2	8.06E-04	9.61E-04	0.00E+00	0.00E+00

2037 Non-Road Equipment Emission Rates

Source Type	Hp	Sulfur Dioxide (SO2)	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Benzo(a)pyrene particle	Toluene	Formaldehyde	Benzene	Sulfur Dioxide (SO2)	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Benzo(a)pyrene particle	Toluene	Formaldehyde	Benzene
		7446-09-5	630-08-0	10102-44-0	50-32-8	108-88-3	50-00-0	71-43-2	7446-09-5	630-08-0	10102-44-0	50-32-8	108-88-3	50-00-0	71-43-2
		(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g hp-hr^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})	(g s^{-1})
Bulldozer	347	3.54E-03	2.28E-02	1.19E-01	3.73E-08	2.70E-04	1.46E-03	2.44E-04	3.41E-04	2.20E-03	1.15E-02	3.60E-09	2.60E-05	1.41E-04	2.35E-05
Excavator	303	3.53E-03	1.90E-02	1.11E-01	3.34E-08	2.52E-04	1.32E-03	2.18E-04	2.97E-04	1.60E-03	9.37E-03	2.81E-09	2.12E-05	1.11E-04	1.83E-05
Compactor	523	3.54E-03	2.28E-02	1.19E-01	3.73E-08	2.70E-04	1.46E-03	2.44E-04	5.14E-04	3.31E-03	1.73E-02	5.42E-09	3.92E-05	2.13E-04	3.55E-05
Loader	379.6	4.18E-03	9.35E-02	2.71E-01	1.09E-07	1.02E-03	7.71E-03	1.27E-03	4.41E-04	9.86E-03	2.85E-02	1.15E-08	1.08E-04	8.13E-04	1.34E-04
Off-Highway Trucks	825	3.53E-03	7.27E-02	2.21E+00	1.53E-07	1.33E-03	1.02E-02	1.90E-03	8.10E-04	1.67E-02	5.05E-01	3.51E-08	3.04E-04	2.35E-03	4.35E-04

Equipment Type	EQUIP_S1_TP	S2_CONST_TP	S4_CONST_TP	S3_EQUIP_TP
Number of Bulldozers	2	2	2	2
Number of Excavators	1	1	1	1
Number of Compactors	5	2	2	5
Number of Loaders	0	1	1	0

Contaminant ID	CAS Number	EQUIP_S1_TP	S2_CONST_TP	S4_CONST_TP	S3_EQUIP_TP
Sulfur Dioxide (SO2) (g s^{-1})	7446-09-5	0.000	0.000	0.002	0.004
Carbon Monoxide (CO) (g s^{-1})	630-08-0	0.000	0.000	0.009	0.023
Oxides of Nitrogen (NOx) (g s^{-1})	10102-44-0	0.000	0.000	0.095	0.119
Benzo(a)pyrene particle (g s^{-1})	50-32-8	0.000	0.000	0.000	0.000
Toluene (g s^{-1})	108-88-3	0.000	0.000	0.000	0.000
Formaldehyde (g s^{-1})	50-00-0	0.000	0.000	0.002	0.001
Benzene (g s^{-1})	71-43-2	0.000	0.000	0.000	0.000

APPENDIX H:
Carmeuse Source Summary Table

Appendix H: Carmeuse Source Summary Table

Source ID	Source Type	Source Description	Source Data								Emission Data				
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Maximum Emission Rate ($g\ s^{-1}$)	Maximum Emission Flux Rate ($g\ m^{-2}\ s^{-1}$)	Averaging Period (hours)
Carmeuse Sources															
Kiln1	Point	Rotary Kiln	73.3	311	2.5	14.9	30.5	--	511561.293	4768453.05	Benzene	71-43-2	5.84E-04	N/A	Annual
											Nitrogen Oxides	10102-44-0	1.83E+01	N/A	1
															24
											Sulphur Dioxide	7446-09-5	1.07E+00	N/A	1
															24
															Annual
											Carbon Monoxide	630-08-0	9.84E+00	N/A	1
															8
Kiln3	Point	Rotary Kiln	38.8	291.1	2.13	10.9	36.6	--	511552	4768473	Benzene	71-43-2	#REF!	N/A	Annual
											Nitrogen Oxides	10102-44-0	8.46E+00	N/A	1
															24
											Sulphur Dioxide	7446-09-5	9.32E-01	N/A	1
															24
															Annual
											Carbon Monoxide	630-08-0	9.21E+00	N/A	1
															8

APPENDIX I:
Landfill Gas Flare Emissions Rate Calculations

Appendix I: Landfill Gas Flare Emission Rate Calculations

The Facility Characteristic Assumptions (FCA) report states that the initial landfill operation will only require a single landfill gas flare, with a potential for up to three flares as landfilling progresses. For the purpose of this assessment, it is conservatively assumed that all landfill gas will be combusted in a single flare.

Landfill Gas Production

Study Period	Landfill Gas Collected ($m^3 s^{-1}$)	Landfill Gas Collected ($m^3 yr^{-1}$)
2023-2027	3.36E-01	1.06E+07
2028-2032	9.33E-01	2.94E+07
2033-2037	1.42E+00	4.48E+07
2038-2042	1.82E+00	5.74E+07
2043	2.13E+00	6.71E+07

Destruction Efficiency of VOCs	98%

[1] The destruction efficency is based on the typical value recommended in AP-42 Chapter 2.4, Table 2.4-3 for Flares for NMOC and VOC compounds.

Flare 1 Emission Rate Summary

Contaminant Name	CAS	AP-42 Emission Factor [1] ($kg\ 10^{-6}$ dscm methane)	LFG Source Testing Concentration ($mg\ m^{-3}$)	Flare Emission Rate ($g\ s^{-1}$)	
				2023-2027	2033-2037
Nitrogen Oxides (NOx)	10102-44-0	631	--	2.12E-01	8.97E-01
Carbon Monoxide (CO)	630-08-0	737	--	2.48E-01	1.05E+00
Particulate Matter (PM)	TSP	238	--	8.00E-02	3.38E-01
Benzene	71-43-2	--	24.04	1.86E-04	7.86E-04
Toluene	108-88-3	--	148.00	1.14E-03	4.84E-03

Contaminant Name	CAS	AP-42 Emission Factor [1] (kg 10^{-6} dscm methane)	LFG Source Testing Concentration (mg m^{-3})	Flare Emission Rate (g s^{-1})	
				2023-2027	2033-2037
Sulphur Dioxides [2]	7446-09-5	--	2,306.15	1.78E-02	7.54E-02

Notes:

[1] Emission based on AP-42 emission factors were conservatively based on total landfill gas producted, not Methane produced.

[2] Concentrations of sulphur dioxide were estimated using AP-42 Chapter 2.4, section 2.4.4.2 equation 6.

APPENDIX J:
Summary of the Monitoring Data Results

Appendix J: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	TRS																					
	Dimethyl Disulphide	Dimethyl Sulphide	Hydrogen Sulphide	Total Mercaptans (as Methyl Mercaptan)	Total Reduced Sulphurs (TRS)	Acetone	Benzene	Bromodichloro methane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoro methane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoro methane	1,1-Dichloroethane	1,2-Dichloroethane
CAS	624-92-0	75-18-3	7783-06-4	74-93-1	N/A-2	67-64-1	71-43-2	75-27-4	78-92-2	123-86-4	78-92-2	56-23-5	108-90-7	75-45-6	75-00-3	67-66-3	74-87-3	535-77-3	124-18-5	106-93-4	106-46-7	75-71-8	75-34-3	107-06-2
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*	*2*
Rd 66 VOC D																								
April 2, 2018	Invalid Sample																							
April 8, 2018	3.9	7.5	2.8	4.0	5.0	2.8	0.306	0.34	3.1	4.8	0.8	0.42	0.46	0.86	0.27	0.133	1.23	5.5	1.5	0.039	0.06	1.95	0.041	0.052
April 14, 2018	Invalid Sample																							
April 20, 2018	3.9	7.5	2.8	4.0	5.0	5.2	0.201	0.34	3.1	4.8	0.8	0.42	0.46	1.02	0.27	0.863	1.10	5.5	1.5	0.039	0.06	1.90	0.041	0.054
April 26, 2018	3.9	7.5	2.8	4.0	5.0	3.4	0.276	0.34	3.1	4.8	0.8	0.43	0.46	1.01	0.27	0.218	1.32	5.5	1.5	0.039	0.06	1.95	0.041	0.068
May 2, 2018	Invalid Sample																							
May 8, 2018	3.9	7.5	2.8	4.0	5.0	21.7	0.207	0.34	3.1	4.8	0.8	0.44	0.46	1.28	0.27	3.790	1.03	5.5	1.5	0.039	0.06	1.59	0.041	0.085
May 14, 2018	2.0	2.6	1.4	2.0	2.8	6.2	0.332	0.34	3.1	4.8	0.8	0.47	0.46	1.02	0.27	0.184	1.30	5.5	1.5	0.039	0.69	2.07	0.041	0.072
May 20, 2018	2.0	2.6	1.4	2.0	2.8	7.5	0.356	0.34	3.1	4.8	0.8	0.47	0.46	0.36	0.27	0.156	1.21	5.5	1.5	0.039	0.53	1.80	0.041	0.057
May 26, 2018	2.0	2.6	3.1	2.0	2.8	18.4	0.355	0.34	3.1	4.8	0.8	0.43	0.46	1.47	0.27	0.100	1.25	5.5	1.5	0.039	0.54	2.00	0.041	0.059
June 1, 2018	2.0	2.6	6.0	2.0	6.0	27.8	0.149	0.34	3.1	4.8	0.8	0.41	0.46	0.36	0.27	0.107	1.25	5.5	1.5	0.039	0.52	1.79	0.041	0.075
June 7, 2018	2.0	2.6	3.3	2.0	2.8	20.3	0.190	0.34	3.1	4.8	0.8	0.44	0.46	0.83	0.27	0.103	1.06	5.5	1.5	0.039	0.13	1.78	0.041	0.065
June 13, 2018	2.0	2.6	12.1	2.0	12.1	19.1	0.211	0.34	3.1	4.8	0.8	0.41	0.46	0.84	0.27	0.049	1.81	5.5	1.5	0.039	0.29	1.89	0.041	0.050
June 19, 2018	2.0	2.6	1.4	2.0	2.8	13.1	0.098	0.34	3.1	4.8	0.8	0.37	0.46	0.36	0.27	0.161	1.21	5.5	1.5	0.039	0.32	1.88	0.041	0.042
June 25, 2018	2.0	2.6	1.4	2.0	2.8	8.4	0.091	0.34	3.1	4.8	0.8	0.46	0.46	0.80	0.27	0.180	1.19	5.5	1.5	0.039	0.27	1.84	0.041	0.065
January 3, 2019	1.95	2.55	1.4	1.95	2.8	7	0.351	0.335	3.05	4.75	0.75	0.46	0.46	0.79	0.265	0.049	1.04	5.5	1.45	0.0385	0.06	2.35	0.0405	0.083
January 9, 2019	1.95	2.55	1.4	1.95	2.8	9.3	0.374	0.335	3.05	4.75	2.1	0.47	0.46	0.355	0.265	0.049	1.05	5.5	1.45	0.0385	0.06	2.25	0.0405	0.089
January 15, 2019	1.95	2.55	1.4	1.95	2.8	7.8	0.501	0.335	3.05	4.75	0.75	0.49	0.46	0.94	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.33	0.0405	0.095
January 21, 2019	Invalid Sample																							
January 27, 2019	Invalid Sample																							
February 2, 2019	1.95	2.55	1.4	1.95	2.8	6	0.774	0.335	3.05	4.75	0.75	0.48	0.46	1.1	0.265	0.049	1.17	5.5	1.45	0.0385	0.06	2.3	0.0405	0.099
February 8, 2019	1.95	2.55	1.4	1.95	2.8	6.8	0.439	0.335	3.05	4.75	0.75	0.51	0.46	0.77	0.265	0.049	1.13	5.5	1.45	0.0385	0.06	2.24	0.0405	0.085
February 14, 2019	1.95	2.55	1.4	1.95	2.8	8.9	0.495	0.335	3.05	4.75	0.75	0.49	0.46	0.89	0.265	0.049	1.31	5.5	1.45	0.0385	0.06	2.22	0.0405	0.087
February 20, 2019	Invalid Sample																							
February 26, 2019	2.85	3.75	1.55	2.9	1.55	9.5	0.346	0.335	3.05	4.75	0.75	0.45	0.46	0.355	0.265	0.049	1.28	5.5	1.45	0.0385	0.06	2.52	0.0405	0.087
March 4, 2019	2.65	3.5	1.45	2.7	1.45	7.6	0.427	0.335	3.05	4.75	0.75	0.41	0.46	0.355	0.265	0.049	1.09	5.5	1.45	0.0385	0.06	2.3	0.0405	0.084
March 10, 2019	2.65	3.5	1.45	2.7	1.45	6.5	0.845	0.335	3.05	4.75	0.75	0.47	0.46	0.355	0.265	0.049	1.08	5.5	1.45	0.0385	0.06	2.54	0.0405	0.086
March 16, 2019	1.95	2.55	1.4	1.95	2.8	8	0.327	0.335	3.05	4.75	0.75	0.48	0.46	1.25	0.265	0.049	1.25	5.5	1.45	0.0385	0.06	2.48	0.0405	0.084
March 22, 2019	1.95	2.55	1.4	1.95	2.8	9.4	0.36	0.335	3.05	4.75	0.75	0.49	0.46	1.01	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.52	0.0405	0.094
March 28, 2019	1.95	2.55	1.4	1.95	2.8	16	0.566	0.335	3.05	4.75	0.75	0.4	0.46	1.02	0.265	0.049	1.23	5.5	1.45	0.0385	0.06	2.55	0.0405	0.079
April 3, 2019	1.95	2.55	1.4	1.95	2.8	Invalid Sample																		
April 9, 2019	1.95	2.55	1.4	1.95	2.8	Invalid Sample																		
July 1, 2018	*1.95*	*2.55*	*1.4*	*1.95*	*2.8*	*22.9*	*0.239*	*0.335*	*3.05*	*4.75*	*2.5*	*0.43*	*0.46*	*0.82*	*0.265*	*0.364*	*1.29*	*5.5*	*1.45*	*0.0385*	*0.63*	*1.93*	*0.0405*	*0.067*
July 7, 2018	Invalid Sample																							
July 13, 2018	1.950	2.550	3.300	1.950	2.800	8.600	0.369	0.335	3.050	4.750	0.750	0.460	0.460	0.355	0.265	0.299	1.220	5.500	1.450	0.039	0.420	1.920	0.041	0.068
July 19, 2018	2.0	2.6	1.4	2.0	2.8	9.4	0.2	0.3	3.1	4.8	0.8	0.5	0.5	0.4	0.3	0.2	1.0	5.5	1.5	0.0	0.2	2.0	0.0	0.1
July 25, 2018	2.0	2.6	1.4	2.0	2.8	15.1	0.3	0.3	3.1	4.8	0.8	0.5	0.5	0.7	0.3	0.2	1.1	5.5	1.5	0.0	0.2	1.9	0.0	0.0
July 31, 2018	2.0	2.6	1.4	2.0	2.8	12.7	0.3	0.3	3.1	4.8	0.8	0.5	0.5	0.4	0.3	0.2	0.9	5.5	1.5	0.0	0.1	2.1	0.0	0.1
August 6, 2018	1.95	2.55	1.4	1.95	2.8	18.1	0.635	0.335	3.05	4.75	0.75	0.42	0.46	0.355	0.265	0.102	1.04	5.5	1.45	0.0385	0.14	1.82	0.0405	0.045
August 12, 2018	1.95	2.55	1.4	1.95	2.8	8.6	0.548	0.335	3.05	4.75	0.75	0.43	0.46	0.355	0.265	0.12	0.91	5.5	1.45	0.0385	0.06	1.91	0.0405	0.02
August 18, 2018	1.95	2.55	1.4	1.95	2.8	9.4	0.233	0.335	3.05	4.75	0.75	0.49	0.46	0.8	0.265	0.098	0.97	5.5	1.45	0.0385	0.16	2.01	0.0405	0.054
August 24, 2018	1.95	2.55	1.4	1.95	2.8	8.6	0.416	0.335	3.05	4.75	0.75	0.43	0.46	0.8	0.265	0.111	0.87	5.5	1.45	0.0385	0.06	2.01	0.0405	0.046
August 30, 2018	1.95	2.55	1.4	1.95	2.8	7.6	0.27	0.335	3.05	4.75	7.9	0.43	0.46	0.9	0.265	0.1	0.87	5.5	1.45	0.0385	0.06	1.96	0.0405	0.042
September 5, 2018	2	3	14	2	14	26	0	0	3	5	2	0	0	1	0	0	1	6	1	0	0	2	0	0
September 11, 2018	1.95	2.55	3.5	1.95	2.8	14.6	0.563	0.335	3.05	4.75	2.8	0.4	0.46	1.08	0.265	0.161	0.98	5.5	1.45	0.0385	0.33	2.03	0.0405	0.02
September 17, 2018	1.95	2.55	1.4	1.95	2.8	11.7	0.24	0.335	3.05	4.75	1.8	0.45	0.46	0.82	0.265	0.049	1.12	5.5	1.45	0.0385	0.06	2.05	0.0405	0.02
September 23, 2018	1.95	2.55	1.4	1.95	2.8	5	0.339	0.335	3.05	4.75	0.75	0.52	0.46	0.94	0.265	0.049	0.96	5.5	1.45	0.0385	0.06	2.13	0.0405	0.02
September 29, 2018	1.95	2.55	1.4	1.95	2.8	5.3	0.21	0.335	3.05	4.75	0.75	0.52	0.46	0.355	0.265	0.049	0.86	5.5	1.45	0.0385	0.06	1.96	0.0405	0.048
October 5, 2018	1.95	2.55	1.4	1.95	2.8	5.6	0.138	0.335	3.05	4.75	0.75	0.53	0.46	0.77	0.265	0.106	0.93	5.5	1.45	0.0385	0.06	2.03	0.0405	0.065
October 11, 2018	1.95	2.55	1.4	1.95	2.8	7	0.18	0.335	3.05	4.75	1.9	0.53	0.46	0.9	0.265	0.049	1.2	5.5	1.45	0.0385	0.06	2.31	0.0405	0.067
October 17, 2018	1.95	2.55	1.4	1.95	2.8	7.5	0.177	0.335	3.05	4.75	2.2	0.43	0.46	0.73	0.265	0.049	0.92	5.5	1.45	0.0385	0.06	1.9	0.0405	0.048
October 23, 2018	n/a	n/a	n/a	n/a	n/a	6.6	0.288	0.335	3.05	4.75	5	0.42	0.46	0.355	0.265	0.049	1.09	5.5	1.45	0.0385	0.06	1.98	0.0405	0.044
October 29, 2018	3.8	5	2.05	3.85	2.1	14.2	0.2	0.335	3.05	4.75	0.75	0.45	0.46	1.01	0.265	0.049	1.27	5.5	1.45	0.0385	0.06	2.16	0.0405	0.055
November 4, 2018	Invalid Sample																							
November 10, 2018	Invalid Sample																							
November 16, 2018	3.85	5	2.8	3.95	5	9	0.508	0.335	3.05	4.75	0.75	0.45	0.46	0.86	0.265	0.049	1.26	5.5	1.45	0.0385	0.06	2.15	0.0405	0.05
November 22, 2018	1.95	2.55	1.4	1.95	2.8	6.5	0.288	0.335	3.05	4.75	0.75	0.45	0.46	0.83	0.265	0.049	1.14	5.5	1.45	0.0385	0.06	1.99	0.0405	0.02
November 28, 2018	1.95	2.55	1.4	1.95	2.8	7.1	0.322	0.335	3.05	4.75	0.75	0.48	0.46	0.9	0.265	0.049	1.17	5.5	1.45	0.0385	0.06	2.26	0.0405	0.044
December 4, 2018	1.95	2.55	3.3	1.95	2.8	9.9	0.254	0.335	3.05	4.75	0.75	0.49	0.46	0.75	0.265	0.049	1.16	5.5	1.45	0.0385	0.06	2.03	0.0405	0.049
December 10, 2018	1.95	2.55	1.4	1.95	2.8	13.4	0.475	0.335	3.05	4.75	0.75	0.43	0.46	0.72	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.26	0.0405	0.042
December 16, 2018	1.95	2.55	19.1	1.95	19.1	7.1	0.454	0.335	3.05	4.75	0.75	0.43	0.46	0.83	0.265	0.049	1.03	5.5	1.45	0.0385	0.06	2.24	0.0405	0.02
December 22, 2018	1.95	2.55	1.4	1.95	2.8	10	0.28	0.335	3.05	4.75	0.75	0.43	0.46	0.84	0.265	0.049	1.12	5.5	1.45	0.0385	0.06	2.42	0.0405	0.041
December 28, 2018	1.95	2.55	1.4	1.95	2.8	8.2	0.374	0.335	3.05	4.75	0.75	0.42	0.46	0.9	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.25	0.0405	0.02

Appendix J: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	TRS																						
	Dimethyl Disulphide	Dimethyl Sulphide	Hydrogen Sulphide	Total Mercaptans (as Methyl Mercaptan)	Total Reduced Sulphurs (TRS)	Acetone	Benzene	Bromodichloro methane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoro methane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoro methane	1,1-Dichloroethane	1,2-Dichloroethane
CAS	624-92-0	75-18-3	7783-06-4	74-93-1	N/A-2	67-64-1	71-43-2	75-27-4	78-92-2	123-86-4	78-92-2	56-23-5	108-90-7	75-45-6	75-00-3	67-66-3	74-87-3	535-77-3	124-18-5	106-93-4	106-46-7	75-71-8	75-34-3	107-06-2
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*	*2*
33rd Line VOC D																								
April 2, 2018	Invalid Sample																							
April 8, 2018	3.9	7.5	2.8	4.0	5.0	1.5	0.294	0.34	3.1	4.8	0.8	0.41	0.46	0.75	0.27	0.049	1.09	5.5	1.5	0.039	0.06	2.06	0.041	0.043
April 14, 2018	3.9	7.5	2.8	4.0	5.0	2.4	0.301	0.34	3.1	4.8	0.8	0.41	0.46	0.83	0.27	0.049	1.02	5.5	1.5	0.039	0.06	2.06	0.041	0.054
April 20, 2018	3.9	7.5	2.8	4.0	5.0	2.5	0.226	0.34	3.1	4.8	0.8	0.40	0.46	0.36	0.27	0.049	1.14	5.5	1.5	0.039	0.06	1.88	0.041	0.045
April 26, 2018	3.9	7.5	2.8	4.0	5.0	2.9	0.292	0.34	3.1	4.8	0.8	0.40	0.46	0.36	0.27	0.049	0.85	5.5	1.5	0.039	0.06	1.81	0.041	0.049
May 2, 2018	3.9	7.5	2.8	4.0	5.0	6.1	0.235	0.34	3.1	4.8	0.8	0.44	0.46	1.21	0.27	0.049	1.22	5.5	1.5	0.039	0.13	1.67	0.041	0.073
May 8, 2018	3.9	7.5	2.8	4.0	5.0	4.2	0.250	0.34	3.1	4.8	0.8	0.42	0.46	1.01	0.27	0.100	1.05	5.5	1.5	0.039	0.06	1.71	0.041	0.070
May 14, 2018	2.0	2.6	1.4	2.0	2.8	5.1	0.386	0.34	3.1	4.8	0.8	0.47	0.46	0.36	0.27	0.142	1.18	5.5	1.5	0.039	0.12	2.26	0.041	0.065
May 20, 2018	2.0	2.6	1.4	2.0	2.8	6.7	0.262	0.34	3.1	4.8	0.8	0.48	0.46	0.81	0.27	0.049	1.17	5.5	1.5	0.039	0.34	2.10	0.041	0.075
May 26, 2018	2.0	2.6	2.8	2.0	2.8	19.2	1.000	0.34	3.1	4.8	2.7	0.40	0.46	0.91	0.27	0.117	1.29	5.5	1.5	0.039	0.17	2.03	0.041	0.062
June 1, 2018	2.0	2.6	4.7	2.0	2.8	35.6	0.958	0.34	3.1	4.8	1.5	0.42	0.46	0.36	0.27	0.237	1.16	5.5	1.5	0.039	0.36	1.93	0.041	0.074
June 7, 2018	2.0	2.6	3.4	2.0	2.8	14.7	0.276	0.34	3.1	4.8	1.9	0.41	0.46	0.36	0.27	0.273	0.81	5.5	1.5	0.039	0.27	1.85	0.041	0.070
June 13, 2018	2.0	2.6	1.4	2.0	2.8	26.0	0.435	0.34	3.1	4.8	3.5	0.32	0.46	0.90	0.27	0.195	1.18	5.5	1.5	0.039	0.21	1.58	0.041	0.020
June 19, 2018	2.0	2.6	1.4	2.0	2.8	58.2	0.370	0.34	3.1	4.8	13.4	0.37	0.46	0.88	0.27	2.010	1.24	5.5	1.5	0.039	2.88	1.80	0.041	0.047
June 25, 2018	2.0	2.6	1.4	2.0	2.8	68.1	0.417	0.34	3.1	4.8	17.5	0.41	0.46	0.72	0.27	2.510	0.92	5.5	1.5	0.039	2.23	1.74	0.041	0.068
January 3, 2019	Invalid Sample																							
January 9, 2019	1.95	2.55	1.4	1.95	2.8	7.5	0.343	0.335	3.05	4.75	0.75	0.45	0.46	0.81	0.265	0.049	1.05	5.5	1.45	0.0385	0.06	2.25	0.0405	0.086
January 15, 2019	Invalid Sample																							
January 21, 2019	Invalid Sample																							
January 27, 2019	Invalid Sample																							
February 2, 2019	1.95	2.55	1.4	1.95	2.8	6.6	0.81	0.335	3.05	4.75	0.75	0.47	0.46	0.97	0.265	0.115	1.11	5.5	1.45	0.0385	0.06	2.19	0.0405	0.126
February 8, 2019	1.95	2.55	1.4	1.95	2.8	9.3	0.608	0.335	3.05	4.75	0.75	0.49	0.46	0.87	0.265	0.049	1.1	5.5	1.45	0.0385	0.06	2.3	0.0405	0.082
February 14, 2019	1.95	2.55	1.4	1.95	2.8	8.8	0.498	0.335	3.05	4.75	0.75	0.5	0.46	0.81	0.265	0.049	1.17	5.5	1.45	0.0385	0.06	2.16	0.0405	0.083
February 20, 2019	3.8	5	16	3.9	22	16.7	0.589	0.335	3.05	4.75	0.75	0.44	0.46	0.87	0.265	0.049	1.2	5.5	1.45	0.0385	0.06	2.34	0.0405	0.082
February 26, 2019	2.85	3.75	1.55	2.9	1.55	9.4	0.364	0.335	3.05	4.75	0.75	0.48	0.46	0.355	0.265	0.049	1.2	5.5	1.45	0.0385	0.06	2.6	0.0405	0.09
March 4, 2019	Invalid Sample																							
March 10, 2019	2.65	9.1	1.45	2.7	4.8	6.7	1.07	0.335	3.05	4.75	0.75	0.48	0.46	0.355	0.265	0.049	1.3	5.5	1.45	0.0385	0.06	2.5	0.0405	0.088
March 16, 2019	1.95	2.55	1.4	1.95	2.8	9.8	0.39	0.335	3.05	4.75	4	0.46	0.46	0.355	0.265	0.119	1.05	5.5	1.45	0.0385	0.06	2.48	0.0405	0.082
March 22, 2019	1.95	2.55	1.4	1.95	2.8	16.2	0.413	0.335	3.05	4.75	0.75	0.5	0.46	0.86	0.265	0.151	1.16	5.5	1.45	0.0385	0.06	2.45	0.0405	0.098
March 28, 2019	1.95	2.55	1.4	1.95	2.8	18.5	0.744	0.335	3.05	4.75	0.75	0.43	0.46	0.91	0.265	0.049	1.33	5.5	1.45	0.0385	0.06	2.61	0.0405	0.071
April 3, 2019	1.95	2.55	1.4	1.95	2.8	Invalid																		
April 9, 2019	1.95	2.55	1.4	1.95	2.8	Invalid																		
July 1, 2018	1.95	2.55	1.4	1.95	2.8	25.2	0.376	0.335	3.05	4.75	0.75	0.44	0.46	1	0.265	0.359	1.26	5.5	1.45	0.0385	0.35	2.1	0.0405	0.061
July 7, 2018	*1.95*	*2.55*	*1.4*	*1.95*	*2.8*	*7*	*0.219*	*0.335*	*3.05*	*4.75*	*0.75*	*0.46*	*0.46*	*0.355*	*0.265*	*0.223*	*1.31*	*5.5*	*1.45*	*0.0385*	*0.17*	*1.77*	*0.0405*	*0.071*
July 13, 2018	1.95	2.55	3	1.95	2.8	23.4	0.336	0.335	3.05	4.75	0.75	0.5	0.46	0.355	0.265	0.15	1.42	5.5	1.45	0.0385	0.16	2.15	0.0405	0.138
July 19, 2018	1.950	2.550	1.400	1.950	2.800	9.300	0.313	0.335	3.050	4.750	0.750	0.510	0.460	0.355	0.265	0.196	1.140	5.500	7.600	0.098	0.190	1.920	0.097	0.156
July 25, 2018	2.0	2.6	1.4	2.0	2.8	25.6	0.5	0.3	3.1	4.8	0.8	0.5	0.5	0.9	0.3	0.2	1.1	5.5	1.5	0.0	0.1	2.0	0.0	0.0
July 31, 2018	2.0	2.6	1.4	2.0	2.8	13.7	0.5	0.3	3.1	4.8	0.8	0.4	0.5	0.9	0.3	0.1	0.8	5.5	0.0	0.0	0.1	1.8	0.0	0.1
August 6, 2018	2.0	2.6	1.4	2.0	2.8	13.7	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.1	5.5	1.5	0.0	0.1	2.1	0.0	0.1
August 12, 2018	Invalid Sample																							
August 18, 2018	1.95	2.55	1.4	1.95	2.8	9.9	0.222	0.335	3.05	4.75	0.75	0.52	0.46	0.355	0.265	0.049	1.15	5.5	1.45	0.0385	0.06	2.16	0.0405	0.045
August 24, 2018	1.95	2.55	1.4	1.95	2.8	8.5	0.422	0.335	3.05	4.75	3.9	0.41	0.46	0.91	0.265	0.101	0.81	5.5	1.45	0.0385	0.06	2.03	0.0405	0.046
August 30, 2018	1.95	2.55	1.4	1.95	2.8	7.8	0.257	0.335	3.05	4.75	0.75	0.41	0.46	0.355	0.265	0.049	0.82	5.5	1.45	0.0385	0.06	1.92	0.0405	0.044
September 5, 2018	Invalid Sample																							
September 11, 2018	2	3	1	2	3	14	1	0	3	5	4	0	0	1	0	0	1	6	1	0	0	2	0	0
September 17, 2018	1.95	2.55	1.4	1.95	2.8	13	0.436	0.335	3.05	4.75	1.6	0.46	0.46	0.74	0.265	0.049	1.25	5.5	1.45	0.0385	0.37	2.07	0.0405	0.02
September 23, 2018	1.95	2.55	1.4	1.95	2.8	7.2	0.425	0.335	3.05	4.75	0.75	0.52	0.46	0.82	0.265	0.101	0.88	5.5	1.45	0.0385	0.06	2.09	0.0405	0.02
September 29, 2018	1.95	2.55	1.4	1.95	2.8	6.9	0.234	0.335	3.05	4.75	0.75	0.52	0.46	0.81	0.265	0.049	0.84	5.5	1.45	0.0385	0.06	2.1	0.0405	0.052
October 5, 2018	1.95	2.55	1.4	1.95	2.8	5.8	0.127	0.335	3.05	4.75	0.75	0.54	0.46	0.75	0.265	0.108	0.93	5.5	1.45	0.0385	0.06	2.02	0.0405	0.063
October 11, 2018	1.95	2.55	1.4	1.95	2.8	8.7	0.198	0.335	3.05	4.75	0.75	0.52	0.46	0.73	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.3	0.0405	0.069
October 17, 2018	1.95	2.55	1.4	1.95	2.8	8.8	0.178	0.335	3.05	4.75	0.75	0.43	0.46	0.71	0.265	0.049	0.98	5.5	1.45	0.0385	0.06	1.97	0.0405	0.046
October 23, 2018	1.95	2.55	1.4	1.95	2.8	8	0.358	0.335	3.05	4.75	0.75	0.49	0.46	0.75	0.265	0.107	1.08	5.5	1.45	0.0385	0.06	2.03	0.0405	0.072
October 29, 2018	3.85	5	2.1	3.9	2.1	6.9	0.337	0.335	3.05	4.75	0.75	0.44	0.46	0.355	0.265	0.049	1.04	5.5	1.45	0.0385	0.06	2.19	0.0405	0.056
November 4, 2018	2.35	3.05	1.25	2.4	1.25	7.1	0.329	0.335	3.05	4.75	0.75	0.48	0.46	0.95	0.265	0.049	1.02	5.5	1.45	0.0385	0.06	2.13	0.0405	0.056
November 10, 2018	2.3	3.05	1.25	2.35	1.25	8	0.329	0.335	3.05	4.75	0.75	0.47	0.46	1.05	0.265	0.049	1.06	5.5	1.45	0.0385	0.06	2.04	0.0405	0.02
November 16, 2018	3.85	5	2.8	3.95	5	6.3	0.482	0.335	3.05	4.75	0.75	0.47	0.46	0.95	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.07	0.0405	0.053
November 22, 2018	1.95	2.55	1.4	1.95	2.8	9.2	0.298	0.335	3.05	4.75	0.75	0.46	0.46	0.82	0.265	0.049	1.15	5.5	1.45	0.0385	0.06	2.07	0.0405	0.041
November 28, 2018	1.95	2.55	1.4	1.95	2.8	5.7	0.287	0.335	3.05	4.75	0.75	0.48	0.46	0.83	0.265	0.049	1.13	5.5	1.45	0.0385	0.06	2.1	0.0405	0.044
December 4, 2018	Invalid Sample																							
December 10, 2018	Invalid Sample																							
December 16, 2018	Invalid Sample																							
December 22, 2018	Invalid Sample																							
December 28, 2018	Invalid Sample																							

Appendix J: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	TRS																						
	Dimethyl Disulphide	Dimethyl Sulphide	Hydrogen Sulphide	Total Mercaptans (as Methyl Mercaptan)	Total Reduced Sulphurs (TRS)	Acetone	Benzene	Bromodichloro methane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoro methane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoro methane	1,1-Dichloroethane	1,2-Dichloroethane
CAS	624-92-0	75-18-3	7783-06-4	74-93-1	N/A-2	67-64-1	71-43-2	75-27-4	78-92-2	123-86-4	78-92-2	56-23-5	108-90-7	75-45-6	75-00-3	67-66-3	74-87-3	535-77-3	124-18-5	106-93-4	106-46-7	75-71-8	75-34-3	107-06-2
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*	*2*
Bell VOC D																								
April 2, 2018																								
April 8, 2018	Invalid Sample																							
April 14, 2018	3.9	7.5	2.8	4.0	5.0	4.1	0.362	0.34	3.1	4.8	0.8	0.39	0.46	0.81	0.27	0.191	1.05	5.5	1.5	0.039	0.06	1.94	0.041	0.047
April 20, 2018	3.9	7.5	2.8	4.0	5.0	9.0	0.4	0.3	3.1	4.8	0.8	0.4	0.5	0.9	0.3	3.3	1.2	5.5	1.5	0.0	0.2	1.8	0.0	0.1
April 26, 2018	Invalid Sample																							
May 2, 2018	3.9	7.5	2.8	4.0	5.0	5.2	0.380	0.34	3.1	4.8	0.8	0.43	0.46	1.28	0.27	0.177	0.77	5.5	1.5	0.039	0.06	1.88	0.041	0.066
May 8, 2018	3.9	7.5	2.8	4.0	5.0	9.4	0.251	0.34	3.1	4.8	3.4	0.42	0.46	1.06	0.27	1.860	1.20	5.5	1.5	0.039	0.34	1.66	0.041	0.084
May 14, 2018	3.9	7.5	2.8	4.0	5.0	7.4	0.346	0.34	3.1	4.8	0.8	0.46	0.46	1.02	0.27	3.420	1.09	5.5	1.5	0.039	0.26	1.69	0.041	0.086
May 20, 2018	2.0	2.6	1.4	2.0	2.8	9.8	0.376	0.34	3.1	4.8	0.8	0.42	0.46	0.36	0.27	2.850	1.46	5.5	1.5	0.039	0.23	2.00	0.041	0.020
May 26, 2018	2.0	2.6	2.9	2.0	2.8	16.0	0.209	0.34	3.1	4.8	0.8	0.44	0.46	1.20	0.27	1.970	1.34	5.5	1.5	0.039	0.06	1.83	0.041	0.061
June 1, 2018	2.0	2.6	8.8	2.0	8.8	15.8	0.749	0.34	3.1	4.8	1.8	0.41	0.46	0.75	0.27	0.049	1.15	5.5	1.5	0.039	0.06	2.07	0.041	0.053
June 7, 2018	2.0	2.6	12.3	2.0	12.3	28.0	0.321	0.34	3.1	4.8	0.8	0.41	0.46	0.87	0.27	0.049	1.24	5.5	1.5	0.039	0.41	1.85	0.041	0.073
June 13, 2018	2.0	2.6	4.3	2.0	2.8	7.5	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.7	0.3	0.0	0.9	5.5	1.5	0.0	0.1	1.7	0.0	0.1
June 19, 2018	Invalid Sample																							
June 25, 2018	2.0	2.6	3.3	2.0	2.8	13.6	0.4	0.3	3.1	4.8	1.7	0.4	0.5	0.8	0.3	0.0	1.1	5.5	1.5	0.0	0.1	1.9	0.0	0.0
January 3, 2019	Invalid Sample																							
January 9, 2019	1.95	2.55	1.4	1.95	2.8	6.5	0.345	0.335	3.05	4.75	0.75	0.46	0.46	0.95	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.23	0.0405	0.083
January 15, 2019	1.95	2.55	1.4	1.95	2.8	4.4	0.627	0.335	3.05	4.75	0.75	0.46	0.46	1.13	0.265	0.049	1.23	5.5	1.45	0.0385	0.13	2.47	0.0405	0.089
January 21, 2019	Invalid Sample																							
January 27, 2019	Invalid Sample																							
February 2, 2019	Invalid Sample																							
February 8, 2019	1.95	2.55	1.4	1.95	2.8	9.2	0.391	0.335	3.05	4.75	0.75	0.48	0.46	0.97	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.33	0.0405	0.086
February 14, 2019	1.95	2.55	1.4	1.95	2.8	13.9	0.495	0.335	3.05	4.75	0.75	0.47	0.46	0.79	0.265	0.049	1.21	5.5	1.45	0.0385	0.06	2.14	0.0405	0.085
February 20, 2019	3.8	5	31	3.9	31	5	0.681	0.335	3.05	4.75	0.75	0.45	0.46	0.355	0.265	0.049	1	5.5	1.45	0.0385	0.06	2.57	0.0405	0.086
February 26, 2019	2.85	3.75	1.55	2.9	1.55	3.3	0.373	0.335	3.05	4.75	0.75	0.45	0.46	0.355	0.265	0.049	1.13	5.5	1.45	0.0385	0.06	2.44	0.0405	0.087
March 4, 2019	2.65	3.5	1.45	2.7	1.45	4.7	0.441	0.335	3.05	4.75	0.75	0.4	0.46	0.87	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.24	0.0405	0.088
March 10, 2019	2.65	17	1.45	2.7	8.9	4.4	0.414	0.335	3.05	4.75	0.75	0.46	0.46	0.355	0.265	0.049	1.17	5.5	1.45	0.0385	0.06	2.5	0.0405	0.086
March 16, 2019	1.95	2.55	1.4	1.95	2.8	5	0.248	0.335	3.05	4.75	0.75	0.44	0.46	0.86	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.4	0.0405	0.081
March 22, 2019	1.95	2.55	1.4	1.95	2.8	4.1	0.385	0.335	3.05	4.75	0.75	0.48	0.46	0.355	0.265	0.049	1.2	5.5	1.45	0.0385	0.06	2.82	0.0405	0.095
March 28, 2019	1.95	2.55	1.4	1.95	2.8	4.8	0.466	0.335	3.05	4.75	0.75	0.41	0.46	0.92	0.265	0.049	1.15	5.5	1.45	0.0385	0.06	2.28	0.0405	0.065
April 3, 2019	1.95	2.55	1.4	1.95	2.8	Invalid																		
April 9, 2019	1.95	2.55	1.4	1.95	2.8	Invalid																		
July 1, 2018	1.95	2.55	2.9	1.95	2.8	26.2	0.315	0.335	3.05	4.75	3.3	0.44	0.46	0.86	0.265	0.472	1.21	5.5	1.45	0.0385	0.44	1.86	0.0405	0.068
July 7, 2018	*1.95*	*2.55*	*1.4*	*1.95*	*2.8*	*4*	*0.18*	*0.335*	*3.05*	*4.75*	*1.6*	*0.22*	*0.46*	*0.355*	*0.265*	*0.049*	*0.78*	*5.5*	*1.45*	*0.0385*	*0.06*	*1.24*	*0.0405*	*0.046*
July 13, 2018	1.95	2.55	4.5	1.95	2.8	7.6	0.272	0.335	3.05	4.75	0.75	0.44	0.46	0.355	0.265	0.122	1.15	5.5	1.45	0.0385	0.06	1.89	0.0405	0.071
July 19, 2018	1.950	2.550	1.400	1.950	2.800	9.700	0.323	0.335	3.050	4.750	0.750	0.390	0.460	0.355	0.265	0.102	0.990	5.500	1.450	0.039	0.060	1.940	0.041	0.053
July 25, 2018	2.0	2.6	3.5	2.0	2.8	15.6	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.0	5.5	1.5	0.0	0.2	1.8	0.0	0.0
July 31, 2018	2.0	2.6	3.4	2.0	2.8	14.2	0.4	0.3	3.1	4.8	0.8	0.5	0.5	0.7	0.3	0.2	1.0	5.5	1.5	0.0	0.2	2.0	0.0	0.1
August 6, 2018	2.0	2.6	4.0	2.0	2.8	17.7	0.4	0.3	3.1	4.8	1.5	0.4	0.5	0.4	0.3	0.2	1.2	5.5	1.5	0.0	0.3	1.9	0.0	0.1
August 12, 2018	1.95	2.55	1.4	1.95	2.8	7.9	0.521	0.335	3.05	4.75	0.75	0.43	0.46	0.355	0.265	0.228	0.86	5.5	1.45	0.0385	0.26	1.77	0.0405	0.044
August 18, 2018	1.95	2.55	1.4	1.95	2.8	9.4	0.377	0.335	3.05	4.75	0.75	0.52	0.46	0.72	0.265	0.207	1.1	5.5	1.45	0.0385	0.17	2.06	0.0405	0.049
August 24, 2018	1.95	2.55	1.4	1.95	2.8	12.2	0.533	0.335	3.05	4.75	0.75	0.43	0.46	0.9	0.265	0.117	0.88	5.5	1.45	0.0385	0.06	2.05	0.0405	0.048
August 30, 2018	1.95	2.55	1.4	1.95	2.8	6.3	0.412	0.335	3.05	4.75	0.75	0.43	0.46	0.355	0.265	0.135	0.76	5.5	1.45	0.0385	0.06	1.97	0.0405	0.047
September 5, 2018	1.95	2.55	16.8	1.95	16.8	28.8	0.508	0.335	3.05	4.75	2.1	0.41	0.46	0.75	0.265	0.195	0.9	5.5	1.45	0.0385	0.5	1.95	0.0405	0.02
September 11, 2018	2	3	3	2	3	9	0	0	3	5	1	0	0	0	0	0	1	6	1	0	0	2	0	0
September 17, 2018	1.95	2.55	1.4	1.95	2.8	13.3	0.506	0.335	3.05	4.75	2.1	0.44	0.46	1.08	0.265	0.248	1.03	5.5	1.45	0.0385	0.19	2.06	0.0405	0.02
September 23, 2018	1.95	2.55	1.4	1.95	2.8	7.3	0.695	0.335	3.05	4.75	0.75	0.56	0.46	0.74	0.265	0.17	1	5.5	1.45	0.0385	0.06	2.36	0.0405	0.045
September 29, 2018	1.95	2.55	1.4	1.95	2.8	8.4	0.362	0.335	3.05	4.75	1.7	0.51	0.46	1.21	0.265	0.121	0.98	5.5	3.8	0.0385	0.35	1.94	0.0405	0.047
October 5, 2018	1.95	2.55	1.4	1.95	2.8	5	0.174	0.335	3.05	4.75	0.75	0.51	0.46	0.82	0.265	0.112	1.01	5.5	1.45	0.0385	0.06	1.95	0.0405	0.063
October 11, 2018	Invalid Sample																							
October 17, 2018	1.95	2.55	1.4	1.95	2.8	9.2	0.217	0.335	3.05	4.75	0.75	0.44	0.46	0.88	0.265	0.049	1.06	5.5	1.45	0.0385	0.06	1.96	0.0405	0.045
October 23, 2018	1.95	2.55	1.4	1.95	2.8	9.7	0.414	0.335	3.05	4.75	0.75	0.47	0.46	0.75	0.265	0.121	0.9	5.5	1.45	0.0385	0.06	2.1	0.0405	0.076
October 29, 2018	3.8	5	2.05	3.9	2.1	8.4	0.208	0.335	3.05	4.75	0.75	0.45	0.46	0.94	0.265	0.049	1	5.5	1.45	0.0385	0.06	2.07	0.0405	0.054
November 4, 2018	2.2	2.9	1.2	2.25	9.5	7.6	0.514	0.335	3.05	4.75	0.75	0.43	0.46	0.73	0.265	0.049	0.99	5.5	1.45	0.0385	0.06	1.89	0.0405	0.054
November 10, 2018	2.45	3.25	1.35	2.5	1.35	8.2	0.29	0.335	3.05	4.75	0.75	0.48	0.46	0.83	0.265	0.049	1.13	5.5	1.45	0.0385	0.06	2.26	0.0405	0.043
November 16, 2018	3.85	5	2.8	3.95	5	5.2	0.494	0.335	3.05	4.75	0.75	0.48	0.46	0.8	0.265	0.049	1.26	5.5	1.45	0.0385	0.06	2.1	0.0405	0.055
November 22, 2018	Invalid Sample																							
November 28, 2018	1.95	2.55	1.4	1.95	2.8	7	0.309	0.335	3.05	4.75	0.75	0.45	0.46	0.355	0.265	0.049	1.19	5.5	1.45	0.0385	0.06	2.08	0.0405	0.043
December 4, 2018	1.95	2.55	3.5	1.95	2.8	9.5	0.295	0.335	3.05	4.75	0.75	0.47	0.46	0.91	0.265	0.049	1.24	5.5	1.45	0.0385	0.06	2.18	0.0405	0.058
December 10, 2018	1.95	2.55	1.4	1.95	2.8	8.5	0.495	0.335	3.05	4.75	0.75	0.42	0.46	0.86	0.265	0.049	1.37	5.5	1.45	0.0385	0.06	2.28	0.0405	0.02
December 16, 2018	1.95	2.55	15.7	1.95	15.7	6.4	0.585	0.335	3.05	4.75	0.75	0.44	0.46	0.72	0.265	0.049	1.08	5.5	1.45	0.0385	0.06	2.19	0.0405	0.02
December 22, 2018	1.95	2.55	3.4	1.95	2.8	5.8	0.267	0.335	3.05	4.75	0.75	0.42	0.46	0.8	0.265	0.049	1.07	5.5	1.45	0.0385	0.06	2.39	0.0405	0.02
December 28, 2018	1.95	2.55	1.4	1.95	2.8	13.3	0.322	0.335	3.05	4.75	2.3	0.42	0.46	0.89	0.265	0.049	1.17	5.5	1.45	0.0385	0.06	2.25	0.0405	0.02
90th Percentile	**3.85**	**7.5**	**3.5**	**3.95**	**5**	**19.2**	**0.585**	**0.335**	**3.05**	**4.75**	**2.1**	**0.5**	**0.46**	**1.02**	**0.265**	**0.237**	**1.26**	**5.5**	**1.45**	**0.0385**	**0.34**	**2.42**	**0.0405**	**0.087**
Average	**2.278**	**3.341**	**2.723**	**2.296**	**3.886**	**11.045**	**0.378**	**0.335**	**3.050**	**4.8**	**1.3**	**0.4**	**0.5**	**0.7**	**0.3**	**0.241**	**1.1**	**5.5**	**1.5**	**0.0**	**0.2**	**2.1**	**0.0**	**0.059**

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	VOCs																						
	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloroethene	Methylene chloride	Dichlorofluoro methane	Ethanol	Ethyl acetate	Ethyl Benzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methyl Cyclohexane	Naphthalene
CAS	75-35-4	156-59-2	156-60-5	540-59-0	75-09-2	75-43-4	64-17-5	141-78-6	100-41-4	611-14-3	620-14-4	142-82-5	110-54-3	67-63-0	5989-27-5	78-78-4	78-93-3	591-76-4	589-34-4	108-10-1	107-83-5	96-14-0	108-87-2	91-20-3
Air Quality Standard or POI Limit [1]	*10*	*105*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*	*22.5*
Rd 66 VOC D																								
April 2, 2018																								
April 8, 2018	0.040	0.040	0.040	0.079	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 14, 2018																								
April 20, 2018	0.040	0.040	0.040	0.079	0.35	4.2	4.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 26, 2018	0.040	0.040	0.040	0.079	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.67	0.65	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 2, 2018																								
May 8, 2018	0.040	0.040	0.040	0.079	0.35	4.2	6.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.15	0.84	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 14, 2018	0.040	0.040	0.040	0.079	0.35	4.2	2.8	0.36	0.44	0.49	1.0	0.41	0.72	4.2	5.5	0.87	0.84	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 20, 2018	0.040	0.040	0.040	0.079	0.35	4.2	3.0	0.36	0.44	0.49	1.0	0.41	0.35	3.6	5.5	0.74	1.09	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 26, 2018	0.040	0.040	0.040	0.079	0.35	4.2	7.0	0.36	0.44	0.49	1.0	0.41	0.35	5.6	5.5	1.58	1.39	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 1, 2018	0.040	0.040	0.040	0.079	0.35	4.2	4.5	0.36	0.44	0.49	1.0	0.41	0.35	7.0	5.5	0.30	0.84	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 7, 2018	0.040	0.040	0.040	0.079	0.35	4.2	4.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.35	0.92	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 13, 2018	0.040	0.040	0.040	0.079	0.35	4.2	5.3	0.36	0.44	0.49	1.0	0.41	0.35	11.9	5.5	1.18	1.46	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 19, 2018	0.040	0.040	0.040	0.079	0.35	4.2	3.6	0.36	0.44	0.49	1.0	0.41	0.35	2.8	5.5	0.30	0.59	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 25, 2018	0.040	0.040	0.040	0.079	0.35	4.2	4.3	0.36	0.44	0.49	1.0	0.41	0.35	4.1	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
January 3, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.5	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.98	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 9, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.99	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 15, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.84	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 21, 2019																								
January 27, 2019																								
February 2, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.7	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.36	0.74	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 8, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.76	1.25	5.5	0.94	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 14, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.7	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.19	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 20, 2019																								
February 26, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.79	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 4, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.71	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 10, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.6	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.03	0.78	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 16, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 22, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.68	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 28, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.3	0.36	0.435	0.49	1	0.41	0.35	3.6	5.5	1.08	0.78	4.1	0.41	0.41	0.35	0.35	0.4	0.65
April 3, 2019																								
April 9, 2019																								
July 1, 2018	*0.0395*	*0.0395*	*0.0395*		*0.77*	*4.2*	*18.7*	*0.36*	*0.435*	*0.49*	*1*	*0.41*	*0.35*	*5.9*	*5.5*	*1.51*	*2.34*	*4.1*	*0.41*	*0.41*	*0.35*	*0.35*	*0.4*	*0.65*
July 7, 2018																								
July 13, 2018	0.040	0.040	0.040	0.079	0.345	4.200	6.300	0.360	0.435	0.490	1.000	0.410	0.350	3.100	5.500	0.900	1.450	4.100	0.410	0.410	0.350	0.350	0.400	0.650
July 19, 2018	0.0	0.0	0.0	0.1	0.3	4.2	3.8	0.4	0.4	0.5	1.0	0.4	0.4	2.6	5.5	0.9	0.7	4.1	0.4	0.4	0.4	0.4	0.4	0.7
July 25, 2018	0.0	0.0	0.0	0.1	0.3	4.2	3.6	0.4	0.4	0.5	1.0	0.4	2.0	5.4	5.5	0.7	0.8	4.1	0.4	0.4	0.4	0.4	0.4	0.7
July 31, 2018	0.0	0.0	0.0	0.1	0.3	4.2	2.6	0.4	0.4	0.5	1.0	0.4	0.4	4.9	5.5	1.1	0.8	4.1	0.4	0.4	0.4	0.4	0.4	0.7
August 6, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.8	0.36	0.435	0.49	1	0.41	0.35	9.4	5.5	1.17	1.39	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 12, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.4	0.36	0.435	0.49	1	0.41	0.35	3.7	5.5	0.295	0.69	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 18, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.6	0.36	0.435	0.49	1	0.41	0.35	4.1	5.5	0.295	0.78	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 24, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.7	0.36	0.435	0.49	1	0.41	0.35	2.5	5.5	0.93	0.71	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 30, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	1.9	0.36	0.435	0.49	1	0.41	1.03	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 5, 2018	0	0	0		1	4	5	0	0	0	1	0	0	19	6	1	2	4	0	0	0	0	0	1
September 11, 2018	0.0395	0.286	0.085	0.371	0.345	4.2	14.5	1.21	0.435	0.49	1	1.41	0.91	1.25	5.5	3.28	1.38	4.1	1.04	0.41	0.74	0.35	0.4	0.65
September 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.4	0.36	0.435	0.49	1	0.41	0.35	8.7	5.5	0.295	0.66	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 29, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3	0.36	0.435	0.49	1	0.41	0.35	2.5	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 5, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.9	0.36	0.435	0.49	1	0.41	0.35	2.9	5.5	0.74	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 11, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.6	0.36	0.435	0.49	1	0.41	0.35	2.6	5.5	0.74	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.1	0.36	0.435	0.49	1	0.41	0.35	3.3	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.2	0.36	0.435	0.49	1	0.41	1.13	1.25	5.5	1	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 29, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.5	0.36	0.435	0.49	1	0.41	0.35	5.7	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 4, 2018																								
November 10, 2018																								
November 16, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	6.5	0.36	0.435	0.49	1	0.41	0.35	3.9	5.5	1.37	0.62	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 22, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.6	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 28, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.3	0.36	0.435	0.49	1	0.41	0.35	4.4	5.5	0.77	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 4, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.4	0.36	0.435	0.49	1	0.41	0.35	7.7	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 10, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	6.1	0.36	0.435	0.49	1	0.41	0.35	2.6	5.5	1.28	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 16, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.4	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	1.03	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 22, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.89	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 28, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.09	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	VOCs																						
	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloroethene	Methylene chloride	Dichlorofluoro methane	Ethanol	Ethyl acetate	Ethyl Benzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methyl Cyclohexane	Naphthalene
CAS	75-35-4	156-59-2	156-60-5	540-59-0	75-09-2	75-43-4	64-17-5	141-78-6	100-41-4	611-14-3	620-14-4	142-82-5	110-54-3	67-63-0	5989-27-5	78-78-4	78-93-3	591-76-4	589-34-4	108-10-1	107-83-5	96-14-0	108-87-2	91-20-3
Air Quality Standard or POI Limit [1]	*10*	*105*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*	*22.5*
33rd Line VOC D																								
April 2, 2018																								
April 8, 2018	0.040	0.040	0.040	0.079	0.35	4.2	4.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.64	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 14, 2018	0.040	0.040	0.040	0.079	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.71	0.68	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 20, 2018	0.040	0.040	0.040	0.079	0.35	4.2	2.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 26, 2018	0.040	0.040	0.040	0.079	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.06	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 2, 2018	0.040	0.040	0.040	0.079	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.12	0.88	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 8, 2018	0.040	0.040	0.040	0.079	0.35	4.2	48.8	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.78	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 14, 2018	0.040	0.040	0.040	0.079	0.35	4.2	13.8	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	2.32	0.91	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 20, 2018	0.040	0.040	0.040	0.079	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	0.35	4.6	5.5	0.74	0.82	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 26, 2018	0.040	0.040	0.040	0.079	0.35	4.2	5.6	0.36	0.44	0.49	1.0	0.41	0.35	12.0	5.5	4.22	1.61	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 1, 2018	0.040	0.040	0.040	0.079	0.87	4.2	31.5	0.36	0.44	0.49	1.0	0.41	0.35	6.6	5.5	2.07	8.65	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 7, 2018	0.040	0.040	0.040	0.079	1.28	4.2	21.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	3.10	0.91	4.1	0.41	0.41	0.86	0.35	0.40	0.7
June 13, 2018	0.040	0.040	0.040	0.079	0.84	4.2	17.6	0.36	0.44	0.49	1.0	0.41	0.35	12.1	5.5	0.78	1.60	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 19, 2018	0.040	0.040	0.040	0.079	7.76	4.2	251.0	0.36	0.44	0.49	1.0	0.41	0.35	8.1	5.5	0.91	1.00	4.1	0.41	0.41	0.35	0.35	0.40	2.6
June 25, 2018	0.040	0.040	0.040	0.079	10.60	4.2	560.0	0.36	0.44	0.49	1.0	0.41	0.35	4.1	5.5	1.40	0.84	4.1	0.41	0.41	0.35	0.35	0.40	1.8
January 3, 2019																								
January 9, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.91	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 15, 2019																								
January 21, 2019																								
January 27, 2019																								
February 2, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.3	0.36	0.435	0.49	1	0.41	0.35	2.6	5.5	1.46	0.63	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 8, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	2.8	5.5	0.9	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 14, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.15	0.65	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 20, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.33	0.87	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 26, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.93	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 4, 2019																								
March 10, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.98	1.07	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 16, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.67	2.75	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 22, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.3	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.73	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 28, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.4	0.36	0.435	0.49	1	0.41	0.35	3.4	5.5	1.59	0.82	4.1	0.41	0.41	0.35	0.35	0.4	3.6
April 3, 2019																								
April 9, 2019																								
July 1, 2018	0.0395	0.0395	0.0395	0.079	0.79	4.2	7.1	0.36	0.435	0.49	1	0.41	0.35	2.6	5.5	1.04	1.63	4.1	0.41	0.41	0.35	0.35	0.4	0.65
July 7, 2018	*0.0395*	*0.0395*	*0.0395*	*0.079*	*0.345*	*4.2*	*3.4*	*0.36*	*0.435*	*0.49*	*1*	*0.41*	*0.35*	*1.25*	*5.5*	*0.295*	*0.295*	*4.1*	*0.41*	*0.41*	*0.35*	*0.35*	*0.4*	*0.65*
July 13, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	6.6	0.36	0.435	0.49	1	0.41	0.35	7.6	5.5	0.295	1.18	4.1	0.41	0.41	0.35	0.35	0.4	0.65
July 19, 2018	0.040	0.081	0.094	0.175	0.345	4.200	4.100	0.360	0.435	0.490	1.000	0.410	1.680	5.000	5.500	0.710	0.710	4.100	0.410	0.410	0.350	0.350	0.400	0.650
July 25, 2018	0.0	0.0	0.0	0.1	0.3	4.2	2.7	0.4	0.4	0.5	1.0	0.4	1.1	2.7	5.5	1.0	1.2	4.1	0.4	0.4	0.4	0.4	0.4	0.7
July 31, 2018	0.0	0.0	0.0	0.1	0.3	4.2	2.8	0.9	0.4	0.5	1.0	0.4	0.0	8.2	5.5	1.1	1.1	4.1	0.4	0.4	0.4	0.4	0.4	0.7
August 6, 2018	0.0	0.0	0.0	0.1	0.3	4.2	3.5	0.4	0.4	0.5	1.0	0.4	0.4	3.7	5.5	1.2	1.4	4.1	0.4	0.4	0.4	0.4	0.4	0.7
August 12, 2018																								
August 18, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.1	0.36	0.435	0.49	1	0.41	0.35	3.2	5.5	0.82	0.72	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 24, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.7	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.39	0.66	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 30, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.2	0.36	0.435	0.49	1	1.11	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 5, 2018																								
September 11, 2018	0	1	0	1	0	4	14	1	0	0	1	1	1	1	6	3	2	4	1	0	1	1	0	1
September 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4	0.36	0.435	0.49	1	0.41	0.35	3.9	5.5	2.08	1.12	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.5	0.36	0.435	0.49	1	0.41	0.35	2.8	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 29, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.9	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.82	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 5, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.5	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	0.92	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 11, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.9	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.79	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.7	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.5	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.12	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 29, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.1	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	0.7	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 4, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.4	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	0.65	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 10, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.2	0.36	0.435	0.49	1	0.41	0.35	3.1	5.5	1.14	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 16, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.5	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.26	0.66	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 22, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	7.6	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.67	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 28, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.61	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 4, 2018																								
December 10, 2018																								
December 16, 2018																								
December 22, 2018																								
December 28, 2018																								

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	VOCs																						
	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloroethene	Methylene chloride	Dichlorofluoro methane	Ethanol	Ethyl acetate	Ethyl Benzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methyl Cyclohexane	Naphthalene
CAS	75-35-4	156-59-2	156-60-5	540-59-0	75-09-2	75-43-4	64-17-5	141-78-6	100-41-4	611-14-3	620-14-4	142-82-5	110-54-3	67-63-0	5989-27-5	78-78-4	78-93-3	591-76-4	589-34-4	108-10-1	107-83-5	96-14-0	108-87-2	91-20-3
Air Quality Standard or POI Limit [1]	*10*	*105*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*	*22.5*
Bell VOC D																								
April 2, 2018																								
April 8, 2018																								
April 14, 2018	0.040	0.040	0.040	0.079	0.79	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.66	0.30	4.1	0.41	0.41	0.35	0.35	0.40	0.7
April 20, 2018	0.0	0.0	0.0		0.3	4.2	7.7	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	3.2	0.7	4.1	0.4	0.4	0.4	0.4	0.4	0.7
April 26, 2018																								
May 2, 2018	0.040	0.040	0.040	0.079	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.62	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 8, 2018	0.040	0.040	0.040	0.079	0.35	4.2	7.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.78	1.25	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 14, 2018	0.040	0.040	0.040	0.079	0.35	4.2	42.5	0.36	0.44	0.49	1.0	0.41	0.35	2.9	5.5	1.59	0.66	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 20, 2018	0.040	0.040	0.040	0.079	1.02	4.2	16.0	0.36	0.44	0.49	1.0	0.41	0.35	9.4	5.5	0.30	2.04	4.1	0.41	0.41	0.35	0.35	0.40	0.7
May 26, 2018	0.040	0.040	0.040	0.079	0.35	4.2	3.9	0.36	0.44	0.49	1.0	0.41	0.35	8.2	5.5	0.30	1.14	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 1, 2018	0.040	0.040	0.040	0.079	0.35	4.2	12.1	0.36	0.44	0.49	1.0	0.41	1.74	4.2	5.5	4.06	1.86	4.1	0.41	0.41	1.43	1.17	0.40	0.7
June 7, 2018	0.040	0.040	0.040	0.079	0.35	4.2	11.0	0.36	0.44	0.49	1.0	0.41	0.96	3.6	5.5	3.01	1.39	4.1	0.41	0.41	0.35	0.35	0.40	0.7
June 13, 2018	0.0	0.0	0.0		0.3	4.2	3.5	0.4	0.4	0.5	1.0	0.4	0.4	3.1	5.5	1.0	0.3	4.1	0.4	0.4	0.4	0.4	0.4	0.7
June 19, 2018																								
June 25, 2018	0.0	0.0	0.0		0.3	4.2	5.3	0.4	0.4	0.5	1.0	0.4	0.4	2.5	5.5	0.9	0.9	4.1	0.4	0.4	0.4	0.4	0.4	7.2
January 3, 2019																								
January 9, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.99	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 15, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.22	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
January 21, 2019																								
January 27, 2019																								
February 2, 2019																								
February 8, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.96	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 14, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.17	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 20, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.9	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.42	0.91	4.1	0.41	0.41	0.35	0.35	0.4	0.65
February 26, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 4, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2	0.36	0.435	0.49	1	0.41	0.35	4	5.5	0.69	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 10, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.2	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.04	1.01	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 16, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	2	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.79	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 22, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.1	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
March 28, 2019	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.7	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.17	1.03	4.1	0.41	0.41	0.35	0.35	0.4	0.65
April 3, 2019																								
April 9, 2019																								
July 1, 2018	0.0395	0.0395	0.0395	0.079	2.01	4.2	60.9	0.36	0.435	0.49	1	0.41	0.35	7.5	5.5	1.76	2.05	4.1	0.41	0.41	0.35	0.35	0.4	0.65
July 7, 2018	*0.0395*	*0.0395*	*0.0395*	*0.079*	*1.39*	*4.2*	*2.4*	*0.36*	*0.435*	*0.49*	*1*	*0.41*	*0.35*	*1.25*	*5.5*	*0.99*	*0.295*	*4.1*	*0.41*	*0.41*	*0.35*	*0.35*	*0.4*	*0.65*
July 13, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.2	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	0.82	1	4.1	0.41	0.41	0.35	0.35	0.4	0.65
July 19, 2018	0.040	0.040	0.040	0.079	0.345	4.200	3.500	0.360	0.435	0.490	1.000	0.410	0.350	1.250	5.500	2.000	0.660	4.100	0.410	0.410	0.350	0.350	0.400	0.650
July 25, 2018	0.0	0.0	0.0	0.1	0.3	4.2	2.4	0.4	0.4	0.5	1.0	0.4	2.1	1.3	5.5	1.0	0.9	4.1	0.4	0.4	0.4	0.4	0.4	0.7
July 31, 2018	0.0	0.0	0.0	0.1	0.3	4.2	3.2	0.4	0.4	0.5	1.0	0.4	0.4	4.7	5.5	1.8	1.1	4.1	0.4	0.4	0.4	0.4	0.4	0.7
August 6, 2018	0.0	0.0	0.0	0.1	0.3	4.2	5.2	0.4	0.4	0.5	1.0	0.4	0.9	2.6	5.5	2.4	1.3	4.1	0.4	0.4	0.8	0.4	0.4	1.8
August 12, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.3	0.36	0.435	0.49	1	0.41	0.77	3.5	5.5	1.98	0.77	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 18, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.1	0.36	0.435	0.49	1	0.41	0.74	1.25	5.5	1.45	1.11	4.1	0.41	0.41	0.35	0.35	0.4	0.65
August 24, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.2	0.36	0.435	0.49	1	0.41	1.96	2.6	5.5	3.08	0.95	4.1	0.41	0.41	0.79	0.92	0.4	0.65
August 30, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.5	0.36	0.435	0.49	1	0.41	1.07	1.25	5.5	0.91	0.6	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 5, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.7	0.36	0.435	0.49	1	0.41	0.71	16	5.5	3.14	2.01	4.1	0.41	0.41	0.71	0.35	0.4	0.65
September 11, 2018	0	0	0	0	0	4	3	0	0	0	1	0	0	4	6	1	1	4	0	0	0	0	0	1
September 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.4	0.36	0.435	0.49	1	0.41	0.72	4.2	5.5	2.96	1.02	4.1	0.41	0.41	0.9	0.35	0.4	0.65
September 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3.2	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.32	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
September 29, 2018	0.0395	0.0395	0.0395	0.079	0.9	4.2	5	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	6.79	0.7	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 5, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.4	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.9	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 11, 2018																								
October 17, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.6	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.68	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 23, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.9	0.36	0.435	0.49	1	0.41	0.97	1.25	5.5	1.65	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
October 29, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	3	0.36	0.435	0.49	1	0.41	0.35	13	5.5	1.23	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 4, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	5.8	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.02	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 10, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.9	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.91	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 16, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.2	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.4	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
November 22, 2018																								
November 28, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.7	0.36	0.435	0.49	1	0.41	0.35	9	5.5	0.295	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 4, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	4.3	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.73	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 10, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	6.5	0.36	0.435	0.49	1	0.41	0.35	2.7	5.5	1.09	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 16, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2.8	0.36	0.435	0.49	1	0.41	0.35	3.9	5.5	1.16	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 22, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	2	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	0.72	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
December 28, 2018	0.0395	0.0395	0.0395	0.079	0.345	4.2	0.95	0.36	0.435	0.49	1	0.41	0.35	1.25	5.5	1.26	0.295	4.1	0.41	0.41	0.35	0.35	0.4	0.65
90th Percentile	**0.0395**	**0.0395**	**0.0395**	**0.079**	**0.345**	**4.2**	**7.7**	**0.36**	**0.435**	**0.49**	**1**	**0.41**	**0.76**	**7.5**	**5.5**	**2**	**1.39**	**4.1**	**0.41**	**0.41**	**0.35**	**0.35**	**0.4**	**0.65**
Average	**0.0**	**0.0**	**0.0**	**0.1**	**0.517**	**4.200**	**33.000**	**0.374**	**0.435**	**0.490**	**1.000**	**0.425**	**0.456**	**3.118**	**5.500**	**1.123**	**0.740**	**4.100**	**0.419**	**0.410**	**0.378**	**0.362**	**0.400**	**0.741**

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	Nonane	Octane	n-Pentane	Propyl Benzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m/p-Xylene	Total Volatile Organic Compounds
CAS	**111-84-2**	**111-65-9**	**109-66-0**	**103-65-1**	**100-42-5**	**79-34-5**	**127-18-4**	**108-88-3**	**76-13-1**	**71-55-6**	**79-00-5**	**79-01-6**	**75-69-4**	**526-73-8**	**95-63-6**	**108-67-8**	**75-01-4**	**95-47-6**	**108-38-3**	**N/A**
Air Quality Standard or POI Limit [1]	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
Rd 66 VOC D																				
April 2, 2018																				
April 8, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.9
April 14, 2018																				
April 20, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	98.2
April 26, 2018	0.5	0.47	0.78	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.4
May 2, 2018																				
May 8, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	99.8
May 14, 2018	0.5	0.47	1.05	0.49	0.43	0.035	0.07	0.96	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49	0.026	0.44	0.9	96.2
May 20, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	98.4
May 26, 2018	0.5	0.47	0.64	0.49	0.43	0.035	0.07	0.91	0.8	0.6	0.028	0.310	1.20	0.49	0.49	0.49	0.026	0.44	0.9	104.5
June 1, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.94	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	88.1
June 7, 2018	0.5	0.47	0.77	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.9
June 13, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	100.2
June 19, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	99.9
June 25, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	104.9
January 3, 2019	0.5	0.465	0.71	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
January 9, 2019	0.5	0.465	0.87	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
January 15, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.32	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
January 21, 2019																				
January 27, 2019																				
February 2, 2019	0.5	0.465	0.95	0.49	0.425	0.0345	0.07	0.78	0.75	0.55	0.068	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 8, 2019	0.5	0.465	0.8	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.068	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 14, 2019	0.5	0.465	0.7	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.066	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 20, 2019																				
February 26, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.4	0.49	0.49	0.49	0.0255	0.435	0.85	130
March 4, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	130
March 10, 2019	0.5	0.465	0.63	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 16, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.4	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 22, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.6	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 28, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	130
April 3, 2019																				
April 9, 2019																				
July 1, 2018	*0.5*	*0.465*	*0.87*	*0.49*	*0.425*	*0.0345*	*0.07*	*11.5*	*0.75*	*0.55*	*0.0275*	*0.055*	*1.2*	*0.49*	*0.49*	*0.49*	*0.0255*	*0.435*	*0.85*	*220*
July 7, 2018																				
July 13, 2018	0.500	0.465	0.295	0.490	0.425	0.035	0.070	1.030	0.750	0.550	0.028	0.055	1.200	0.490	0.490	0.490	0.026	0.435	0.850	130.000
July 19, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	160.0
July 25, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5	0.0	0.4	0.85	120.0
July 31, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	140.0
August 6, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	120
August 12, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
August 18, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	110
August 24, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	140
August 30, 2018	0.5	0.465	0.61	0.49	0.425	0.0345	0.23	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
September 5, 2018	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	150
September 11, 2018	0.5	0.465	1.54	0.49	0.425	0.0345	0.69	1.92	0.75	0.55	0.0275	0.11	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	140
September 17, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	100
September 23, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	100
September 29, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 5, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 11, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 17, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 23, 2018	0.5	0.465	0.61	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 29, 2018	0.5	0.465	0.6	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 4, 2018																				
November 10, 2018																				
November 16, 2018	0.5	0.465	0.86	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 22, 2018	0.5	0.465	0.63	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 28, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 4, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 10, 2018	0.5	0.465	0.86	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 16, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 22, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 28, 2018	0.5	0.465	0.77	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	Nonane	Octane	n-Pentane	Propyl Benzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m/p-Xylene	Total Volatile Organic Compounds
CAS	**111-84-2**	**111-65-9**	**109-66-0**	**103-65-1**	**100-42-5**	**79-34-5**	**127-18-4**	**108-88-3**	**76-13-1**	**71-55-6**	**79-00-5**	**79-01-6**	**75-69-4**	**526-73-8**	**95-63-6**	**108-67-8**	**75-01-4**	**95-47-6**	**108-38-3**	**N/A**
Air Quality Standard or POI Limit [1]	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
33rd Line VOC D																				
April 2, 2018																				
April 8, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	96.0
April 14, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.7
April 20, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	94.4
April 26, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	96.1
May 2, 2018	0.5	0.47	0.78	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.2
May 8, 2018	0.5	0.47	0.97	0.49	0.43	0.035	0.07	0.86	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	99.4
May 14, 2018	0.5	0.47	0.86	0.49	0.43	0.035	0.07	0.92	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	99.9
May 20, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	97.8
May 26, 2018	0.5	0.47	1.92	0.49	0.43	0.035	0.07	1.28	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	100.3
June 1, 2018	0.5	0.47	2.73	0.49	0.43	0.035	0.07	13.60	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	97.1
June 7, 2018	0.5	0.47	1.81	0.49	0.43	0.035	0.07	0.95	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	93.5
June 13, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	102.1
June 19, 2018	0.5	0.47	0.30	0.49	1.34	0.035	0.07	2.26	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.7
June 25, 2018	0.5	0.47	0.30	0.49	1.17	0.035	0.07	1.51	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	106.1
January 3, 2019																				
January 9, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
January 15, 2019																				
January 21, 2019																				
January 27, 2019																				
February 2, 2019	0.5	0.465	0.93	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.138	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 8, 2019	0.5	0.465	0.78	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.068	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 14, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.069	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 20, 2019	0.5	0.465	0.73	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	120
February 26, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	120
March 4, 2019																				
March 10, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 16, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	130
March 22, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 28, 2019	0.5	0.465	0.83	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	140
April 3, 2019																				
April 9, 2019																				
July 1, 2018	0.5	0.465	0.86	0.49	0.425	0.0345	0.07	1.77	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	210
July 7, 2018	*0.5*	*0.465*	*0.295*	*0.49*	*0.425*	*0.0345*	*0.07*	*0.375*	*0.75*	*0.55*	*0.0275*	*0.055*	*1.3*	*0.49*	*0.49*	*0.49*	*0.0255*	*0.435*	*0.85*	*120*
July 13, 2018	0.5	0.465	0.71	0.49	0.425	0.0345	0.07	0.93	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	150
July 19, 2018	0.500	1.520	0.295	0.490	0.425	0.102	0.070	2.100	0.750	0.550	0.093	0.055	0.550	0.490	1.270	0.490	0.026	0.435	0.850	180.000
July 25, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	130.0
July 31, 2018	0.5	0.0	0.3	0.5	0.4	0.0	0.2	0.0	0.8	0.6	0.0	0.1	0.6	0.5	0.0	0.5	0.0	0.4	0.85	0.0
August 6, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	170.0
August 12, 2018																				
August 18, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	130
August 24, 2018	0.5	0.465	0.82	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	110
August 30, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
September 5, 2018																				
September 11, 2018	1	0	2	0	0	0	1	2	1	1	0	0	1	0	0	0	0	0	1	120
September 17, 2018	0.5	0.465	0.96	0.49	0.425	0.0345	0.07	1.34	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	130
September 23, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
September 29, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 5, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 11, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 17, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 23, 2018	0.5	0.465	0.67	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 29, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 4, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 10, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 16, 2018	0.5	0.465	0.84	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 22, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 28, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 4, 2018																				
December 10, 2018																				
December 16, 2018																				
December 22, 2018																				
December 28, 2018																				

Appendix G: Summary of Ambient Monitoring Data

(results expressed in µg/m^3)	Nonane	Octane	n-Pentane	Propyl Benzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m/p-Xylene	Total Volatile Organic Compounds
CAS	**111-84-2**	**111-65-9**	**109-66-0**	**103-65-1**	**100-42-5**	**79-34-5**	**127-18-4**	**108-88-3**	**76-13-1**	**71-55-6**	**79-00-5**	**79-01-6**	**75-69-4**	**526-73-8**	**95-63-6**	**108-67-8**	**75-01-4**	**95-47-6**	**108-38-3**	**N/A**
Air Quality Standard or POI Limit [1]	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
Bell VOC D																				
April 2, 2018																				
April 8, 2018																				
April 14, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	96.4
April 20, 2018	0.5	0.5	2.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.9	98.8
April 26, 2018																				
May 2, 2018	0.5	0.47	0.98	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	99.2
May 8, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.5
May 14, 2018	0.5	0.47	0.87	0.49	0.43	0.035	0.07	0.86	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	100.0
May 20, 2018	0.5	0.47	0.30	0.49	0.43	0.035	0.07	4.30	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	101.0
May 26, 2018	0.5	0.47	0.75	0.49	0.43	0.035	0.07	4.23	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	100.6
June 1, 2018	0.5	0.47	2.45	0.49	0.43	0.035	0.07	3.98	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	2.0	105.7
June 7, 2018	0.5	0.47	2.72	0.49	0.43	0.035	0.07	5.44	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	105.9
June 13, 2018	0.5	0.5	0.6	0.5	0.4	0.0	0.1	1.0	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.9	96.6
June 19, 2018																				
June 25, 2018	0.5	0.5	0.9	0.5	0.4	0.0	0.1	1.6	0.8	0.6	0.0	0.1	0.6	1.4	3.2	0.5	0.0	0.4	0.9	99.6
January 3, 2019																				
January 9, 2019	0.5	0.465	0.66	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	100
January 15, 2019	0.5	0.465	0.69	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	50
January 21, 2019																				
January 27, 2019																				
February 2, 2019																				
February 8, 2019	0.5	0.465	0.73	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.07	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 14, 2019	0.5	0.465	0.6	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.07	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
February 20, 2019	0.5	0.465	0.9	0.49	0.425	0.0345	0.07	1.03	0.75	0.55	0.0275	0.055	1.4	0.49	0.49	0.49	0.0255	0.435	0.85	110
February 26, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.4	0.49	0.49	0.49	0.0255	0.435	0.85	100
March 4, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 10, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 16, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.5	0.49	0.49	0.49	0.0255	0.435	0.85	110
March 22, 2019	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.6	0.49	0.49	0.49	0.0255	0.435	0.85	50
March 28, 2019	0.5	0.465	0.73	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.12	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	100
April 3, 2019																				
April 9, 2019																				
July 1, 2018	0.5	0.465	0.87	0.49	0.425	0.0345	0.07	1.58	0.75	0.55	0.0275	0.055	1.3	0.49	0.49	0.49	0.0255	0.435	0.85	230
July 7, 2018	*0.5*	*0.465*	*0.64*	*0.49*	*0.425*	*0.0345*	*0.07*	*0.375*	*0.75*	*0.55*	*0.0275*	*0.055*	*0.55*	*0.49*	*0.49*	*0.49*	*0.0255*	*0.435*	*0.85*	*110*
July 13, 2018	0.5	0.465	0.83	0.49	0.425	0.0345	0.07	0.92	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	130
July 19, 2018	0.500	0.465	1.220	0.490	0.425	0.035	0.070	1.340	0.750	0.550	0.028	0.055	0.550	0.490	0.490	0.490	0.026	0.435	0.850	170.000
July 25, 2018	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.026	0.4	0.85	110.0
July 31, 2018	0.5	0.5	1.1	0.5	0.4	0.0	0.1	1.1	0.8	0.6	0.0	0.1	1.1	0.5	0.5	0.5	0.0	0.4	0.85	120.0
August 6, 2018	0.5	0.5	1.3	0.5	0.4	0.0	0.1	1.6	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	160.0
August 12, 2018	0.5	0.465	1.27	0.49	0.425	0.0345	0.07	1.46	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	120
August 18, 2018	0.5	0.465	0.69	0.49	0.425	0.0345	0.07	0.97	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	130
August 24, 2018	0.5	0.465	1.32	0.49	0.425	0.0345	0.54	1.63	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	130
August 30, 2018	0.5	0.465	0.76	0.49	0.425	0.0345	0.28	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
September 5, 2018	0.5	0.465	1.39	0.49	0.425	0.0345	0.07	1.97	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	140
September 11, 2018	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	100
September 17, 2018	0.5	0.465	1.59	0.49	0.425	0.0345	0.07	2.25	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	110
September 23, 2018	0.5	0.465	0.87	0.49	0.425	0.0345	0.07	1.03	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
September 29, 2018	0.5	0.465	1.95	0.49	0.425	0.0345	0.07	1.81	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	150
October 5, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 11, 2018																				
October 17, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 23, 2018	0.5	0.465	0.87	0.49	0.425	0.0345	0.14	1.28	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
October 29, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 4, 2018	0.5	0.465	0.61	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	0.55	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 10, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 16, 2018	0.5	0.465	0.96	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
November 22, 2018																				
November 28, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 4, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 10, 2018	0.5	0.465	0.8	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 16, 2018	0.5	0.465	0.72	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.1	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 22, 2018	0.5	0.465	0.295	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
December 28, 2018	0.5	0.465	0.8	0.49	0.425	0.0345	0.07	0.375	0.75	0.55	0.0275	0.055	1.2	0.49	0.49	0.49	0.0255	0.435	0.85	50
90th Percentile	**0.5**	**0.465**	**1.09**	**0.49**	**0.425**	**0.0345**	**0.07**	**1.61**	**0.75**	**0.55**	**0.0275**	**0.055**	**1.3**	**0.49**	**0.49**	**0.49**	**0.0255**	**0.435**	**0.85**	**140**
Average	**0.500**	**0.469**	**0.626**	**0.490**	**0.436**	**0.035**	**0.089**	**0.863**	**0.750**	**0.550**	**0.0306**	**0.061**	**0.9**	**0.5**	**0.5**	**0.5**	**0.0255**	**0.4**	**0.9**	**88.3**

APPENDIX K:
Background Concentrations

Appendix K: Background Concentrations

Year	NO2 [1]				CO [2]				SO2 [2]				Benzo(a)pyrene [3]	Toluene [3]	Formaldehyde [3]	Benzene [3]
	90th Percentile 1-Hour		Annual Average		90th Percentile 1-Hour		Annual Average		90th Percentile 1-Hour		Annual Average		Annual Average	Annual Average	Annual Average	Annual Average
	(ppb)	(µg/m³)	(ppb)	(µg/m³)	(ppm)	(µg/m³)	(ppm)	(µg/m³)	(ppb)	(µg/m³)	(ppb)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)
2014	13	24	6.9	13.0	0.40	458	0.26	298	8	21	2.9	7.6	3.26E-05	0.36	0.87	0.37
2015	13	24	6.6	12.4	0.39	447	0.25	286	7	18	2.6	6.8	3.18E-05	0.36	0.69	0.50
2016	11	21	5.4	10.2	0.00	0	0.2	229	5	13	1.8	4.7	3.11E-05	0.41	1.01	0.52
Average	12	23	6.3	11.8	0.26	302	0.24	271	7	17	2.4	6.4	3.18E-05	0.38	0.85	0.46

Notes:

Notes:

- Data from MECP station ID 15026, located at 42 St. Julient St., London, ON. The station is the closest station with data for NO2.
- Data from MECP station ID 29000, located at Elgin St./Kelly St., Hamilton, ON. The station is the closest applicable MECP station with data for CO
- Data from MECP station ID 29000, located at Elgin St./Kelly St., Hamilton, ON. The station is the closest applicable MECP station with data for CO
- Data from National Air Pollution Surveillance (NAPS) Station 62601, Experimental Farm Simcoe. Lat: 42.85685 Long: -80.26964. The station is the closest station that has the contaminant data for benzo(a)pyrene and formaldehyde
- Conversion from ppb and ppm to µg/m³ based on 25ºC as per STP.

1 atm = 101325 Pa

APPENDIX L:
Existing Discrete Receptor Results

Appendix L: Existing Maximum Predicted Concentrations at All Discrete Receptors

Sulphur Dioxide

1-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
690	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	2.72E+00	2.02E+01	3%
690	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	2.79E+00	2.02E+01	3%
690	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	5.28E+00	2.27E+01	3%
690	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	3.94E+00	2.14E+01	3%
690	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	2.19E+00	1.96E+01	3%
690	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	2.86E+00	2.03E+01	3%
690	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	2.92E+00	2.04E+01	3%
690	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	2.76E+00	2.02E+01	3%
690	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	4.22E+00	2.17E+01	3%
690	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	3.19E+00	2.07E+01	3%
690	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	2.68E+00	2.01E+01	3%
690	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	2.34E+00	1.98E+01	3%
690	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	2.35E+00	1.98E+01	3%
690	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	2.99E+00	2.04E+01	3%
690	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	2.22E+00	1.97E+01	3%
690	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	2.22E+00	1.97E+01	3%
690	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	1.83E+00	1.93E+01	3%
690	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.06E+00	1.95E+01	3%
690	ING-6	Royal Road Public School	510337	4765360	17.46	2.07E+00	1.95E+01	3%
690	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	2.04E+00	1.95E+01	3%
690	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	1.87E+00	1.93E+01	3%
690	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	2.63E+00	2.01E+01	3%
690	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.42E+00	1.99E+01	3%
690	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	3.01E+00	2.05E+01	3%
690	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	3.37E+00	2.08E+01	3%
690	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	3.93E+00	2.14E+01	3%
690	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	5.01E+00	2.25E+01	3%
690	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	3.82E+00	2.13E+01	3%
690	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	2.92E+00	2.04E+01	3%
690	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	2.55E+00	2.00E+01	3%
690	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	2.04E+00	1.95E+01	3%
690	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.24E+00	1.97E+01	3%
690	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	3.03E+00	2.05E+01	3%
690	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	3.04E+00	2.05E+01	3%
690	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	3.80E+00	2.13E+01	3%
690	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	3.69E+00	2.12E+01	3%
690	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	3.51E+00	2.10E+01	3%
690	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	3.80E+00	2.13E+01	3%
690	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	4.11E+00	2.16E+01	3%
690	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	3.60E+00	2.11E+01	3%
690	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	3.34E+00	2.08E+01	3%
690	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	3.14E+00	2.06E+01	3%
690	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	1.52E+00	1.90E+01	3%

*Values shown in green represent residential receptors.

Sulphur Dioxide
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
275	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	3.59E-01	1.78E+01	6%
275	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	3.80E-01	1.78E+01	6%
275	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	7.04E-01	1.82E+01	7%
275	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	6.55E-01	1.81E+01	7%
275	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	6.14E-01	1.81E+01	7%
275	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	8.21E-01	1.83E+01	7%
275	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	8.20E-01	1.83E+01	7%
275	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	9.02E-01	1.84E+01	7%
275	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	6.60E-01	1.81E+01	7%
275	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	6.08E-01	1.81E+01	7%
275	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	5.35E-01	1.80E+01	7%
275	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	4.38E-01	1.79E+01	7%
275	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	7.22E-01	1.82E+01	7%
275	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	5.57E-01	1.80E+01	7%
275	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	3.43E-01	1.78E+01	6%
275	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	3.92E-01	1.79E+01	6%
275	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	2.57E-01	1.77E+01	6%
275	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.94E-01	1.78E+01	6%
275	ING-6	Royal Road Public School	510337	4765360	17.46	3.07E-01	1.78E+01	6%
275	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	1.78E-01	1.76E+01	6%
275	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	2.44E-01	1.77E+01	6%
275	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	3.85E-01	1.78E+01	6%
275	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.66E-01	1.77E+01	6%
275	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	5.99E-01	1.81E+01	7%
275	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	1.32E+00	1.88E+01	7%
275	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	1.24E+00	1.87E+01	7%
275	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	2.14E+00	1.96E+01	7%
275	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	1.77E+00	1.92E+01	7%
275	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	1.06E+00	1.85E+01	7%
275	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	6.00E-01	1.81E+01	7%
275	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	3.32E-01	1.78E+01	6%
275	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.43E-01	1.77E+01	6%
275	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	4.47E-01	1.79E+01	7%
275	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	6.40E-01	1.81E+01	7%
275	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	7.50E-01	1.82E+01	7%
275	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	1.00E+00	1.85E+01	7%
275	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	7.91E-01	1.82E+01	7%
275	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	7.95E-01	1.83E+01	7%
275	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	7.04E-01	1.82E+01	7%
275	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	7.17E-01	1.82E+01	7%
275	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	6.66E-01	1.81E+01	7%
275	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	4.67E-01	1.79E+01	7%
275	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	4.38E-01	1.79E+01	7%

*Values shown in green represent residential receptors.

Sulphur Dioxide
Annual

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
55	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	6.37	2.40E-02	6.40E+00	12%
55	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	6.37	2.31E-02	6.40E+00	12%
55	ZOR-3	Residence at 663951 Rd 66	510216	4770270	6.37	2.46E-02	6.40E+00	12%
55	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	6.37	3.34E-02	6.41E+00	12%
55	ZOR-5	Residence at 334789 33rd Line	508931	4768760	6.37	3.17E-02	6.40E+00	12%
55	ZOR-6	Residence at 334742 33rd Line	509185	4768350	6.37	4.63E-02	6.42E+00	12%
55	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	6.37	7.20E-02	6.44E+00	12%
55	ZOR-8	Residence at 643743 Road 64	508940	4767980	6.37	4.40E-02	6.42E+00	12%
55	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	6.37	2.99E-02	6.40E+00	12%
55	ZOR-10	Residence at 334578 33rd Line	509739	4766780	6.37	1.84E-02	6.39E+00	12%
55	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	6.37	1.93E-02	6.39E+00	12%
55	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	6.37	1.54E-02	6.39E+00	12%
55	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	6.37	4.68E-02	6.42E+00	12%
55	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	6.37	1.73E-02	6.39E+00	12%
55	ING-2	Laurie Hawkins Public School	509019	4765860	6.37	1.34E-02	6.39E+00	12%
55	ING-3	Ingersoll District Collegiate Institute	510512	4766230	6.37	1.28E-02	6.39E+00	12%
55	ING-4	On the river north of 209 County Road 9	509480	4765180	6.37	9.95E-03	6.38E+00	12%
55	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	6.37	1.23E-02	6.38E+00	12%
55	ING-6	Royal Road Public School	510337	4765360	6.37	1.02E-02	6.38E+00	12%
55	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	6.37	7.74E-03	6.38E+00	12%
55	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	6.37	8.81E-03	6.38E+00	12%
55	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	6.37	1.41E-02	6.39E+00	12%
55	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	6.37	1.28E-02	6.39E+00	12%
55	SWO-1	Residence at 584052 Beachville Road	511124	4766750	6.37	1.85E-02	6.39E+00	12%
55	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	6.37	3.49E-02	6.41E+00	12%
55	SWO-3	Residence at 584142 Beachville Road	511722	4767480	6.37	5.37E-02	6.43E+00	12%
55	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	6.37	1.23E-01	6.50E+00	12%
55	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	6.37	9.74E-02	6.47E+00	12%
55	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	6.37	5.53E-02	6.43E+00	12%
55	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	6.37	4.08E-02	6.41E+00	12%
55	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	6.37	2.38E-02	6.40E+00	12%
55	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	6.37	1.80E-02	6.39E+00	12%
55	SWO-10	Residence at 563977 Karn Road	510980	4765990	6.37	1.38E-02	6.39E+00	12%
55	SWO-11	Residence at 564028 Karn Road	511396	4766310	6.37	1.73E-02	6.39E+00	12%
55	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	6.37	2.16E-02	6.39E+00	12%
55	SWO-13	Centreville Pond and Conservation Area	511570	4766920	6.37	2.71E-02	6.40E+00	12%
55	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	6.37	4.46E-02	6.42E+00	12%
55	SWO-15	Residences at 564146 Karn Road	512251	4767100	6.37	5.30E-02	6.43E+00	12%
55	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	6.37	6.24E-02	6.43E+00	12%
55	SWO-17	Residence at 564226 Karn Road	512958	4767760	6.37	6.46E-02	6.44E+00	12%
55	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	6.37	6.42E-02	6.44E+00	12%
55	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	6.37	4.15E-02	6.41E+00	12%
55	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	6.37	3.26E-02	6.40E+00	12%

*Values shown in green represent residential receptors.

Sulphur Dioxide
10-minute (Proposed)

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
180	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	4.50E+00	2.20E+01	12%
180	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	4.60E+00	2.21E+01	12%
180	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	8.71E+00	2.62E+01	15%
180	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	6.50E+00	2.40E+01	13%
180	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	3.61E+00	2.11E+01	12%
180	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	4.71E+00	2.22E+01	12%
180	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	4.83E+00	2.23E+01	12%
180	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	4.55E+00	2.20E+01	12%
180	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	6.97E+00	2.44E+01	14%
180	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	5.27E+00	2.27E+01	13%
180	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	4.42E+00	2.19E+01	12%
180	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	3.86E+00	2.13E+01	12%
180	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	3.88E+00	2.13E+01	12%
180	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	4.93E+00	2.24E+01	12%
180	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	3.66E+00	2.11E+01	12%
180	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	3.66E+00	2.11E+01	12%
180	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	3.02E+00	2.05E+01	11%
180	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	3.39E+00	2.09E+01	12%
180	ING-6	Royal Road Public School	510337	4765360	17.46	3.42E+00	2.09E+01	12%
180	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	3.37E+00	2.08E+01	12%
180	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	3.08E+00	2.05E+01	11%
180	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	4.33E+00	2.18E+01	12%
180	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	3.99E+00	2.14E+01	12%
180	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	4.97E+00	2.24E+01	12%
180	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	5.56E+00	2.30E+01	13%
180	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	6.49E+00	2.39E+01	13%
180	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	8.27E+00	2.57E+01	14%
180	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	6.30E+00	2.38E+01	13%
180	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	4.82E+00	2.23E+01	12%
180	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	4.21E+00	2.17E+01	12%
180	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	3.37E+00	2.08E+01	12%
180	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	3.70E+00	2.12E+01	12%
180	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	5.00E+00	2.25E+01	12%
180	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	5.02E+00	2.25E+01	12%
180	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	6.27E+00	2.37E+01	13%
180	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	6.09E+00	2.36E+01	13%
180	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	5.79E+00	2.32E+01	13%
180	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	6.27E+00	2.37E+01	13%
180	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	6.77E+00	2.42E+01	13%
180	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	5.93E+00	2.34E+01	13%
180	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	5.51E+00	2.30E+01	13%
180	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	5.19E+00	2.26E+01	13%
180	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	2.51E+00	2.00E+01	11%

*Values shown in green represent residential receptors.

Sulphur Dioxide
1-Hour (Proposed)

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
100	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	2.72E+00	2.02E+01	20%
100	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	2.79E+00	2.02E+01	20%
100	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	5.28E+00	2.27E+01	23%
100	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	3.94E+00	2.14E+01	21%
100	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	2.19E+00	1.96E+01	20%
100	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	2.86E+00	2.03E+01	20%
100	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	2.92E+00	2.04E+01	20%
100	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	2.76E+00	2.02E+01	20%
100	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	4.22E+00	2.17E+01	22%
100	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	3.19E+00	2.07E+01	21%
100	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	2.68E+00	2.01E+01	20%
100	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	2.34E+00	1.98E+01	20%
100	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	2.35E+00	1.98E+01	20%
100	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	2.99E+00	2.04E+01	20%
100	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	2.22E+00	1.97E+01	20%
100	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	2.22E+00	1.97E+01	20%
100	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	1.83E+00	1.93E+01	19%
100	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.06E+00	1.95E+01	20%
100	ING-6	Royal Road Public School	510337	4765360	17.46	2.07E+00	1.95E+01	20%
100	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	2.04E+00	1.95E+01	20%
100	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	1.87E+00	1.93E+01	19%
100	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	2.63E+00	2.01E+01	20%
100	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.42E+00	1.99E+01	20%
100	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	3.01E+00	2.05E+01	20%
100	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	3.37E+00	2.08E+01	21%
100	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	3.93E+00	2.14E+01	21%
100	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	5.01E+00	2.25E+01	22%
100	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	3.82E+00	2.13E+01	21%
100	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	2.92E+00	2.04E+01	20%
100	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	2.55E+00	2.00E+01	20%
100	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	2.04E+00	1.95E+01	20%
100	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.24E+00	1.97E+01	20%
100	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	3.03E+00	2.05E+01	20%
100	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	3.04E+00	2.05E+01	21%
100	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	3.80E+00	2.13E+01	21%
100	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	3.69E+00	2.12E+01	21%
100	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	3.51E+00	2.10E+01	21%
100	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	3.80E+00	2.13E+01	21%
100	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	4.11E+00	2.16E+01	22%
100	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	3.60E+00	2.11E+01	21%
100	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	3.34E+00	2.08E+01	21%
100	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	3.14E+00	2.06E+01	21%
100	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	1.52E+00	1.90E+01	19%

*Values shown in green represent residential receptors.

Sulphur Dioxide
Annual (Proposed)

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
10	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	6.37	2.40E-02	6.40E+00	64%
10	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	6.37	2.31E-02	6.40E+00	64%
10	ZOR-3	Residence at 663951 Rd 66	510216	4770270	6.37	2.46E-02	6.40E+00	64%
10	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	6.37	3.34E-02	6.41E+00	64%
10	ZOR-5	Residence at 334789 33rd Line	508931	4768760	6.37	3.17E-02	6.40E+00	64%
10	ZOR-6	Residence at 334742 33rd Line	509185	4768350	6.37	4.63E-02	6.42E+00	64%
10	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	6.37	7.20E-02	6.44E+00	64%
10	ZOR-8	Residence at 643743 Road 64	508940	4767980	6.37	4.40E-02	6.42E+00	64%
10	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	6.37	2.99E-02	6.40E+00	64%
10	ZOR-10	Residence at 334578 33rd Line	509739	4766780	6.37	1.84E-02	6.39E+00	64%
10	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	6.37	1.93E-02	6.39E+00	64%
10	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	6.37	1.54E-02	6.39E+00	64%
10	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	6.37	4.68E-02	6.42E+00	64%
10	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	6.37	1.73E-02	6.39E+00	64%
10	ING-2	Laurie Hawkins Public School	509019	4765860	6.37	1.34E-02	6.39E+00	64%
10	ING-3	Ingersoll District Collegiate Institute	510512	4766230	6.37	1.28E-02	6.39E+00	64%
10	ING-4	On the river north of 209 County Road 9	509480	4765180	6.37	9.95E-03	6.38E+00	64%
10	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	6.37	1.23E-02	6.38E+00	64%
10	ING-6	Royal Road Public School	510337	4765360	6.37	1.02E-02	6.38E+00	64%
10	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	6.37	7.74E-03	6.38E+00	64%
10	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	6.37	8.81E-03	6.38E+00	64%
10	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	6.37	1.41E-02	6.39E+00	64%
10	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	6.37	1.28E-02	6.39E+00	64%
10	SWO-1	Residence at 584052 Beachville Road	511124	4766750	6.37	1.85E-02	6.39E+00	64%
10	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	6.37	3.49E-02	6.41E+00	64%
10	SWO-3	Residence at 584142 Beachville Road	511722	4767480	6.37	5.37E-02	6.43E+00	64%
10	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	6.37	1.23E-01	6.50E+00	65%
10	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	6.37	9.74E-02	6.47E+00	65%
10	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	6.37	5.53E-02	6.43E+00	64%
10	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	6.37	4.08E-02	6.41E+00	64%
10	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	6.37	2.38E-02	6.40E+00	64%
10	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	6.37	1.80E-02	6.39E+00	64%
10	SWO-10	Residence at 563977 Karn Road	510980	4765990	6.37	1.38E-02	6.39E+00	64%
10	SWO-11	Residence at 564028 Karn Road	511396	4766310	6.37	1.73E-02	6.39E+00	64%
10	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	6.37	2.16E-02	6.39E+00	64%
10	SWO-13	Centreville Pond and Conservation Area	511570	4766920	6.37	2.71E-02	6.40E+00	64%
10	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	6.37	4.46E-02	6.42E+00	64%
10	SWO-15	Residences at 564146 Karn Road	512251	4767100	6.37	5.30E-02	6.43E+00	64%
10	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	6.37	6.24E-02	6.43E+00	64%
10	SWO-17	Residence at 564226 Karn Road	512958	4767760	6.37	6.46E-02	6.44E+00	64%
10	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	6.37	6.42E-02	6.44E+00	64%
10	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	6.37	4.15E-02	6.41E+00	64%
10	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	6.37	3.26E-02	6.40E+00	64%

*Values shown in green represent residential receptors.

Carbon Monoxide
1-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
36200	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	301.50	2.92E+01	3.31E+02	1%
36200	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	301.50	3.05E+01	3.32E+02	1%
36200	ZOR-3	Residence at 663951 Rd 66	510216	4770270	301.50	5.18E+01	3.53E+02	1%
36200	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	301.50	4.09E+01	3.42E+02	1%
36200	ZOR-5	Residence at 334789 33rd Line	508931	4768760	301.50	2.24E+01	3.24E+02	1%
36200	ZOR-6	Residence at 334742 33rd Line	509185	4768350	301.50	2.85E+01	3.30E+02	1%
36200	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	301.50	2.92E+01	3.31E+02	1%
36200	ZOR-8	Residence at 643743 Road 64	508940	4767980	301.50	2.82E+01	3.30E+02	1%
36200	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	301.50	4.30E+01	3.45E+02	1%
36200	ZOR-10	Residence at 334578 33rd Line	509739	4766780	301.50	3.25E+01	3.34E+02	1%
36200	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	301.50	2.67E+01	3.28E+02	1%
36200	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	301.50	2.33E+01	3.25E+02	1%
36200	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	301.50	2.35E+01	3.25E+02	1%
36200	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	301.50	3.03E+01	3.32E+02	1%
36200	ING-2	Laurie Hawkins Public School	509019	4765860	301.50	2.25E+01	3.24E+02	1%
36200	ING-3	Ingersoll District Collegiate Institute	510512	4766230	301.50	2.22E+01	3.24E+02	1%
36200	ING-4	On the river north of 209 County Road 9	509480	4765180	301.50	1.82E+01	3.20E+02	1%
36200	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	301.50	2.09E+01	3.22E+02	1%
36200	ING-6	Royal Road Public School	510337	4765360	301.50	2.07E+01	3.22E+02	1%
36200	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	301.50	2.06E+01	3.22E+02	1%
36200	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	301.50	1.87E+01	3.20E+02	1%
36200	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	301.50	2.61E+01	3.28E+02	1%
36200	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	301.50	2.41E+01	3.26E+02	1%
36200	SWO-1	Residence at 584052 Beachville Road	511124	4766750	301.50	3.01E+01	3.32E+02	1%
36200	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	301.50	3.22E+01	3.34E+02	1%
36200	SWO-3	Residence at 584142 Beachville Road	511722	4767480	301.50	3.75E+01	3.39E+02	1%
36200	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	301.50	1.17E+02	4.19E+02	1%
36200	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	301.50	3.65E+01	3.38E+02	1%
36200	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	301.50	3.24E+01	3.34E+02	1%
36200	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	301.50	2.59E+01	3.27E+02	1%
36200	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	301.50	2.26E+01	3.24E+02	1%
36200	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	301.50	2.45E+01	3.26E+02	1%
36200	SWO-10	Residence at 563977 Karn Road	510980	4765990	301.50	3.02E+01	3.32E+02	1%
36200	SWO-11	Residence at 564028 Karn Road	511396	4766310	301.50	3.02E+01	3.32E+02	1%
36200	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	301.50	3.77E+01	3.39E+02	1%
36200	SWO-13	Centreville Pond and Conservation Area	511570	4766920	301.50	3.68E+01	3.38E+02	1%
36200	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	301.50	3.43E+01	3.36E+02	1%
36200	SWO-15	Residences at 564146 Karn Road	512251	4767100	301.50	3.71E+01	3.39E+02	1%
36200	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	301.50	4.00E+01	3.42E+02	1%
36200	SWO-17	Residence at 564226 Karn Road	512958	4767760	301.50	3.49E+01	3.36E+02	1%
36200	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	301.50	1.25E+02	4.26E+02	1%
36200	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	301.50	1.18E+02	4.19E+02	1%
36200	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	301.50	2.01E+01	3.22E+02	1%

*Values shown in green represent residential receptors.

Carbon Monoxide
8-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
15700	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	301.50	7.45E+00	3.09E+02	2%
15700	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	301.50	9.05E+00	3.11E+02	2%
15700	ZOR-3	Residence at 663951 Rd 66	510216	4770270	301.50	1.08E+01	3.12E+02	2%
15700	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	301.50	1.16E+01	3.13E+02	2%
15700	ZOR-5	Residence at 334789 33rd Line	508931	4768760	301.50	1.06E+01	3.12E+02	2%
15700	ZOR-6	Residence at 334742 33rd Line	509185	4768350	301.50	1.35E+01	3.15E+02	2%
15700	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	301.50	1.51E+01	3.17E+02	2%
15700	ZOR-8	Residence at 643743 Road 64	508940	4767980	301.50	1.14E+01	3.13E+02	2%
15700	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	301.50	1.18E+01	3.13E+02	2%
15700	ZOR-10	Residence at 334578 33rd Line	509739	4766780	301.50	1.03E+01	3.12E+02	2%
15700	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	301.50	1.08E+01	3.12E+02	2%
15700	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	301.50	9.27E+00	3.11E+02	2%
15700	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	301.50	1.20E+01	3.13E+02	2%
15700	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	301.50	9.80E+00	3.11E+02	2%
15700	ING-2	Laurie Hawkins Public School	509019	4765860	301.50	6.32E+00	3.08E+02	2%
15700	ING-3	Ingersoll District Collegiate Institute	510512	4766230	301.50	6.45E+00	3.08E+02	2%
15700	ING-4	On the river north of 209 County Road 9	509480	4765180	301.50	5.41E+00	3.07E+02	2%
15700	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	301.50	5.45E+00	3.07E+02	2%
15700	ING-6	Royal Road Public School	510337	4765360	301.50	6.40E+00	3.08E+02	2%
15700	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	301.50	4.80E+00	3.06E+02	2%
15700	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	301.50	5.11E+00	3.07E+02	2%
15700	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	301.50	7.14E+00	3.09E+02	2%
15700	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	301.50	5.70E+00	3.07E+02	2%
15700	SWO-1	Residence at 584052 Beachville Road	511124	4766750	301.50	1.40E+01	3.16E+02	2%
15700	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	301.50	2.03E+01	3.22E+02	2%
15700	SWO-3	Residence at 584142 Beachville Road	511722	4767480	301.50	2.08E+01	3.22E+02	2%
15700	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	301.50	3.35E+01	3.35E+02	2%
15700	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	301.50	2.30E+01	3.25E+02	2%
15700	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	301.50	1.29E+01	3.14E+02	2%
15700	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	301.50	9.11E+00	3.11E+02	2%
15700	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	301.50	5.76E+00	3.07E+02	2%
15700	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	301.50	4.19E+00	3.06E+02	2%
15700	SWO-10	Residence at 563977 Karn Road	510980	4765990	301.50	8.97E+00	3.10E+02	2%
15700	SWO-11	Residence at 564028 Karn Road	511396	4766310	301.50	1.20E+01	3.13E+02	2%
15700	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	301.50	9.92E+00	3.11E+02	2%
15700	SWO-13	Centreville Pond and Conservation Area	511570	4766920	301.50	1.41E+01	3.16E+02	2%
15700	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	301.50	1.67E+01	3.18E+02	2%
15700	SWO-15	Residences at 564146 Karn Road	512251	4767100	301.50	1.56E+01	3.17E+02	2%
15700	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	301.50	1.59E+01	3.17E+02	2%
15700	SWO-17	Residence at 564226 Karn Road	512958	4767760	301.50	1.50E+01	3.17E+02	2%
15700	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	301.50	2.99E+01	3.31E+02	2%
15700	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	301.50	3.15E+01	3.33E+02	2%
15700	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	301.50	6.73E+00	3.08E+02	2%

*Values shown in green represent residential receptors.

Nitrogen Dioxide
1-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
400	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	23.19	4.50E+01	6.82E+01	17%
400	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	23.19	4.36E+01	6.68E+01	17%
400	ZOR-3	Residence at 663951 Rd 66	510216	4770270	23.19	7.50E+01	9.82E+01	25%
400	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	23.19	5.46E+01	7.78E+01	19%
400	ZOR-5	Residence at 334789 33rd Line	508931	4768760	23.19	5.20E+01	7.52E+01	19%
400	ZOR-6	Residence at 334742 33rd Line	509185	4768350	23.19	6.58E+01	8.90E+01	22%
400	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	23.19	4.47E+01	6.79E+01	17%
400	ZOR-8	Residence at 643743 Road 64	508940	4767980	23.19	6.29E+01	8.61E+01	22%
400	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	23.19	7.69E+01	1.00E+02	25%
400	ZOR-10	Residence at 334578 33rd Line	509739	4766780	23.19	7.08E+01	9.40E+01	24%
400	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	23.19	1.10E+02	1.34E+02	33%
400	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	23.19	8.02E+01	1.03E+02	26%
400	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	23.19	4.23E+01	6.55E+01	16%
400	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	23.19	6.60E+01	8.92E+01	22%
400	ING-2	Laurie Hawkins Public School	509019	4765860	23.19	3.95E+01	6.27E+01	16%
400	ING-3	Ingersoll District Collegiate Institute	510512	4766230	23.19	5.19E+01	7.51E+01	19%
400	ING-4	On the river north of 209 County Road 9	509480	4765180	23.19	4.86E+01	7.18E+01	18%
400	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	23.19	3.19E+01	5.51E+01	14%
400	ING-6	Royal Road Public School	510337	4765360	23.19	3.98E+01	6.30E+01	16%
400	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	23.19	3.16E+01	5.48E+01	14%
400	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	23.19	3.20E+01	5.52E+01	14%
400	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	23.19	3.87E+01	6.19E+01	15%
400	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	23.19	3.89E+01	6.21E+01	16%
400	SWO-1	Residence at 584052 Beachville Road	511124	4766750	23.19	7.35E+01	9.67E+01	24%
400	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	23.19	7.69E+01	1.00E+02	25%
400	SWO-3	Residence at 584142 Beachville Road	511722	4767480	23.19	8.59E+01	1.09E+02	27%
400	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	23.19	1.55E+02	1.78E+02	45%
400	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	23.19	6.98E+01	9.29E+01	23%
400	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	23.19	5.96E+01	8.28E+01	21%
400	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	23.19	4.05E+01	6.37E+01	16%
400	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	23.19	4.04E+01	6.35E+01	16%
400	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	23.19	4.49E+01	6.81E+01	17%
400	SWO-10	Residence at 563977 Karn Road	510980	4765990	23.19	5.41E+01	7.73E+01	19%
400	SWO-11	Residence at 564028 Karn Road	511396	4766310	23.19	5.63E+01	7.95E+01	20%
400	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	23.19	5.88E+01	8.20E+01	20%
400	SWO-13	Centreville Pond and Conservation Area	511570	4766920	23.19	6.70E+01	9.02E+01	23%
400	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	23.19	5.47E+01	7.79E+01	19%
400	SWO-15	Residences at 564146 Karn Road	512251	4767100	23.19	5.99E+01	8.31E+01	21%
400	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	23.19	6.56E+01	8.88E+01	22%
400	SWO-17	Residence at 564226 Karn Road	512958	4767760	23.19	5.38E+01	7.70E+01	19%
400	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	23.19	1.65E+02	1.88E+02	47%
400	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	23.19	1.56E+02	1.79E+02	45%
400	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	23.19	4.89E+01	7.21E+01	18%

*Values shown in green represent residential receptors.

Nitrogen Dioxide
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
200	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	23.19	4.92E+00	2.81E+01	14%
200	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	23.19	5.75E+00	2.89E+01	14%
200	ZOR-3	Residence at 663951 Rd 66	510216	4770270	23.19	9.43E+00	3.26E+01	16%
200	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	23.19	8.75E+00	3.19E+01	16%
200	ZOR-5	Residence at 334789 33rd Line	508931	4768760	23.19	8.14E+00	3.13E+01	16%
200	ZOR-6	Residence at 334742 33rd Line	509185	4768350	23.19	1.13E+01	3.45E+01	17%
200	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	23.19	1.09E+01	3.41E+01	17%
200	ZOR-8	Residence at 643743 Road 64	508940	4767980	23.19	1.22E+01	3.54E+01	18%
200	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	23.19	9.96E+00	3.32E+01	17%
200	ZOR-10	Residence at 334578 33rd Line	509739	4766780	23.19	8.27E+00	3.15E+01	16%
200	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	23.19	8.11E+00	3.13E+01	16%
200	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	23.19	5.85E+00	2.90E+01	15%
200	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	23.19	9.43E+00	3.26E+01	16%
200	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	23.19	7.55E+00	3.07E+01	15%
200	ING-2	Laurie Hawkins Public School	509019	4765860	23.19	4.65E+00	2.78E+01	14%
200	ING-3	Ingersoll District Collegiate Institute	510512	4766230	23.19	5.28E+00	2.85E+01	14%
200	ING-4	On the river north of 209 County Road 9	509480	4765180	23.19	3.37E+00	2.66E+01	13%
200	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	23.19	3.98E+00	2.72E+01	14%
200	ING-6	Royal Road Public School	510337	4765360	23.19	4.12E+00	2.73E+01	14%
200	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	23.19	2.39E+00	2.56E+01	13%
200	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	23.19	3.25E+00	2.64E+01	13%
200	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	23.19	5.20E+00	2.84E+01	14%
200	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	23.19	3.59E+00	2.68E+01	13%
200	SWO-1	Residence at 584052 Beachville Road	511124	4766750	23.19	1.03E+01	3.35E+01	17%
200	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	23.19	1.73E+01	4.05E+01	20%
200	SWO-3	Residence at 584142 Beachville Road	511722	4767480	23.19	1.58E+01	3.90E+01	19%
200	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	23.19	3.02E+01	5.34E+01	27%
200	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	23.19	2.38E+01	4.70E+01	24%
200	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	23.19	1.43E+01	3.75E+01	19%
200	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	23.19	7.75E+00	3.09E+01	15%
200	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	23.19	4.40E+00	2.76E+01	14%
200	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	23.19	3.27E+00	2.65E+01	13%
200	SWO-10	Residence at 563977 Karn Road	510980	4765990	23.19	5.73E+00	2.89E+01	14%
200	SWO-11	Residence at 564028 Karn Road	511396	4766310	23.19	8.56E+00	3.18E+01	16%
200	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	23.19	9.84E+00	3.30E+01	17%
200	SWO-13	Centreville Pond and Conservation Area	511570	4766920	23.19	1.31E+01	3.63E+01	18%
200	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	23.19	1.06E+01	3.38E+01	17%
200	SWO-15	Residences at 564146 Karn Road	512251	4767100	23.19	1.06E+01	3.38E+01	17%
200	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	23.19	9.26E+00	3.25E+01	16%
200	SWO-17	Residence at 564226 Karn Road	512958	4767760	23.19	9.84E+00	3.30E+01	17%
200	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	23.19	2.26E+01	4.58E+01	23%
200	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	23.19	2.06E+01	4.38E+01	22%
200	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	23.19	5.93E+00	2.91E+01	15%

*Values shown in green represent residential receptors.

Benzo(a)pyrene
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
0.00005	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	3.18E-05	2.08E-06	3.39E-05	68%
0.00005	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	3.18E-05	3.67E-06	3.55E-05	71%
0.00005	ZOR-3	Residence at 663951 Rd 66	510216	4770270	3.18E-05	8.66E-06	4.05E-05	81%
0.00005	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	3.18E-05	6.91E-06	3.87E-05	77%
0.00005	ZOR-5	Residence at 334789 33rd Line	508931	4768760	3.18E-05	3.49E-06	3.53E-05	71%
0.00005	ZOR-6	Residence at 334742 33rd Line	509185	4768350	3.18E-05	4.87E-06	3.67E-05	73%
0.00005	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	3.18E-05	5.14E-06	3.70E-05	74%
0.00005	ZOR-8	Residence at 643743 Road 64	508940	4767980	3.18E-05	4.12E-06	3.60E-05	72%
0.00005	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	3.18E-05	5.11E-06	3.69E-05	74%
0.00005	ZOR-10	Residence at 334578 33rd Line	509739	4766780	3.18E-05	2.91E-06	3.47E-05	69%
0.00005	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	3.18E-05	3.33E-06	3.52E-05	70%
0.00005	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	3.18E-05	2.58E-06	3.44E-05	69%
0.00005	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	3.18E-05	3.56E-06	3.54E-05	71%
0.00005	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	3.18E-05	2.75E-06	3.46E-05	69%
0.00005	ING-2	Laurie Hawkins Public School	509019	4765860	3.18E-05	1.37E-06	3.32E-05	66%
0.00005	ING-3	Ingersoll District Collegiate Institute	510512	4766230	3.18E-05	2.58E-06	3.44E-05	69%
0.00005	ING-4	On the river north of 209 County Road 9	509480	4765180	3.18E-05	1.35E-06	3.32E-05	66%
0.00005	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	3.18E-05	1.24E-06	3.31E-05	66%
0.00005	ING-6	Royal Road Public School	510337	4765360	3.18E-05	2.07E-06	3.39E-05	68%
0.00005	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	3.18E-05	1.33E-06	3.32E-05	66%
0.00005	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	3.18E-05	1.59E-06	3.34E-05	67%
0.00005	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	3.18E-05	2.05E-06	3.39E-05	68%
0.00005	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	3.18E-05	1.39E-06	3.32E-05	66%
0.00005	SWO-1	Residence at 584052 Beachville Road	511124	4766750	3.18E-05	3.58E-06	3.54E-05	71%
0.00005	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	3.18E-05	4.67E-06	3.65E-05	73%
0.00005	SWO-3	Residence at 584142 Beachville Road	511722	4767480	3.18E-05	7.05E-06	3.89E-05	78%
0.00005	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	3.18E-05	8.86E-05	1.20E-04	241%
0.00005	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	3.18E-05	1.11E-05	4.29E-05	86%
0.00005	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	3.18E-05	3.72E-06	3.56E-05	71%
0.00005	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	3.18E-05	2.01E-06	3.38E-05	68%
0.00005	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	3.18E-05	1.21E-06	3.30E-05	66%
0.00005	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	3.18E-05	9.07E-07	3.27E-05	65%
0.00005	SWO-10	Residence at 563977 Karn Road	510980	4765990	3.18E-05	2.59E-06	3.44E-05	69%
0.00005	SWO-11	Residence at 564028 Karn Road	511396	4766310	3.18E-05	2.89E-06	3.47E-05	69%
0.00005	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	3.18E-05	3.45E-06	3.53E-05	71%
0.00005	SWO-13	Centreville Pond and Conservation Area	511570	4766920	3.18E-05	4.03E-06	3.59E-05	72%
0.00005	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	3.18E-05	5.62E-06	3.75E-05	75%
0.00005	SWO-15	Residences at 564146 Karn Road	512251	4767100	3.18E-05	5.43E-06	3.73E-05	75%
0.00005	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	3.18E-05	6.65E-06	3.85E-05	77%
0.00005	SWO-17	Residence at 564226 Karn Road	512958	4767760	3.18E-05	2.80E-05	5.99E-05	120%
0.00005	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	3.18E-05	8.93E-05	1.21E-04	242%
0.00005	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	3.18E-05	6.71E-05	9.89E-05	198%
0.00005	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	3.18E-05	2.02E-06	3.39E-05	68%

*Values shown in green represent residential receptors.

Benzo(a)pyrene
Annual

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
0.00001	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	3.18E-05	1.31E-07	3.20E-05	320%
0.00001	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	3.18E-05	1.95E-07	3.20E-05	320%
0.00001	ZOR-3	Residence at 663951 Rd 66	510216	4770270	3.18E-05	2.93E-07	3.21E-05	321%
0.00001	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	3.18E-05	3.45E-07	3.22E-05	322%
0.00001	ZOR-5	Residence at 334789 33rd Line	508931	4768760	3.18E-05	2.17E-07	3.21E-05	321%
0.00001	ZOR-6	Residence at 334742 33rd Line	509185	4768350	3.18E-05	2.36E-07	3.21E-05	321%
0.00001	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	3.18E-05	4.85E-07	3.23E-05	323%
0.00001	ZOR-8	Residence at 643743 Road 64	508940	4767980	3.18E-05	1.93E-07	3.20E-05	320%
0.00001	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	3.18E-05	2.01E-07	3.20E-05	320%
0.00001	ZOR-10	Residence at 334578 33rd Line	509739	4766780	3.18E-05	1.60E-07	3.20E-05	320%
0.00001	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	3.18E-05	2.55E-07	3.21E-05	321%
0.00001	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	3.18E-05	1.76E-07	3.20E-05	320%
0.00001	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	3.18E-05	2.64E-07	3.21E-05	321%
0.00001	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	3.18E-05	1.53E-07	3.20E-05	320%
0.00001	ING-2	Laurie Hawkins Public School	509019	4765860	3.18E-05	9.33E-08	3.19E-05	319%
0.00001	ING-3	Ingersoll District Collegiate Institute	510512	4766230	3.18E-05	1.68E-07	3.20E-05	320%
0.00001	ING-4	On the river north of 209 County Road 9	509480	4765180	3.18E-05	8.54E-08	3.19E-05	319%
0.00001	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	3.18E-05	8.01E-08	3.19E-05	319%
0.00001	ING-6	Royal Road Public School	510337	4765360	3.18E-05	1.16E-07	3.20E-05	320%
0.00001	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	3.18E-05	6.00E-08	3.19E-05	319%
0.00001	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	3.18E-05	8.01E-08	3.19E-05	319%
0.00001	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	3.18E-05	1.50E-07	3.20E-05	320%
0.00001	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	3.18E-05	1.02E-07	3.19E-05	319%
0.00001	SWO-1	Residence at 584052 Beachville Road	511124	4766750	3.18E-05	2.87E-07	3.21E-05	321%
0.00001	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	3.18E-05	4.91E-07	3.23E-05	323%
0.00001	SWO-3	Residence at 584142 Beachville Road	511722	4767480	3.18E-05	6.48E-07	3.25E-05	325%
0.00001	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	3.18E-05	1.29E-05	4.47E-05	447%
0.00001	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	3.18E-05	1.35E-06	3.32E-05	332%
0.00001	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	3.18E-05	3.45E-07	3.22E-05	322%
0.00001	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	3.18E-05	1.96E-07	3.20E-05	320%
0.00001	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	3.18E-05	7.51E-08	3.19E-05	319%
0.00001	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	3.18E-05	4.67E-08	3.19E-05	319%
0.00001	SWO-10	Residence at 563977 Karn Road	510980	4765990	3.18E-05	1.79E-07	3.20E-05	320%
0.00001	SWO-11	Residence at 564028 Karn Road	511396	4766310	3.18E-05	2.42E-07	3.21E-05	321%
0.00001	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	3.18E-05	2.99E-07	3.21E-05	321%
0.00001	SWO-13	Centreville Pond and Conservation Area	511570	4766920	3.18E-05	3.89E-07	3.22E-05	322%
0.00001	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	3.18E-05	5.19E-07	3.24E-05	324%
0.00001	SWO-15	Residences at 564146 Karn Road	512251	4767100	3.18E-05	6.14E-07	3.24E-05	324%
0.00001	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	3.18E-05	7.71E-07	3.26E-05	326%
0.00001	SWO-17	Residence at 564226 Karn Road	512958	4767760	3.18E-05	3.18E-06	3.50E-05	350%
0.00001	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	3.18E-05	1.20E-05	4.38E-05	438%
0.00001	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	3.18E-05	1.09E-05	4.27E-05	427%
0.00001	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	3.18E-05	1.57E-07	3.20E-05	320%
0.00001	SWO-21		515376	4768210	3.18E-05	3.88E-07	3.22E-05	322%
0.00001	SWO-22		513204	4766050	3.18E-05	4.23E-07	3.23E-05	323%
0.00001	EZT-1		516909	4774330	3.18E-05	5.02E-08	3.19E-05	319%

*Values shown in green represent residential receptors.

Toluene
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
2000	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	1.61	3.40E-03	1.61E+00	0%
2000	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	1.61	4.58E-03	1.61E+00	0%
2000	ZOR-3	Residence at 663951 Rd 66	510216	4770270	1.61	5.34E-03	1.62E+00	0%
2000	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	1.61	3.76E-03	1.61E+00	0%
2000	ZOR-5	Residence at 334789 33rd Line	508931	4768760	1.61	6.12E-03	1.62E+00	0%
2000	ZOR-6	Residence at 334742 33rd Line	509185	4768350	1.61	6.59E-03	1.62E+00	0%
2000	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	1.61	4.40E-03	1.61E+00	0%
2000	ZOR-8	Residence at 643743 Road 64	508940	4767980	1.61	7.54E-03	1.62E+00	0%
2000	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	1.61	1.09E-02	1.62E+00	0%
2000	ZOR-10	Residence at 334578 33rd Line	509739	4766780	1.61	6.74E-03	1.62E+00	0%
2000	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	1.61	9.09E-03	1.62E+00	0%
2000	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	1.61	6.48E-03	1.62E+00	0%
2000	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	1.61	2.34E-03	1.61E+00	0%
2000	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	1.61	5.74E-03	1.62E+00	0%
2000	ING-2	Laurie Hawkins Public School	509019	4765860	1.61	3.01E-03	1.61E+00	0%
2000	ING-3	Ingersoll District Collegiate Institute	510512	4766230	1.61	3.99E-03	1.61E+00	0%
2000	ING-4	On the river north of 209 County Road 9	509480	4765180	1.61	2.48E-03	1.61E+00	0%
2000	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	1.61	2.07E-03	1.61E+00	0%
2000	ING-6	Royal Road Public School	510337	4765360	1.61	2.53E-03	1.61E+00	0%
2000	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	1.61	1.93E-03	1.61E+00	0%
2000	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	1.61	1.71E-03	1.61E+00	0%
2000	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	1.61	4.44E-03	1.61E+00	0%
2000	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	1.61	3.33E-03	1.61E+00	0%
2000	SWO-1	Residence at 584052 Beachville Road	511124	4766750	1.61	1.16E-02	1.62E+00	0%
2000	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	1.61	1.00E-02	1.62E+00	0%
2000	SWO-3	Residence at 584142 Beachville Road	511722	4767480	1.61	1.09E-02	1.62E+00	0%
2000	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	1.61	3.13E-02	1.64E+00	0%
2000	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	1.61	1.00E-02	1.62E+00	0%
2000	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	1.61	4.91E-03	1.61E+00	0%
2000	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	1.61	2.47E-03	1.61E+00	0%
2000	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	1.61	1.80E-03	1.61E+00	0%
2000	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	1.61	1.34E-03	1.61E+00	0%
2000	SWO-10	Residence at 563977 Karn Road	510980	4765990	1.61	5.39E-03	1.62E+00	0%
2000	SWO-11	Residence at 564028 Karn Road	511396	4766310	1.61	7.92E-03	1.62E+00	0%
2000	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	1.61	7.67E-03	1.62E+00	0%
2000	SWO-13	Centreville Pond and Conservation Area	511570	4766920	1.61	8.60E-03	1.62E+00	0%
2000	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	1.61	6.06E-03	1.62E+00	0%
2000	SWO-15	Residences at 564146 Karn Road	512251	4767100	1.61	5.01E-03	1.62E+00	0%
2000	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	1.61	5.78E-03	1.62E+00	0%
2000	SWO-17	Residence at 564226 Karn Road	512958	4767760	1.61	9.77E-03	1.62E+00	0%
2000	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	1.61	2.77E-02	1.64E+00	0%
2000	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	1.61	2.12E-02	1.63E+00	0%
2000	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	1.61	1.77E-03	1.61E+00	0%

*Values shown in green represent residential receptors.

Formaldehyde
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
65	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.85	2.48E-02	8.79E-01	1%
65	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.85	3.34E-02	8.88E-01	1%
65	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.85	3.49E-02	8.89E-01	1%
65	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.85	2.57E-02	8.80E-01	1%
65	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.85	4.52E-02	8.99E-01	1%
65	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.85	4.92E-02	9.03E-01	1%
65	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.85	2.67E-02	8.81E-01	1%
65	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.85	5.37E-02	9.08E-01	1%
65	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.85	7.84E-02	9.33E-01	1%
65	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.85	4.99E-02	9.04E-01	1%
65	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.85	6.73E-02	9.21E-01	1%
65	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.85	4.77E-02	9.02E-01	1%
65	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.85	1.57E-02	8.70E-01	1%
65	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.85	4.22E-02	8.96E-01	1%
65	ING-2	Laurie Hawkins Public School	509019	4765860	0.85	2.24E-02	8.77E-01	1%
65	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.85	3.05E-02	8.85E-01	1%
65	ING-4	On the river north of 209 County Road 9	509480	4765180	0.85	1.87E-02	8.73E-01	1%
65	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.85	1.54E-02	8.70E-01	1%
65	ING-6	Royal Road Public School	510337	4765360	0.85	1.77E-02	8.72E-01	1%
65	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.85	1.37E-02	8.68E-01	1%
65	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.85	1.15E-02	8.66E-01	1%
65	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.85	3.39E-02	8.88E-01	1%
65	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.85	2.54E-02	8.80E-01	1%
65	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.85	8.77E-02	9.42E-01	1%
65	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.85	7.70E-02	9.31E-01	1%
65	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.85	8.14E-02	9.36E-01	1%
65	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.85	1.42E-01	9.96E-01	2%
65	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.85	6.22E-02	9.16E-01	1%
65	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.85	3.29E-02	8.87E-01	1%
65	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.85	1.74E-02	8.72E-01	1%
65	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.85	1.27E-02	8.67E-01	1%
65	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.85	9.07E-03	8.63E-01	1%
65	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.85	4.03E-02	8.94E-01	1%
65	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.85	5.92E-02	9.13E-01	1%
65	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.85	5.61E-02	9.10E-01	1%
65	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.85	6.28E-02	9.17E-01	1%
65	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.85	4.63E-02	9.00E-01	1%
65	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.85	3.61E-02	8.90E-01	1%
65	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.85	4.19E-02	8.96E-01	1%
65	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.85	4.22E-02	8.96E-01	1%
65	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.85	8.42E-02	9.38E-01	1%
65	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.85	7.20E-02	9.26E-01	1%
65	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.85	1.23E-02	8.66E-01	1%

*Values shown in green represent residential receptors.

Benzene
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
2.3	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.59	4.63E-03	5.90E-01	26%
2.3	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.59	6.17E-03	5.91E-01	26%
2.3	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.59	6.61E-03	5.92E-01	26%
2.3	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.59	4.83E-03	5.90E-01	26%
2.3	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.59	8.36E-03	5.93E-01	26%
2.3	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.59	9.10E-03	5.94E-01	26%
2.3	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.59	5.15E-03	5.90E-01	26%
2.3	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.59	1.00E-02	5.95E-01	26%
2.3	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.59	1.46E-02	6.00E-01	26%
2.3	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.59	9.24E-03	5.94E-01	26%
2.3	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.59	1.25E-02	5.97E-01	26%
2.3	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.59	8.83E-03	5.94E-01	26%
2.3	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.59	2.98E-03	5.88E-01	26%
2.3	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.59	7.82E-03	5.93E-01	26%
2.3	ING-2	Laurie Hawkins Public School	509019	4765860	0.59	4.14E-03	5.89E-01	26%
2.3	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.59	5.61E-03	5.91E-01	26%
2.3	ING-4	On the river north of 209 County Road 9	509480	4765180	0.59	3.45E-03	5.88E-01	26%
2.3	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.59	2.84E-03	5.88E-01	26%
2.3	ING-6	Royal Road Public School	510337	4765360	0.59	3.26E-03	5.88E-01	26%
2.3	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.59	2.56E-03	5.88E-01	26%
2.3	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.59	2.17E-03	5.87E-01	26%
2.3	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.59	6.24E-03	5.91E-01	26%
2.3	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.59	4.67E-03	5.90E-01	26%
2.3	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.59	1.62E-02	6.01E-01	26%
2.3	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.59	1.41E-02	5.99E-01	26%
2.3	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.59	1.50E-02	6.00E-01	26%
2.3	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.59	2.93E-02	6.14E-01	27%
2.3	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.59	1.20E-02	5.97E-01	26%
2.3	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.59	6.23E-03	5.91E-01	26%
2.3	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.59	3.25E-03	5.88E-01	26%
2.3	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.59	2.38E-03	5.87E-01	26%
2.3	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.59	1.72E-03	5.87E-01	26%
2.3	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.59	7.44E-03	5.92E-01	26%
2.3	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.59	1.09E-02	5.96E-01	26%
2.3	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.59	1.04E-02	5.95E-01	26%
2.3	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.59	1.17E-02	5.97E-01	26%
2.3	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.59	8.51E-03	5.94E-01	26%
2.3	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.59	6.72E-03	5.92E-01	26%
2.3	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.59	7.78E-03	5.93E-01	26%
2.3	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.59	8.36E-03	5.93E-01	26%
2.3	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.59	1.95E-02	6.05E-01	26%
2.3	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.59	1.62E-02	6.01E-01	26%
2.3	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.59	2.35E-03	5.87E-01	26%

*Values shown in green represent residential receptors.

Benzene
Annual

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Baseline		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
0.45	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.38	1.60E-04	3.78E-01	84%
0.45	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.38	1.90E-04	3.78E-01	84%
0.45	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.38	1.90E-04	3.78E-01	84%
0.45	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.38	2.00E-04	3.78E-01	84%
0.45	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.38	2.80E-04	3.78E-01	84%
0.45	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.38	4.30E-04	3.78E-01	84%
0.45	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.38	2.70E-04	3.78E-01	84%
0.45	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.38	3.50E-04	3.78E-01	84%
0.45	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.38	3.90E-04	3.78E-01	84%
0.45	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.38	2.10E-04	3.78E-01	84%
0.45	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.38	5.50E-04	3.79E-01	84%
0.45	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.38	2.50E-04	3.78E-01	84%
0.45	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.38	1.60E-04	3.78E-01	84%
0.45	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.38	1.90E-04	3.78E-01	84%
0.45	ING-2	Laurie Hawkins Public School	509019	4765860	0.38	9.00E-05	3.78E-01	84%
0.45	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.38	2.10E-04	3.78E-01	84%
0.45	ING-4	On the river north of 209 County Road 9	509480	4765180	0.38	9.00E-05	3.78E-01	84%
0.45	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.38	7.00E-05	3.78E-01	84%
0.45	ING-6	Royal Road Public School	510337	4765360	0.38	1.10E-04	3.78E-01	84%
0.45	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.38	5.00E-05	3.78E-01	84%
0.45	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.38	7.00E-05	3.78E-01	84%
0.45	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.38	1.50E-04	3.78E-01	84%
0.45	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.38	9.00E-05	3.78E-01	84%
0.45	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.38	4.60E-04	3.78E-01	84%
0.45	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.38	8.90E-04	3.79E-01	84%
0.45	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.38	1.02E-03	3.79E-01	84%
0.45	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.38	3.42E-03	3.81E-01	85%
0.45	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.38	6.00E-04	3.79E-01	84%
0.45	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.38	1.90E-04	3.78E-01	84%
0.45	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.38	1.20E-04	3.78E-01	84%
0.45	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.38	5.00E-05	3.78E-01	84%
0.45	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.38	4.00E-05	3.78E-01	84%
0.45	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.38	2.00E-04	3.78E-01	84%
0.45	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.38	2.90E-04	3.78E-01	84%
0.45	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.38	3.40E-04	3.78E-01	84%
0.45	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.38	5.70E-04	3.79E-01	84%
0.45	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.38	5.00E-04	3.79E-01	84%
0.45	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.38	5.00E-04	3.79E-01	84%
0.45	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.38	5.40E-04	3.79E-01	84%
0.45	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.38	9.40E-04	3.79E-01	84%
0.45	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.38	2.83E-03	3.81E-01	85%
0.45	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.38	2.45E-03	3.80E-01	85%
0.45	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.38	1.00E-04	3.78E-01	84%

*Values shown in green represent residential receptors.

APPENDIX M:
Predicted Discrete Receptor Concentration Results

Appendix M: Maximum Predicted Concentrations at All Discrete Receptors

Sulphur Dioxide

1-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
690	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	2.73E+00	2.02E+01	3%	2.73E+00	2.02E+01	3%	2.75E+00	2.02E+01	3%	2.73E+00	2.02E+01	3%
690	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	2.81E+00	2.03E+01	3%	2.80E+00	2.03E+01	3%	2.85E+00	2.03E+01	3%	2.82E+00	2.03E+01	3%
690	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	5.30E+00	2.28E+01	3%	5.29E+00	2.27E+01	3%	5.31E+00	2.28E+01	3%	5.30E+00	2.28E+01	3%
690	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	3.94E+00	2.14E+01	3%	3.94E+00	2.14E+01	3%	3.94E+00	2.14E+01	3%	3.94E+00	2.14E+01	3%
690	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	2.20E+00	1.97E+01	3%	2.19E+00	1.96E+01	3%	2.20E+00	1.97E+01	3%	2.19E+00	1.96E+01	3%
690	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	2.86E+00	2.03E+01	3%	2.85E+00	2.03E+01	3%	2.87E+00	2.03E+01	3%	2.86E+00	2.03E+01	3%
690	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	2.94E+00	2.04E+01	3%	2.92E+00	2.04E+01	3%	2.95E+00	2.04E+01	3%	2.92E+00	2.04E+01	3%
690	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	2.76E+00	2.02E+01	3%	2.76E+00	2.02E+01	3%	2.76E+00	2.02E+01	3%	2.75E+00	2.02E+01	3%
690	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	4.35E+00	2.18E+01	3%	4.22E+00	2.17E+01	3%	4.22E+00	2.17E+01	3%	4.21E+00	2.17E+01	3%
690	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	3.20E+00	2.07E+01	3%	3.19E+00	2.06E+01	3%	3.24E+00	2.07E+01	3%	3.18E+00	2.06E+01	3%
690	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	2.68E+00	2.01E+01	3%	2.68E+00	2.01E+01	3%	2.72E+00	2.02E+01	3%	2.68E+00	2.01E+01	3%
690	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	2.34E+00	1.98E+01	3%	2.34E+00	1.98E+01	3%	2.39E+00	1.99E+01	3%	2.34E+00	1.98E+01	3%
690	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	2.35E+00	1.98E+01	3%	2.35E+00	1.98E+01	3%	2.36E+00	1.98E+01	3%	2.35E+00	1.98E+01	3%
690	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	2.99E+00	2.05E+01	3%	2.99E+00	2.04E+01	3%	3.06E+00	2.05E+01	3%	2.98E+00	2.04E+01	3%
690	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	2.22E+00	1.97E+01	3%	2.22E+00	1.97E+01	3%	2.26E+00	1.97E+01	3%	2.22E+00	1.97E+01	3%
690	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	2.22E+00	1.97E+01	3%	2.22E+00	1.97E+01	3%	2.24E+00	1.97E+01	3%	2.22E+00	1.97E+01	3%
690	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	1.83E+00	1.93E+01	3%	1.83E+00	1.93E+01	3%	1.85E+00	1.93E+01	3%	1.83E+00	1.93E+01	3%
690	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.06E+00	1.95E+01	3%	2.05E+00	1.95E+01	3%	2.09E+00	1.96E+01	3%	2.05E+00	1.95E+01	3%
690	ING-6	Royal Road Public School	510337	4765360	17.46	2.08E+00	1.95E+01	3%	2.07E+00	1.95E+01	3%	2.08E+00	1.95E+01	3%	2.07E+00	1.95E+01	3%
690	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	2.04E+00	1.95E+01	3%	2.04E+00	1.95E+01	3%	2.04E+00	1.95E+01	3%	2.04E+00	1.95E+01	3%
690	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	1.87E+00	1.93E+01	3%	1.87E+00	1.93E+01	3%	1.87E+00	1.93E+01	3%	1.87E+00	1.93E+01	3%
690	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	2.63E+00	2.01E+01	3%	2.63E+00	2.01E+01	3%	2.64E+00	2.01E+01	3%	2.63E+00	2.01E+01	3%
690	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.42E+00	1.99E+01	3%	2.42E+00	1.99E+01	3%	2.43E+00	1.99E+01	3%	2.42E+00	1.99E+01	3%
690	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	3.02E+00	2.05E+01	3%	3.01E+00	2.05E+01	3%	3.01E+00	2.05E+01	3%	3.01E+00	2.05E+01	3%
690	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	3.37E+00	2.08E+01	3%	3.37E+00	2.08E+01	3%	3.37E+00	2.08E+01	3%	3.37E+00	2.08E+01	3%
690	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	3.93E+00	2.14E+01	3%	3.93E+00	2.14E+01	3%	3.93E+00	2.14E+01	3%	3.93E+00	2.14E+01	3%
690	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	5.01E+00	2.25E+01	3%	5.01E+00	2.25E+01	3%	5.01E+00	2.25E+01	3%	5.01E+00	2.25E+01	3%
690	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	3.82E+00	2.13E+01	3%	3.82E+00	2.13E+01	3%	3.82E+00	2.13E+01	3%	3.82E+00	2.13E+01	3%
690	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	2.93E+00	2.04E+01	3%	2.92E+00	2.04E+01	3%	2.91E+00	2.04E+01	3%	2.90E+00	2.04E+01	3%
690	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	2.56E+00	2.00E+01	3%	2.55E+00	2.00E+01	3%	2.59E+00	2.01E+01	3%	2.54E+00	2.00E+01	3%
690	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	2.05E+00	1.95E+01	3%	2.04E+00	1.95E+01	3%	2.12E+00	1.96E+01	3%	2.03E+00	1.95E+01	3%
690	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.32E+00	1.98E+01	3%	2.24E+00	1.97E+01	3%	2.27E+00	1.97E+01	3%	2.24E+00	1.97E+01	3%
690	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	3.04E+00	2.05E+01	3%	3.03E+00	2.05E+01	3%	3.03E+00	2.05E+01	3%	3.03E+00	2.05E+01	3%
690	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	3.05E+00	2.05E+01	3%	3.05E+00	2.05E+01	3%	3.05E+00	2.05E+01	3%	3.05E+00	2.05E+01	3%
690	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	3.80E+00	2.13E+01	3%	3.80E+00	2.13E+01	3%	3.80E+00	2.13E+01	3%	3.80E+00	2.13E+01	3%
690	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	3.69E+00	2.12E+01	3%	3.69E+00	2.12E+01	3%	3.69E+00	2.12E+01	3%	3.69E+00	2.12E+01	3%
690	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	3.51E+00	2.10E+01	3%	3.51E+00	2.10E+01	3%	3.51E+00	2.10E+01	3%	3.51E+00	2.10E+01	3%
690	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	3.81E+00	2.13E+01	3%	3.81E+00	2.13E+01	3%	3.82E+00	2.13E+01	3%	3.81E+00	2.13E+01	3%
690	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	4.11E+00	2.16E+01	3%	4.11E+00	2.16E+01	3%	4.11E+00	2.16E+01	3%	4.11E+00	2.16E+01	3%
690	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	3.60E+00	2.11E+01	3%	3.60E+00	2.11E+01	3%	3.62E+00	2.11E+01	3%	3.60E+00	2.11E+01	3%
690	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	3.35E+00	2.08E+01	3%	3.34E+00	2.08E+01	3%	3.36E+00	2.08E+01	3%	3.35E+00	2.08E+01	3%
690	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	3.16E+00	2.06E+01	3%	3.14E+00	2.06E+01	3%	3.16E+00	2.06E+01	3%	3.14E+00	2.06E+01	3%
690	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	1.53E+00	1.90E+01	3%	1.52E+00	1.90E+01	3%	1.50E+00	1.90E+01	3%	1.49E+00	1.89E+01	3%

*Values shown in green represent residential receptors.

Sulphur Dioxide
24-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
275	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	3.61E-01	1.78E+01	6%	3.58E-01	1.78E+01	6%	3.60E-01	1.78E+01	6%	3.58E-01	1.78E+01	6%
275	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	3.81E-01	1.78E+01	6%	3.80E-01	1.78E+01	6%	3.82E-01	1.78E+01	6%	3.80E-01	1.78E+01	6%
275	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	7.05E-01	1.82E+01	7%	7.04E-01	1.82E+01	7%	7.06E-01	1.82E+01	7%	7.05E-01	1.82E+01	7%
275	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	6.55E-01	1.81E+01	7%	6.55E-01	1.81E+01	7%	6.56E-01	1.81E+01	7%	6.55E-01	1.81E+01	7%
275	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	6.15E-01	1.81E+01	7%	6.14E-01	1.81E+01	7%	6.17E-01	1.81E+01	7%	6.15E-01	1.81E+01	7%
275	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	8.23E-01	1.83E+01	7%	8.21E-01	1.83E+01	7%	8.24E-01	1.83E+01	7%	8.21E-01	1.83E+01	7%
275	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	8.21E-01	1.83E+01	7%	8.20E-01	1.83E+01	7%	8.21E-01	1.83E+01	7%	8.20E-01	1.83E+01	7%
275	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	9.05E-01	1.84E+01	7%	9.02E-01	1.84E+01	7%	9.06E-01	1.84E+01	7%	9.02E-01	1.84E+01	7%
275	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	6.64E-01	1.81E+01	7%	6.59E-01	1.81E+01	7%	6.60E-01	1.81E+01	7%	6.58E-01	1.81E+01	7%
275	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	6.09E-01	1.81E+01	7%	6.08E-01	1.81E+01	7%	6.12E-01	1.81E+01	7%	6.08E-01	1.81E+01	7%
275	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	5.37E-01	1.80E+01	7%	5.35E-01	1.80E+01	7%	5.56E-01	1.80E+01	7%	5.35E-01	1.80E+01	7%
275	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	4.40E-01	1.79E+01	7%	4.38E-01	1.79E+01	7%	4.42E-01	1.79E+01	7%	4.38E-01	1.79E+01	7%
275	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	7.22E-01	1.82E+01	7%	7.22E-01	1.82E+01	7%	7.23E-01	1.82E+01	7%	7.21E-01	1.82E+01	7%
275	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	5.57E-01	1.80E+01	7%	5.57E-01	1.80E+01	7%	5.60E-01	1.80E+01	7%	5.57E-01	1.80E+01	7%
275	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	3.44E-01	1.78E+01	6%	3.43E-01	1.78E+01	6%	3.44E-01	1.78E+01	6%	3.43E-01	1.78E+01	6%
275	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	3.92E-01	1.79E+01	6%	3.91E-01	1.78E+01	6%	3.95E-01	1.79E+01	6%	3.91E-01	1.78E+01	6%
275	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	2.57E-01	1.77E+01	6%	2.57E-01	1.77E+01	6%	2.57E-01	1.77E+01	6%	2.57E-01	1.77E+01	6%
275	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.94E-01	1.78E+01	6%	2.94E-01	1.78E+01	6%	2.94E-01	1.78E+01	6%	2.94E-01	1.78E+01	6%
275	ING-6	Royal Road Public School	510337	4765360	17.46	3.08E-01	1.78E+01	6%	3.07E-01	1.78E+01	6%	3.09E-01	1.78E+01	6%	3.07E-01	1.78E+01	6%
275	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	1.78E-01	1.76E+01	6%	1.78E-01	1.76E+01	6%	1.79E-01	1.76E+01	6%	1.78E-01	1.76E+01	6%
275	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	2.44E-01	1.77E+01	6%	2.44E-01	1.77E+01	6%	2.45E-01	1.77E+01	6%	2.44E-01	1.77E+01	6%
275	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	3.86E-01	1.78E+01	6%	3.85E-01	1.78E+01	6%	3.87E-01	1.78E+01	6%	3.85E-01	1.78E+01	6%
275	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.67E-01	1.77E+01	6%	2.66E-01	1.77E+01	6%	2.68E-01	1.77E+01	6%	2.66E-01	1.77E+01	6%
275	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	6.00E-01	1.81E+01	7%	5.99E-01	1.81E+01	7%	6.03E-01	1.81E+01	7%	5.99E-01	1.81E+01	7%
275	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	1.32E+00	1.88E+01	7%	1.32E+00	1.88E+01	7%	1.32E+00	1.88E+01	7%	1.32E+00	1.88E+01	7%
275	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	1.24E+00	1.87E+01	7%	1.24E+00	1.87E+01	7%	1.24E+00	1.87E+01	7%	1.24E+00	1.87E+01	7%
275	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	2.14E+00	1.96E+01	7%	2.14E+00	1.96E+01	7%	2.14E+00	1.96E+01	7%	2.14E+00	1.96E+01	7%
275	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	1.78E+00	1.92E+01	7%	1.77E+00	1.92E+01	7%	1.78E+00	1.92E+01	7%	1.77E+00	1.92E+01	7%
275	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	1.06E+00	1.85E+01	7%	1.06E+00	1.85E+01	7%	1.06E+00	1.85E+01	7%	1.06E+00	1.85E+01	7%
275	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	6.01E-01	1.81E+01	7%	6.00E-01	1.81E+01	7%	6.01E-01	1.81E+01	7%	6.00E-01	1.81E+01	7%
275	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	3.32E-01	1.78E+01	6%	3.32E-01	1.78E+01	6%	3.33E-01	1.78E+01	6%	3.32E-01	1.78E+01	6%
275	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.43E-01	1.77E+01	6%	2.43E-01	1.77E+01	6%	2.44E-01	1.77E+01	6%	2.43E-01	1.77E+01	6%
275	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	4.48E-01	1.79E+01	7%	4.47E-01	1.79E+01	7%	4.48E-01	1.79E+01	7%	4.47E-01	1.79E+01	7%
275	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	6.41E-01	1.81E+01	7%	6.40E-01	1.81E+01	7%	6.41E-01	1.81E+01	7%	6.40E-01	1.81E+01	7%
275	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	7.50E-01	1.82E+01	7%	7.50E-01	1.82E+01	7%	7.50E-01	1.82E+01	7%	7.50E-01	1.82E+01	7%
275	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	1.00E+00	1.85E+01	7%	1.00E+00	1.85E+01	7%	1.00E+00	1.85E+01	7%	1.00E+00	1.85E+01	7%
275	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	7.92E-01	1.83E+01	7%	7.91E-01	1.82E+01	7%	7.92E-01	1.83E+01	7%	7.91E-01	1.82E+01	7%
275	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	7.95E-01	1.83E+01	7%	7.95E-01	1.83E+01	7%	7.95E-01	1.83E+01	7%	7.95E-01	1.83E+01	7%
275	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	7.05E-01	1.82E+01	7%	7.04E-01	1.82E+01	7%	7.04E-01	1.82E+01	7%	7.04E-01	1.82E+01	7%
275	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	7.18E-01	1.82E+01	7%	7.17E-01	1.82E+01	7%	7.19E-01	1.82E+01	7%	7.17E-01	1.82E+01	7%
275	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	6.68E-01	1.81E+01	7%	6.66E-01	1.81E+01	7%	6.68E-01	1.81E+01	7%	6.66E-01	1.81E+01	7%
275	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	4.69E-01	1.79E+01	7%	4.67E-01	1.79E+01	7%	4.68E-01	1.79E+01	7%	4.67E-01	1.79E+01	7%
275	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	4.40E-01	1.79E+01	7%	4.38E-01	1.79E+01	7%	4.39E-01	1.79E+01	7%	4.38E-01	1.79E+01	7%

*Values shown in green represent residential receptors.

Sulphur Dioxide
Annual

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
55	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	6.37	2.42E-02	6.40E+00	12%	2.39E-02	6.40E+00	12%	2.42E-02	6.40E+00	12%	2.40E-02	6.40E+00	12%
55	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	6.37	2.35E-02	6.40E+00	12%	2.31E-02	6.40E+00	12%	2.36E-02	6.40E+00	12%	2.32E-02	6.40E+00	12%
55	ZOR-3	Residence at 663951 Rd 66	510216	4770270	6.37	2.49E-02	6.40E+00	12%	2.46E-02	6.40E+00	12%	2.51E-02	6.40E+00	12%	2.47E-02	6.40E+00	12%
55	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	6.37	3.37E-02	6.41E+00	12%	3.34E-02	6.41E+00	12%	3.39E-02	6.41E+00	12%	3.35E-02	6.41E+00	12%
55	ZOR-5	Residence at 334789 33rd Line	508931	4768760	6.37	3.22E-02	6.40E+00	12%	3.17E-02	6.40E+00	12%	3.24E-02	6.40E+00	12%	3.18E-02	6.40E+00	12%
55	ZOR-6	Residence at 334742 33rd Line	509185	4768350	6.37	4.73E-02	6.42E+00	12%	4.62E-02	6.42E+00	12%	4.70E-02	6.42E+00	12%	4.63E-02	6.42E+00	12%
55	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	6.37	7.23E-02	6.44E+00	12%	7.20E-02	6.44E+00	12%	7.25E-02	6.44E+00	12%	7.20E-02	6.44E+00	12%
55	ZOR-8	Residence at 643743 Road 64	508940	4767980	6.37	4.46E-02	6.42E+00	12%	4.39E-02	6.42E+00	12%	4.45E-02	6.42E+00	12%	4.38E-02	6.42E+00	12%
55	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	6.37	3.04E-02	6.40E+00	12%	2.97E-02	6.40E+00	12%	3.06E-02	6.40E+00	12%	2.97E-02	6.40E+00	12%
55	ZOR-10	Residence at 334578 33rd Line	509739	4766780	6.37	1.88E-02	6.39E+00	12%	1.83E-02	6.39E+00	12%	1.92E-02	6.39E+00	12%	1.83E-02	6.39E+00	12%
55	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	6.37	2.03E-02	6.39E+00	12%	1.90E-02	6.39E+00	12%	2.37E-02	6.40E+00	12%	1.89E-02	6.39E+00	12%
55	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	6.37	1.59E-02	6.39E+00	12%	1.53E-02	6.39E+00	12%	1.63E-02	6.39E+00	12%	1.53E-02	6.39E+00	12%
55	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	6.37	4.71E-02	6.42E+00	12%	4.68E-02	6.42E+00	12%	4.72E-02	6.42E+00	12%	4.68E-02	6.42E+00	12%
55	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	6.37	1.77E-02	6.39E+00	12%	1.72E-02	6.39E+00	12%	1.79E-02	6.39E+00	12%	1.72E-02	6.39E+00	12%
55	ING-2	Laurie Hawkins Public School	509019	4765860	6.37	1.36E-02	6.39E+00	12%	1.34E-02	6.39E+00	12%	1.36E-02	6.39E+00	12%	1.34E-02	6.39E+00	12%
55	ING-3	Ingersoll District Collegiate Institute	510512	4766230	6.37	1.32E-02	6.39E+00	12%	1.27E-02	6.39E+00	12%	1.34E-02	6.39E+00	12%	1.27E-02	6.39E+00	12%
55	ING-4	On the river north of 209 County Road 9	509480	4765180	6.37	1.01E-02	6.38E+00	12%	9.93E-03	6.38E+00	12%	1.02E-02	6.38E+00	12%	9.92E-03	6.38E+00	12%
55	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	6.37	1.24E-02	6.38E+00	12%	1.23E-02	6.38E+00	12%	1.24E-02	6.38E+00	12%	1.22E-02	6.38E+00	12%
55	ING-6	Royal Road Public School	510337	4765360	6.37	1.04E-02	6.38E+00	12%	1.02E-02	6.38E+00	12%	1.05E-02	6.38E+00	12%	1.02E-02	6.38E+00	12%
55	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	6.37	7.83E-03	6.38E+00	12%	7.73E-03	6.38E+00	12%	7.86E-03	6.38E+00	12%	7.73E-03	6.38E+00	12%
55	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	6.37	8.92E-03	6.38E+00	12%	8.80E-03	6.38E+00	12%	8.98E-03	6.38E+00	12%	8.79E-03	6.38E+00	12%
55	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	6.37	1.44E-02	6.39E+00	12%	1.41E-02	6.39E+00	12%	1.45E-02	6.39E+00	12%	1.41E-02	6.39E+00	12%
55	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	6.37	1.29E-02	6.39E+00	12%	1.28E-02	6.39E+00	12%	1.30E-02	6.39E+00	12%	1.27E-02	6.39E+00	12%
55	SWO-1	Residence at 584052 Beachville Road	511124	4766750	6.37	1.97E-02	6.39E+00	12%	1.84E-02	6.39E+00	12%	2.13E-02	6.39E+00	12%	1.83E-02	6.39E+00	12%
55	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	6.37	3.63E-02	6.41E+00	12%	3.46E-02	6.41E+00	12%	3.74E-02	6.41E+00	12%	3.44E-02	6.41E+00	12%
55	SWO-3	Residence at 584142 Beachville Road	511722	4767480	6.37	5.52E-02	6.43E+00	12%	5.34E-02	6.43E+00	12%	5.55E-02	6.43E+00	12%	5.32E-02	6.43E+00	12%
55	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	6.37	1.24E-01	6.50E+00	12%	1.22E-01	6.49E+00	12%	1.23E-01	6.50E+00	12%	1.21E-01	6.49E+00	12%
55	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	6.37	9.80E-02	6.47E+00	12%	9.74E-02	6.47E+00	12%	9.79E-02	6.47E+00	12%	9.74E-02	6.47E+00	12%
55	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	6.37	5.56E-02	6.43E+00	12%	5.53E-02	6.43E+00	12%	5.57E-02	6.43E+00	12%	5.53E-02	6.43E+00	12%
55	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	6.37	4.09E-02	6.41E+00	12%	4.08E-02	6.41E+00	12%	4.10E-02	6.41E+00	12%	4.08E-02	6.41E+00	12%
55	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	6.37	2.39E-02	6.40E+00	12%	2.38E-02	6.40E+00	12%	2.39E-02	6.40E+00	12%	2.38E-02	6.40E+00	12%
55	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	6.37	1.81E-02	6.39E+00	12%	1.80E-02	6.39E+00	12%	1.81E-02	6.39E+00	12%	1.80E-02	6.39E+00	12%
55	SWO-10	Residence at 563977 Karn Road	510980	4765990	6.37	1.42E-02	6.39E+00	12%	1.37E-02	6.39E+00	12%	1.44E-02	6.39E+00	12%	1.37E-02	6.39E+00	12%
55	SWO-11	Residence at 564028 Karn Road	511396	4766310	6.37	1.80E-02	6.39E+00	12%	1.72E-02	6.39E+00	12%	1.86E-02	6.39E+00	12%	1.72E-02	6.39E+00	12%
55	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	6.37	2.21E-02	6.39E+00	12%	2.14E-02	6.39E+00	12%	2.32E-02	6.40E+00	12%	2.14E-02	6.39E+00	12%
55	SWO-13	Centreville Pond and Conservation Area	511570	4766920	6.37	2.82E-02	6.40E+00	12%	2.69E-02	6.40E+00	12%	2.90E-02	6.40E+00	12%	2.68E-02	6.40E+00	12%
55	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	6.37	4.53E-02	6.42E+00	12%	4.45E-02	6.42E+00	12%	4.59E-02	6.42E+00	12%	4.44E-02	6.42E+00	12%
55	SWO-15	Residences at 564146 Karn Road	512251	4767100	6.37	5.39E-02	6.43E+00	12%	5.29E-02	6.43E+00	12%	5.40E-02	6.43E+00	12%	5.28E-02	6.43E+00	12%
55	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	6.37	6.32E-02	6.44E+00	12%	6.24E-02	6.43E+00	12%	6.33E-02	6.44E+00	12%	6.22E-02	6.43E+00	12%
55	SWO-17	Residence at 564226 Karn Road	512958	4767760	6.37	6.52E-02	6.44E+00	12%	6.46E-02	6.44E+00	12%	6.51E-02	6.44E+00	12%	6.43E-02	6.44E+00	12%
55	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	6.37	6.54E-02	6.44E+00	12%	6.42E-02	6.44E+00	12%	6.45E-02	6.44E+00	12%	6.31E-02	6.44E+00	12%
55	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	6.37	4.21E-02	6.41E+00	12%	4.12E-02	6.41E+00	12%	4.13E-02	6.41E+00	12%	4.03E-02	6.41E+00	12%
55	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	6.37	3.27E-02	6.41E+00	12%	3.26E-02	6.40E+00	12%	3.28E-02	6.41E+00	12%	3.26E-02	6.40E+00	12%

*Values shown in green represent residential receptors.

Sulphur Dioxide
10-minute (Proposed)

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
180	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	4.51E+00	2.20E+01	12%	4.50E+00	2.20E+01	12%	4.54E+00	2.20E+01	12%	4.51E+00	2.20E+01	12%
180	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	4.63E+00	2.21E+01	12%	4.62E+00	2.21E+01	12%	4.71E+00	2.22E+01	12%	4.66E+00	2.21E+01	12%
180	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	8.74E+00	2.62E+01	15%	8.73E+00	2.62E+01	15%	8.77E+00	2.62E+01	15%	8.74E+00	2.62E+01	15%
180	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	6.50E+00	2.40E+01	13%	6.50E+00	2.40E+01	13%	6.50E+00	2.40E+01	13%	6.49E+00	2.40E+01	13%
180	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	3.62E+00	2.11E+01	12%	3.61E+00	2.11E+01	12%	3.63E+00	2.11E+01	12%	3.61E+00	2.11E+01	12%
180	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	4.72E+00	2.22E+01	12%	4.71E+00	2.22E+01	12%	4.73E+00	2.22E+01	12%	4.71E+00	2.22E+01	12%
180	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	4.85E+00	2.23E+01	12%	4.83E+00	2.23E+01	12%	4.87E+00	2.23E+01	12%	4.82E+00	2.23E+01	12%
180	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	4.56E+00	2.20E+01	12%	4.55E+00	2.20E+01	12%	4.55E+00	2.20E+01	12%	4.54E+00	2.20E+01	12%
180	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	7.18E+00	2.46E+01	14%	6.97E+00	2.44E+01	14%	6.96E+00	2.44E+01	14%	6.94E+00	2.44E+01	14%
180	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	5.27E+00	2.27E+01	13%	5.26E+00	2.27E+01	13%	5.35E+00	2.28E+01	13%	5.25E+00	2.27E+01	13%
180	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	4.43E+00	2.19E+01	12%	4.42E+00	2.19E+01	12%	4.48E+00	2.19E+01	12%	4.42E+00	2.19E+01	12%
180	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	3.87E+00	2.13E+01	12%	3.86E+00	2.13E+01	12%	3.95E+00	2.14E+01	12%	3.86E+00	2.13E+01	12%
180	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	3.88E+00	2.13E+01	12%	3.88E+00	2.13E+01	12%	3.89E+00	2.13E+01	12%	3.87E+00	2.13E+01	12%
180	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	4.94E+00	2.24E+01	12%	4.93E+00	2.24E+01	12%	5.06E+00	2.25E+01	13%	4.92E+00	2.24E+01	12%
180	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	3.67E+00	2.11E+01	12%	3.66E+00	2.11E+01	12%	3.73E+00	2.12E+01	12%	3.66E+00	2.11E+01	12%
180	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	3.67E+00	2.11E+01	12%	3.67E+00	2.11E+01	12%	3.69E+00	2.11E+01	12%	3.66E+00	2.11E+01	12%
180	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	3.03E+00	2.05E+01	11%	3.02E+00	2.05E+01	11%	3.05E+00	2.05E+01	11%	3.02E+00	2.05E+01	11%
180	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	3.40E+00	2.09E+01	12%	3.39E+00	2.08E+01	12%	3.46E+00	2.09E+01	12%	3.39E+00	2.08E+01	12%
180	ING-6	Royal Road Public School	510337	4765360	17.46	3.43E+00	2.09E+01	12%	3.42E+00	2.09E+01	12%	3.43E+00	2.09E+01	12%	3.42E+00	2.09E+01	12%
180	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	3.37E+00	2.08E+01	12%	3.37E+00	2.08E+01	12%	3.37E+00	2.08E+01	12%	3.37E+00	2.08E+01	12%
180	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	3.08E+00	2.05E+01	11%	3.08E+00	2.05E+01	11%	3.08E+00	2.05E+01	11%	3.08E+00	2.05E+01	11%
180	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	4.35E+00	2.18E+01	12%	4.34E+00	2.18E+01	12%	4.35E+00	2.18E+01	12%	4.34E+00	2.18E+01	12%
180	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	4.00E+00	2.15E+01	12%	3.99E+00	2.15E+01	12%	4.00E+00	2.15E+01	12%	3.99E+00	2.14E+01	12%
180	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	4.97E+00	2.24E+01	12%	4.97E+00	2.24E+01	12%	4.97E+00	2.24E+01	12%	4.97E+00	2.24E+01	12%
180	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	5.56E+00	2.30E+01	13%	5.56E+00	2.30E+01	13%	5.56E+00	2.30E+01	13%	5.56E+00	2.30E+01	13%
180	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	6.49E+00	2.39E+01	13%	6.49E+00	2.39E+01	13%	6.49E+00	2.39E+01	13%	6.49E+00	2.39E+01	13%
180	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	8.27E+00	2.57E+01	14%	8.27E+00	2.57E+01	14%	8.27E+00	2.57E+01	14%	8.27E+00	2.57E+01	14%
180	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	6.30E+00	2.38E+01	13%	6.30E+00	2.38E+01	13%	6.30E+00	2.38E+01	13%	6.30E+00	2.38E+01	13%
180	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	4.84E+00	2.23E+01	12%	4.82E+00	2.23E+01	12%	4.81E+00	2.23E+01	12%	4.78E+00	2.22E+01	12%
180	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	4.22E+00	2.17E+01	12%	4.21E+00	2.17E+01	12%	4.28E+00	2.17E+01	12%	4.20E+00	2.17E+01	12%
180	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	3.39E+00	2.08E+01	12%	3.37E+00	2.08E+01	12%	3.51E+00	2.10E+01	12%	3.35E+00	2.08E+01	12%
180	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	3.82E+00	2.13E+01	12%	3.70E+00	2.12E+01	12%	3.74E+00	2.12E+01	12%	3.70E+00	2.12E+01	12%
180	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	5.01E+00	2.25E+01	12%	5.01E+00	2.25E+01	12%	5.01E+00	2.25E+01	12%	5.00E+00	2.25E+01	12%
180	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	5.03E+00	2.25E+01	12%	5.03E+00	2.25E+01	12%	5.03E+00	2.25E+01	12%	5.03E+00	2.25E+01	12%
180	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	6.28E+00	2.37E+01	13%	6.27E+00	2.37E+01	13%	6.27E+00	2.37E+01	13%	6.27E+00	2.37E+01	13%
180	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	6.10E+00	2.36E+01	13%	6.09E+00	2.36E+01	13%	6.09E+00	2.36E+01	13%	6.09E+00	2.35E+01	13%
180	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	5.80E+00	2.33E+01	13%	5.79E+00	2.33E+01	13%	5.80E+00	2.33E+01	13%	5.79E+00	2.33E+01	13%
180	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	6.29E+00	2.37E+01	13%	6.28E+00	2.37E+01	13%	6.30E+00	2.38E+01	13%	6.29E+00	2.37E+01	13%
180	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	6.78E+00	2.42E+01	13%	6.78E+00	2.42E+01	13%	6.79E+00	2.42E+01	13%	6.78E+00	2.42E+01	13%
180	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	5.95E+00	2.34E+01	13%	5.94E+00	2.34E+01	13%	5.97E+00	2.34E+01	13%	5.95E+00	2.34E+01	13%
180	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	5.53E+00	2.30E+01	13%	5.51E+00	2.30E+01	13%	5.55E+00	2.30E+01	13%	5.52E+00	2.30E+01	13%
180	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	5.21E+00	2.27E+01	13%	5.19E+00	2.26E+01	13%	5.22E+00	2.27E+01	13%	5.19E+00	2.26E+01	13%
180	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	2.52E+00	2.00E+01	11%	2.50E+00	2.00E+01	11%	2.47E+00	1.99E+01	11%	2.46E+00	1.99E+01	11%

*Values shown in green represent residential receptors.

Sulphur Dioxide
1-Hour (Proposed)

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
100	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	17.46	2.73E+00	2.02E+01	20%	2.73E+00	2.02E+01	20%	2.75E+00	2.02E+01	20%	2.73E+00	2.02E+01	20%
100	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	17.46	2.81E+00	2.03E+01	20%	2.80E+00	2.03E+01	20%	2.85E+00	2.03E+01	20%	2.82E+00	2.03E+01	20%
100	ZOR-3	Residence at 663951 Rd 66	510216	4770270	17.46	5.30E+00	2.28E+01	23%	5.29E+00	2.27E+01	23%	5.31E+00	2.28E+01	23%	5.30E+00	2.28E+01	23%
100	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	17.46	3.94E+00	2.14E+01	21%	3.94E+00	2.14E+01	21%	3.94E+00	2.14E+01	21%	3.94E+00	2.14E+01	21%
100	ZOR-5	Residence at 334789 33rd Line	508931	4768760	17.46	2.20E+00	1.97E+01	20%	2.19E+00	1.96E+01	20%	2.20E+00	1.97E+01	20%	2.19E+00	1.96E+01	20%
100	ZOR-6	Residence at 334742 33rd Line	509185	4768350	17.46	2.86E+00	2.03E+01	20%	2.85E+00	2.03E+01	20%	2.87E+00	2.03E+01	20%	2.86E+00	2.03E+01	20%
100	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	17.46	2.94E+00	2.04E+01	20%	2.92E+00	2.04E+01	20%	2.95E+00	2.04E+01	20%	2.92E+00	2.04E+01	20%
100	ZOR-8	Residence at 643743 Road 64	508940	4767980	17.46	2.76E+00	2.02E+01	20%	2.76E+00	2.02E+01	20%	2.76E+00	2.02E+01	20%	2.75E+00	2.02E+01	20%
100	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	17.46	4.35E+00	2.18E+01	22%	4.22E+00	2.17E+01	22%	4.22E+00	2.17E+01	22%	4.21E+00	2.17E+01	22%
100	ZOR-10	Residence at 334578 33rd Line	509739	4766780	17.46	3.20E+00	2.07E+01	21%	3.19E+00	2.06E+01	21%	3.24E+00	2.07E+01	21%	3.18E+00	2.06E+01	21%
100	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	17.46	2.68E+00	2.01E+01	20%	2.68E+00	2.01E+01	20%	2.72E+00	2.02E+01	20%	2.68E+00	2.01E+01	20%
100	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	17.46	2.34E+00	1.98E+01	20%	2.34E+00	1.98E+01	20%	2.39E+00	1.99E+01	20%	2.34E+00	1.98E+01	20%
100	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	17.46	2.35E+00	1.98E+01	20%	2.35E+00	1.98E+01	20%	2.36E+00	1.98E+01	20%	2.35E+00	1.98E+01	20%
100	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	17.46	2.99E+00	2.05E+01	20%	2.99E+00	2.04E+01	20%	3.06E+00	2.05E+01	21%	2.98E+00	2.04E+01	20%
100	ING-2	Laurie Hawkins Public School	509019	4765860	17.46	2.22E+00	1.97E+01	20%	2.22E+00	1.97E+01	20%	2.26E+00	1.97E+01	20%	2.22E+00	1.97E+01	20%
100	ING-3	Ingersoll District Collegiate Institute	510512	4766230	17.46	2.22E+00	1.97E+01	20%	2.22E+00	1.97E+01	20%	2.24E+00	1.97E+01	20%	2.22E+00	1.97E+01	20%
100	ING-4	On the river north of 209 County Road 9	509480	4765180	17.46	1.83E+00	1.93E+01	19%	1.83E+00	1.93E+01	19%	1.85E+00	1.93E+01	19%	1.83E+00	1.93E+01	19%
100	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	17.46	2.06E+00	1.95E+01	20%	2.05E+00	1.95E+01	20%	2.09E+00	1.96E+01	20%	2.05E+00	1.95E+01	20%
100	ING-6	Royal Road Public School	510337	4765360	17.46	2.08E+00	1.95E+01	20%	2.07E+00	1.95E+01	20%	2.08E+00	1.95E+01	20%	2.07E+00	1.95E+01	20%
100	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	17.46	2.04E+00	1.95E+01	20%	2.04E+00	1.95E+01	20%	2.04E+00	1.95E+01	20%	2.04E+00	1.95E+01	19%
100	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	17.46	1.87E+00	1.93E+01	19%	1.87E+00	1.93E+01	19%	1.87E+00	1.93E+01	19%	1.87E+00	1.93E+01	19%
100	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	17.46	2.63E+00	2.01E+01	20%	2.63E+00	2.01E+01	20%	2.64E+00	2.01E+01	20%	2.63E+00	2.01E+01	20%
100	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	17.46	2.42E+00	1.99E+01	20%	2.42E+00	1.99E+01	20%	2.43E+00	1.99E+01	20%	2.42E+00	1.99E+01	20%
100	SWO-1	Residence at 584052 Beachville Road	511124	4766750	17.46	3.02E+00	2.05E+01	20%	3.01E+00	2.05E+01	20%	3.01E+00	2.05E+01	20%	3.01E+00	2.05E+01	20%
100	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	17.46	3.37E+00	2.08E+01	21%	3.37E+00	2.08E+01	21%	3.37E+00	2.08E+01	21%	3.37E+00	2.08E+01	21%
100	SWO-3	Residence at 584142 Beachville Road	511722	4767480	17.46	3.93E+00	2.14E+01	21%	3.93E+00	2.14E+01	21%	3.93E+00	2.14E+01	21%	3.93E+00	2.14E+01	21%
100	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	17.46	5.01E+00	2.25E+01	22%	5.01E+00	2.25E+01	22%	5.01E+00	2.25E+01	22%	5.01E+00	2.25E+01	22%
100	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	17.46	3.82E+00	2.13E+01	21%	3.82E+00	2.13E+01	21%	3.82E+00	2.13E+01	21%	3.82E+00	2.13E+01	21%
100	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	17.46	2.93E+00	2.04E+01	20%	2.92E+00	2.04E+01	20%	2.91E+00	2.04E+01	20%	2.90E+00	2.04E+01	20%
100	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	17.46	2.56E+00	2.00E+01	20%	2.55E+00	2.00E+01	20%	2.59E+00	2.01E+01	20%	2.54E+00	2.00E+01	20%
100	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	17.46	2.05E+00	1.95E+01	20%	2.04E+00	1.95E+01	19%	2.12E+00	1.96E+01	20%	2.03E+00	1.95E+01	19%
100	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	17.46	2.32E+00	1.98E+01	20%	2.24E+00	1.97E+01	20%	2.27E+00	1.97E+01	20%	2.24E+00	1.97E+01	20%
100	SWO-10	Residence at 563977 Karn Road	510980	4765990	17.46	3.04E+00	2.05E+01	20%	3.03E+00	2.05E+01	20%	3.03E+00	2.05E+01	20%	3.03E+00	2.05E+01	20%
100	SWO-11	Residence at 564028 Karn Road	511396	4766310	17.46	3.05E+00	2.05E+01	21%	3.05E+00	2.05E+01	21%	3.05E+00	2.05E+01	21%	3.05E+00	2.05E+01	21%
100	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	17.46	3.80E+00	2.13E+01	21%	3.80E+00	2.13E+01	21%	3.80E+00	2.13E+01	21%	3.80E+00	2.13E+01	21%
100	SWO-13	Centreville Pond and Conservation Area	511570	4766920	17.46	3.69E+00	2.12E+01	21%	3.69E+00	2.12E+01	21%	3.69E+00	2.12E+01	21%	3.69E+00	2.12E+01	21%
100	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	17.46	3.51E+00	2.10E+01	21%	3.51E+00	2.10E+01	21%	3.51E+00	2.10E+01	21%	3.51E+00	2.10E+01	21%
100	SWO-15	Residences at 564146 Karn Road	512251	4767100	17.46	3.81E+00	2.13E+01	21%	3.81E+00	2.13E+01	21%	3.82E+00	2.13E+01	21%	3.81E+00	2.13E+01	21%
100	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	17.46	4.11E+00	2.16E+01	22%	4.11E+00	2.16E+01	22%	4.11E+00	2.16E+01	22%	4.11E+00	2.16E+01	22%
100	SWO-17	Residence at 564226 Karn Road	512958	4767760	17.46	3.60E+00	2.11E+01	21%	3.60E+00	2.11E+01	21%	3.62E+00	2.11E+01	21%	3.60E+00	2.11E+01	21%
100	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	17.46	3.35E+00	2.08E+01	21%	3.34E+00	2.08E+01	21%	3.36E+00	2.08E+01	21%	3.35E+00	2.08E+01	21%
100	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	17.46	3.16E+00	2.06E+01	21%	3.14E+00	2.06E+01	21%	3.16E+00	2.06E+01	21%	3.14E+00	2.06E+01	21%
100	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	17.46	1.53E+00	1.90E+01	19%	1.52E+00	1.90E+01	19%	1.50E+00	1.90E+01	19%	1.49E+00	1.89E+01	19%

*Values shown in green represent residential receptors.

Sulphur Dioxide
Annual (Proposed)

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
10	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	6.37	2.42E-02	6.40E+00	64%	2.39E-02	6.40E+00	64%	2.42E-02	6.40E+00	64%	2.40E-02	6.40E+00	64%
10	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	6.37	2.35E-02	6.40E+00	64%	2.31E-02	6.40E+00	64%	2.36E-02	6.40E+00	64%	2.32E-02	6.40E+00	64%
10	ZOR-3	Residence at 663951 Rd 66	510216	4770270	6.37	2.49E-02	6.40E+00	64%	2.46E-02	6.40E+00	64%	2.51E-02	6.40E+00	64%	2.47E-02	6.40E+00	64%
10	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	6.37	3.37E-02	6.41E+00	64%	3.34E-02	6.41E+00	64%	3.39E-02	6.41E+00	64%	3.35E-02	6.41E+00	64%
10	ZOR-5	Residence at 334789 33rd Line	508931	4768760	6.37	3.22E-02	6.40E+00	64%	3.17E-02	6.40E+00	64%	3.24E-02	6.40E+00	64%	3.18E-02	6.40E+00	64%
10	ZOR-6	Residence at 334742 33rd Line	509185	4768350	6.37	4.73E-02	6.42E+00	64%	4.62E-02	6.42E+00	64%	4.70E-02	6.42E+00	64%	4.63E-02	6.42E+00	64%
10	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	6.37	7.23E-02	6.44E+00	64%	7.20E-02	6.44E+00	64%	7.25E-02	6.44E+00	64%	7.20E-02	6.44E+00	64%
10	ZOR-8	Residence at 643743 Road 64	508940	4767980	6.37	4.46E-02	6.42E+00	64%	4.39E-02	6.42E+00	64%	4.45E-02	6.42E+00	64%	4.38E-02	6.42E+00	64%
10	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	6.37	3.04E-02	6.40E+00	64%	2.97E-02	6.40E+00	64%	3.06E-02	6.40E+00	64%	2.97E-02	6.40E+00	64%
10	ZOR-10	Residence at 334578 33rd Line	509739	4766780	6.37	1.88E-02	6.39E+00	64%	1.83E-02	6.39E+00	64%	1.92E-02	6.39E+00	64%	1.83E-02	6.39E+00	64%
10	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	6.37	2.03E-02	6.39E+00	64%	1.90E-02	6.39E+00	64%	2.37E-02	6.40E+00	64%	1.89E-02	6.39E+00	64%
10	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	6.37	1.59E-02	6.39E+00	64%	1.53E-02	6.39E+00	64%	1.63E-02	6.39E+00	64%	1.53E-02	6.39E+00	64%
10	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	6.37	4.71E-02	6.42E+00	64%	4.68E-02	6.42E+00	64%	4.72E-02	6.42E+00	64%	4.68E-02	6.42E+00	64%
10	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	6.37	1.77E-02	6.39E+00	64%	1.72E-02	6.39E+00	64%	1.79E-02	6.39E+00	64%	1.72E-02	6.39E+00	64%
10	ING-2	Laurie Hawkins Public School	509019	4765860	6.37	1.36E-02	6.39E+00	64%	1.34E-02	6.39E+00	64%	1.36E-02	6.39E+00	64%	1.34E-02	6.39E+00	64%
10	ING-3	Ingersoll District Collegiate Institute	510512	4766230	6.37	1.32E-02	6.39E+00	64%	1.27E-02	6.39E+00	64%	1.34E-02	6.39E+00	64%	1.27E-02	6.39E+00	64%
10	ING-4	On the river north of 209 County Road 9	509480	4765180	6.37	1.01E-02	6.38E+00	64%	9.93E-03	6.38E+00	64%	1.02E-02	6.38E+00	64%	9.92E-03	6.38E+00	64%
10	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	6.37	1.24E-02	6.38E+00	64%	1.23E-02	6.38E+00	64%	1.24E-02	6.38E+00	64%	1.22E-02	6.38E+00	64%
10	ING-6	Royal Road Public School	510337	4765360	6.37	1.04E-02	6.38E+00	64%	1.02E-02	6.38E+00	64%	1.05E-02	6.38E+00	64%	1.02E-02	6.38E+00	64%
10	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	6.37	7.83E-03	6.38E+00	64%	7.73E-03	6.38E+00	64%	7.86E-03	6.38E+00	64%	7.73E-03	6.38E+00	64%
10	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	6.37	8.92E-03	6.38E+00	64%	8.80E-03	6.38E+00	64%	8.98E-03	6.38E+00	64%	8.79E-03	6.38E+00	64%
10	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	6.37	1.44E-02	6.39E+00	64%	1.41E-02	6.39E+00	64%	1.45E-02	6.39E+00	64%	1.41E-02	6.39E+00	64%
10	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	6.37	1.29E-02	6.39E+00	64%	1.28E-02	6.39E+00	64%	1.30E-02	6.39E+00	64%	1.27E-02	6.39E+00	64%
10	SWO-1	Residence at 584052 Beachville Road	511124	4766750	6.37	1.97E-02	6.39E+00	64%	1.84E-02	6.39E+00	64%	2.13E-02	6.39E+00	64%	1.83E-02	6.39E+00	64%
10	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	6.37	3.63E-02	6.41E+00	64%	3.46E-02	6.41E+00	64%	3.74E-02	6.41E+00	64%	3.44E-02	6.41E+00	64%
10	SWO-3	Residence at 584142 Beachville Road	511722	4767480	6.37	5.52E-02	6.43E+00	64%	5.34E-02	6.43E+00	64%	5.55E-02	6.43E+00	64%	5.32E-02	6.43E+00	64%
10	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	6.37	1.24E-01	6.50E+00	65%	1.22E-01	6.49E+00	65%	1.23E-01	6.50E+00	65%	1.21E-01	6.49E+00	65%
10	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	6.37	9.80E-02	6.47E+00	65%	9.74E-02	6.47E+00	65%	9.79E-02	6.47E+00	65%	9.74E-02	6.47E+00	65%
10	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	6.37	5.56E-02	6.43E+00	64%	5.53E-02	6.43E+00	64%	5.57E-02	6.43E+00	64%	5.53E-02	6.43E+00	64%
10	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	6.37	4.09E-02	6.41E+00	64%	4.08E-02	6.41E+00	64%	4.10E-02	6.41E+00	64%	4.08E-02	6.41E+00	64%
10	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	6.37	2.39E-02	6.40E+00	64%	2.38E-02	6.40E+00	64%	2.39E-02	6.40E+00	64%	2.38E-02	6.40E+00	64%
10	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	6.37	1.81E-02	6.39E+00	64%	1.80E-02	6.39E+00	64%	1.81E-02	6.39E+00	64%	1.80E-02	6.39E+00	64%
10	SWO-10	Residence at 563977 Karn Road	510980	4765990	6.37	1.42E-02	6.39E+00	64%	1.37E-02	6.39E+00	64%	1.44E-02	6.39E+00	64%	1.37E-02	6.39E+00	64%
10	SWO-11	Residence at 564028 Karn Road	511396	4766310	6.37	1.80E-02	6.39E+00	64%	1.72E-02	6.39E+00	64%	1.86E-02	6.39E+00	64%	1.72E-02	6.39E+00	64%
10	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	6.37	2.21E-02	6.39E+00	64%	2.14E-02	6.39E+00	64%	2.32E-02	6.40E+00	64%	2.14E-02	6.39E+00	64%
10	SWO-13	Centreville Pond and Conservation Area	511570	4766920	6.37	2.82E-02	6.40E+00	64%	2.69E-02	6.40E+00	64%	2.90E-02	6.40E+00	64%	2.68E-02	6.40E+00	64%
10	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	6.37	4.53E-02	6.42E+00	64%	4.45E-02	6.42E+00	64%	4.59E-02	6.42E+00	64%	4.44E-02	6.42E+00	64%
10	SWO-15	Residences at 564146 Karn Road	512251	4767100	6.37	5.39E-02	6.43E+00	64%	5.29E-02	6.43E+00	64%	5.40E-02	6.43E+00	64%	5.28E-02	6.43E+00	64%
10	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	6.37	6.32E-02	6.44E+00	64%	6.24E-02	6.43E+00	64%	6.33E-02	6.44E+00	64%	6.22E-02	6.43E+00	64%
10	SWO-17	Residence at 564226 Karn Road	512958	4767760	6.37	6.52E-02	6.44E+00	64%	6.46E-02	6.44E+00	64%	6.51E-02	6.44E+00	64%	6.43E-02	6.44E+00	64%
10	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	6.37	6.54E-02	6.44E+00	64%	6.42E-02	6.44E+00	64%	6.45E-02	6.44E+00	64%	6.31E-02	6.44E+00	64%
10	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	6.37	4.21E-02	6.41E+00	64%	4.12E-02	6.41E+00	64%	4.13E-02	6.41E+00	64%	4.03E-02	6.41E+00	64%
10	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	6.37	3.27E-02	6.41E+00	64%	3.26E-02	6.40E+00	64%	3.28E-02	6.41E+00	64%	3.26E-02	6.40E+00	64%

*Values shown in green represent residential receptors.

Carbon Monoxide
1-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
36200	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	301.50	2.81E+01	3.30E+02	1%	2.76E+01	3.29E+02	1%	2.84E+01	3.30E+02	1%	2.70E+01	3.28E+02	1%
36200	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	301.50	3.01E+01	3.32E+02	1%	2.91E+01	3.31E+02	1%	3.01E+01	3.32E+02	1%	2.85E+01	3.30E+02	1%
36200	ZOR-3	Residence at 663951 Rd 66	510216	4770270	301.50	5.16E+01	3.53E+02	1%	5.11E+01	3.53E+02	1%	5.19E+01	3.53E+02	1%	5.11E+01	3.53E+02	1%
36200	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	301.50	4.01E+01	3.42E+02	1%	3.97E+01	3.41E+02	1%	3.88E+01	3.40E+02	1%	3.86E+01	3.40E+02	1%
36200	ZOR-5	Residence at 334789 33rd Line	508931	4768760	301.50	2.23E+01	3.24E+02	1%	2.15E+01	3.23E+02	1%	2.27E+01	3.24E+02	1%	2.12E+01	3.23E+02	1%
36200	ZOR-6	Residence at 334742 33rd Line	509185	4768350	301.50	2.82E+01	3.30E+02	1%	2.78E+01	3.29E+02	1%	2.92E+01	3.31E+02	1%	2.76E+01	3.29E+02	1%
36200	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	301.50	2.90E+01	3.31E+02	1%	2.83E+01	3.30E+02	1%	2.90E+01	3.31E+02	1%	2.80E+01	3.30E+02	1%
36200	ZOR-8	Residence at 643743 Road 64	508940	4767980	301.50	2.73E+01	3.29E+02	1%	2.69E+01	3.28E+02	1%	2.76E+01	3.29E+02	1%	2.65E+01	3.28E+02	1%
36200	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	301.50	4.59E+01	3.47E+02	1%	4.12E+01	3.43E+02	1%	4.19E+01	3.43E+02	1%	4.05E+01	3.42E+02	1%
36200	ZOR-10	Residence at 334578 33rd Line	509739	4766780	301.50	3.15E+01	3.33E+02	1%	3.11E+01	3.33E+02	1%	3.16E+01	3.33E+02	1%	3.07E+01	3.32E+02	1%
36200	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	301.50	2.70E+01	3.28E+02	1%	2.61E+01	3.28E+02	1%	2.62E+01	3.28E+02	1%	2.58E+01	3.27E+02	1%
36200	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	301.50	2.29E+01	3.24E+02	1%	2.27E+01	3.24E+02	1%	2.32E+01	3.25E+02	1%	2.24E+01	3.24E+02	1%
36200	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	301.50	2.32E+01	3.25E+02	1%	2.29E+01	3.24E+02	1%	2.32E+01	3.25E+02	1%	2.27E+01	3.24E+02	1%
36200	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	301.50	2.94E+01	3.31E+02	1%	2.91E+01	3.31E+02	1%	2.97E+01	3.31E+02	1%	2.87E+01	3.30E+02	1%
36200	ING-2	Laurie Hawkins Public School	509019	4765860	301.50	2.20E+01	3.23E+02	1%	2.17E+01	3.23E+02	1%	2.22E+01	3.24E+02	1%	2.14E+01	3.23E+02	1%
36200	ING-3	Ingersoll District Collegiate Institute	510512	4766230	301.50	2.19E+01	3.23E+02	1%	2.16E+01	3.23E+02	1%	2.19E+01	3.23E+02	1%	2.14E+01	3.23E+02	1%
36200	ING-4	On the river north of 209 County Road 9	509480	4765180	301.50	1.80E+01	3.20E+02	1%	1.77E+01	3.19E+02	1%	1.82E+01	3.20E+02	1%	1.76E+01	3.19E+02	1%
36200	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	301.50	2.05E+01	3.22E+02	1%	2.01E+01	3.22E+02	1%	2.07E+01	3.22E+02	1%	1.98E+01	3.21E+02	1%
36200	ING-6	Royal Road Public School	510337	4765360	301.50	2.04E+01	3.22E+02	1%	2.02E+01	3.22E+02	1%	2.05E+01	3.22E+02	1%	2.00E+01	3.21E+02	1%
36200	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	301.50	2.01E+01	3.22E+02	1%	2.00E+01	3.22E+02	1%	2.02E+01	3.22E+02	1%	1.97E+01	3.21E+02	1%
36200	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	301.50	1.86E+01	3.20E+02	1%	1.83E+01	3.20E+02	1%	1.86E+01	3.20E+02	1%	1.81E+01	3.20E+02	1%
36200	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	301.50	2.60E+01	3.28E+02	1%	2.56E+01	3.27E+02	1%	2.64E+01	3.28E+02	1%	2.54E+01	3.27E+02	1%
36200	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	301.50	2.40E+01	3.25E+02	1%	2.36E+01	3.25E+02	1%	2.43E+01	3.26E+02	1%	2.33E+01	3.25E+02	1%
36200	SWO-1	Residence at 584052 Beachville Road	511124	4766750	301.50	2.96E+01	3.31E+02	1%	2.94E+01	3.31E+02	1%	2.93E+01	3.31E+02	1%	2.91E+01	3.31E+02	1%
36200	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	301.50	3.22E+01	3.34E+02	1%	3.22E+01	3.34E+02	1%	3.22E+01	3.34E+02	1%	3.21E+01	3.34E+02	1%
36200	SWO-3	Residence at 584142 Beachville Road	511722	4767480	301.50	3.75E+01	3.39E+02	1%	3.75E+01	3.39E+02	1%	3.75E+01	3.39E+02	1%	3.74E+01	3.39E+02	1%
36200	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	301.50	9.42E+01	3.96E+02	1%	8.25E+01	3.84E+02	1%	4.85E+01	3.50E+02	1%	4.76E+01	3.49E+02	1%
36200	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	301.50	3.65E+01	3.38E+02	1%	3.64E+01	3.38E+02	1%	3.66E+01	3.38E+02	1%	3.64E+01	3.38E+02	1%
36200	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	301.50	3.01E+01	3.32E+02	1%	2.94E+01	3.31E+02	1%	3.00E+01	3.32E+02	1%	2.84E+01	3.30E+02	1%
36200	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	301.50	2.53E+01	3.27E+02	1%	2.49E+01	3.26E+02	1%	2.52E+01	3.27E+02	1%	2.45E+01	3.26E+02	1%
36200	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	301.50	2.15E+01	3.23E+02	1%	2.06E+01	3.22E+02	1%	2.11E+01	3.23E+02	1%	1.99E+01	3.21E+02	1%
36200	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	301.50	2.57E+01	3.27E+02	1%	2.24E+01	3.24E+02	1%	2.37E+01	3.25E+02	1%	2.19E+01	3.23E+02	1%
36200	SWO-10	Residence at 563977 Karn Road	510980	4765990	301.50	2.98E+01	3.31E+02	1%	2.96E+01	3.31E+02	1%	2.97E+01	3.31E+02	1%	2.93E+01	3.31E+02	1%
36200	SWO-11	Residence at 564028 Karn Road	511396	4766310	301.50	3.00E+01	3.32E+02	1%	2.97E+01	3.31E+02	1%	3.00E+01	3.31E+02	1%	2.94E+01	3.31E+02	1%
36200	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	301.50	3.72E+01	3.39E+02	1%	3.71E+01	3.39E+02	1%	3.69E+01	3.38E+02	1%	3.67E+01	3.38E+02	1%
36200	SWO-13	Centreville Pond and Conservation Area	511570	4766920	301.50	3.62E+01	3.38E+02	1%	3.61E+01	3.38E+02	1%	3.58E+01	3.37E+02	1%	3.57E+01	3.37E+02	1%
36200	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	301.50	3.41E+01	3.36E+02	1%	3.39E+01	3.35E+02	1%	3.40E+01	3.35E+02	1%	3.37E+01	3.35E+02	1%
36200	SWO-15	Residences at 564146 Karn Road	512251	4767100	301.50	3.70E+01	3.39E+02	1%	3.67E+01	3.38E+02	1%	3.75E+01	3.39E+02	1%	3.67E+01	3.38E+02	1%
36200	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	301.50	4.00E+01	3.41E+02	1%	3.97E+01	3.41E+02	1%	3.99E+01	3.41E+02	1%	3.95E+01	3.41E+02	1%
36200	SWO-17	Residence at 564226 Karn Road	512958	4767760	301.50	3.51E+01	3.37E+02	1%	3.46E+01	3.36E+02	1%	3.62E+01	3.38E+02	1%	3.46E+01	3.36E+02	1%
36200	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	301.50	1.09E+02	4.11E+02	1%	9.54E+01	3.97E+02	1%	5.11E+01	3.53E+02	1%	4.49E+01	3.46E+02	1%
36200	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	301.50	8.05E+01	3.82E+02	1%	7.97E+01	3.81E+02	1%	3.78E+01	3.39E+02	1%	3.75E+01	3.39E+02	1%
36200	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	301.50	1.67E+01	3.18E+02	1%	1.63E+01	3.18E+02	1%	1.57E+01	3.17E+02	1%	1.49E+01	3.16E+02	1%

*Values shown in green represent residential receptors.

Carbon Monoxide
8-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
15700	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	301.50	7.56E+00	3.09E+02	2%	7.40E+00	3.09E+02	2%	7.97E+00	3.09E+02	2%	7.38E+00	3.09E+02	2%
15700	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	301.50	9.14E+00	3.11E+02	2%	9.00E+00	3.11E+02	2%	9.54E+00	3.11E+02	2%	8.98E+00	3.10E+02	2%
15700	ZOR-3	Residence at 663951 Rd 66	510216	4770270	301.50	1.08E+01	3.12E+02	2%	1.07E+01	3.12E+02	2%	1.08E+01	3.12E+02	2%	1.07E+01	3.12E+02	2%
15700	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	301.50	1.16E+01	3.13E+02	2%	1.16E+01	3.13E+02	2%	1.16E+01	3.13E+02	2%	1.16E+01	3.13E+02	2%
15700	ZOR-5	Residence at 334789 33rd Line	508931	4768760	301.50	1.08E+01	3.12E+02	2%	1.05E+01	3.12E+02	2%	1.18E+01	3.13E+02	2%	1.05E+01	3.12E+02	2%
15700	ZOR-6	Residence at 334742 33rd Line	509185	4768350	301.50	1.37E+01	3.15E+02	2%	1.34E+01	3.15E+02	2%	1.48E+01	3.16E+02	2%	1.34E+01	3.15E+02	2%
15700	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	301.50	1.51E+01	3.17E+02	2%	1.50E+01	3.17E+02	2%	1.51E+01	3.17E+02	2%	1.50E+01	3.17E+02	2%
15700	ZOR-8	Residence at 643743 Road 64	508940	4767980	301.50	1.16E+01	3.13E+02	2%	1.14E+01	3.13E+02	2%	1.20E+01	3.13E+02	2%	1.14E+01	3.13E+02	2%
15700	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	301.50	1.19E+01	3.13E+02	2%	1.17E+01	3.13E+02	2%	1.20E+01	3.14E+02	2%	1.17E+01	3.13E+02	2%
15700	ZOR-10	Residence at 334578 33rd Line	509739	4766780	301.50	1.03E+01	3.12E+02	2%	1.02E+01	3.12E+02	2%	1.04E+01	3.12E+02	2%	1.02E+01	3.12E+02	2%
15700	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	301.50	1.07E+01	3.12E+02	2%	1.07E+01	3.12E+02	2%	1.08E+01	3.12E+02	2%	1.07E+01	3.12E+02	2%
15700	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	301.50	9.24E+00	3.11E+02	2%	9.23E+00	3.11E+02	2%	9.26E+00	3.11E+02	2%	9.21E+00	3.11E+02	2%
15700	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	301.50	1.20E+01	3.13E+02	2%	1.20E+01	3.13E+02	2%	1.20E+01	3.13E+02	2%	1.19E+01	3.13E+02	2%
15700	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	301.50	9.77E+00	3.11E+02	2%	9.74E+00	3.11E+02	2%	9.83E+00	3.11E+02	2%	9.72E+00	3.11E+02	2%
15700	ING-2	Laurie Hawkins Public School	509019	4765860	301.50	6.33E+00	3.08E+02	2%	6.29E+00	3.08E+02	2%	6.43E+00	3.08E+02	2%	6.28E+00	3.08E+02	2%
15700	ING-3	Ingersoll District Collegiate Institute	510512	4766230	301.50	6.47E+00	3.08E+02	2%	6.44E+00	3.08E+02	2%	6.53E+00	3.08E+02	2%	6.42E+00	3.08E+02	2%
15700	ING-4	On the river north of 209 County Road 9	509480	4765180	301.50	5.40E+00	3.07E+02	2%	5.39E+00	3.07E+02	2%	5.49E+00	3.07E+02	2%	5.38E+00	3.07E+02	2%
15700	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	301.50	5.47E+00	3.07E+02	2%	5.43E+00	3.07E+02	2%	5.59E+00	3.07E+02	2%	5.42E+00	3.07E+02	2%
15700	ING-6	Royal Road Public School	510337	4765360	301.50	6.42E+00	3.08E+02	2%	6.32E+00	3.08E+02	2%	6.58E+00	3.08E+02	2%	6.31E+00	3.08E+02	2%
15700	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	301.50	4.85E+00	3.06E+02	2%	4.78E+00	3.06E+02	2%	4.99E+00	3.06E+02	2%	4.78E+00	3.06E+02	2%
15700	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	301.50	5.14E+00	3.07E+02	2%	5.06E+00	3.07E+02	2%	5.28E+00	3.07E+02	2%	5.06E+00	3.07E+02	2%
15700	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	301.50	7.15E+00	3.09E+02	2%	7.13E+00	3.09E+02	2%	7.20E+00	3.09E+02	2%	7.12E+00	3.09E+02	2%
15700	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	301.50	5.69E+00	3.07E+02	2%	5.67E+00	3.07E+02	2%	5.70E+00	3.07E+02	2%	5.65E+00	3.07E+02	2%
15700	SWO-1	Residence at 584052 Beachville Road	511124	4766750	301.50	1.41E+01	3.16E+02	2%	1.40E+01	3.16E+02	2%	1.41E+01	3.16E+02	2%	1.40E+01	3.16E+02	2%
15700	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	301.50	2.03E+01	3.22E+02	2%	2.03E+01	3.22E+02	2%	2.03E+01	3.22E+02	2%	2.03E+01	3.22E+02	2%
15700	SWO-3	Residence at 584142 Beachville Road	511722	4767480	301.50	2.08E+01	3.22E+02	2%	2.08E+01	3.22E+02	2%	2.08E+01	3.22E+02	2%	2.07E+01	3.22E+02	2%
15700	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	301.50	2.98E+01	3.31E+02	2%	2.96E+01	3.31E+02	2%	3.02E+01	3.32E+02	2%	2.93E+01	3.31E+02	2%
15700	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	301.50	2.30E+01	3.25E+02	2%	2.30E+01	3.24E+02	2%	2.32E+01	3.25E+02	2%	2.29E+01	3.24E+02	2%
15700	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	301.50	1.29E+01	3.14E+02	2%	1.28E+01	3.14E+02	2%	1.31E+01	3.15E+02	2%	1.28E+01	3.14E+02	2%
15700	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	301.50	9.15E+00	3.11E+02	2%	9.08E+00	3.11E+02	2%	9.32E+00	3.11E+02	2%	9.07E+00	3.11E+02	2%
15700	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	301.50	5.59E+00	3.07E+02	2%	5.40E+00	3.07E+02	2%	5.63E+00	3.07E+02	2%	5.28E+00	3.07E+02	2%
15700	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	301.50	4.17E+00	3.06E+02	2%	4.04E+00	3.06E+02	2%	4.18E+00	3.06E+02	2%	3.96E+00	3.05E+02	2%
15700	SWO-10	Residence at 563977 Karn Road	510980	4765990	301.50	9.01E+00	3.11E+02	2%	8.95E+00	3.10E+02	2%	9.18E+00	3.11E+02	2%	8.94E+00	3.10E+02	2%
15700	SWO-11	Residence at 564028 Karn Road	511396	4766310	301.50	1.20E+01	3.13E+02	2%	1.20E+01	3.13E+02	2%	1.20E+01	3.14E+02	2%	1.20E+01	3.13E+02	2%
15700	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	301.50	9.93E+00	3.11E+02	2%	9.89E+00	3.11E+02	2%	1.00E+01	3.12E+02	2%	9.87E+00	3.11E+02	2%
15700	SWO-13	Centreville Pond and Conservation Area	511570	4766920	301.50	1.41E+01	3.16E+02	2%	1.41E+01	3.16E+02	2%	1.41E+01	3.16E+02	2%	1.41E+01	3.16E+02	2%
15700	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	301.50	1.67E+01	3.18E+02	2%	1.67E+01	3.18E+02	2%	1.68E+01	3.18E+02	2%	1.66E+01	3.18E+02	2%
15700	SWO-15	Residences at 564146 Karn Road	512251	4767100	301.50	1.56E+01	3.17E+02	2%	1.56E+01	3.17E+02	2%	1.56E+01	3.17E+02	2%	1.56E+01	3.17E+02	2%
15700	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	301.50	1.59E+01	3.17E+02	2%	1.58E+01	3.17E+02	2%	1.59E+01	3.17E+02	2%	1.58E+01	3.17E+02	2%
15700	SWO-17	Residence at 564226 Karn Road	512958	4767760	301.50	1.51E+01	3.17E+02	2%	1.50E+01	3.16E+02	2%	1.56E+01	3.17E+02	2%	1.50E+01	3.16E+02	2%
15700	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	301.50	2.33E+01	3.25E+02	2%	2.21E+01	3.24E+02	2%	1.45E+01	3.16E+02	2%	1.40E+01	3.16E+02	2%
15700	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	301.50	2.17E+01	3.23E+02	2%	2.11E+01	3.23E+02	2%	1.10E+01	3.13E+02	2%	9.97E+00	3.11E+02	2%
15700	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	301.50	6.78E+00	3.08E+02	2%	6.58E+00	3.08E+02	2%	6.81E+00	3.08E+02	2%	6.52E+00	3.08E+02	2%

*Values shown in green represent residential receptors.

Nitrogen Dioxide
1-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
400	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	23.19	5.06E+01	7.38E+01	18%	4.50E+01	6.82E+01	17%	5.66E+01	7.98E+01	20%	4.79E+01	7.11E+01	18%
400	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	23.19	6.08E+01	8.40E+01	21%	4.70E+01	7.02E+01	18%	1.06E+02	1.29E+02	32%	6.54E+01	8.86E+01	22%
400	ZOR-3	Residence at 663951 Rd 66	510216	4770270	23.19	8.22E+01	1.05E+02	26%	8.06E+01	1.04E+02	26%	1.26E+02	1.49E+02	37%	8.54E+01	1.09E+02	27%
400	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	23.19	5.85E+01	8.17E+01	20%	5.32E+01	7.64E+01	19%	9.44E+01	1.18E+02	29%	5.15E+01	7.47E+01	19%
400	ZOR-5	Residence at 334789 33rd Line	508931	4768760	23.19	8.49E+01	1.08E+02	27%	5.60E+01	7.92E+01	20%	9.02E+01	1.13E+02	28%	6.22E+01	8.54E+01	21%
400	ZOR-6	Residence at 334742 33rd Line	509185	4768350	23.19	8.18E+01	1.05E+02	26%	6.00E+01	8.32E+01	21%	6.87E+01	9.19E+01	23%	4.82E+01	7.14E+01	18%
400	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	23.19	5.91E+01	8.22E+01	21%	4.40E+01	6.72E+01	17%	6.69E+01	9.01E+01	23%	4.60E+01	6.92E+01	17%
400	ZOR-8	Residence at 643743 Road 64	508940	4767980	23.19	6.66E+01	8.98E+01	22%	5.20E+01	7.52E+01	19%	5.68E+01	8.00E+01	20%	3.89E+01	6.21E+01	16%
400	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	23.19	1.27E+02	1.51E+02	38%	6.80E+01	9.12E+01	23%	6.18E+01	8.50E+01	21%	5.80E+01	8.12E+01	20%
400	ZOR-10	Residence at 334578 33rd Line	509739	4766780	23.19	7.48E+01	9.80E+01	24%	5.49E+01	7.81E+01	20%	7.41E+01	9.73E+01	24%	4.37E+01	6.69E+01	17%
400	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	23.19	1.45E+02	1.68E+02	42%	7.29E+01	9.61E+01	24%	9.47E+01	1.18E+02	29%	3.63E+01	5.95E+01	15%
400	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	23.19	8.05E+01	1.04E+02	26%	4.32E+01	6.64E+01	17%	8.15E+01	1.05E+02	26%	3.38E+01	5.70E+01	14%
400	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	23.19	6.40E+01	8.72E+01	22%	4.22E+01	6.54E+01	16%	7.17E+01	9.48E+01	24%	4.10E+01	6.42E+01	16%
400	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	23.19	7.44E+01	9.76E+01	24%	4.76E+01	7.08E+01	18%	8.22E+01	1.05E+02	26%	4.25E+01	6.57E+01	16%
400	ING-2	Laurie Hawkins Public School	509019	4765860	23.19	3.78E+01	6.10E+01	15%	3.20E+01	5.51E+01	14%	3.28E+01	5.60E+01	14%	3.03E+01	5.35E+01	13%
400	ING-3	Ingersoll District Collegiate Institute	510512	4766230	23.19	7.36E+01	9.67E+01	24%	4.83E+01	7.15E+01	18%	7.10E+01	9.42E+01	24%	3.12E+01	5.43E+01	14%
400	ING-4	On the river north of 209 County Road 9	509480	4765180	23.19	3.66E+01	5.97E+01	15%	3.03E+01	5.35E+01	13%	4.38E+01	6.70E+01	17%	2.61E+01	4.93E+01	12%
400	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	23.19	3.37E+01	5.69E+01	14%	3.00E+01	5.32E+01	13%	3.07E+01	5.39E+01	13%	2.82E+01	5.14E+01	13%
400	ING-6	Royal Road Public School	510337	4765360	23.19	6.20E+01	8.52E+01	21%	4.37E+01	6.69E+01	17%	3.86E+01	6.17E+01	15%	2.89E+01	5.21E+01	13%
400	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	23.19	3.41E+01	5.73E+01	14%	2.94E+01	5.26E+01	13%	3.84E+01	6.16E+01	15%	2.81E+01	5.13E+01	13%
400	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	23.19	4.00E+01	6.32E+01	16%	3.01E+01	5.33E+01	13%	3.69E+01	6.01E+01	15%	2.86E+01	5.18E+01	13%
400	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	23.19	4.84E+01	7.16E+01	18%	4.11E+01	6.43E+01	16%	5.96E+01	8.27E+01	21%	3.94E+01	6.26E+01	16%
400	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	23.19	4.66E+01	6.98E+01	17%	4.14E+01	6.46E+01	16%	4.77E+01	7.09E+01	18%	3.98E+01	6.30E+01	16%
400	SWO-1	Residence at 584052 Beachville Road	511124	4766750	23.19	7.76E+01	1.01E+02	25%	5.44E+01	7.76E+01	19%	8.05E+01	1.04E+02	26%	4.21E+01	6.53E+01	16%
400	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	23.19	7.62E+01	9.94E+01	25%	6.38E+01	8.70E+01	22%	8.82E+01	1.11E+02	28%	5.68E+01	8.00E+01	20%
400	SWO-3	Residence at 584142 Beachville Road	511722	4767480	23.19	9.62E+01	1.19E+02	30%	7.67E+01	9.99E+01	25%	1.30E+02	1.53E+02	38%	8.63E+01	1.09E+02	27%
400	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	23.19	1.42E+02	1.65E+02	41%	1.02E+02	1.25E+02	31%	1.52E+02	1.75E+02	44%	1.03E+02	1.26E+02	31%
400	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	23.19	1.06E+02	1.30E+02	32%	6.64E+01	8.96E+01	22%	1.02E+02	1.26E+02	31%	6.90E+01	9.22E+01	23%
400	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	23.19	6.36E+01	8.68E+01	22%	5.52E+01	7.84E+01	20%	6.51E+01	8.83E+01	22%	4.18E+01	6.50E+01	16%
400	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	23.19	5.30E+01	7.62E+01	19%	3.90E+01	6.22E+01	16%	4.47E+01	6.79E+01	17%	3.47E+01	5.79E+01	14%
400	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	23.19	4.05E+01	6.37E+01	16%	3.59E+01	5.91E+01	15%	5.28E+01	7.60E+01	19%	3.95E+01	6.27E+01	16%
400	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	23.19	5.31E+01	7.63E+01	19%	4.06E+01	6.38E+01	16%	5.11E+01	7.43E+01	19%	4.01E+01	6.33E+01	16%
400	SWO-10	Residence at 563977 Karn Road	510980	4765990	23.19	6.13E+01	8.45E+01	21%	4.42E+01	6.74E+01	17%	6.83E+01	9.15E+01	23%	4.26E+01	6.58E+01	16%
400	SWO-11	Residence at 564028 Karn Road	511396	4766310	23.19	6.49E+01	8.81E+01	22%	4.61E+01	6.93E+01	17%	7.20E+01	9.52E+01	24%	4.43E+01	6.75E+01	17%
400	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	23.19	6.87E+01	9.19E+01	23%	5.48E+01	7.79E+01	19%	6.34E+01	8.66E+01	22%	5.14E+01	7.46E+01	19%
400	SWO-13	Centreville Pond and Conservation Area	511570	4766920	23.19	6.83E+01	9.15E+01	23%	5.51E+01	7.83E+01	20%	6.71E+01	9.03E+01	23%	4.97E+01	7.29E+01	18%
400	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	23.19	6.82E+01	9.14E+01	23%	5.13E+01	7.45E+01	19%	1.13E+02	1.36E+02	34%	7.24E+01	9.56E+01	24%
400	SWO-15	Residences at 564146 Karn Road	512251	4767100	23.19	6.71E+01	9.03E+01	23%	5.64E+01	7.96E+01	20%	1.15E+02	1.38E+02	34%	7.12E+01	9.44E+01	24%
400	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	23.19	7.00E+01	9.32E+01	23%	5.57E+01	7.89E+01	20%	1.05E+02	1.28E+02	32%	6.99E+01	9.31E+01	23%
400	SWO-17	Residence at 564226 Karn Road	512958	4767760	23.19	7.21E+01	9.53E+01	24%	5.08E+01	7.40E+01	18%	9.11E+01	1.14E+02	29%	5.77E+01	8.09E+01	20%
400	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	23.19	1.43E+02	1.66E+02	42%	1.18E+02	1.42E+02	35%	1.26E+02	1.49E+02	37%	7.75E+01	1.01E+02	25%
400	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	23.19	1.00E+02	1.24E+02	31%	9.85E+01	1.22E+02	30%	7.42E+01	9.74E+01	24%	4.82E+01	7.14E+01	18%
400	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	23.19	4.86E+01	7.18E+01	18%	4.17E+01	6.49E+01	16%	3.95E+01	6.27E+01	16%	2.88E+01	5.20E+01	13%

*Values shown in green represent residential receptors.

Nitrogen Dioxide
24-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
200	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	23.19	5.16E+00	2.84E+01	14%	4.84E+00	2.80E+01	14%	6.53E+00	2.97E+01	15%	4.82E+00	2.80E+01	14%
200	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	23.19	7.58E+00	3.08E+01	15%	5.52E+00	2.87E+01	14%	1.00E+01	3.32E+01	17%	7.12E+00	3.03E+01	15%
200	ZOR-3	Residence at 663951 Rd 66	510216	4770270	23.19	9.64E+00	3.28E+01	16%	9.51E+00	3.27E+01	16%	1.06E+01	3.38E+01	17%	9.63E+00	3.28E+01	16%
200	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	23.19	8.95E+00	3.21E+01	16%	8.82E+00	3.20E+01	16%	8.99E+00	3.22E+01	16%	8.73E+00	3.19E+01	16%
200	ZOR-5	Residence at 334789 33rd Line	508931	4768760	23.19	8.40E+00	3.16E+01	16%	8.19E+00	3.14E+01	16%	1.10E+01	3.42E+01	17%	8.37E+00	3.16E+01	16%
200	ZOR-6	Residence at 334742 33rd Line	509185	4768350	23.19	1.15E+01	3.47E+01	17%	1.11E+01	3.43E+01	17%	1.19E+01	3.51E+01	18%	1.10E+01	3.42E+01	17%
200	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	23.19	1.09E+01	3.41E+01	17%	1.08E+01	3.40E+01	17%	1.08E+01	3.40E+01	17%	1.07E+01	3.39E+01	17%
200	ZOR-8	Residence at 643743 Road 64	508940	4767980	23.19	1.26E+01	3.58E+01	18%	1.21E+01	3.53E+01	18%	1.32E+01	3.64E+01	18%	1.21E+01	3.53E+01	18%
200	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	23.19	1.39E+01	3.71E+01	19%	9.37E+00	3.26E+01	16%	9.11E+00	3.23E+01	16%	8.84E+00	3.20E+01	16%
200	ZOR-10	Residence at 334578 33rd Line	509739	4766780	23.19	8.26E+00	3.15E+01	16%	8.11E+00	3.13E+01	16%	8.22E+00	3.14E+01	16%	7.96E+00	3.12E+01	16%
200	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	23.19	9.27E+00	3.25E+01	16%	6.90E+00	3.01E+01	15%	1.02E+01	3.34E+01	17%	6.77E+00	3.00E+01	15%
200	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	23.19	5.93E+00	2.91E+01	15%	5.65E+00	2.88E+01	14%	5.91E+00	2.91E+01	15%	5.56E+00	2.88E+01	14%
200	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	23.19	9.55E+00	3.27E+01	16%	9.40E+00	3.26E+01	16%	9.64E+00	3.28E+01	16%	9.27E+00	3.25E+01	16%
200	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	23.19	7.53E+00	3.07E+01	15%	7.42E+00	3.06E+01	15%	7.51E+00	3.07E+01	15%	7.30E+00	3.05E+01	15%
200	ING-2	Laurie Hawkins Public School	509019	4765860	23.19	4.66E+00	2.79E+01	14%	4.60E+00	2.78E+01	14%	4.66E+00	2.79E+01	14%	4.55E+00	2.77E+01	14%
200	ING-3	Ingersoll District Collegiate Institute	510512	4766230	23.19	5.38E+00	2.86E+01	14%	5.18E+00	2.84E+01	14%	5.42E+00	2.86E+01	14%	5.06E+00	2.83E+01	14%
200	ING-4	On the river north of 209 County Road 9	509480	4765180	23.19	3.42E+00	2.66E+01	13%	3.34E+00	2.65E+01	13%	3.42E+00	2.66E+01	13%	3.31E+00	2.65E+01	13%
200	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	23.19	3.99E+00	2.72E+01	14%	3.94E+00	2.71E+01	14%	4.01E+00	2.72E+01	14%	3.90E+00	2.71E+01	14%
200	ING-6	Royal Road Public School	510337	4765360	23.19	4.18E+00	2.74E+01	14%	4.06E+00	2.72E+01	14%	4.26E+00	2.75E+01	14%	4.00E+00	2.72E+01	14%
200	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	23.19	2.44E+00	2.56E+01	13%	2.36E+00	2.55E+01	13%	2.52E+00	2.57E+01	13%	2.34E+00	2.55E+01	13%
200	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	23.19	3.30E+00	2.65E+01	13%	3.21E+00	2.64E+01	13%	3.38E+00	2.66E+01	13%	3.18E+00	2.64E+01	13%
200	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	23.19	5.36E+00	2.86E+01	14%	5.19E+00	2.84E+01	14%	5.45E+00	2.86E+01	14%	5.16E+00	2.83E+01	14%
200	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	23.19	3.70E+00	2.69E+01	13%	3.58E+00	2.68E+01	13%	3.78E+00	2.70E+01	13%	3.56E+00	2.68E+01	13%
200	SWO-1	Residence at 584052 Beachville Road	511124	4766750	23.19	1.01E+01	3.33E+01	17%	8.15E+00	3.13E+01	16%	9.09E+00	3.23E+01	16%	8.04E+00	3.12E+01	16%
200	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	23.19	1.73E+01	4.05E+01	20%	1.73E+01	4.05E+01	20%	1.72E+01	4.04E+01	20%	1.72E+01	4.04E+01	20%
200	SWO-3	Residence at 584142 Beachville Road	511722	4767480	23.19	1.58E+01	3.90E+01	19%	1.57E+01	3.89E+01	19%	1.57E+01	3.89E+01	19%	1.56E+01	3.88E+01	19%
200	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	23.19	2.99E+01	5.31E+01	27%	2.95E+01	5.27E+01	26%	2.92E+01	5.24E+01	26%	2.88E+01	5.20E+01	26%
200	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	23.19	2.40E+01	4.72E+01	24%	2.37E+01	4.69E+01	23%	2.39E+01	4.71E+01	24%	2.36E+01	4.68E+01	23%
200	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	23.19	1.46E+01	3.78E+01	19%	1.43E+01	3.74E+01	19%	1.45E+01	3.77E+01	19%	1.41E+01	3.73E+01	19%
200	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	23.19	7.87E+00	3.11E+01	16%	7.72E+00	3.09E+01	15%	8.09E+00	3.13E+01	16%	7.77E+00	3.10E+01	15%
200	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	23.19	4.50E+00	2.77E+01	14%	4.37E+00	2.76E+01	14%	4.60E+00	2.78E+01	14%	4.37E+00	2.76E+01	14%
200	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	23.19	3.32E+00	2.65E+01	13%	3.24E+00	2.64E+01	13%	3.39E+00	2.66E+01	13%	3.23E+00	2.64E+01	13%
200	SWO-10	Residence at 563977 Karn Road	510980	4765990	23.19	5.76E+00	2.90E+01	14%	5.72E+00	2.89E+01	14%	5.71E+00	2.89E+01	14%	5.65E+00	2.88E+01	14%
200	SWO-11	Residence at 564028 Karn Road	511396	4766310	23.19	8.70E+00	3.19E+01	16%	8.58E+00	3.18E+01	16%	8.76E+00	3.20E+01	16%	8.52E+00	3.17E+01	16%
200	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	23.19	9.88E+00	3.31E+01	17%	9.85E+00	3.30E+01	17%	9.87E+00	3.31E+01	17%	9.80E+00	3.30E+01	16%
200	SWO-13	Centreville Pond and Conservation Area	511570	4766920	23.19	1.32E+01	3.64E+01	18%	1.31E+01	3.63E+01	18%	1.31E+01	3.63E+01	18%	1.31E+01	3.63E+01	18%
200	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	23.19	1.07E+01	3.39E+01	17%	1.06E+01	3.38E+01	17%	1.11E+01	3.43E+01	17%	1.05E+01	3.37E+01	17%
200	SWO-15	Residences at 564146 Karn Road	512251	4767100	23.19	1.07E+01	3.39E+01	17%	1.07E+01	3.38E+01	17%	1.08E+01	3.40E+01	17%	1.06E+01	3.38E+01	17%
200	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	23.19	9.48E+00	3.27E+01	16%	9.31E+00	3.25E+01	16%	9.54E+00	3.27E+01	16%	9.35E+00	3.25E+01	16%
200	SWO-17	Residence at 564226 Karn Road	512958	4767760	23.19	9.96E+00	3.32E+01	17%	9.72E+00	3.29E+01	16%	1.01E+01	3.33E+01	17%	9.58E+00	3.28E+01	16%
200	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	23.19	1.71E+01	4.03E+01	20%	1.53E+01	3.85E+01	19%	1.02E+01	3.34E+01	17%	9.24E+00	3.24E+01	16%
200	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	23.19	1.65E+01	3.97E+01	20%	1.41E+01	3.73E+01	19%	8.45E+00	3.16E+01	16%	7.18E+00	3.04E+01	15%
200	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	23.19	6.14E+00	2.93E+01	15%	5.83E+00	2.90E+01	15%	6.04E+00	2.92E+01	15%	5.71E+00	2.89E+01	14%

*Values shown in green represent residential receptors.

Benzo(a)pyrene
24-Hour

Criteria (ug m^{-3})	Receptor Information				Background Concentration (ug m^{-3})	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)	Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
0.00005	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	3.18E-05	2.46E-06	3.43E-05	69%	1.11E-06	3.29E-05	66%	5.56E-07	3.24E-05	65%	4.09E-07	3.22E-05	64%
0.00005	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	3.18E-05	4.52E-06	3.64E-05	73%	1.85E-06	3.37E-05	67%	8.48E-07	3.27E-05	65%	6.09E-07	3.24E-05	65%
0.00005	ZOR-3	Residence at 663951 Rd 66	510216	4770270	3.18E-05	6.43E-06	3.83E-05	77%	4.75E-06	3.66E-05	73%	1.35E-06	3.32E-05	66%	1.10E-06	3.29E-05	66%
0.00005	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	3.18E-05	5.66E-06	3.75E-05	75%	3.78E-06	3.56E-05	71%	9.64E-07	3.28E-05	66%	8.04E-07	3.26E-05	65%
0.00005	ZOR-5	Residence at 334789 33rd Line	508931	4768760	3.18E-05	4.26E-06	3.61E-05	72%	1.85E-06	3.37E-05	67%	9.63E-07	3.28E-05	66%	6.98E-07	3.25E-05	65%
0.00005	ZOR-6	Residence at 334742 33rd Line	509185	4768350	3.18E-05	7.16E-06	3.90E-05	78%	2.24E-06	3.41E-05	68%	1.06E-06	3.29E-05	66%	7.07E-07	3.25E-05	65%
0.00005	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	3.18E-05	4.72E-06	3.66E-05	73%	2.54E-06	3.44E-05	69%	8.01E-07	3.26E-05	65%	5.63E-07	3.24E-05	65%
0.00005	ZOR-8	Residence at 643743 Road 64	508940	4767980	3.18E-05	5.92E-06	3.78E-05	76%	2.13E-06	3.40E-05	68%	8.86E-07	3.27E-05	65%	6.28E-07	3.25E-05	65%
0.00005	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	3.18E-05	8.40E-06	4.02E-05	80%	2.20E-06	3.40E-05	68%	5.94E-07	3.24E-05	65%	4.13E-07	3.22E-05	64%
0.00005	ZOR-10	Residence at 334578 33rd Line	509739	4766780	3.18E-05	3.93E-06	3.58E-05	72%	1.48E-06	3.33E-05	67%	5.41E-07	3.24E-05	65%	2.77E-07	3.21E-05	64%
0.00005	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	3.18E-05	7.04E-06	3.89E-05	78%	1.66E-06	3.35E-05	67%	1.31E-06	3.31E-05	66%	3.58E-07	3.22E-05	64%
0.00005	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	3.18E-05	2.46E-06	3.43E-05	69%	1.31E-06	3.31E-05	66%	6.26E-07	3.25E-05	65%	2.99E-07	3.21E-05	64%
0.00005	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	3.18E-05	2.62E-06	3.45E-05	69%	1.91E-06	3.37E-05	67%	4.61E-07	3.23E-05	65%	3.76E-07	3.22E-05	64%
0.00005	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	3.18E-05	3.38E-06	3.52E-05	70%	1.42E-06	3.33E-05	67%	4.78E-07	3.23E-05	65%	2.66E-07	3.21E-05	64%
0.00005	ING-2	Laurie Hawkins Public School	509019	4765860	3.18E-05	1.65E-06	3.35E-05	67%	6.96E-07	3.25E-05	65%	2.02E-07	3.20E-05	64%	1.37E-07	3.20E-05	64%
0.00005	ING-3	Ingersoll District Collegiate Institute	510512	4766230	3.18E-05	3.29E-06	3.51E-05	70%	1.28E-06	3.31E-05	66%	3.84E-07	3.22E-05	64%	2.79E-07	3.21E-05	64%
0.00005	ING-4	On the river north of 209 County Road 9	509480	4765180	3.18E-05	1.40E-06	3.32E-05	66%	6.22E-07	3.25E-05	65%	2.92E-07	3.21E-05	64%	1.74E-07	3.20E-05	64%
0.00005	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	3.18E-05	1.43E-06	3.33E-05	67%	6.21E-07	3.25E-05	65%	1.80E-07	3.20E-05	64%	1.18E-07	3.20E-05	64%
0.00005	ING-6	Royal Road Public School	510337	4765360	3.18E-05	1.59E-06	3.34E-05	67%	9.95E-07	3.28E-05	66%	2.90E-07	3.21E-05	64%	2.22E-07	3.21E-05	64%
0.00005	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	3.18E-05	7.85E-07	3.26E-05	65%	6.10E-07	3.24E-05	65%	1.95E-07	3.20E-05	64%	1.34E-07	3.20E-05	64%
0.00005	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	3.18E-05	1.05E-06	3.29E-05	66%	7.64E-07	3.26E-05	65%	2.21E-07	3.21E-05	64%	1.69E-07	3.20E-05	64%
0.00005	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	3.18E-05	2.17E-06	3.40E-05	68%	1.07E-06	3.29E-05	66%	3.97E-07	3.22E-05	64%	2.54E-07	3.21E-05	64%
0.00005	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	3.18E-05	1.67E-06	3.35E-05	67%	7.34E-07	3.26E-05	65%	3.07E-07	3.21E-05	64%	1.82E-07	3.20E-05	64%
0.00005	SWO-1	Residence at 584052 Beachville Road	511124	4766750	3.18E-05	7.23E-06	3.91E-05	78%	1.76E-06	3.36E-05	67%	7.11E-07	3.25E-05	65%	3.59E-07	3.22E-05	64%
0.00005	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	3.18E-05	7.11E-06	3.89E-05	78%	2.26E-06	3.41E-05	68%	8.92E-07	3.27E-05	65%	6.70E-07	3.25E-05	65%
0.00005	SWO-3	Residence at 584142 Beachville Road	511722	4767480	3.18E-05	6.04E-06	3.79E-05	76%	3.60E-06	3.54E-05	71%	1.60E-06	3.34E-05	67%	1.12E-06	3.30E-05	66%
0.00005	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	3.18E-05	5.32E-05	8.51E-05	170%	4.73E-05	7.91E-05	158%	9.11E-06	4.09E-05	82%	8.59E-06	4.04E-05	81%
0.00005	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	3.18E-05	6.96E-06	3.88E-05	78%	5.37E-06	3.72E-05	74%	1.36E-06	3.32E-05	66%	1.14E-06	3.30E-05	66%
0.00005	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	3.18E-05	2.70E-06	3.45E-05	69%	1.94E-06	3.38E-05	68%	6.17E-07	3.25E-05	65%	4.73E-07	3.23E-05	65%
0.00005	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	3.18E-05	2.07E-06	3.39E-05	68%	1.02E-06	3.29E-05	66%	3.53E-07	3.22E-05	64%	2.51E-07	3.21E-05	64%
0.00005	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	3.18E-05	1.05E-06	3.29E-05	66%	5.92E-07	3.24E-05	65%	2.05E-07	3.20E-05	64%	1.38E-07	3.20E-05	64%
0.00005	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	3.18E-05	7.66E-07	3.26E-05	65%	4.16E-07	3.23E-05	65%	1.46E-07	3.20E-05	64%	9.97E-08	3.19E-05	64%
0.00005	SWO-10	Residence at 563977 Karn Road	510980	4765990	3.18E-05	3.44E-06	3.53E-05	71%	1.27E-06	3.31E-05	66%	4.79E-07	3.23E-05	65%	2.51E-07	3.21E-05	64%
0.00005	SWO-11	Residence at 564028 Karn Road	511396	4766310	3.18E-05	5.47E-06	3.73E-05	75%	1.44E-06	3.33E-05	67%	5.52E-07	3.24E-05	65%	3.78E-07	3.22E-05	64%
0.00005	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	3.18E-05	4.53E-06	3.64E-05	73%	1.79E-06	3.36E-05	67%	7.54E-07	3.26E-05	65%	4.60E-07	3.23E-05	65%
0.00005	SWO-13	Centreville Pond and Conservation Area	511570	4766920	3.18E-05	4.39E-06	3.62E-05	72%	2.02E-06	3.39E-05	68%	7.77E-07	3.26E-05	65%	5.26E-07	3.24E-05	65%
0.00005	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	3.18E-05	4.49E-06	3.63E-05	73%	3.12E-06	3.50E-05	70%	1.30E-06	3.31E-05	66%	9.47E-07	3.28E-05	66%
0.00005	SWO-15	Residences at 564146 Karn Road	512251	4767100	3.18E-05	4.42E-06	3.63E-05	73%	3.27E-06	3.51E-05	70%	1.17E-06	3.30E-05	66%	9.64E-07	3.28E-05	66%
0.00005	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	3.18E-05	5.45E-06	3.73E-05	75%	4.18E-06	3.60E-05	72%	1.06E-06	3.29E-05	66%	9.25E-07	3.28E-05	66%
0.00005	SWO-17	Residence at 564226 Karn Road	512958	4767760	3.18E-05	1.78E-05	4.96E-05	99%	1.59E-05	4.77E-05	95%	3.04E-06	3.49E-05	70%	2.89E-06	3.47E-05	69%
0.00005	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	3.18E-05	5.41E-05	8.60E-05	172%	4.84E-05	8.02E-05	160%	9.31E-06	4.11E-05	82%	8.80E-06	4.06E-05	81%
0.00005	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	3.18E-05	3.88E-05	7.06E-05	141%	3.35E-05	6.54E-05	131%	6.66E-06	3.85E-05	77%	6.14E-06	3.80E-05	76%
0.00005	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	3.18E-05	1.25E-06	3.31E-05	66%	1.06E-06	3.29E-05	66%	3.18E-07	3.22E-05	64%	2.42E-07	3.21E-05	64%

*Values shown in green represent residential receptors.

Benzo(a)pyrene
Annual

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
0.00001	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	3.18E-05	1.13E-07	3.19E-05	319%	6.46E-08	3.19E-05	319%	2.03E-08	3.19E-05	319%	1.53E-08	3.19E-05	319%
0.00001	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	3.18E-05	1.81E-07	3.20E-05	320%	9.92E-08	3.19E-05	319%	3.50E-08	3.19E-05	319%	2.62E-08	3.19E-05	319%
0.00001	ZOR-3	Residence at 663951 Rd 66	510216	4770270	3.18E-05	2.74E-07	3.21E-05	321%	1.53E-07	3.20E-05	320%	4.77E-08	3.19E-05	319%	3.69E-08	3.19E-05	319%
0.00001	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	3.18E-05	2.89E-07	3.21E-05	321%	1.80E-07	3.20E-05	320%	5.18E-08	3.19E-05	319%	4.10E-08	3.19E-05	319%
0.00001	ZOR-5	Residence at 334789 33rd Line	508931	4768760	3.18E-05	2.25E-07	3.21E-05	321%	1.07E-07	3.19E-05	319%	3.82E-08	3.19E-05	319%	2.77E-08	3.19E-05	319%
0.00001	ZOR-6	Residence at 334742 33rd Line	509185	4768350	3.18E-05	2.69E-07	3.21E-05	321%	1.13E-07	3.19E-05	319%	3.95E-08	3.19E-05	319%	2.83E-08	3.19E-05	319%
0.00001	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	3.18E-05	3.18E-07	3.22E-05	322%	2.47E-07	3.21E-05	321%	5.94E-08	3.19E-05	319%	5.12E-08	3.19E-05	319%
0.00001	ZOR-8	Residence at 643743 Road 64	508940	4767980	3.18E-05	2.01E-07	3.20E-05	320%	9.11E-08	3.19E-05	319%	2.98E-08	3.19E-05	319%	2.15E-08	3.19E-05	319%
0.00001	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	3.18E-05	1.94E-07	3.20E-05	320%	9.36E-08	3.19E-05	319%	3.02E-08	3.19E-05	319%	2.02E-08	3.19E-05	319%
0.00001	ZOR-10	Residence at 334578 33rd Line	509739	4766780	3.18E-05	1.39E-07	3.20E-05	320%	7.84E-08	3.19E-05	319%	2.47E-08	3.19E-05	319%	1.68E-08	3.19E-05	319%
0.00001	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	3.18E-05	2.55E-07	3.21E-05	321%	1.17E-07	3.20E-05	320%	5.70E-08	3.19E-05	319%	2.51E-08	3.19E-05	319%
0.00001	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	3.18E-05	1.45E-07	3.20E-05	320%	8.45E-08	3.19E-05	319%	2.69E-08	3.19E-05	319%	1.81E-08	3.19E-05	319%
0.00001	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	3.18E-05	1.88E-07	3.20E-05	320%	1.38E-07	3.20E-05	320%	3.59E-08	3.19E-05	319%	2.99E-08	3.19E-05	319%
0.00001	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	3.18E-05	1.33E-07	3.20E-05	320%	7.52E-08	3.19E-05	319%	2.31E-08	3.19E-05	319%	1.62E-08	3.19E-05	319%
0.00001	ING-2	Laurie Hawkins Public School	509019	4765860	3.18E-05	7.20E-08	3.19E-05	319%	4.60E-08	3.19E-05	319%	1.23E-08	3.18E-05	318%	9.72E-09	3.18E-05	318%
0.00001	ING-3	Ingersoll District Collegiate Institute	510512	4766230	3.18E-05	1.36E-07	3.20E-05	320%	8.15E-08	3.19E-05	319%	2.40E-08	3.19E-05	319%	1.72E-08	3.19E-05	319%
0.00001	ING-4	On the river north of 209 County Road 9	509480	4765180	3.18E-05	6.37E-08	3.19E-05	319%	4.22E-08	3.19E-05	319%	1.18E-08	3.18E-05	318%	9.03E-09	3.18E-05	318%
0.00001	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	3.18E-05	5.92E-08	3.19E-05	319%	3.95E-08	3.19E-05	319%	1.02E-08	3.18E-05	318%	8.17E-09	3.18E-05	318%
0.00001	ING-6	Royal Road Public School	510337	4765360	3.18E-05	8.69E-08	3.19E-05	319%	5.83E-08	3.19E-05	319%	1.54E-08	3.19E-05	319%	1.22E-08	3.18E-05	318%
0.00001	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	3.18E-05	4.31E-08	3.19E-05	319%	3.01E-08	3.19E-05	319%	7.91E-09	3.18E-05	318%	6.35E-09	3.18E-05	318%
0.00001	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	3.18E-05	5.77E-08	3.19E-05	319%	4.06E-08	3.19E-05	319%	1.05E-08	3.18E-05	318%	8.48E-09	3.18E-05	318%
0.00001	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	3.18E-05	1.13E-07	3.19E-05	319%	7.56E-08	3.19E-05	319%	2.06E-08	3.19E-05	319%	1.58E-08	3.19E-05	319%
0.00001	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	3.18E-05	7.55E-08	3.19E-05	319%	5.18E-08	3.19E-05	319%	1.38E-08	3.18E-05	318%	1.09E-08	3.18E-05	318%
0.00001	SWO-1	Residence at 584052 Beachville Road	511124	4766750	3.18E-05	2.63E-07	3.21E-05	321%	1.36E-07	3.20E-05	320%	5.24E-08	3.19E-05	319%	2.91E-08	3.19E-05	319%
0.00001	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	3.18E-05	4.14E-07	3.22E-05	322%	2.33E-07	3.21E-05	321%	7.97E-08	3.19E-05	319%	4.95E-08	3.19E-05	319%
0.00001	SWO-3	Residence at 584142 Beachville Road	511722	4767480	3.18E-05	5.21E-07	3.24E-05	324%	3.17E-07	3.22E-05	322%	9.46E-08	3.19E-05	319%	6.70E-08	3.19E-05	319%
0.00001	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	3.18E-05	6.71E-06	3.85E-05	385%	5.97E-06	3.78E-05	378%	1.17E-06	3.30E-05	330%	1.10E-06	3.29E-05	329%
0.00001	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	3.18E-05	8.30E-07	3.27E-05	327%	6.83E-07	3.25E-05	325%	1.49E-07	3.20E-05	320%	1.34E-07	3.20E-05	320%
0.00001	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	3.18E-05	2.31E-07	3.21E-05	321%	1.79E-07	3.20E-05	320%	4.37E-08	3.19E-05	319%	3.72E-08	3.19E-05	319%
0.00001	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	3.18E-05	1.29E-07	3.20E-05	320%	9.87E-08	3.19E-05	319%	2.39E-08	3.19E-05	319%	2.03E-08	3.19E-05	319%
0.00001	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	3.18E-05	5.08E-08	3.19E-05	319%	3.81E-08	3.19E-05	319%	9.36E-09	3.18E-05	318%	7.87E-09	3.18E-05	318%
0.00001	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	3.18E-05	3.21E-08	3.19E-05	319%	2.38E-08	3.19E-05	319%	5.94E-09	3.18E-05	318%	4.94E-09	3.18E-05	318%
0.00001	SWO-10	Residence at 563977 Karn Road	510980	4765990	3.18E-05	1.42E-07	3.20E-05	320%	8.90E-08	3.19E-05	319%	2.57E-08	3.19E-05	319%	1.88E-08	3.19E-05	319%
0.00001	SWO-11	Residence at 564028 Karn Road	511396	4766310	3.18E-05	2.03E-07	3.20E-05	320%	1.21E-07	3.20E-05	320%	3.74E-08	3.19E-05	319%	2.54E-08	3.19E-05	319%
0.00001	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	3.18E-05	2.42E-07	3.21E-05	321%	1.52E-07	3.20E-05	320%	4.58E-08	3.19E-05	319%	3.15E-08	3.19E-05	319%
0.00001	SWO-13	Centreville Pond and Conservation Area	511570	4766920	3.18E-05	3.19E-07	3.22E-05	322%	1.89E-07	3.20E-05	320%	6.08E-08	3.19E-05	319%	3.96E-08	3.19E-05	319%
0.00001	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	3.18E-05	3.76E-07	3.22E-05	322%	2.69E-07	3.21E-05	321%	6.85E-08	3.19E-05	319%	5.36E-08	3.19E-05	319%
0.00001	SWO-15	Residences at 564146 Karn Road	512251	4767100	3.18E-05	4.29E-07	3.23E-05	323%	3.22E-07	3.22E-05	322%	7.61E-08	3.19E-05	319%	6.31E-08	3.19E-05	319%
0.00001	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	3.18E-05	5.28E-07	3.24E-05	324%	4.08E-07	3.22E-05	322%	9.26E-08	3.19E-05	319%	7.93E-08	3.19E-05	319%
0.00001	SWO-17	Residence at 564226 Karn Road	512958	4767760	3.18E-05	1.85E-06	3.37E-05	337%	1.66E-06	3.35E-05	335%	3.27E-07	3.22E-05	322%	3.08E-07	3.21E-05	321%
0.00001	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	3.18E-05	6.98E-06	3.88E-05	388%	6.20E-06	3.80E-05	380%	1.20E-06	3.30E-05	330%	1.13E-06	3.30E-05	330%
0.00001	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	3.18E-05	6.09E-06	3.79E-05	379%	5.45E-06	3.73E-05	373%	1.05E-06	3.29E-05	329%	9.89E-07	3.28E-05	328%
0.00001	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	3.18E-05	1.03E-07	3.19E-05	319%	8.19E-08	3.19E-05	319%	1.88E-08	3.19E-05	319%	1.62E-08	3.19E-05	319%
0.00001	SWO-21		515376	4768210	3.18E-05	2.48E-07	3.21E-05	321%	2.02E-07	3.20E-05	320%	4.48E-08	3.19E-05	319%	3.98E-08	3.19E-05	319%
0.00001	SWO-22		513204	4766050	3.18E-05	2.74E-07	3.21E-05	321%	2.19E-07	3.21E-05	321%	4.69E-08	3.19E-05	319%	4.17E-08	3.19E-05	319%
0.00001	EZT-1		516909	4774330	3.18E-05	3.42E-08	3.19E-05	319%	2.54E-08	3.19E-05	319%	6.28E-09	3.18E-05	318%	5.21E-09	3.18E-05	318%

*Values shown in green represent residential receptors.

Toluene
24-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
2000	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	1.61	3.37E-01	1.95E+00	0%	1.24E-03	1.61E+00	0%	3.92E-01	2.00E+00	0%	2.03E-03	1.61E+00	0%
2000	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	1.61	3.18E-01	1.93E+00	0%	2.16E-03	1.61E+00	0%	4.48E-01	2.06E+00	0%	3.01E-03	1.61E+00	0%
2000	ZOR-3	Residence at 663951 Rd 66	510216	4770270	1.61	3.20E-01	1.93E+00	0%	2.81E-03	1.61E+00	0%	3.31E-01	1.94E+00	0%	3.87E-03	1.61E+00	0%
2000	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	1.61	2.53E-01	1.86E+00	0%	2.23E-03	1.61E+00	0%	3.74E-01	1.98E+00	0%	2.34E-03	1.61E+00	0%
2000	ZOR-5	Residence at 334789 33rd Line	508931	4768760	1.61	6.96E-01	2.31E+00	0%	2.08E-03	1.61E+00	0%	4.80E-01	2.09E+00	0%	4.01E-03	1.61E+00	0%
2000	ZOR-6	Residence at 334742 33rd Line	509185	4768350	1.61	9.34E-01	2.54E+00	0%	2.44E-03	1.61E+00	0%	9.52E-01	2.56E+00	0%	3.41E-03	1.61E+00	0%
2000	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	1.61	1.87E-01	1.80E+00	0%	1.98E-03	1.61E+00	0%	3.04E-01	1.91E+00	0%	2.50E-03	1.61E+00	0%
2000	ZOR-8	Residence at 643743 Road 64	508940	4767980	1.61	7.09E-01	2.32E+00	0%	4.02E-03	1.61E+00	0%	7.29E-01	2.34E+00	0%	3.03E-03	1.61E+00	0%
2000	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	1.61	7.29E-01	2.34E+00	0%	3.30E-03	1.61E+00	0%	9.19E-01	2.53E+00	0%	1.35E-03	1.61E+00	0%
2000	ZOR-10	Residence at 334578 33rd Line	509739	4766780	1.61	4.01E-01	2.01E+00	0%	1.66E-03	1.61E+00	0%	5.85E-01	2.20E+00	0%	1.28E-03	1.61E+00	0%
2000	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	1.61	8.56E-01	2.47E+00	0%	2.11E-03	1.61E+00	0%	1.92E+00	3.53E+00	0%	1.46E-03	1.61E+00	0%
2000	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	1.61	4.89E-01	2.10E+00	0%	1.40E-03	1.61E+00	0%	8.86E-01	2.50E+00	0%	1.36E-03	1.61E+00	0%
2000	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	1.61	1.54E-01	1.76E+00	0%	1.32E-03	1.61E+00	0%	1.90E-01	1.80E+00	0%	1.54E-03	1.61E+00	0%
2000	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	1.61	4.21E-01	2.03E+00	0%	1.66E-03	1.61E+00	0%	5.61E-01	2.17E+00	0%	1.22E-03	1.61E+00	0%
2000	ING-2	Laurie Hawkins Public School	509019	4765860	1.61	1.52E-01	1.76E+00	0%	9.10E-04	1.61E+00	0%	3.32E-01	1.94E+00	0%	7.10E-04	1.61E+00	0%
2000	ING-3	Ingersoll District Collegiate Institute	510512	4766230	1.61	4.44E-01	2.05E+00	0%	1.84E-03	1.61E+00	0%	6.56E-01	2.27E+00	0%	9.90E-04	1.61E+00	0%
2000	ING-4	On the river north of 209 County Road 9	509480	4765180	1.61	2.05E-01	1.82E+00	0%	6.30E-04	1.61E+00	0%	2.56E-01	1.87E+00	0%	8.70E-04	1.61E+00	0%
2000	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	1.61	1.44E-01	1.75E+00	0%	6.70E-04	1.61E+00	0%	2.76E-01	1.89E+00	0%	6.60E-04	1.61E+00	0%
2000	ING-6	Royal Road Public School	510337	4765360	1.61	2.58E-01	1.87E+00	0%	1.45E-03	1.61E+00	0%	4.50E-01	2.06E+00	0%	7.20E-04	1.61E+00	0%
2000	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	1.61	1.25E-01	1.73E+00	0%	6.60E-04	1.61E+00	0%	2.13E-01	1.82E+00	0%	5.50E-04	1.61E+00	0%
2000	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	1.61	1.26E-01	1.74E+00	0%	9.80E-04	1.61E+00	0%	2.87E-01	1.90E+00	0%	5.30E-04	1.61E+00	0%
2000	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	1.61	3.82E-01	1.99E+00	0%	1.64E-03	1.61E+00	0%	6.36E-01	2.25E+00	0%	1.41E-03	1.61E+00	0%
2000	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	1.61	2.43E-01	1.85E+00	0%	1.14E-03	1.61E+00	0%	4.59E-01	2.07E+00	0%	9.50E-04	1.61E+00	0%
2000	SWO-1	Residence at 584052 Beachville Road	511124	4766750	1.61	5.98E-01	2.21E+00	0%	2.77E-03	1.61E+00	0%	2.15E+00	3.76E+00	0%	2.26E-03	1.61E+00	0%
2000	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	1.61	7.35E-01	2.35E+00	0%	5.18E-03	1.62E+00	0%	1.56E+00	3.17E+00	0%	4.09E-03	1.61E+00	0%
2000	SWO-3	Residence at 584142 Beachville Road	511722	4767480	1.61	8.54E-01	2.46E+00	0%	6.40E-03	1.62E+00	0%	1.41E+00	3.02E+00	0%	5.69E-03	1.62E+00	0%
2000	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	1.61	5.28E-01	2.14E+00	0%	1.39E-02	1.62E+00	0%	4.39E-01	2.05E+00	0%	8.66E-03	1.62E+00	0%
2000	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	1.61	3.18E-01	1.93E+00	0%	4.11E-03	1.61E+00	0%	3.34E-01	1.94E+00	0%	4.12E-03	1.61E+00	0%
2000	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	1.61	2.06E-01	1.82E+00	0%	2.26E-03	1.61E+00	0%	1.73E-01	1.78E+00	0%	1.99E-03	1.61E+00	0%
2000	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	1.61	1.21E-01	1.73E+00	0%	1.26E-03	1.61E+00	0%	1.93E-01	1.80E+00	0%	1.24E-03	1.61E+00	0%
2000	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	1.61	5.30E-02	1.66E+00	0%	7.50E-04	1.61E+00	0%	7.24E-02	1.68E+00	0%	6.20E-04	1.61E+00	0%
2000	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	1.61	4.99E-02	1.66E+00	0%	6.00E-04	1.61E+00	0%	5.65E-02	1.67E+00	0%	4.20E-04	1.61E+00	0%
2000	SWO-10	Residence at 563977 Karn Road	510980	4765990	1.61	5.25E-01	2.14E+00	0%	1.46E-03	1.61E+00	0%	1.20E+00	2.81E+00	0%	1.37E-03	1.61E+00	0%
2000	SWO-11	Residence at 564028 Karn Road	511396	4766310	1.61	4.50E-01	2.06E+00	0%	2.54E-03	1.61E+00	0%	1.26E+00	2.87E+00	0%	2.13E-03	1.61E+00	0%
2000	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	1.61	7.15E-01	2.33E+00	0%	3.63E-03	1.61E+00	0%	1.07E+00	2.68E+00	0%	3.01E-03	1.61E+00	0%
2000	SWO-13	Centreville Pond and Conservation Area	511570	4766920	1.61	5.62E-01	2.17E+00	0%	4.30E-03	1.61E+00	0%	1.06E+00	2.67E+00	0%	3.38E-03	1.61E+00	0%
2000	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	1.61	5.92E-01	2.20E+00	0%	3.86E-03	1.61E+00	0%	6.89E-01	2.30E+00	0%	4.31E-03	1.61E+00	0%
2000	SWO-15	Residences at 564146 Karn Road	512251	4767100	1.61	4.00E-01	2.01E+00	0%	3.27E-03	1.61E+00	0%	7.37E-01	2.35E+00	0%	4.16E-03	1.61E+00	0%
2000	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	1.61	4.70E-01	2.08E+00	0%	2.36E-03	1.61E+00	0%	7.90E-01	2.40E+00	0%	2.46E-03	1.61E+00	0%
2000	SWO-17	Residence at 564226 Karn Road	512958	4767760	1.61	4.11E-01	2.02E+00	0%	5.03E-03	1.62E+00	0%	4.43E-01	2.05E+00	0%	3.14E-03	1.61E+00	0%
2000	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	1.61	5.03E-01	2.11E+00	0%	1.34E-02	1.62E+00	0%	4.85E-01	2.10E+00	0%	7.27E-03	1.62E+00	0%
2000	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	1.61	1.91E-01	1.80E+00	0%	9.35E-03	1.62E+00	0%	3.37E-01	1.95E+00	0%	5.37E-03	1.62E+00	0%
2000	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	1.61	1.20E-01	1.73E+00	0%	8.30E-04	1.61E+00	0%	8.84E-02	1.70E+00	0%	1.08E-03	1.61E+00	0%

*Values shown in green represent residential receptors.

Formaldehyde
24-Hour

Criteria ($\mu g\ m^{-3}$)	Receptor Information				Background Concentration ($\mu g\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($\mu g\ m^{-3}$)	Maximum Concentration With Background ($\mu g\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($\mu g\ m^{-3}$)	Maximum Concentration With Background ($\mu g\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($\mu g\ m^{-3}$)	Maximum Concentration With Background ($\mu g\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($\mu g\ m^{-3}$)	Maximum Concentration With Background ($\mu g\ m^{-3}$)	Percent of Criteria (%)
65	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.85	3.03E-02	8.84E-01	1%	9.10E-03	8.63E-01	1%	2.40E-02	8.78E-01	1%	1.51E-02	8.69E-01	1%
65	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.85	4.71E-02	9.01E-01	1%	1.53E-02	8.69E-01	1%	3.64E-02	8.91E-01	1%	2.22E-02	8.76E-01	1%
65	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.85	3.88E-02	8.93E-01	1%	1.76E-02	8.72E-01	1%	5.05E-02	9.05E-01	1%	2.86E-02	8.83E-01	1%
65	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.85	2.43E-02	8.78E-01	1%	1.40E-02	8.68E-01	1%	3.78E-02	8.92E-01	1%	1.73E-02	8.71E-01	1%
65	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.85	4.68E-02	9.01E-01	1%	1.54E-02	8.70E-01	1%	4.47E-02	8.99E-01	1%	3.02E-02	8.84E-01	1%
65	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.85	7.36E-02	9.28E-01	1%	1.80E-02	8.72E-01	1%	5.05E-02	9.05E-01	1%	2.48E-02	8.79E-01	1%
65	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.85	3.89E-02	8.93E-01	1%	1.30E-02	8.67E-01	1%	3.47E-02	8.89E-01	1%	1.84E-02	8.73E-01	1%
65	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.85	6.44E-02	9.19E-01	1%	2.97E-02	8.84E-01	1%	4.12E-02	8.95E-01	1%	2.24E-02	8.77E-01	1%
65	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.85	1.24E-01	9.78E-01	2%	2.36E-02	8.78E-01	1%	2.46E-02	8.79E-01	1%	1.03E-02	8.64E-01	1%
65	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.85	3.99E-02	8.94E-01	1%	1.20E-02	8.66E-01	1%	2.66E-02	8.81E-01	1%	9.32E-03	8.63E-01	1%
65	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.85	6.81E-02	9.22E-01	1%	1.58E-02	8.70E-01	1%	8.33E-02	9.37E-01	1%	1.06E-02	8.65E-01	1%
65	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.85	2.68E-02	8.81E-01	1%	1.04E-02	8.65E-01	1%	3.59E-02	8.90E-01	1%	9.95E-03	8.64E-01	1%
65	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.85	1.75E-02	8.72E-01	1%	9.51E-03	8.64E-01	1%	1.76E-02	8.72E-01	1%	1.14E-02	8.66E-01	1%
65	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.85	3.24E-02	8.87E-01	1%	1.24E-02	8.67E-01	1%	2.50E-02	8.79E-01	1%	8.94E-03	8.63E-01	1%
65	ING-2	Laurie Hawkins Public School	509019	4765860	0.85	2.63E-02	8.80E-01	1%	6.74E-03	8.61E-01	1%	1.10E-02	8.65E-01	1%	5.31E-03	8.59E-01	1%
65	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.85	3.21E-02	8.86E-01	1%	1.32E-02	8.67E-01	1%	2.10E-02	8.75E-01	1%	7.58E-03	8.62E-01	1%
65	ING-4	On the river north of 209 County Road 9	509480	4765180	0.85	1.64E-02	8.71E-01	1%	4.63E-03	8.59E-01	1%	1.51E-02	8.69E-01	1%	6.45E-03	8.61E-01	1%
65	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.85	1.86E-02	8.73E-01	1%	4.74E-03	8.59E-01	1%	1.01E-02	8.64E-01	1%	4.96E-03	8.59E-01	1%
65	ING-6	Royal Road Public School	510337	4765360	0.85	1.66E-02	8.71E-01	1%	1.05E-02	8.65E-01	1%	1.22E-02	8.66E-01	1%	5.14E-03	8.59E-01	1%
65	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.85	1.29E-02	8.67E-01	1%	4.70E-03	8.59E-01	1%	9.44E-03	8.64E-01	1%	3.98E-03	8.58E-01	1%
65	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.85	1.01E-02	8.64E-01	1%	7.02E-03	8.61E-01	1%	8.49E-03	8.63E-01	1%	3.67E-03	8.58E-01	1%
65	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.85	2.88E-02	8.83E-01	1%	1.22E-02	8.66E-01	1%	2.67E-02	8.81E-01	1%	1.08E-02	8.65E-01	1%
65	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.85	2.09E-02	8.75E-01	1%	8.38E-03	8.63E-01	1%	1.87E-02	8.73E-01	1%	7.23E-03	8.61E-01	1%
65	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.85	8.64E-02	9.41E-01	1%	2.09E-02	8.75E-01	1%	5.02E-02	9.04E-01	1%	1.73E-02	8.71E-01	1%
65	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.85	9.56E-02	9.50E-01	1%	3.87E-02	8.93E-01	1%	5.28E-02	9.07E-01	1%	3.13E-02	8.85E-01	1%
65	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.85	9.52E-02	9.49E-01	1%	4.67E-02	9.01E-01	1%	7.19E-02	9.26E-01	1%	4.21E-02	8.96E-01	1%
65	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.85	1.07E-01	9.61E-01	1%	7.89E-02	9.33E-01	1%	6.81E-02	9.22E-01	1%	4.74E-02	9.02E-01	1%
65	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.85	5.77E-02	9.12E-01	1%	2.70E-02	8.81E-01	1%	4.16E-02	8.96E-01	1%	2.88E-02	8.83E-01	1%
65	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.85	2.38E-02	8.78E-01	1%	1.56E-02	8.70E-01	1%	2.48E-02	8.79E-01	1%	1.42E-02	8.68E-01	1%
65	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.85	2.20E-02	8.76E-01	1%	8.94E-03	8.63E-01	1%	1.67E-02	8.71E-01	1%	9.20E-03	8.63E-01	1%
65	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.85	1.63E-02	8.70E-01	1%	5.40E-03	8.60E-01	1%	8.51E-03	8.63E-01	1%	4.50E-03	8.59E-01	1%
65	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.85	1.00E-02	8.64E-01	1%	4.30E-03	8.58E-01	1%	6.56E-03	8.61E-01	1%	3.01E-03	8.57E-01	1%
65	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.85	3.86E-02	8.93E-01	1%	1.10E-02	8.65E-01	1%	3.17E-02	8.86E-01	1%	1.03E-02	8.64E-01	1%
65	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.85	5.86E-02	9.13E-01	1%	1.89E-02	8.73E-01	1%	3.68E-02	8.91E-01	1%	1.63E-02	8.70E-01	1%
65	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.85	4.31E-02	8.97E-01	1%	2.77E-02	8.82E-01	1%	4.64E-02	9.01E-01	1%	2.30E-02	8.77E-01	1%
65	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.85	7.56E-02	9.30E-01	1%	3.29E-02	8.87E-01	1%	4.09E-02	8.95E-01	1%	2.58E-02	8.80E-01	1%
65	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.85	5.12E-02	9.05E-01	1%	2.74E-02	8.82E-01	1%	5.36E-02	9.08E-01	1%	3.16E-02	8.86E-01	1%
65	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.85	4.43E-02	8.98E-01	1%	2.27E-02	8.77E-01	1%	4.27E-02	8.97E-01	1%	3.04E-02	8.85E-01	1%
65	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.85	4.15E-02	8.96E-01	1%	1.77E-02	8.72E-01	1%	2.88E-02	8.83E-01	1%	1.86E-02	8.73E-01	1%
65	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.85	3.95E-02	8.94E-01	1%	2.59E-02	8.80E-01	1%	3.35E-02	8.88E-01	1%	1.99E-02	8.74E-01	1%
65	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.85	7.52E-02	9.29E-01	1%	6.32E-02	9.17E-01	1%	4.89E-02	9.03E-01	1%	3.48E-02	8.89E-01	1%
65	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.85	6.61E-02	9.20E-01	1%	4.58E-02	9.00E-01	1%	3.28E-02	8.87E-01	1%	2.34E-02	8.78E-01	1%
65	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.85	9.22E-03	8.63E-01	1%	6.00E-03	8.60E-01	1%	1.25E-02	8.67E-01	1%	7.90E-03	8.62E-01	1%

*Values shown in green represent residential receptors.

Benzene
24-Hour

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
2.3	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.59	7.67E-02	6.62E-01	29%	1.69E-03	5.87E-01	26%	8.61E-02	6.71E-01	29%	2.77E-03	5.88E-01	26%
2.3	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.59	7.69E-02	6.62E-01	29%	2.88E-03	5.88E-01	26%	9.56E-02	6.81E-01	30%	4.19E-03	5.89E-01	26%
2.3	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.59	6.62E-02	6.51E-01	28%	3.21E-03	5.88E-01	26%	6.87E-02	6.54E-01	28%	5.25E-03	5.90E-01	26%
2.3	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.59	6.30E-02	6.48E-01	28%	2.53E-03	5.88E-01	26%	7.21E-02	6.57E-01	29%	3.19E-03	5.88E-01	26%
2.3	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.59	1.83E-01	7.68E-01	33%	2.85E-03	5.88E-01	26%	1.22E-01	7.07E-01	31%	5.63E-03	5.91E-01	26%
2.3	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.59	2.12E-01	7.97E-01	35%	3.35E-03	5.88E-01	26%	2.08E-01	7.93E-01	34%	4.65E-03	5.90E-01	26%
2.3	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.59	4.35E-02	6.28E-01	27%	2.39E-03	5.87E-01	26%	7.00E-02	6.55E-01	28%	3.38E-03	5.88E-01	26%
2.3	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.59	1.54E-01	7.39E-01	32%	5.51E-03	5.91E-01	26%	1.48E-01	7.33E-01	32%	4.15E-03	5.89E-01	26%
2.3	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.59	1.43E-01	7.28E-01	32%	4.40E-03	5.89E-01	26%	2.12E-01	7.97E-01	35%	1.94E-03	5.87E-01	26%
2.3	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.59	9.77E-02	6.83E-01	30%	2.23E-03	5.87E-01	26%	1.22E-01	7.07E-01	31%	1.73E-03	5.87E-01	26%
2.3	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.59	1.81E-01	7.66E-01	33%	2.93E-03	5.88E-01	26%	3.49E-01	9.34E-01	41%	1.95E-03	5.87E-01	26%
2.3	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.59	1.01E-01	6.86E-01	30%	1.97E-03	5.87E-01	26%	1.71E-01	7.56E-01	33%	1.84E-03	5.87E-01	26%
2.3	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.59	3.35E-02	6.19E-01	27%	1.79E-03	5.87E-01	26%	3.83E-02	6.23E-01	27%	2.09E-03	5.87E-01	26%
2.3	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.59	9.95E-02	6.84E-01	30%	2.29E-03	5.87E-01	26%	1.07E-01	6.92E-01	30%	1.67E-03	5.87E-01	26%
2.3	ING-2	Laurie Hawkins Public School	509019	4765860	0.59	3.53E-02	6.20E-01	27%	1.24E-03	5.86E-01	25%	6.47E-02	6.50E-01	28%	9.80E-04	5.86E-01	25%
2.3	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.59	8.44E-02	6.69E-01	29%	2.44E-03	5.87E-01	26%	1.25E-01	7.10E-01	31%	1.40E-03	5.86E-01	25%
2.3	ING-4	On the river north of 209 County Road 9	509480	4765180	0.59	4.24E-02	6.27E-01	27%	8.80E-04	5.86E-01	25%	5.39E-02	6.39E-01	28%	1.20E-03	5.86E-01	25%
2.3	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.59	3.04E-02	6.15E-01	27%	8.80E-04	5.86E-01	25%	5.58E-02	6.41E-01	28%	9.10E-04	5.86E-01	25%
2.3	ING-6	Royal Road Public School	510337	4765360	0.59	5.82E-02	6.43E-01	28%	1.93E-03	5.87E-01	26%	8.59E-02	6.71E-01	29%	9.60E-04	5.86E-01	25%
2.3	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.59	2.62E-02	6.11E-01	27%	8.90E-04	5.86E-01	25%	4.18E-02	6.27E-01	27%	7.40E-04	5.86E-01	25%
2.3	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.59	2.60E-02	6.11E-01	27%	1.30E-03	5.86E-01	25%	5.69E-02	6.42E-01	28%	6.80E-04	5.86E-01	25%
2.3	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.59	8.02E-02	6.65E-01	29%	2.25E-03	5.87E-01	26%	1.26E-01	7.11E-01	31%	2.00E-03	5.87E-01	26%
2.3	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.59	5.13E-02	6.36E-01	28%	1.55E-03	5.87E-01	26%	9.08E-02	6.76E-01	29%	1.34E-03	5.86E-01	25%
2.3	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.59	1.57E-01	7.42E-01	32%	3.86E-03	5.89E-01	26%	4.17E-01	1.00E+00	44%	3.20E-03	5.88E-01	26%
2.3	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.59	1.61E-01	7.46E-01	32%	7.16E-03	5.92E-01	26%	2.82E-01	8.67E-01	38%	5.77E-03	5.91E-01	26%
2.3	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.59	1.90E-01	7.75E-01	34%	8.62E-03	5.94E-01	26%	3.01E-01	8.86E-01	39%	7.75E-03	5.93E-01	26%
2.3	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.59	1.19E-01	7.04E-01	31%	1.39E-02	5.99E-01	26%	9.11E-02	6.76E-01	29%	8.36E-03	5.93E-01	26%
2.3	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.59	7.54E-02	6.60E-01	29%	4.96E-03	5.90E-01	26%	6.87E-02	6.54E-01	28%	5.29E-03	5.90E-01	26%
2.3	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.59	4.25E-02	6.27E-01	27%	2.91E-03	5.88E-01	26%	4.12E-02	6.26E-01	27%	2.62E-03	5.88E-01	26%
2.3	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.59	2.84E-02	6.13E-01	27%	1.71E-03	5.87E-01	26%	4.05E-02	6.25E-01	27%	1.69E-03	5.87E-01	26%
2.3	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.59	1.37E-02	5.99E-01	26%	1.01E-03	5.86E-01	25%	1.61E-02	6.01E-01	26%	8.50E-04	5.86E-01	25%
2.3	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.59	1.12E-02	5.96E-01	26%	8.20E-04	5.86E-01	25%	1.22E-02	5.97E-01	26%	5.80E-04	5.86E-01	25%
2.3	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.59	1.08E-01	6.93E-01	30%	2.03E-03	5.87E-01	26%	2.36E-01	8.21E-01	36%	1.89E-03	5.87E-01	26%
2.3	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.59	1.18E-01	7.03E-01	31%	3.48E-03	5.88E-01	26%	2.54E-01	8.39E-01	36%	3.02E-03	5.88E-01	26%
2.3	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.59	1.58E-01	7.43E-01	32%	5.13E-03	5.90E-01	26%	2.22E-01	8.07E-01	35%	4.24E-03	5.89E-01	26%
2.3	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.59	1.32E-01	7.17E-01	31%	6.09E-03	5.91E-01	26%	1.96E-01	7.81E-01	34%	4.77E-03	5.90E-01	26%
2.3	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.59	1.37E-01	7.22E-01	31%	5.03E-03	5.90E-01	26%	1.42E-01	7.27E-01	32%	5.81E-03	5.91E-01	26%
2.3	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.59	9.21E-02	6.77E-01	29%	4.16E-03	5.89E-01	26%	1.38E-01	7.23E-01	31%	5.57E-03	5.91E-01	26%
2.3	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.59	1.08E-01	6.93E-01	30%	3.28E-03	5.88E-01	26%	1.62E-01	7.47E-01	32%	3.43E-03	5.88E-01	26%
2.3	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.59	9.30E-02	6.78E-01	29%	4.50E-03	5.90E-01	26%	9.88E-02	6.84E-01	30%	3.57E-03	5.89E-01	26%
2.3	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.59	1.09E-01	6.94E-01	30%	1.07E-02	5.96E-01	26%	9.32E-02	6.78E-01	29%	5.79E-03	5.91E-01	26%
2.3	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.59	4.81E-02	6.33E-01	28%	7.91E-03	5.93E-01	26%	7.10E-02	6.56E-01	29%	3.91E-03	5.89E-01	26%
2.3	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.59	2.55E-02	6.10E-01	27%	1.19E-03	5.86E-01	25%	1.85E-02	6.03E-01	26%	1.46E-03	5.86E-01	25%

*Values shown in green represent residential receptors.

Benzene
Annual

Criteria ($ug\ m^{-3}$)	Receptor Information				Background Concentration ($ug\ m^{-3}$)	Stage 1 (2023-2027) With Landfill			Stage 1 (2023-2027) Without Landfill			Stage 3 (2033-2037) With Landfill			Stage 3 (2033-2037) Without Landfill		
	Receptor ID	Description	X	Y		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)	Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
0.45	ZOR-1	Intersection of 31st Line and Rd 66	507552	4768980	0.38	3.52E-03	3.82E-01	85%	7.00E-05	3.78E-01	84%	4.17E-03	3.82E-01	85%	8.00E-05	3.78E-01	84%
0.45	ZOR-2	Intersection of 33rd Line and Rd 66	508703	4769450	0.38	4.43E-03	3.82E-01	85%	1.00E-04	3.78E-01	84%	4.67E-03	3.83E-01	85%	1.40E-04	3.78E-01	84%
0.45	ZOR-3	Residence at 663951 Rd 66	510216	4770270	0.38	3.96E-03	3.82E-01	85%	1.10E-04	3.78E-01	84%	4.75E-03	3.83E-01	85%	1.50E-04	3.78E-01	84%
0.45	ZOR-4	Intersection of 37th Line and Rd 66	511004	4770360	0.38	3.50E-03	3.82E-01	85%	1.20E-04	3.78E-01	84%	3.97E-03	3.82E-01	85%	1.50E-04	3.78E-01	84%
0.45	ZOR-5	Residence at 334789 33rd Line	508931	4768760	0.38	1.03E-02	3.88E-01	86%	1.30E-04	3.78E-01	84%	8.56E-03	3.87E-01	86%	1.50E-04	3.78E-01	84%
0.45	ZOR-6	Residence at 334742 33rd Line	509185	4768350	0.38	1.67E-02	3.95E-01	88%	1.60E-04	3.78E-01	84%	1.51E-02	3.93E-01	87%	1.50E-04	3.78E-01	84%
0.45	ZOR-7	Residence at 414774 41st Line (Domtar Line)	512505	4770060	0.38	2.72E-03	3.81E-01	85%	1.70E-04	3.78E-01	84%	3.31E-03	3.81E-01	85%	1.70E-04	3.78E-01	84%
0.45	ZOR-8	Residence at 643743 Road 64	508940	4767980	0.38	1.19E-02	3.90E-01	87%	1.30E-04	3.78E-01	84%	1.27E-02	3.91E-01	87%	1.10E-04	3.78E-01	84%
0.45	ZOR-9	Residence at 334647, 334652 and 334655 33rd Line	509437	4767450	0.38	9.80E-03	3.88E-01	86%	1.20E-04	3.78E-01	84%	1.82E-02	3.96E-01	88%	8.00E-05	3.78E-01	84%
0.45	ZOR-10	Residence at 334578 33rd Line	509739	4766780	0.38	4.90E-03	3.83E-01	85%	7.00E-05	3.78E-01	84%	9.52E-03	3.88E-01	86%	6.00E-05	3.78E-01	84%
0.45	ZOR-11	Residence at 623851 Rd62/ North Town	510446	4767010	0.38	1.15E-02	3.89E-01	87%	1.30E-04	3.78E-01	84%	3.01E-02	4.08E-01	91%	9.00E-05	3.78E-01	84%
0.45	ZOR-12	Cemetery - 603806 Cemetery Ln	510224	4766570	0.38	5.36E-03	3.83E-01	85%	8.00E-05	3.78E-01	84%	1.08E-02	3.89E-01	86%	6.00E-05	3.78E-01	84%
0.45	ZOR-13	Intersection of 41st Line and Road 66	512141	4770850	0.38	1.92E-03	3.80E-01	84%	1.00E-04	3.78E-01	84%	2.45E-03	3.80E-01	85%	1.10E-04	3.78E-01	84%
0.45	ING-1	Intersection of North Town Line E and Pemberton Street	509757	4766670	0.38	4.78E-03	3.83E-01	85%	7.00E-05	3.78E-01	84%	8.36E-03	3.86E-01	86%	6.00E-05	3.78E-01	84%
0.45	ING-2	Laurie Hawkins Public School	509019	4765860	0.38	1.86E-03	3.80E-01	84%	4.00E-05	3.78E-01	84%	3.34E-03	3.81E-01	85%	3.00E-05	3.78E-01	84%
0.45	ING-3	Ingersoll District Collegiate Institute	510512	4766230	0.38	4.72E-03	3.83E-01	85%	7.00E-05	3.78E-01	84%	8.35E-03	3.86E-01	86%	5.00E-05	3.78E-01	84%
0.45	ING-4	On the river north of 209 County Road 9	509480	4765180	0.38	2.07E-03	3.80E-01	84%	4.00E-05	3.78E-01	84%	2.53E-03	3.81E-01	85%	3.00E-05	3.78E-01	84%
0.45	ING-5	Intersection of Thames Road and Charles St. W	508623	4765540	0.38	1.52E-03	3.80E-01	84%	3.00E-05	3.78E-01	84%	2.54E-03	3.81E-01	85%	3.00E-05	3.78E-01	84%
0.45	ING-6	Royal Road Public School	510337	4765360	0.38	2.61E-03	3.81E-01	85%	5.00E-05	3.78E-01	84%	3.67E-03	3.82E-01	85%	4.00E-05	3.78E-01	84%
0.45	ING-7	Intersection of Holcroft St.W and Whiting St.	509587	4763660	0.38	9.40E-04	3.79E-01	84%	2.00E-05	3.78E-01	84%	1.76E-03	3.80E-01	84%	2.00E-05	3.78E-01	84%
0.45	ING-8	Alexandra Hospital (Noxon St and Thames St S)	510135	4764360	0.38	1.37E-03	3.79E-01	84%	3.00E-05	3.78E-01	84%	2.01E-03	3.80E-01	84%	3.00E-05	3.78E-01	84%
0.45	ING-9	Intersection of Walker Road and Fuller Drive	511353	4765370	0.38	2.88E-03	3.81E-01	85%	6.00E-05	3.78E-01	84%	5.00E-03	3.83E-01	85%	5.00E-05	3.78E-01	84%
0.45	ING-10	Intersection of Clark Rod and Park Line	511429	4764360	0.38	1.68E-03	3.80E-01	84%	4.00E-05	3.78E-01	84%	2.81E-03	3.81E-01	85%	4.00E-05	3.78E-01	84%
0.45	SWO-1	Residence at 584052 Beachville Road	511124	4766750	0.38	7.73E-03	3.86E-01	86%	1.40E-04	3.78E-01	84%	1.89E-02	3.97E-01	88%	1.00E-04	3.78E-01	84%
0.45	SWO-2	Hi-Way Pentecostal Church (584118 Beachville Road)	511535	4767260	0.38	1.21E-02	3.90E-01	87%	2.80E-04	3.78E-01	84%	2.69E-02	4.05E-01	90%	1.70E-04	3.78E-01	84%
0.45	SWO-3	Residence at 584142 Beachville Road	511722	4767480	0.38	1.28E-02	3.91E-01	87%	4.10E-04	3.78E-01	84%	2.35E-02	4.02E-01	89%	2.40E-04	3.78E-01	84%
0.45	SWO-4	Intersection of Beachville Road and 37th Line	512361	4768470	0.38	8.66E-03	3.87E-01	86%	1.67E-03	3.80E-01	84%	1.05E-02	3.89E-01	86%	8.30E-04	3.79E-01	84%
0.45	SWO-5	On Beachville Road approximately located in front of 584331 Beachville Road	512702	4769030	0.38	5.25E-03	3.83E-01	85%	3.50E-04	3.78E-01	84%	6.24E-03	3.84E-01	85%	2.70E-04	3.78E-01	84%
0.45	SWO-6	Intersection of W Hill Line and Spruce Road	513588	4770070	0.38	2.36E-03	3.80E-01	85%	1.20E-04	3.78E-01	84%	2.61E-03	3.81E-01	85%	1.10E-04	3.78E-01	84%
0.45	SWO-7	Intersection of Hook St and Zorra Line	513672	4771030	0.38	1.32E-03	3.79E-01	84%	8.00E-05	3.78E-01	84%	1.64E-03	3.80E-01	84%	7.00E-05	3.78E-01	84%
0.45	SWO-8	On Beachville Road in front of 584844 Beachville Road	516009	4772770	0.38	5.80E-04	3.79E-01	84%	4.00E-05	3.78E-01	84%	7.60E-04	3.79E-01	84%	3.00E-05	3.78E-01	84%
0.45	SWO-9	On Beachville Road in front of 585076 Beachville Road	517966	4774070	0.38	3.80E-04	3.78E-01	84%	2.00E-05	3.78E-01	84%	4.90E-04	3.78E-01	84%	2.00E-05	3.78E-01	84%
0.45	SWO-10	Residence at 563977 Karn Road	510980	4765990	0.38	4.17E-03	3.82E-01	85%	7.00E-05	3.78E-01	84%	8.30E-03	3.86E-01	86%	6.00E-05	3.78E-01	84%
0.45	SWO-11	Residence at 564028 Karn Road	511396	4766310	0.38	4.84E-03	3.83E-01	85%	1.10E-04	3.78E-01	84%	9.80E-03	3.88E-01	86%	8.00E-05	3.78E-01	84%
0.45	SWO-12	Residences at 564047, 564058, 564062 Karn Road	511616	4766520	0.38	5.25E-03	3.83E-01	85%	1.30E-04	3.78E-01	84%	1.10E-02	3.89E-01	86%	9.00E-05	3.78E-01	84%
0.45	SWO-13	Centreville Pond and Conservation Area	511570	4766920	0.38	7.68E-03	3.86E-01	86%	1.90E-04	3.78E-01	84%	1.91E-02	3.97E-01	88%	1.20E-04	3.78E-01	84%
0.45	SWO-14	Residences at 564120 and 564128 Karn Road	512109	4766980	0.38	7.18E-03	3.85E-01	86%	2.00E-04	3.78E-01	84%	1.22E-02	3.90E-01	87%	1.40E-04	3.78E-01	84%
0.45	SWO-15	Residences at 564146 Karn Road	512251	4767100	0.38	6.73E-03	3.85E-01	85%	2.30E-04	3.78E-01	84%	1.14E-02	3.89E-01	87%	1.50E-04	3.78E-01	84%
0.45	SWO-16	Residences at 564162, 564164 and 564168 Karn Road	512389	4767250	0.38	6.57E-03	3.85E-01	85%	2.60E-04	3.78E-01	84%	1.07E-02	3.89E-01	86%	1.70E-04	3.78E-01	84%
0.45	SWO-17	Residence at 564226 Karn Road	512958	4767760	0.38	4.96E-03	3.83E-01	85%	5.10E-04	3.79E-01	84%	6.93E-03	3.85E-01	86%	2.80E-04	3.78E-01	84%
0.45	SWO-18	Intersection of Karn Road and Foldens Line	513114	4767940	0.38	5.73E-03	3.84E-01	85%	1.46E-03	3.79E-01	84%	6.60E-03	3.85E-01	85%	6.20E-04	3.79E-01	84%
0.45	SWO-19	Intersection of Clarke Road and Foldens Line	514069	4766910	0.38	3.71E-03	3.82E-01	85%	1.23E-03	3.79E-01	84%	4.04E-03	3.82E-01	85%	4.90E-04	3.78E-01	84%
0.45	SWO-20	Intersection of Clarke Road and E Hill Line	516680	4769480	0.38	1.11E-03	3.79E-01	84%	6.00E-05	3.78E-01	84%	1.42E-03	3.79E-01	84%	5.00E-05	3.78E-01	84%

*Values shown in green represent residential receptors.

APPENDIX N:
Results at the Worst-Case Residential Receptor

Appendix N: Maximum Predicted Discrete Receptor Concentration Results

Maximum Residential Receptor - Stage 1 (2023 - 2027) With Landfill

Contaminant	CAS	Criteria (ug m^{-3})	Averaging Period	Background Concentration (ug m^{-3})	Discrete Receptor Maximum POI without Background (ug m^{-3})	Discrete Receptor Maximum POI with Background (ug m^{-3})	Percent of Criteria (%)	Receptor ID
Sulphur Dioxide	7446-09-5	690	1	17.46	5.3	22.75	3%	ZOR-3
		275	24	17.46	2.1	19.60	7%	SWO-4
		55	Annual	6.37	0.1	6.50	12%	SWO-4
		180	10-minute	17.46	8.7	26.20	15%	ZOR-3
		100	1	17.46	5.3	22.75	23%	ZOR-3
		10	Annual	6.37	0.1	6.50	65%	SWO-4
Carbon Monoxide	630-08-0	36200	1	301.50	109.2	410.67	1%	SWO-18
		15700	8	301.50	29.8	331.31	2%	SWO-4
Nitrogen Dioxide	10102-44-0	400	1	23.19	144.7	167.93	42%	ZOR-11
		200	24	23.19	29.9	53.12	27%	SWO-4
Benzo(a)pyrene	50-32-8	0.00005	24	0.000032	0.00005	0.000086	172%	SWO-18
		0.00001	Annual	0.000032	0.000007	0.000039	388%	SWO-18
Toluene	108-88-3	2000	24	1.61	0.9	2.54	0.1%	ZOR-6
Formaldehyde	50-00-0	65	24	0.85	0.1	0.98	2%	ZOR-9
Benzene	71-43-2	2.3	24	0.59	0.2	0.80	35%	ZOR-6
		0.45	Annual	0.38	0.02	0.39	88%	ZOR-6

Maximum Residential Receptor - Stage 1 (2023 - 2027) Without Landfill

Contaminant	CAS	Criteria (ug m^{-3})	Averaging Period	Background Concentration (ug m^{-3})	Discrete Receptor Maximum POI without Background (ug m^{-3})	Discrete Receptor Maximum POI with Background (ug m^{-3})	Percent of Criteria (%)	Receptor ID
Sulphur Dioxide	7446-09-5	690	1	17.46	5.3	22.75	3%	ZOR-3
		275	24	17.46	2.1	19.60	7%	SWO-4
		55	Annual	6.37	0.1	6.49	12%	SWO-4
		180	10-minute	17.46	8.7	26.19	15%	ZOR-3
		100	1	17.46	5.3	22.75	23%	ZOR-3
		10	Annual	6.37	0.1	6.49	65%	SWO-4
Carbon Monoxide	630-08-0	36200	1	301.50	95.4	396.94	1%	SWO-18
		15700	8	301.50	29.6	331.07	2%	SWO-4
Nitrogen Dioxide	10102-44-0	400	1	23.19	118.3	141.53	35%	SWO-18
		200	24	23.19	29.5	52.69	26%	SWO-4
Benzo(a)pyrene	50-32-8	0.00005	24	0.000032	0.00005	0.000080	160%	SWO-18
		0.00001	Annual	0.000032	0.000006	0.000038	380%	SWO-18
Toluene	108-88-3	2000	24	1.61	0.01	1.62	0.1%	SWO-4
Formaldehyde	50-00-0	65	24	0.85	0.1	0.93	1%	SWO-4
Benzene	71-43-2	2.3	24	0.59	0.01	0.60	26%	SWO-4
		0.45	Annual	0.38	0.002	0.38	84%	SWO-4

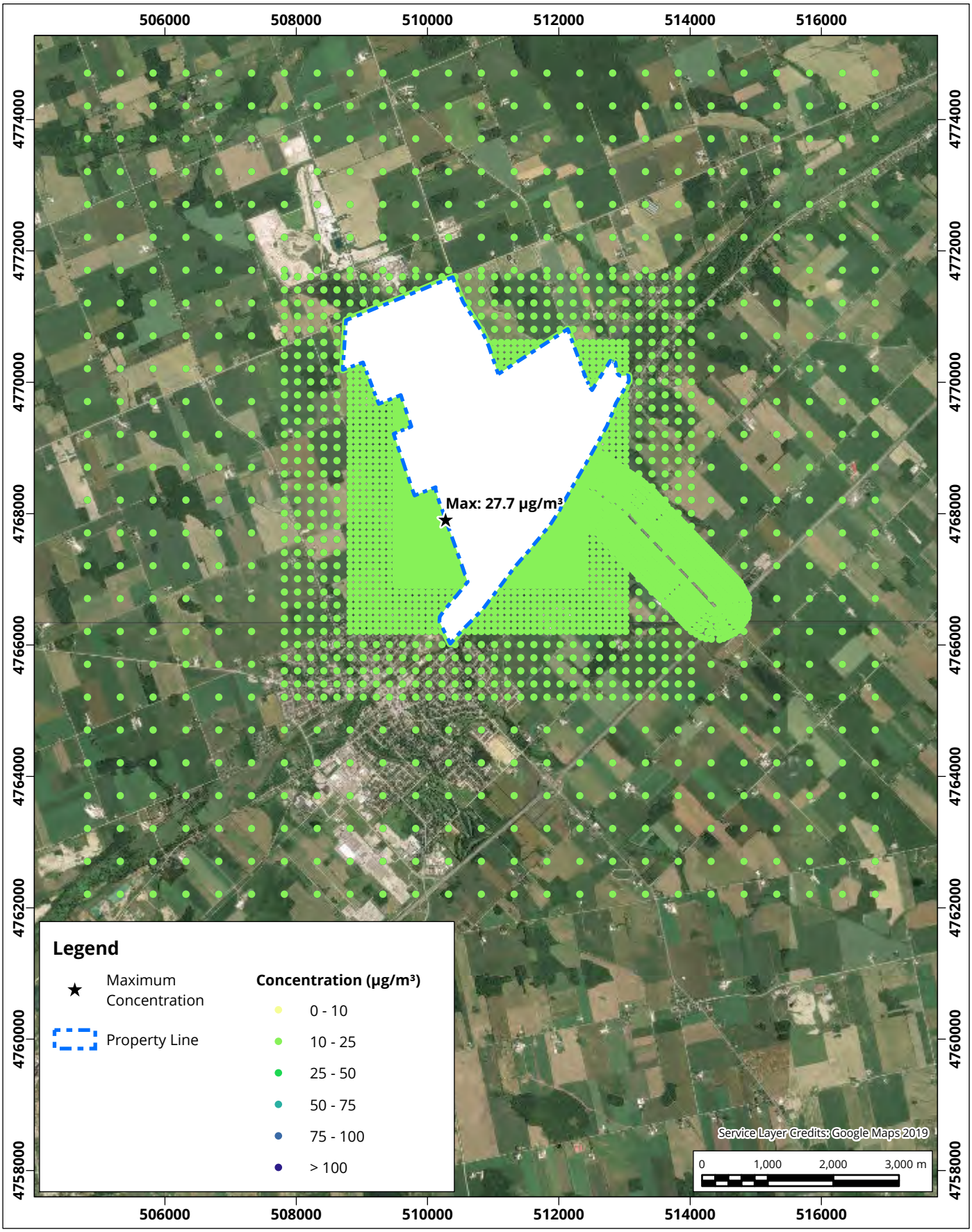
Maximum Residential Receptor - Stage 3 (2033 - 2037) With Landfill

Contaminant	CAS	Criteria (ug m^{-3})	Averaging Period	Background Concentration (ug m^{-3})	Discrete Receptor Maximum POI without Background (ug m^{-3})	Discrete Receptor Maximum POI with Background (ug m^{-3})	Percent of Criteria (%)	Receptor ID
Sulphur Dioxide	7446-09-5	690	1	17.46	5.3	22.77	3%	ZOR-3
		275	24	17.46	2.1	19.60	7%	SWO-4
		55	Annual	6.37	0.1	6.50	12%	SWO-4
		180	10-minute	17.46	8.8	26.22	15%	ZOR-3
		100	1	17.46	5.3	22.77	23%	ZOR-3
		10	Annual	6.37	0.1	6.50	65%	SWO-4
Carbon Monoxide	630-08-0	36200	1	301.50	51.9	353.43	1%	ZOR-3
		15700	8	301.50	30.2	331.69	2%	SWO-4
Nitrogen Dioxide	10102-44-0	400	1	23.19	151.6	174.84	44%	SWO-4
		200	24	23.19	29.2	52.42	26%	SWO-4
Benzo(a)pyrene	50-32-8	0.00005	24	0.000032	0.00001	0.000041	82%	SWO-18
		0.00001	Annual	0.000032	0.000001	0.000033	330%	SWO-18
Toluene	108-88-3	2000	24	1.61	2.2	3.76	0.2%	SWO-1
Formaldehyde	50-00-0	65	24	0.85	0.1	0.94	1%	ZOR-11
Benzene	71-43-2	2.3	24	0.59	0.4	1.00	44%	SWO-1
		0.45	Annual	0.38	0.03	0.41	91%	ZOR-11

Maximum Residential Receptor - Stage 3 (2033 - 2037) Without Landfill

Contaminant	CAS	Criteria (ug m^{-3})	Averaging Period	Background Concentration (ug m^{-3})	Discrete Receptor Maximum POI without Background (ug m^{-3})	Discrete Receptor Maximum POI with Background (ug m^{-3})	Percent of Criteria (%)	Receptor ID
Sulphur Dioxide	7446-09-5	690	1	17.46	5.3	22.76	3%	ZOR-3
		275	24	17.46	2.1	19.60	7%	SWO-4
		55	Annual	6.37	0.1	6.49	12%	SWO-4
		180	10-minute	17.46	8.7	26.20	15%	ZOR-3
		100	1	17.46	5.3	22.76	23%	ZOR-3
		10	Annual	6.37	0.1	6.49	65%	SWO-4
Carbon Monoxide	630-08-0	36200	1	301.50	51.1	352.64	1%	ZOR-3
		15700	8	301.50	29.3	330.82	2%	SWO-4
Nitrogen Dioxide	10102-44-0	400	1	23.19	102.8	125.97	31%	SWO-4
		200	24	23.19	28.8	51.95	26%	SWO-4
Benzo(a)pyrene	50-32-8	0.00005	24	0.000032	0.00001	0.000041	81%	SWO-18
		0.00001	Annual	0.000032	0.000001	0.000033	330%	SWO-18
Toluene	108-88-3	2000	24	1.61	0.009	1.62	0.1%	SWO-4
Formaldehyde	50-00-0	65	24	0.85	0.05	0.90	1%	SWO-4
Benzene	71-43-2	2.3	24	0.59	0.008	0.59	26%	SWO-4
		0.45	Annual	0.38	0.0008	0.38	84%	SWO-4

APPENDIX 0:
Contour Plot



1-hour Sulphur Dioxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

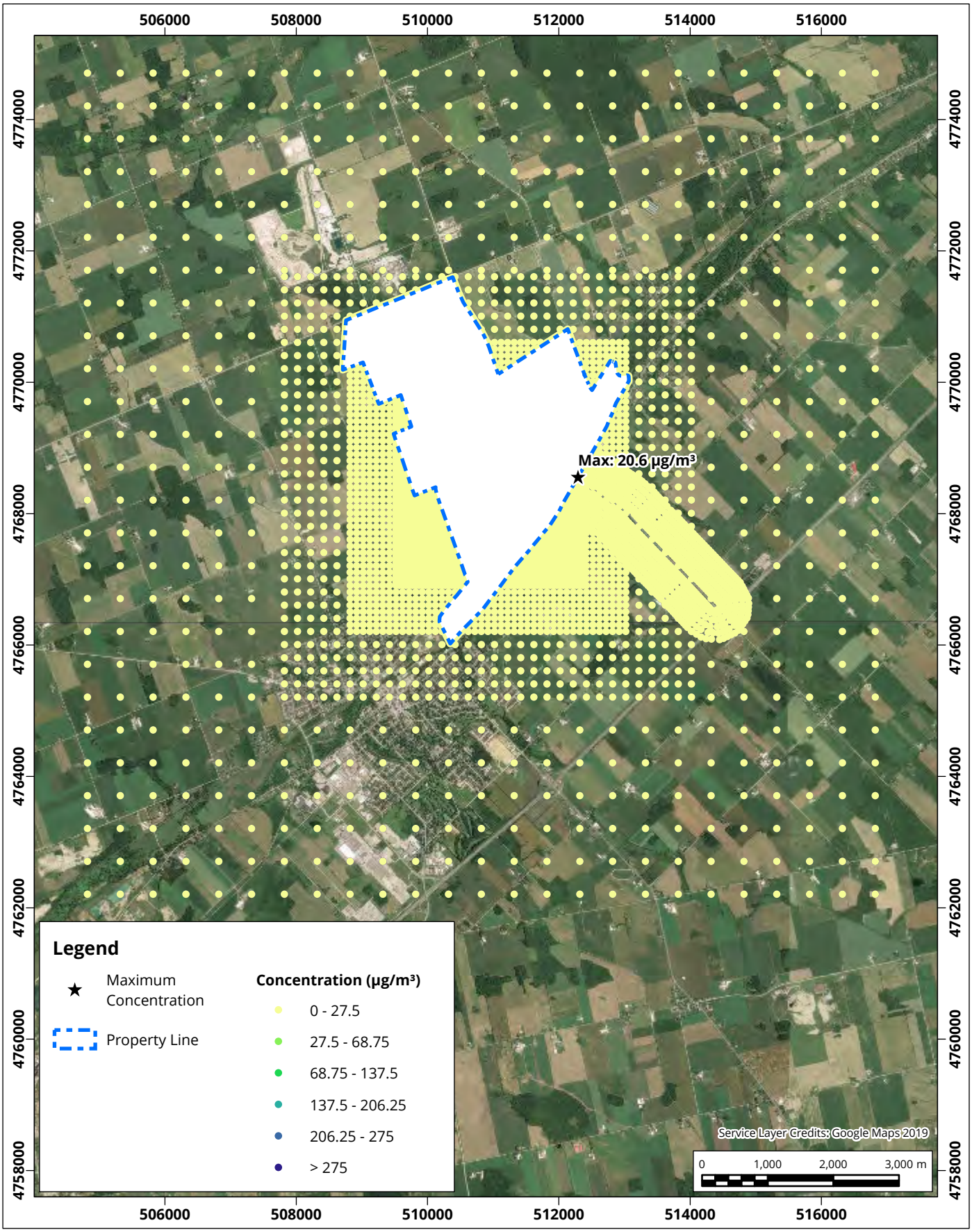
Background = 17.46 µg/m³

Limit = 100 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O1
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Sulphur Dioxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

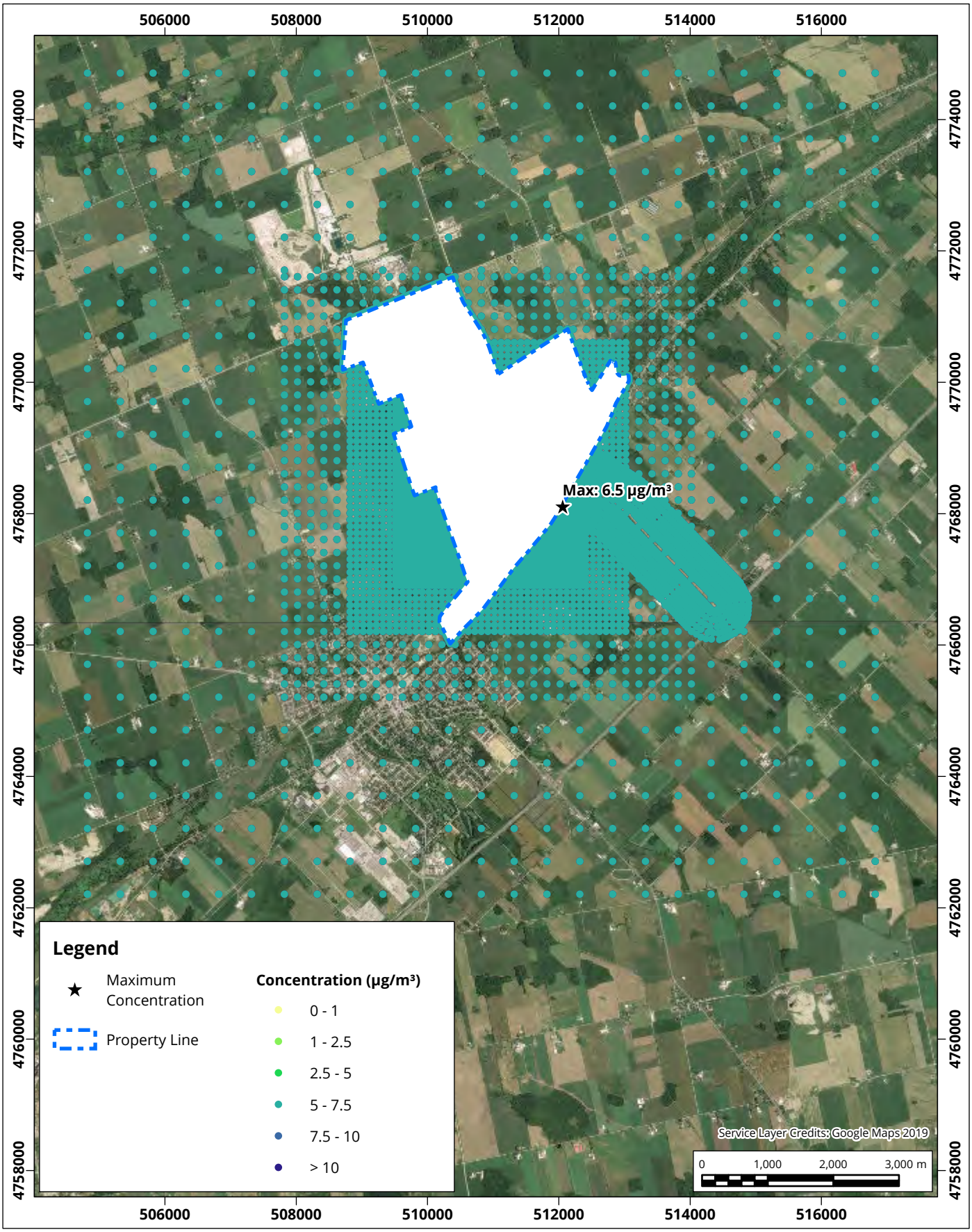
Background = 17.46 µg/m³

Limit = 275 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O2
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



Annual Sulphur Dioxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

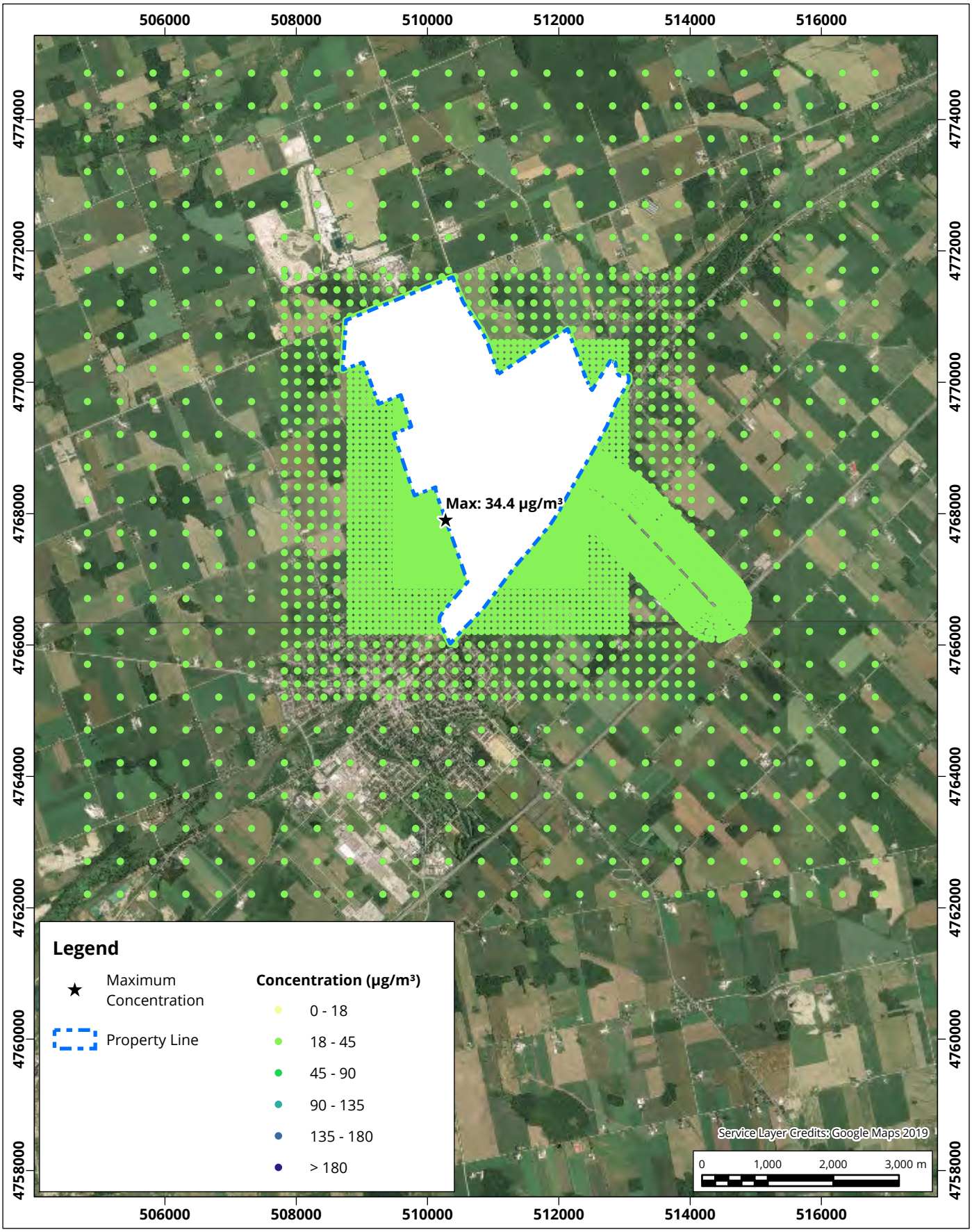
Background = 6.37 µg/m³

Limit = 10 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O3
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



10-Minute Sulphur Dioxide Concentration Contours

True North

Stage 1 - 2023 to 2028

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

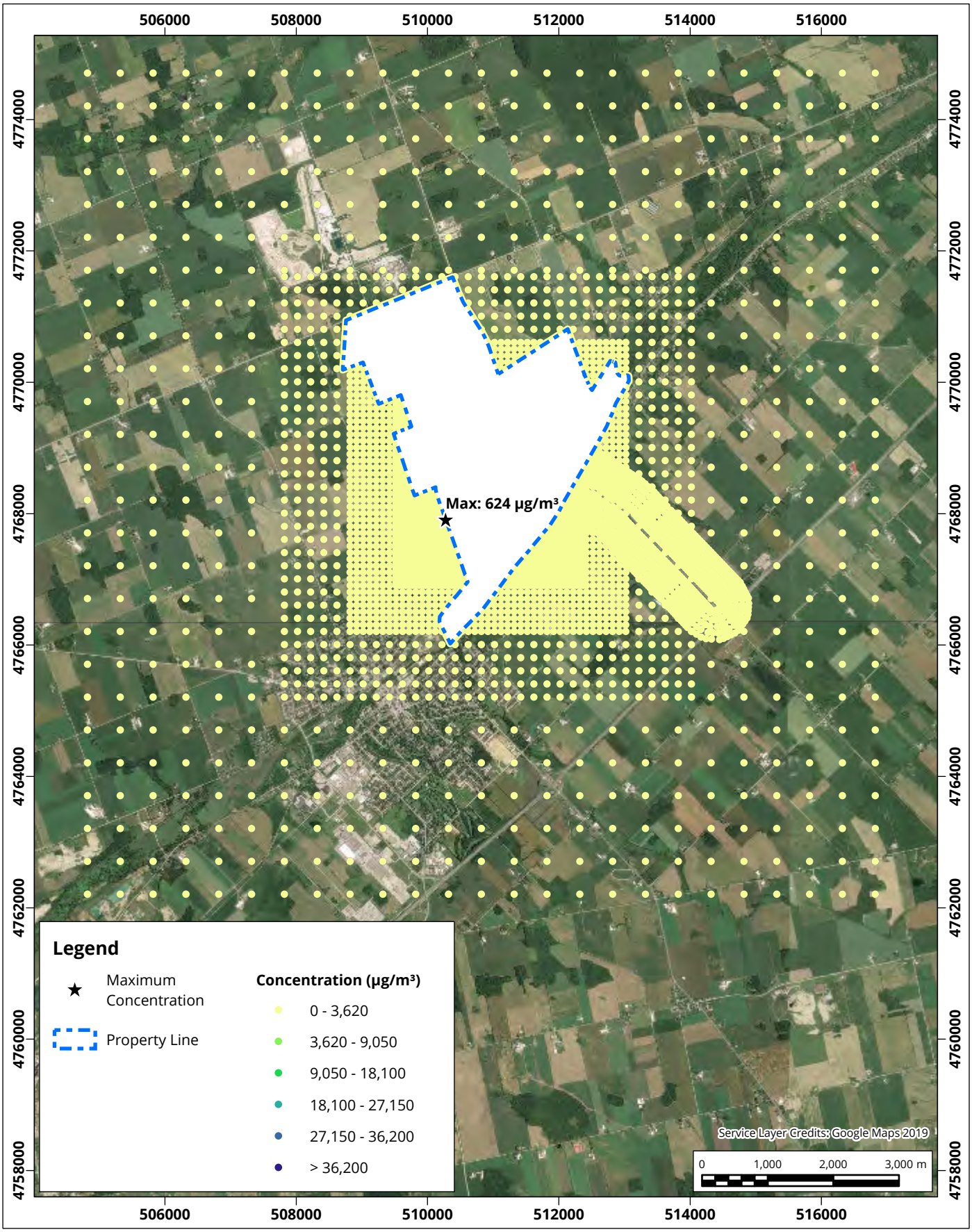
Background = 17.46 µg/m³

Limit = 180 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O4
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



1-hour Carbon Monoxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

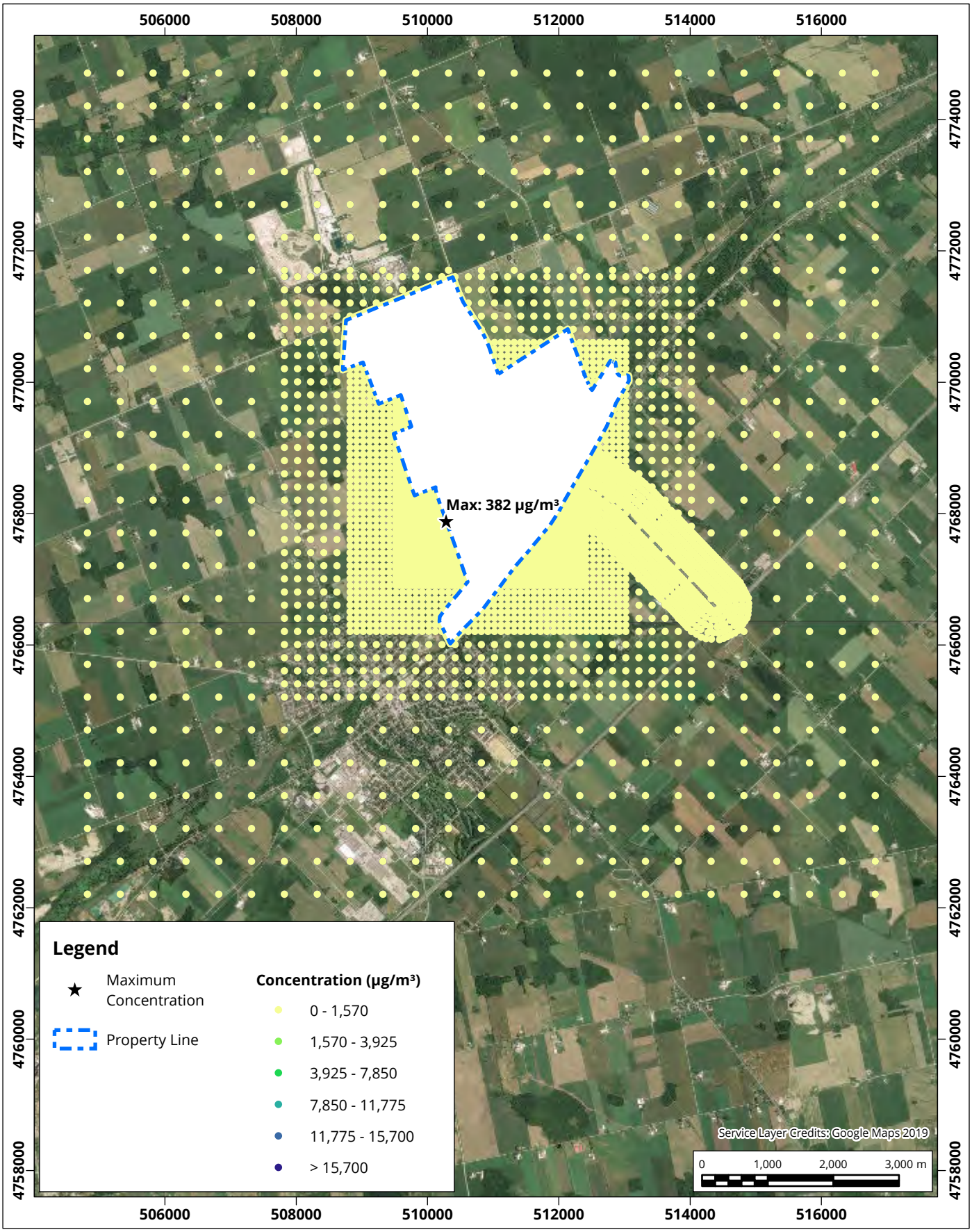
Background = 301.5 µg/m³

Limit = 36200 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O5
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



8-hour Carbon Monoxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

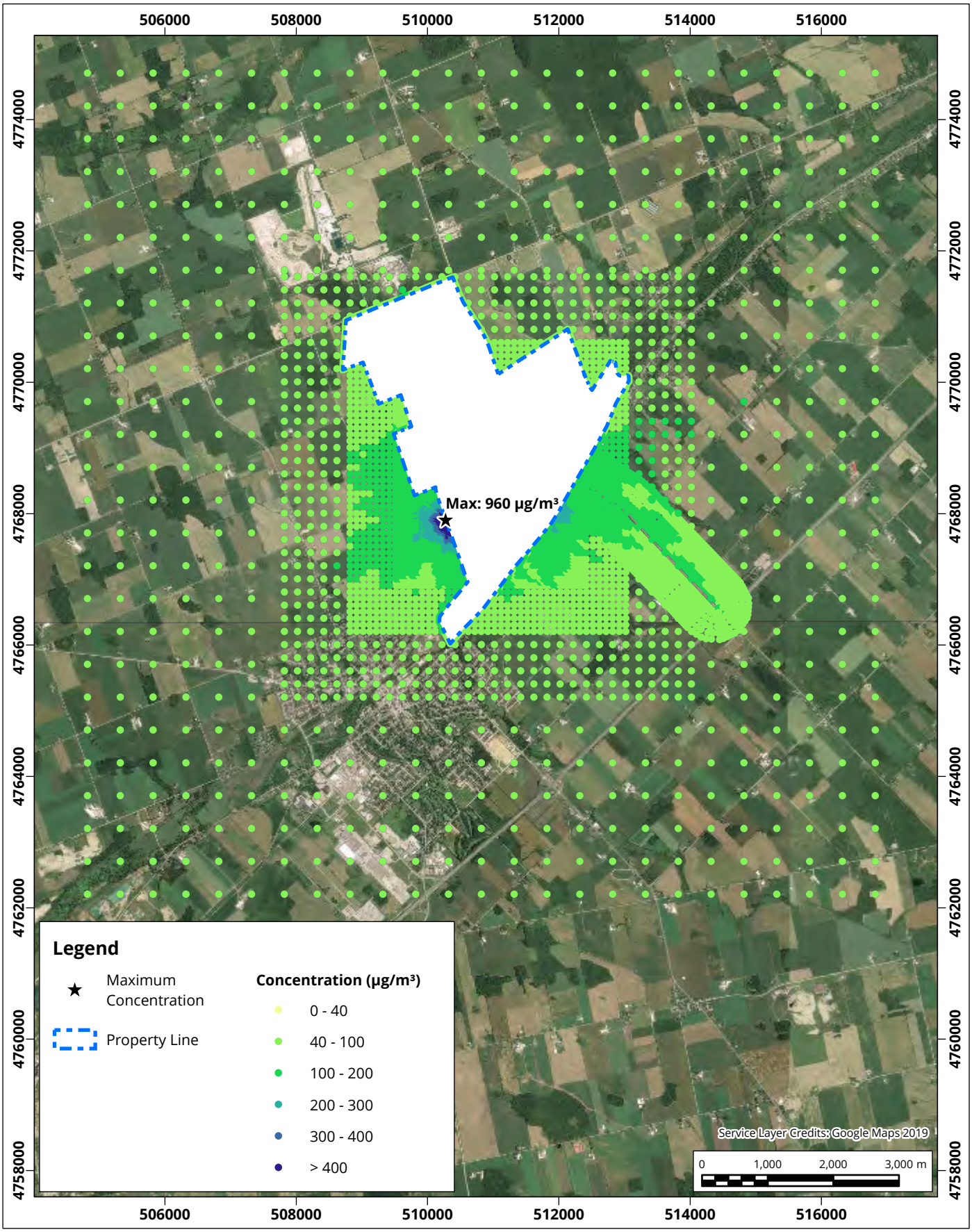
Background = 301.5 µg/m³

Limit = 15700 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O6
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



1-hour Nitrogen Dioxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

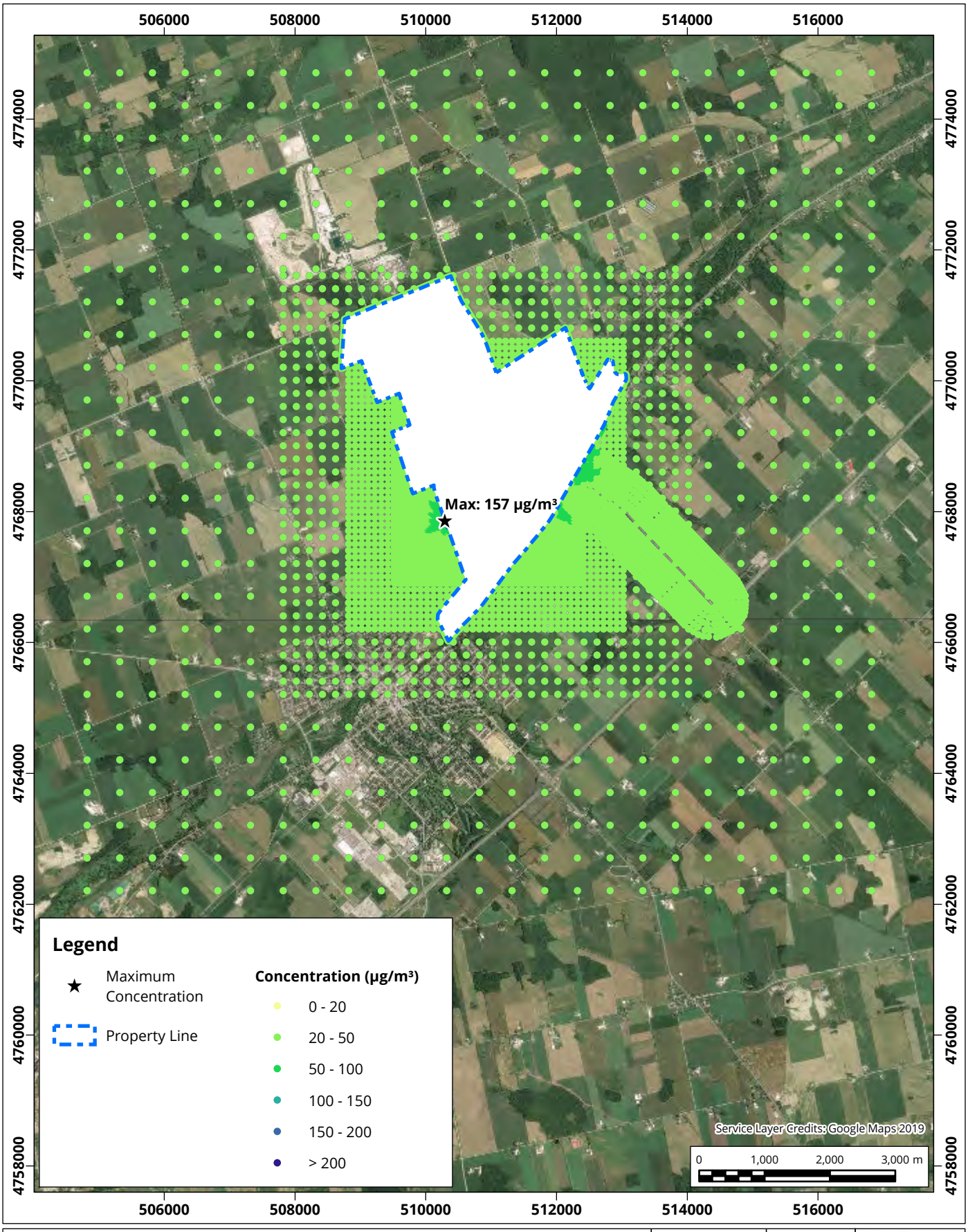
Background = 23.19 µg/m³

Limit = 400 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O7
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Nitrogen Dioxide Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

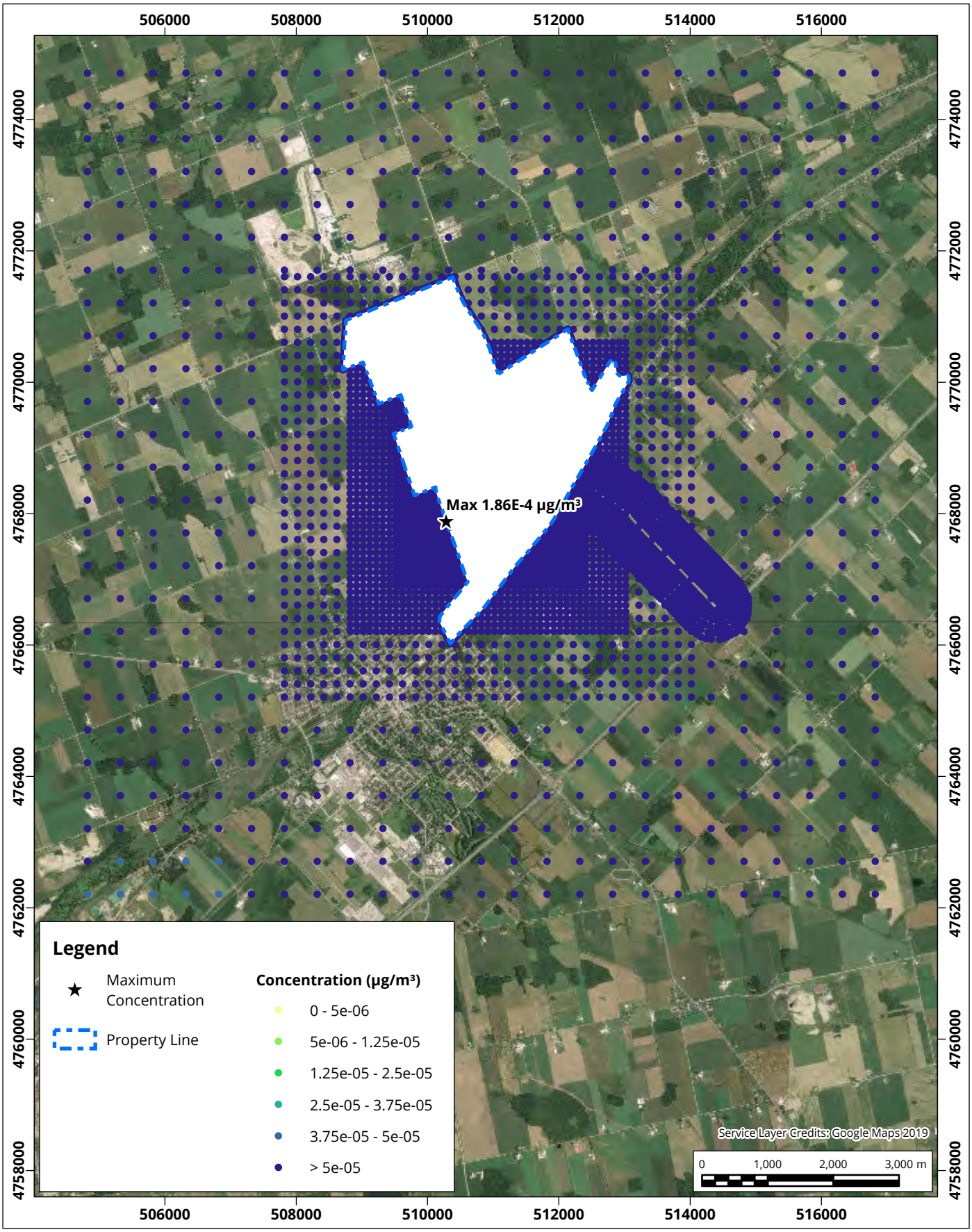
Background = 23.19 µg/m³

Limit = 200 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O8
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Benzo(a)pyrene Concentration Contours

Stage 1 - 2023 to 2028

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

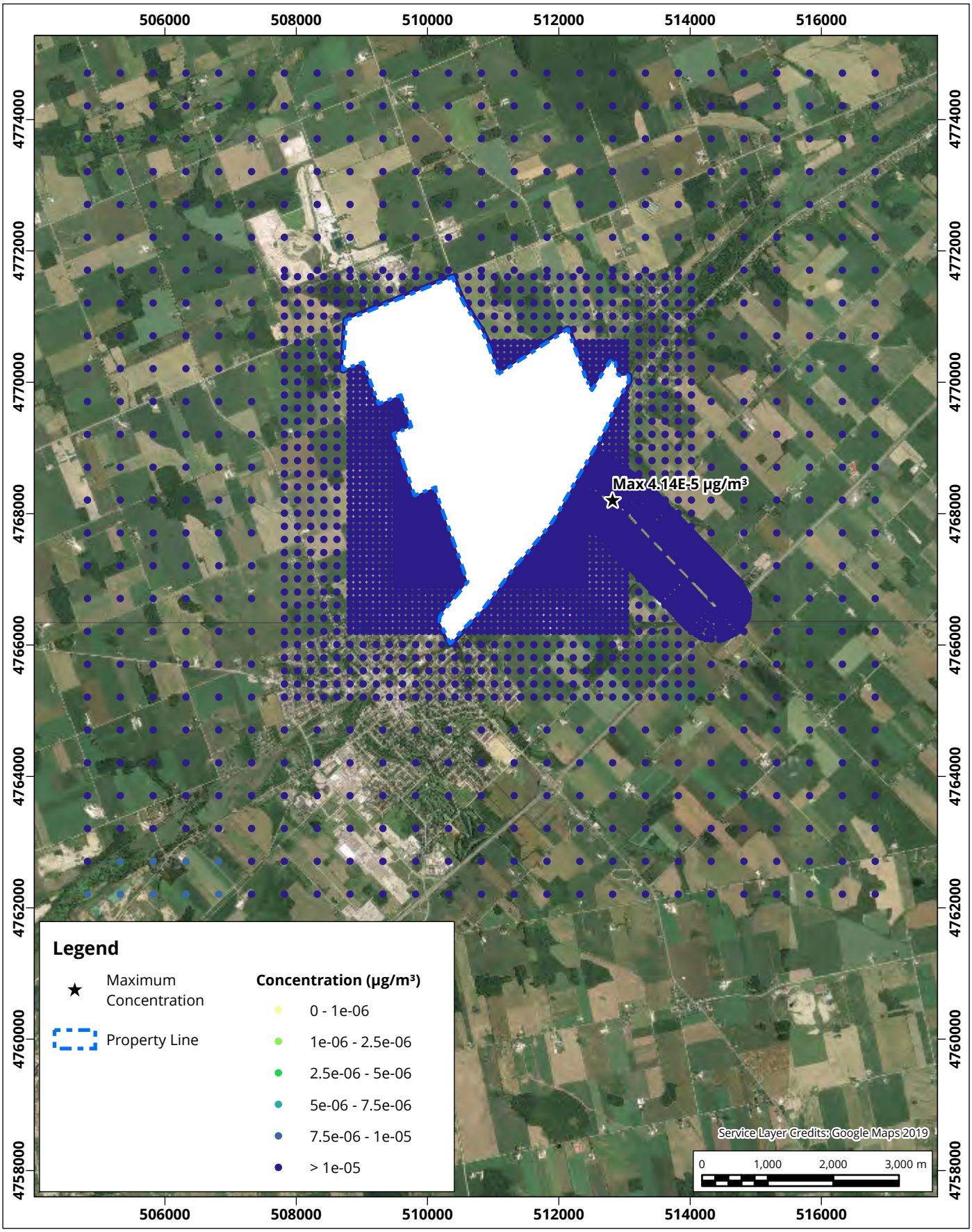
Background = 0.000032 µg/m³

Limit = 0.00005 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O9
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



Annual Benzo(a)pyrene Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Background = 0.000032 µg/m³

Limit = 0.00001 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O10
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

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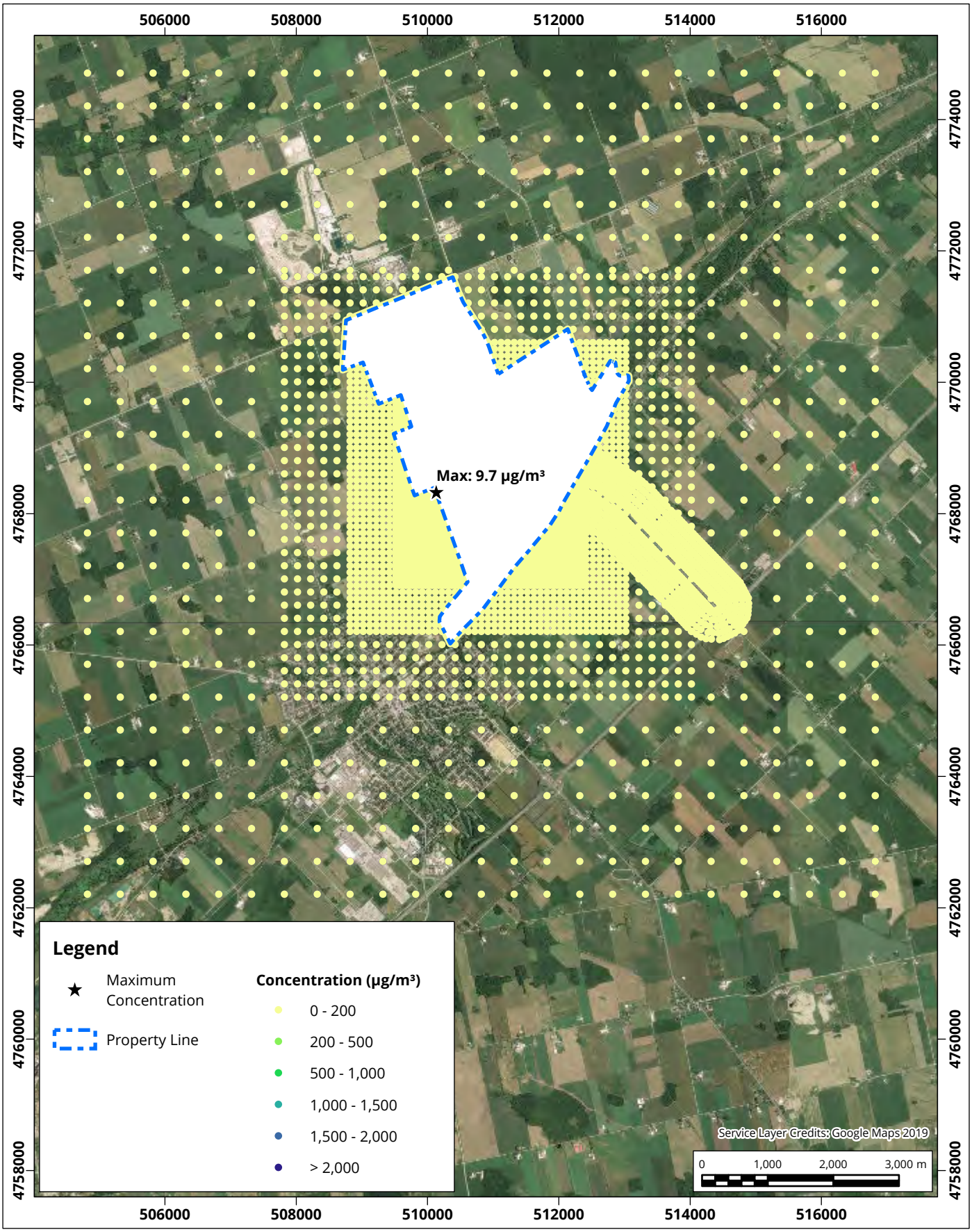


24-hour Toluene Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

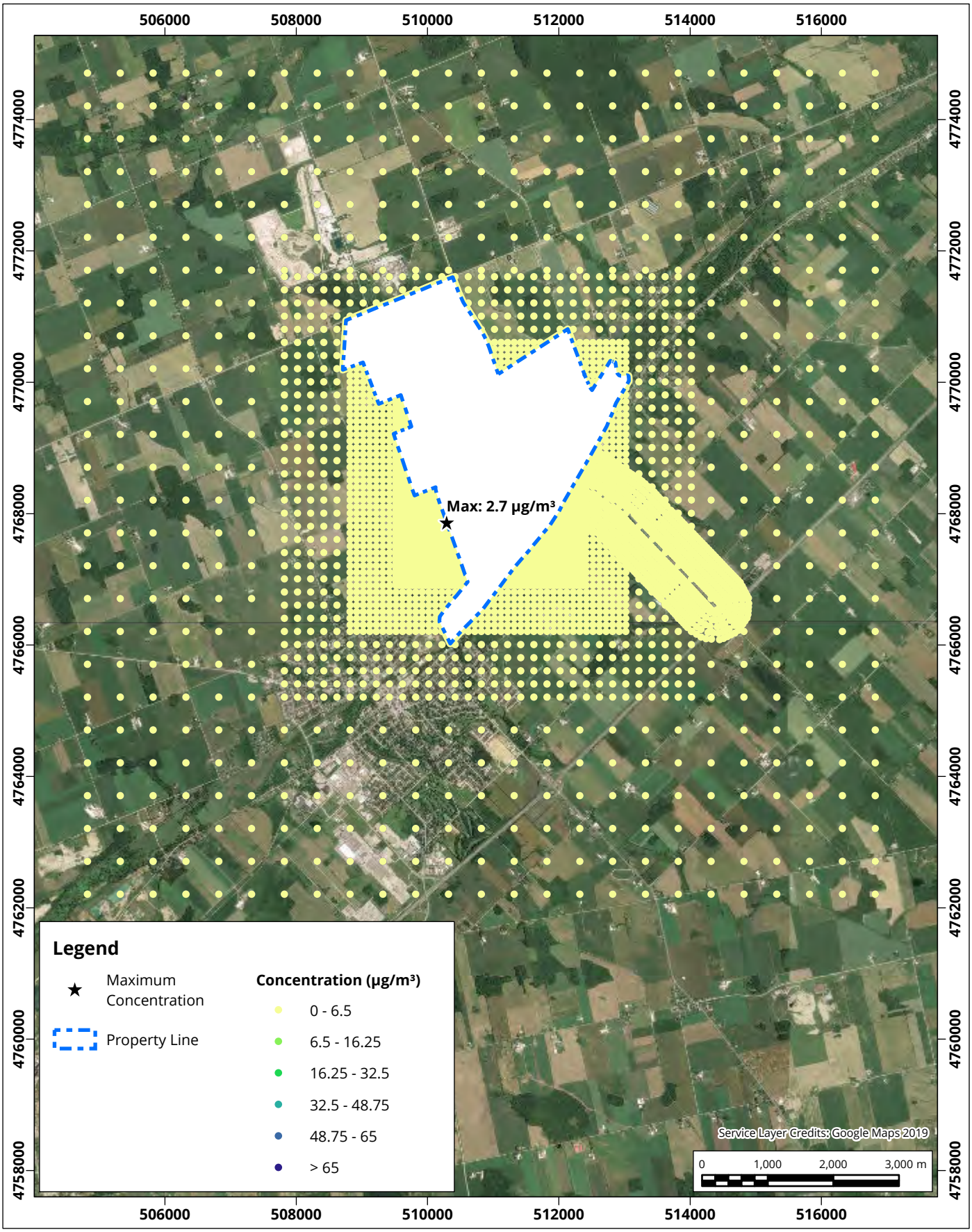
Background = 1.61 µg/m³

Limit = 2000 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O11
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Formaldehyde Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

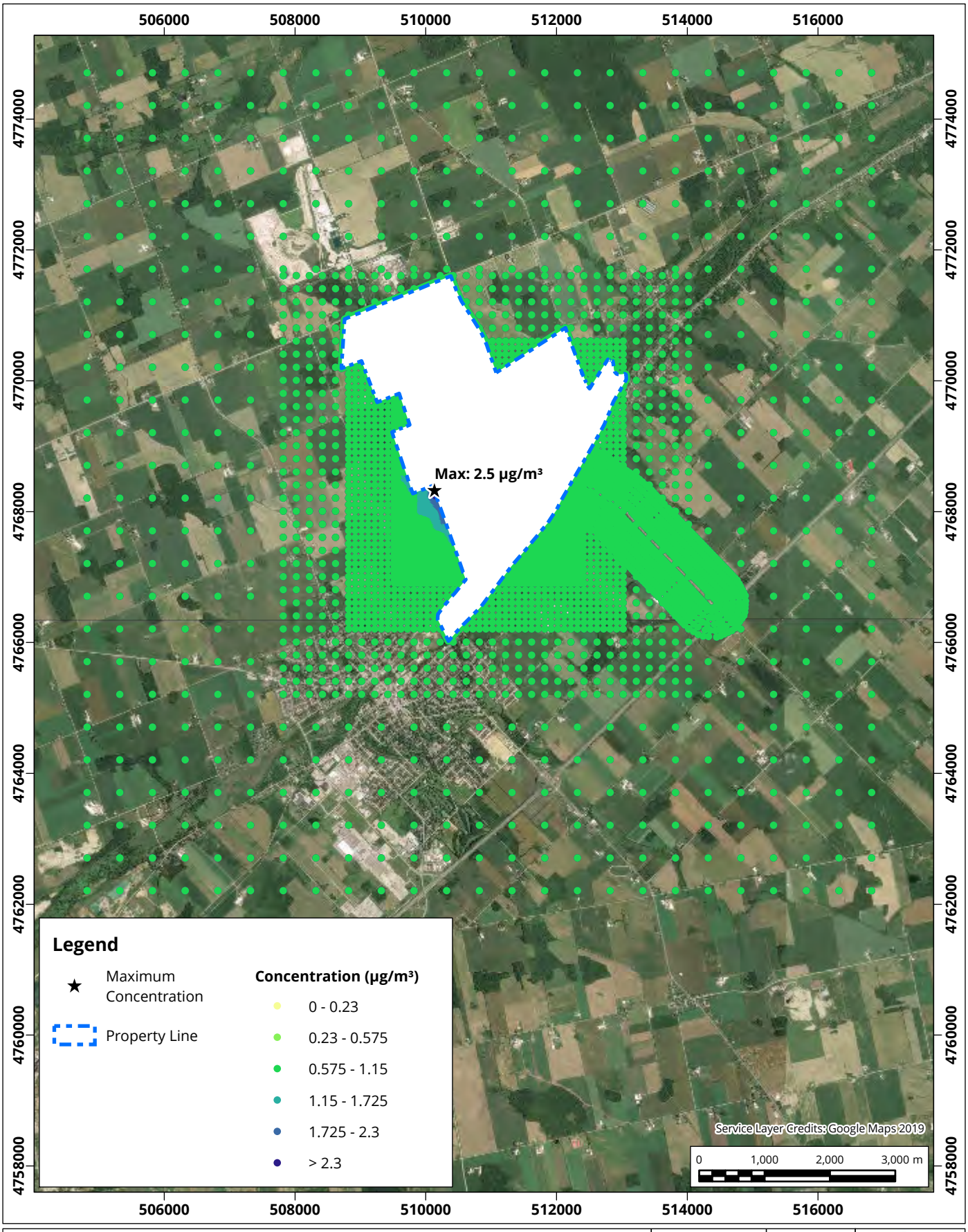
Background = 0.85 µg/m³

Limit = 65 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O12
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Benzene Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

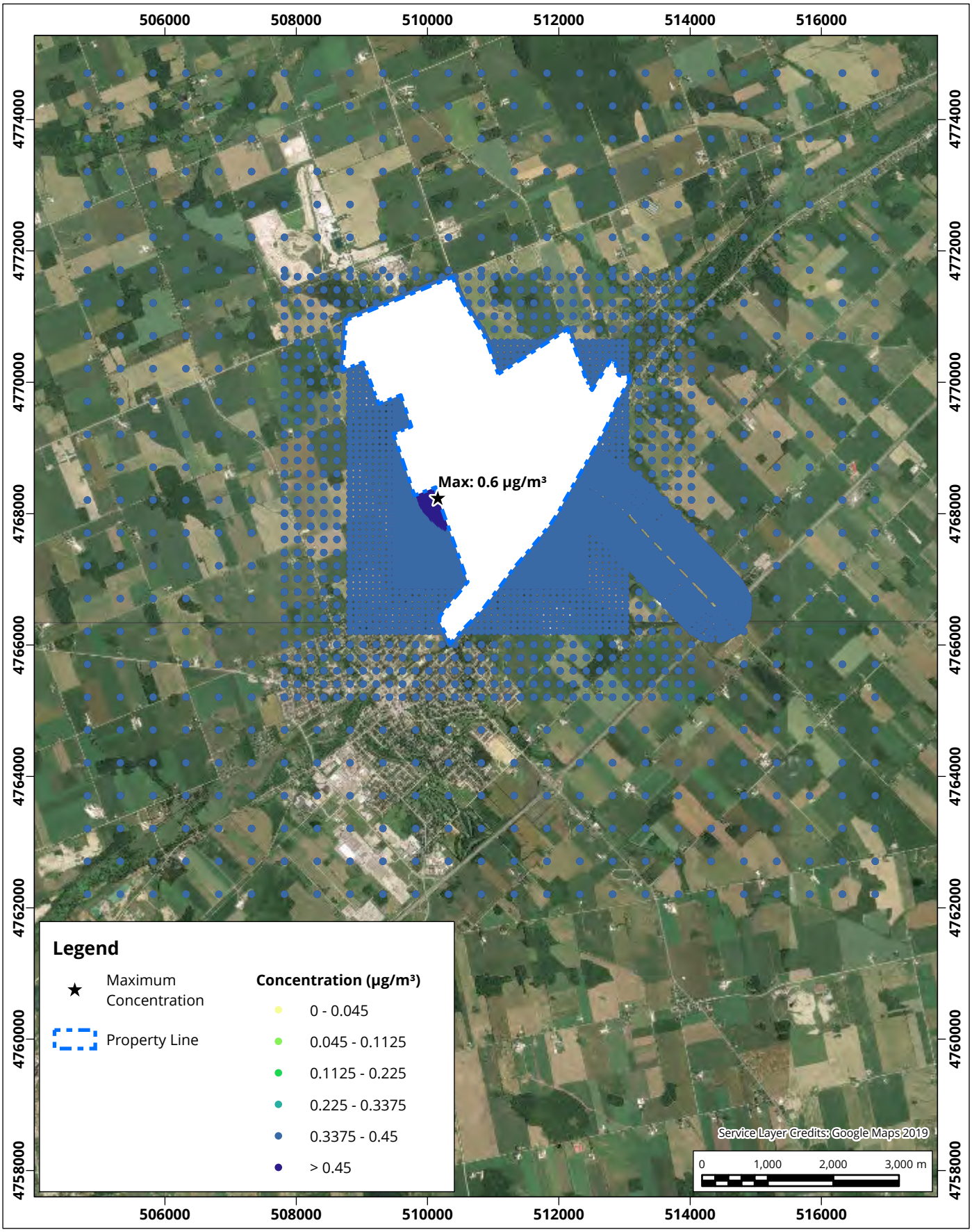
Background = 0.59 µg/m³

Limit = 2.3 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O13
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



Annual Benzene Concentration Contours

Stage 1 - 2023 to 2027

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

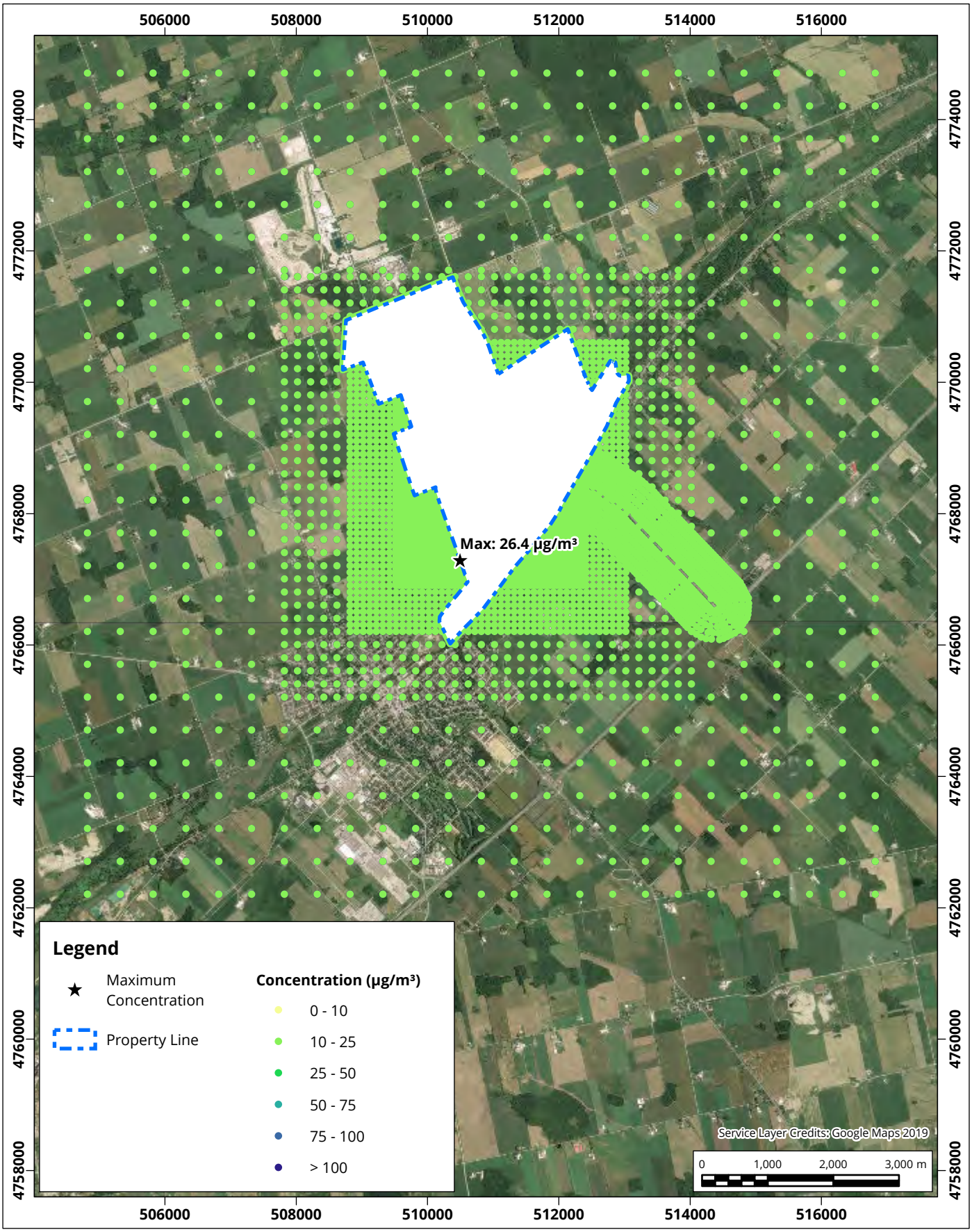
Background = 0.38 µg/m³

Limit = 0.45 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O14
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



1-hour Sulphur Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

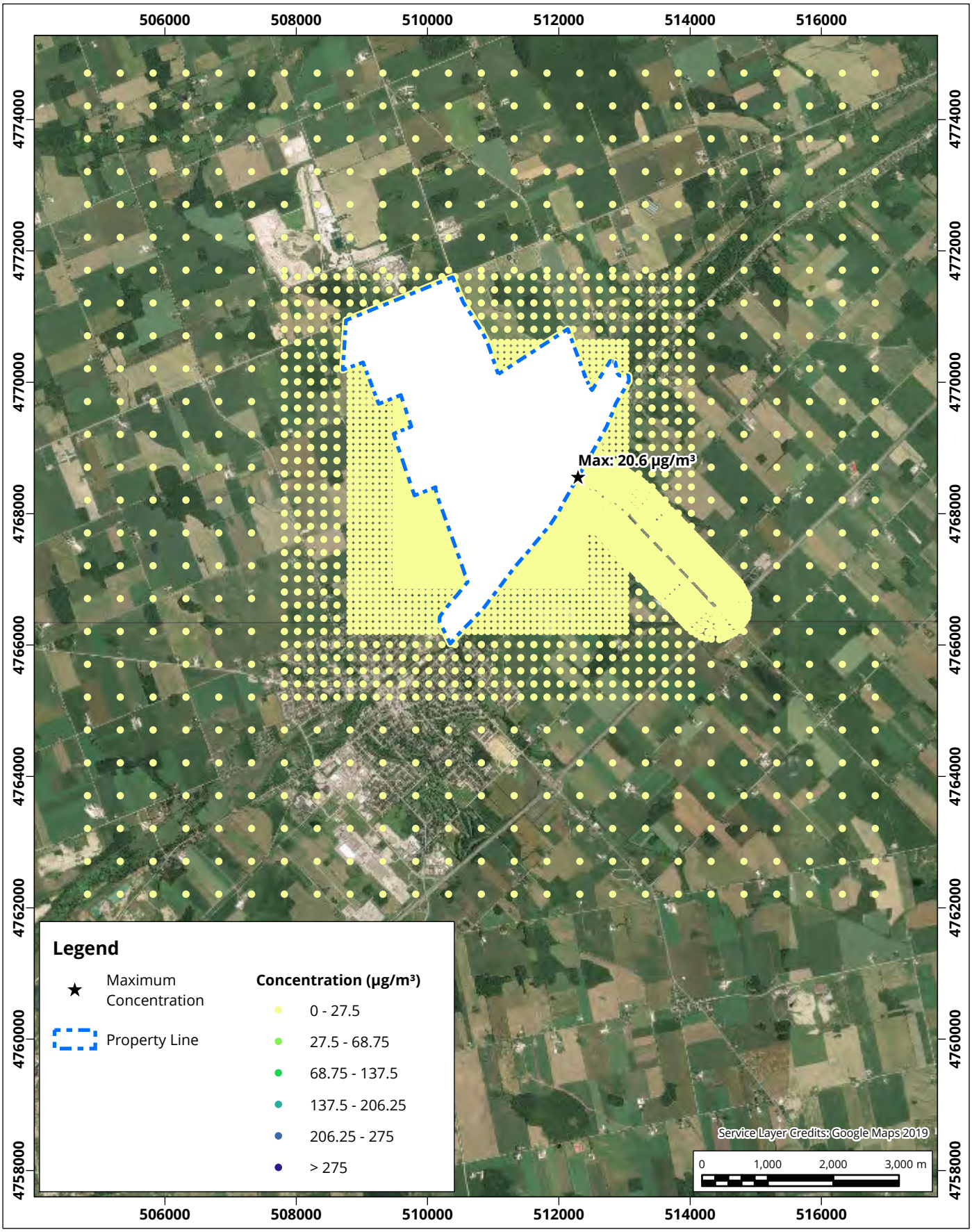
Background = 17.46 µg/m³

Limit = 100 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O15
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Sulphur Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

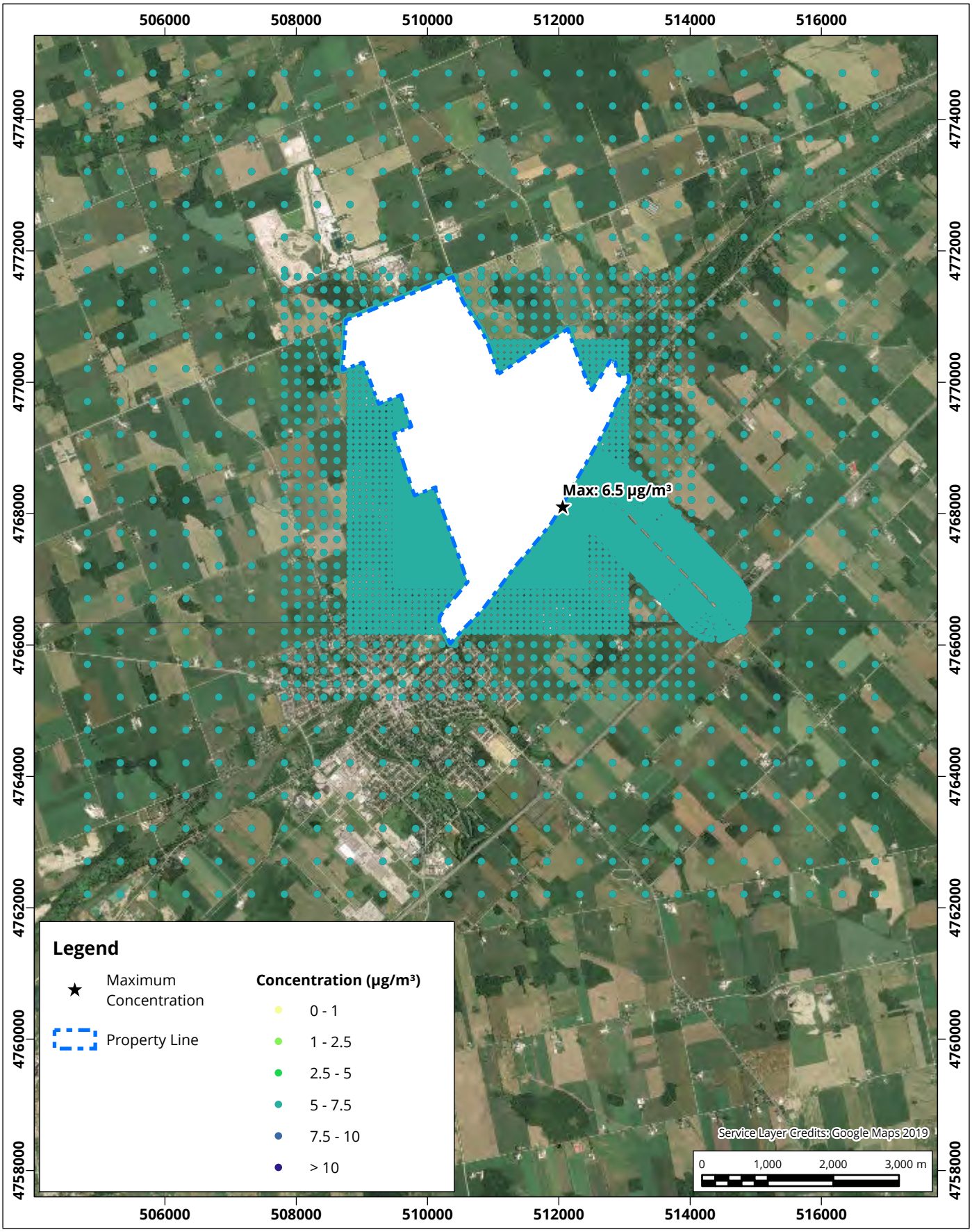
Background = 17.46 µg/m³

Limit = 275 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O16
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



Annual Sulphur Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

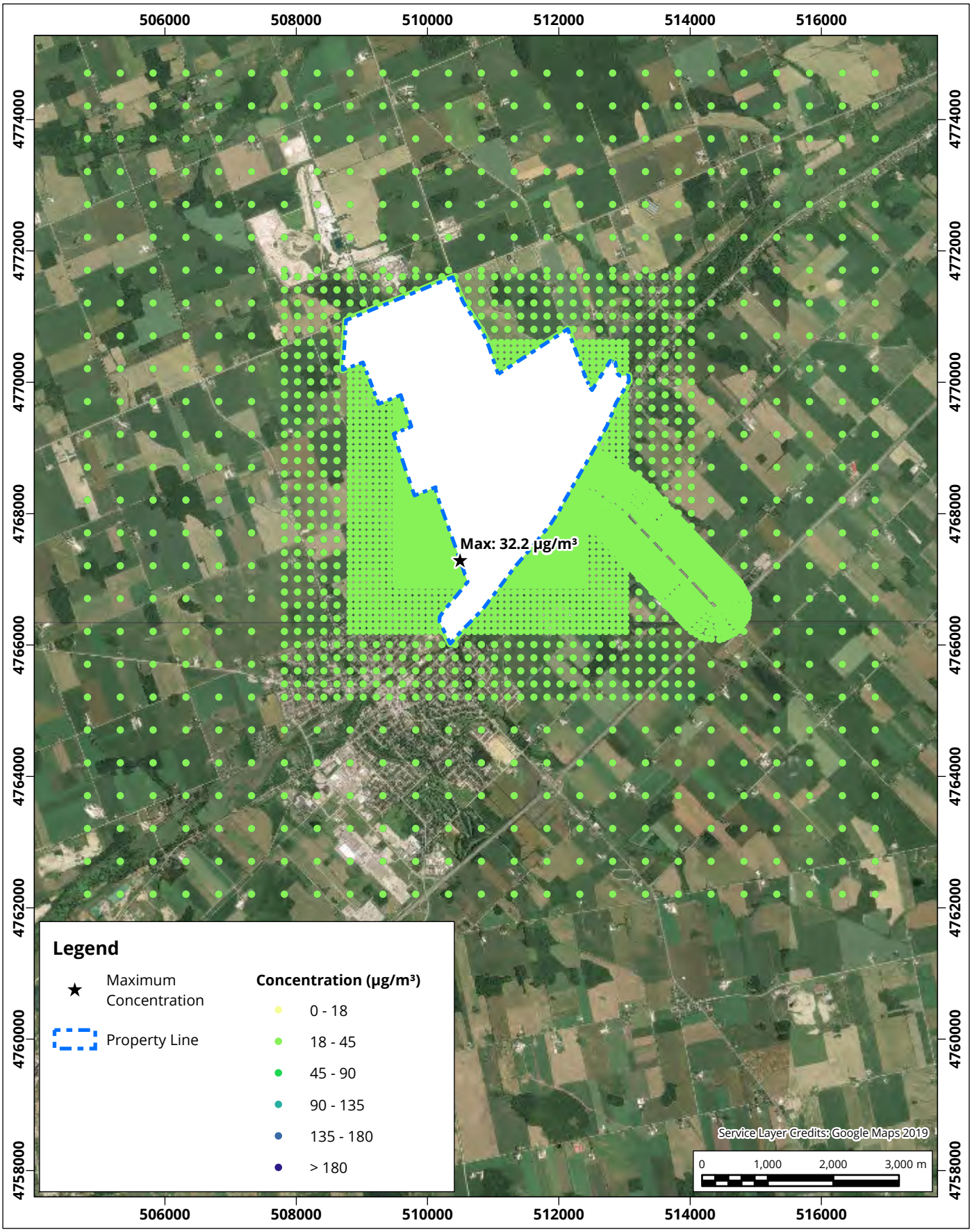
Background = 6.37 µg/m³

Limit = 10 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O17
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



10-Minute Sulphur Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

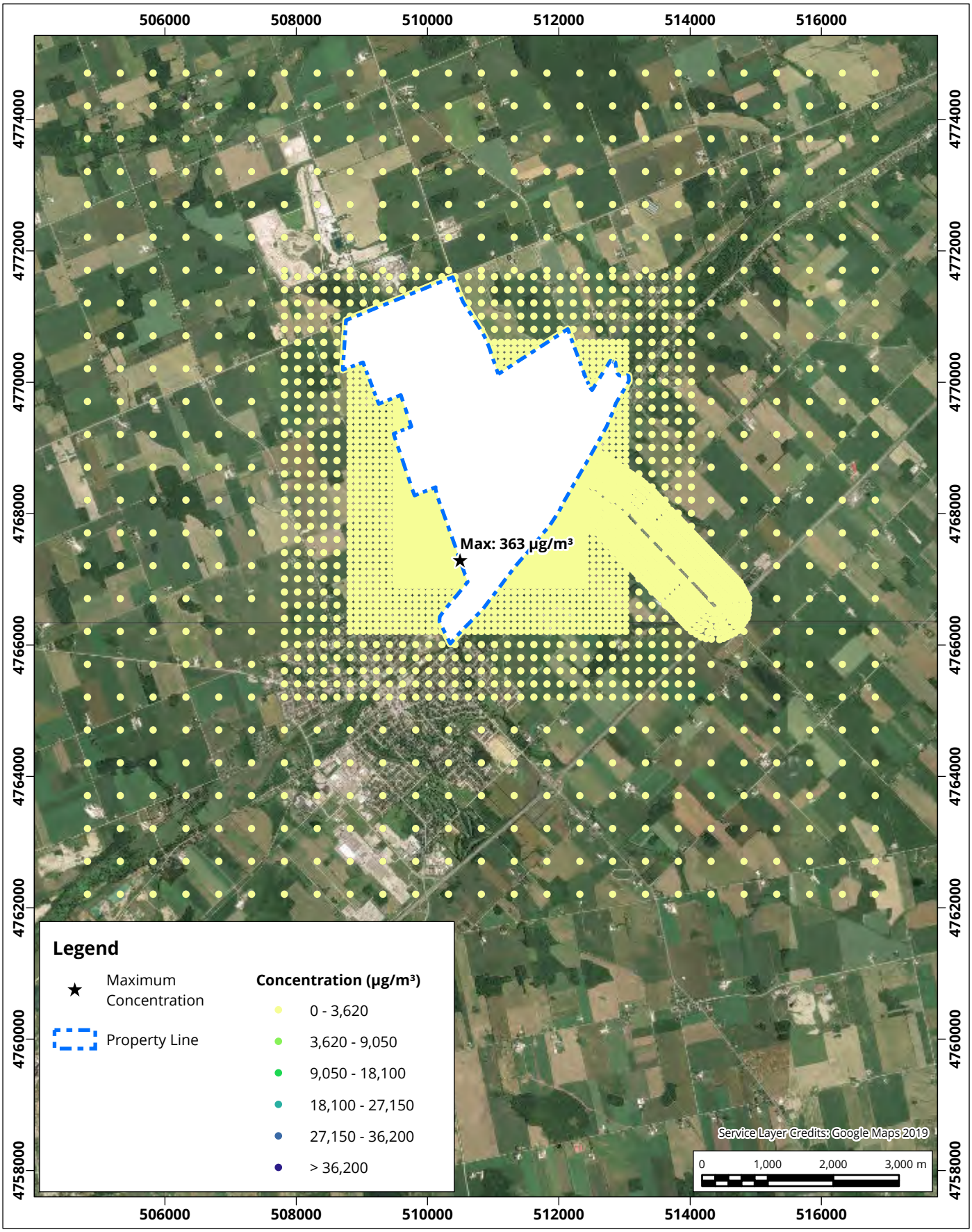
Background = 17.46 µg/m³

Limit = 180 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O18
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



1-hour Carbon Monoxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

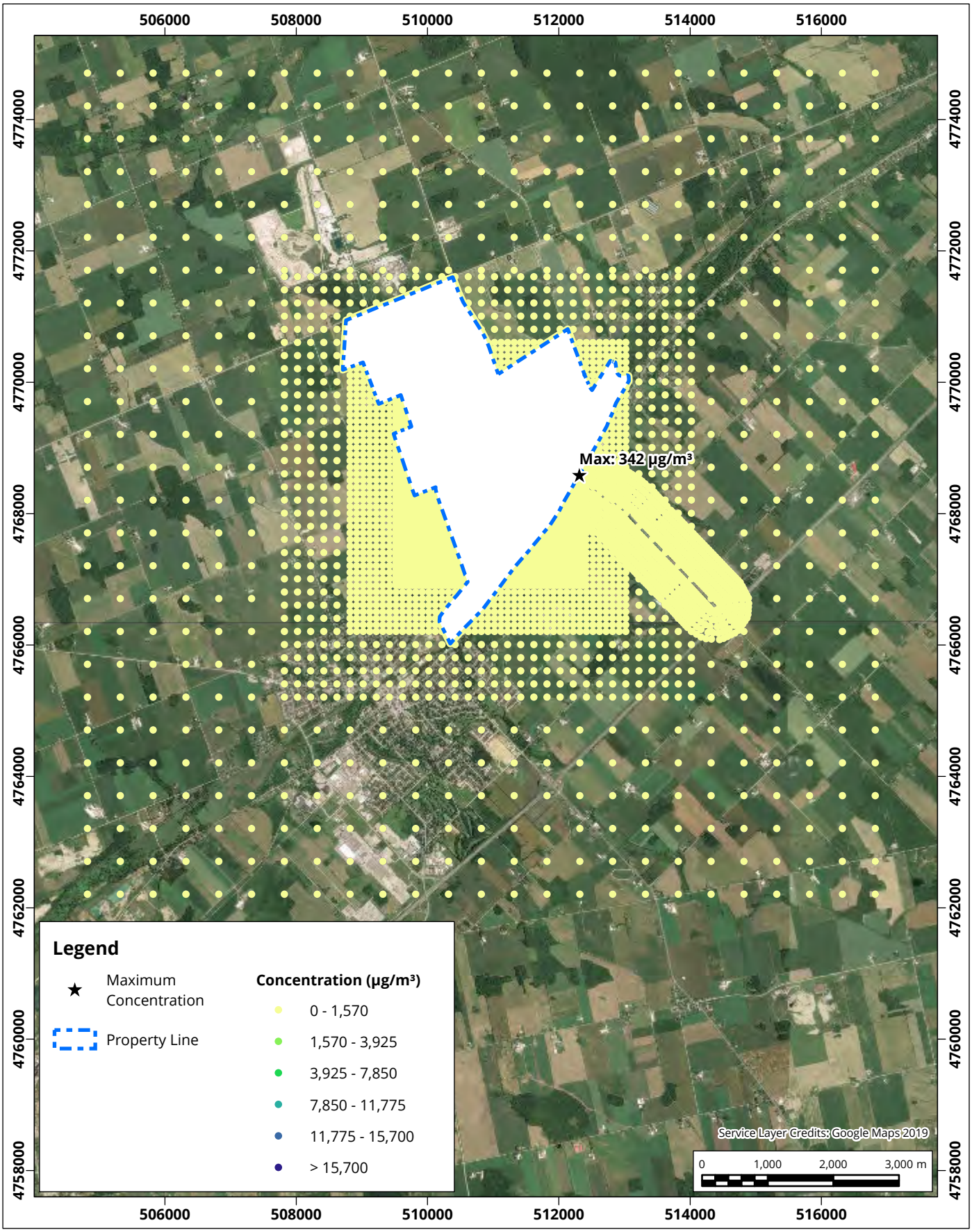
Background = 301.5 µg/m³

Limit = 36200 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O19
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



8-hour Carbon Monoxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

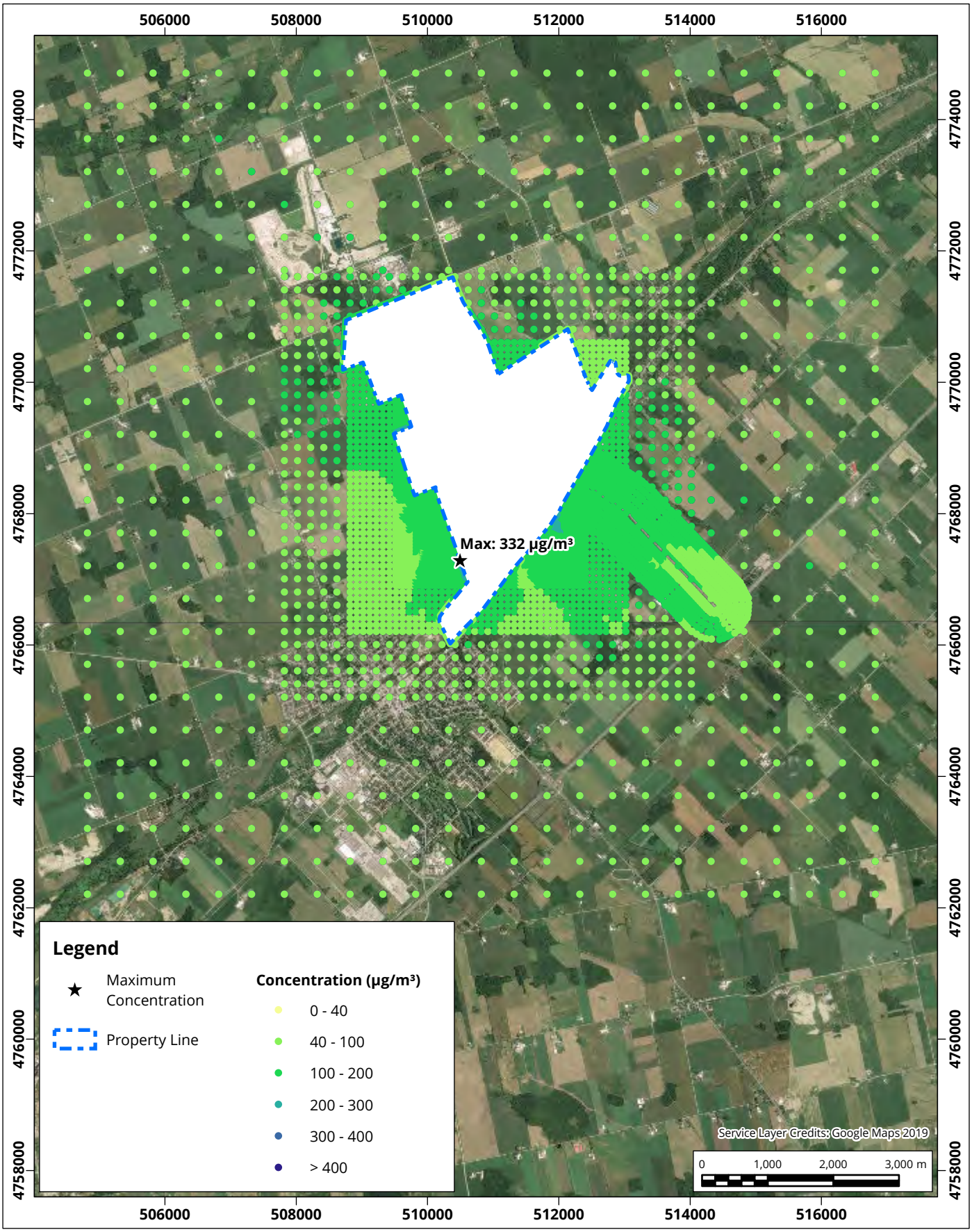
Background = 301.5 µg/m³

Limit = 15700 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O20
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



1-hour Nitrogen Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

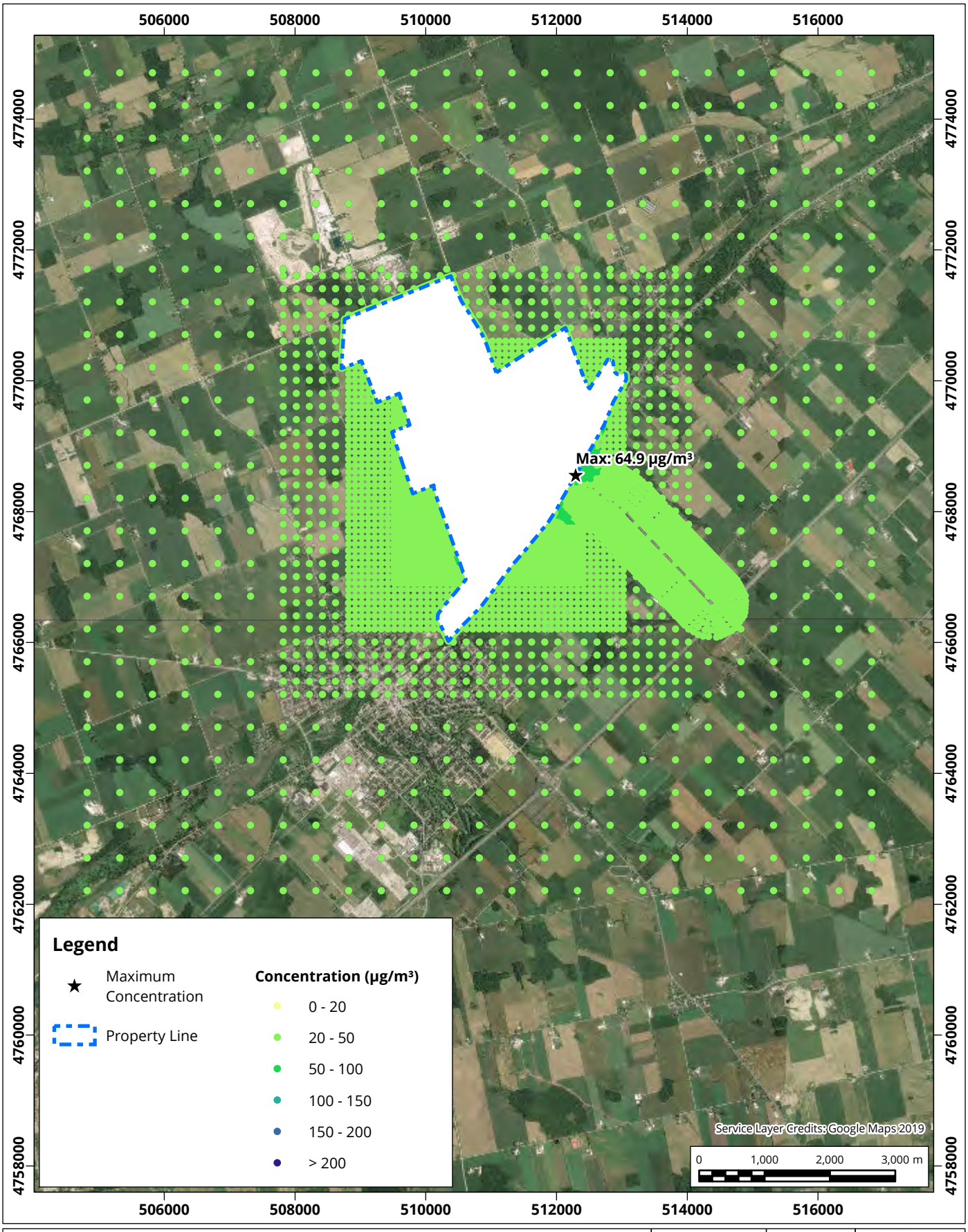
Background = 23.19 µg/m³

Limit = 400 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O21
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Nitrogen Dioxide Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Background = 23.19 µg/m³

Limit = 200 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O22
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

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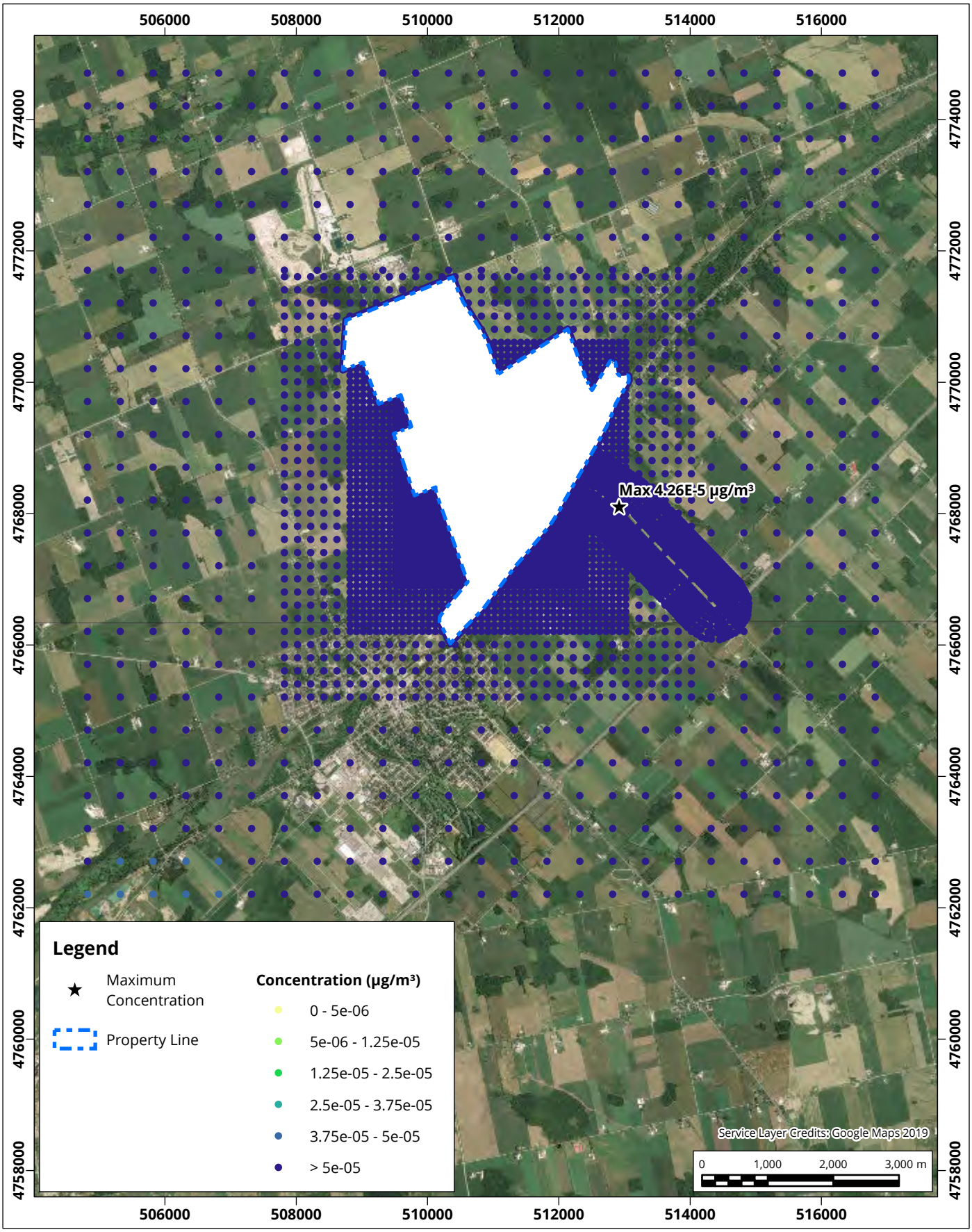


24-hour Benzo(a)pyrene Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

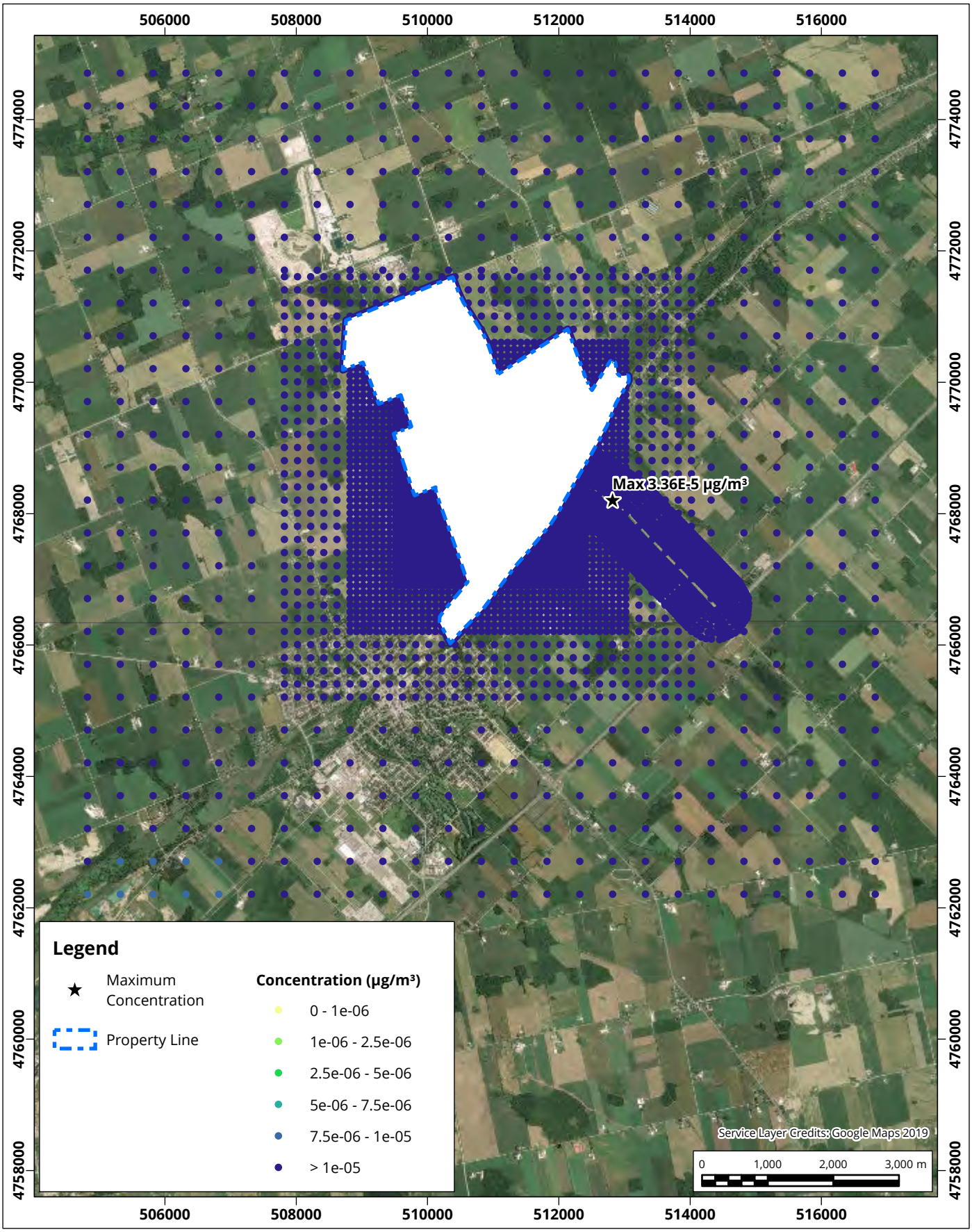
Background = 0.000032 µg/m³

Limit = 0.00005 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O23
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



Annual Benzo(a)pyrene Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

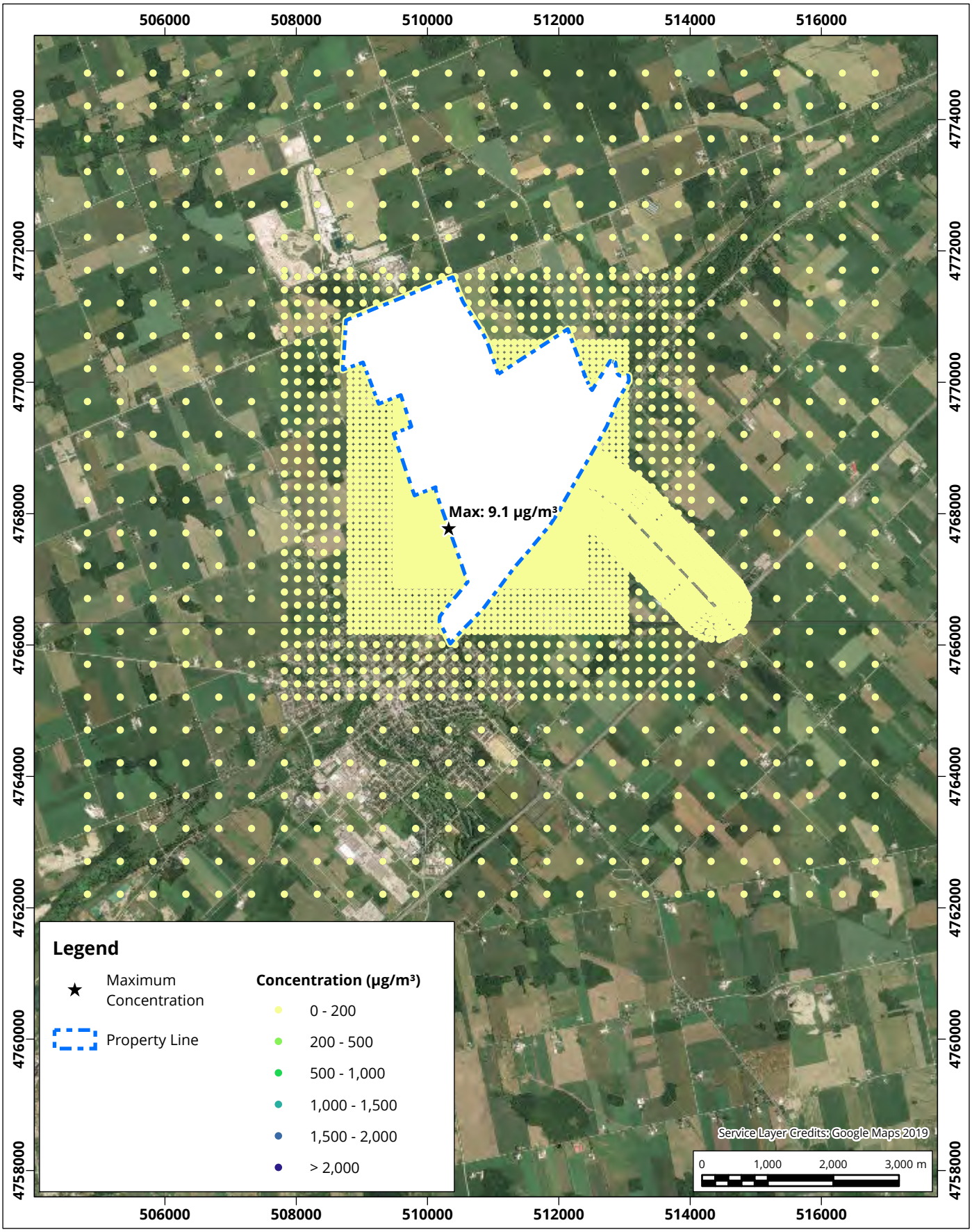
Background = 0.000032 µg/m³

Limit = 0.00001 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O24
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Toluene Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

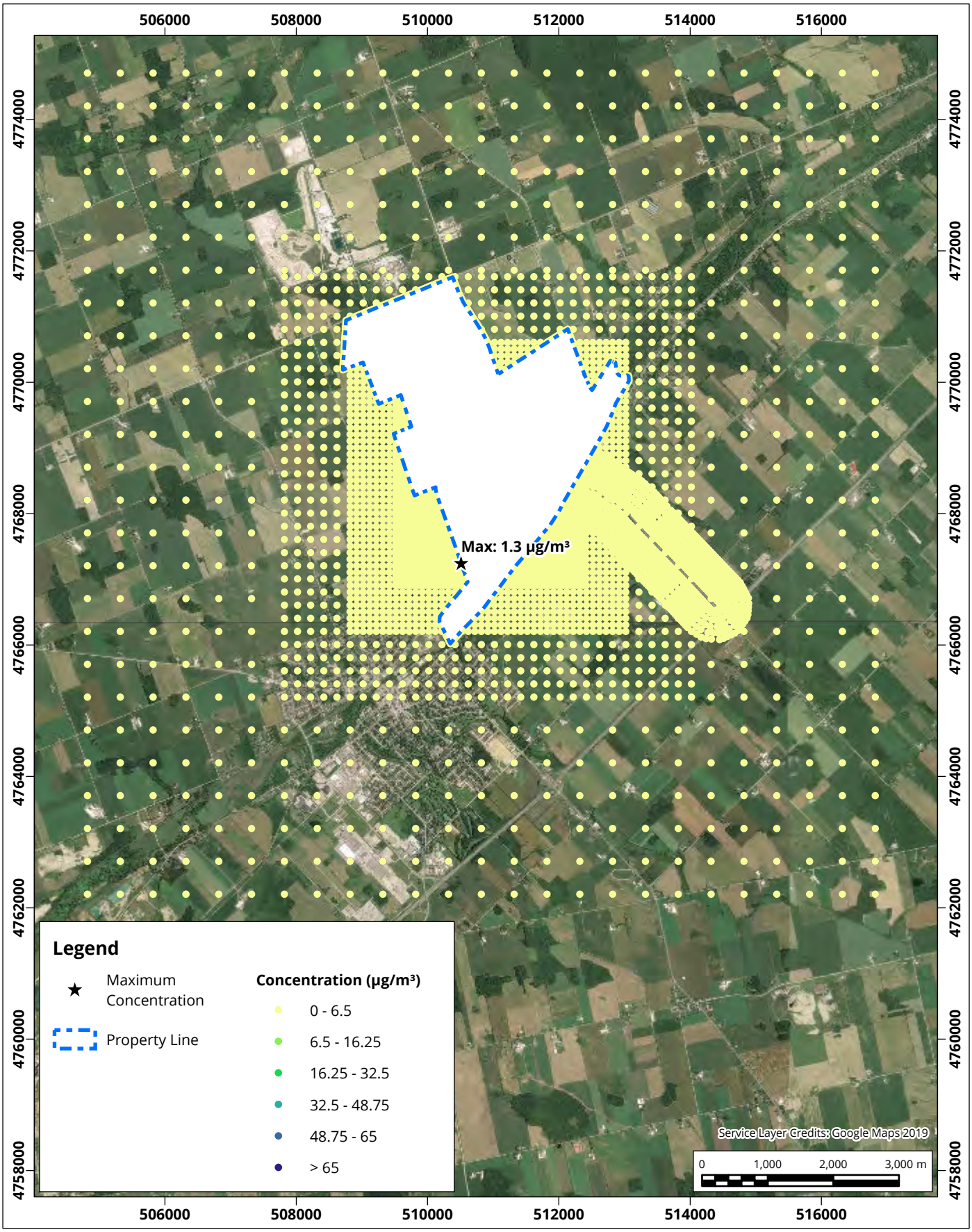
Background = 1.61 µg/m³

Limit = 2000 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O25
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx



24-hour Formaldehyde Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Background = 0.85 µg/m³

Limit = 65 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O26
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Date Revised:	Feb 14, 2020

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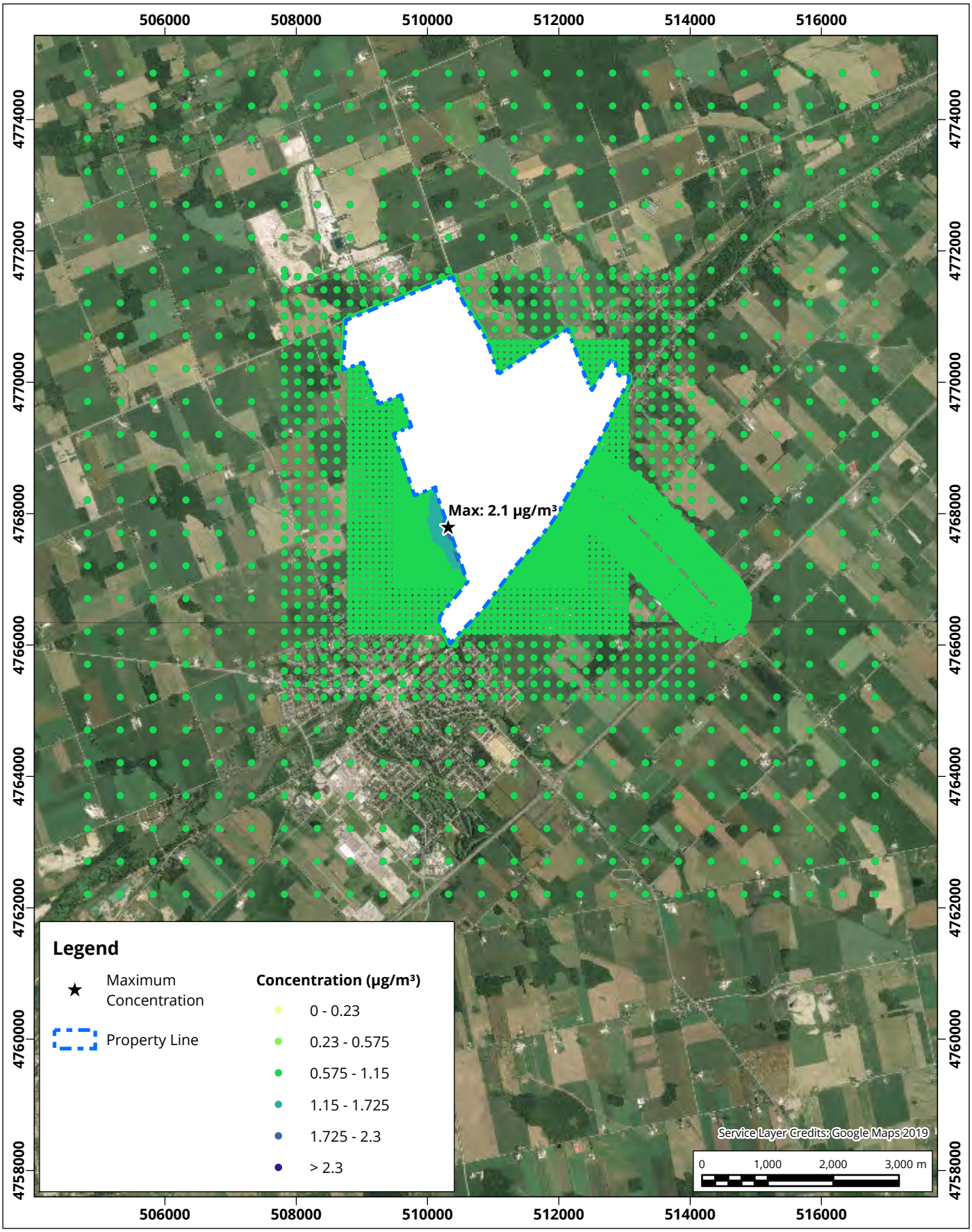

24-hour Benzene Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Background = 0.59 µg/m³

Limit = 2.3 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O27
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

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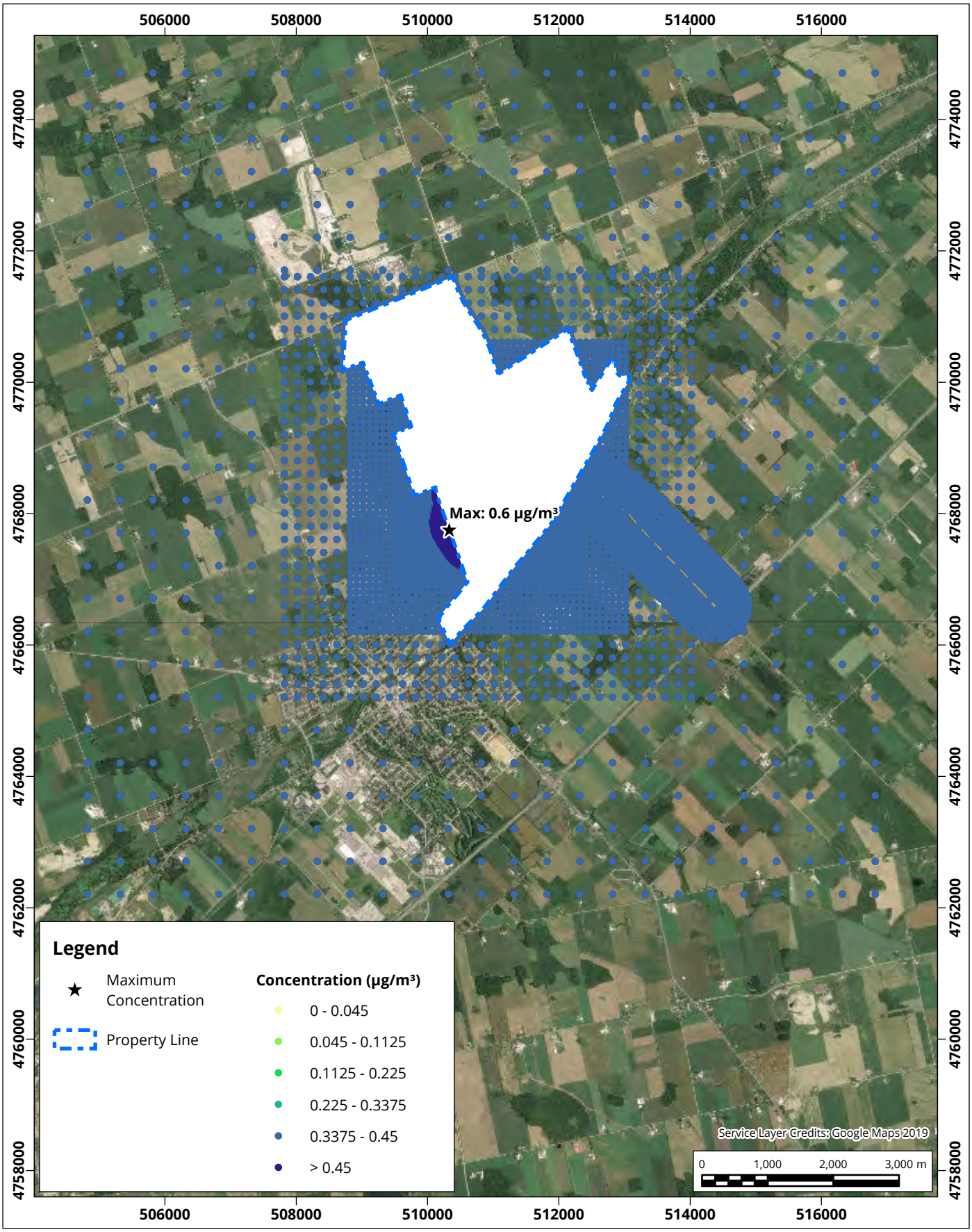

Annual Benzene Concentration Contours

Stage 3 - 2033 to 2037

Map Projection: NAD 1983 UTM Zone 17N

Walker's Southwest Landfill - Beachville, Ontario

True North

Background = 0.38 µg/m³

Limit = 0.45 µg/m³

Project #: 1800160

Drawn by: DJH	Figure: O28
Exact Scale:	1:80,000
Date Revised:	Feb 14, 2020

Map Document: C:\GIS Temp - Copy\1800160\1800160_Walker_LF_Contour_Plots.aprx

APPENDIX P:
Top Ten Results Tables

Appendix P: Maximum Concentrations at Top 10 Residential Receptors

Benzo(a)pyrene
24-Hour

Rank	Criteria ($ug\ m^{-3}$)	Background Concentration ($ug\ m^{-3}$)	Receptor ID	Stage 1 (2023-2027) With Landfill			Receptor ID	Stage 1 (2023-2027) Without Landfill			Receptor ID	Stage 3 (2033-2037) With Landfill			Receptor ID	Stage 3 (2033-2037) Without Landfill		
				Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)		Maximum Concentration Without Background ($ug\ m^{-3}$)	Maximum Concentration With Background ($ug\ m^{-3}$)	Percent of Criteria (%)
1	0.00005	0.000032	SWO-18	0.000054	0.000086	172%	SWO-18	0.000048	0.000080	160%	SWO-18	0.000009	0.000041	82%	SWO-18	0.000009	0.000041	81%
2	0.00005	0.000032	SWO-4	0.000053	0.000085	170%	SWO-4	0.000047	0.000079	158%	SWO-4	0.000009	0.000041	82%	SWO-4	0.000009	0.000040	81%
3	0.00005	0.000032	SWO-19	0.000039	0.000071	141%	SWO-19	0.000034	0.000065	131%	SWO-19	0.000007	0.000038	77%	SWO-19	0.000006	0.000038	76%
4	0.00005	0.000032	SWO-17	0.000018	0.000050	99%	SWO-17	0.000016	0.000048	95%	SWO-17	0.000003	0.000035	70%	SWO-17	0.000003	0.000035	69%
5	0.00005	0.000032	ZOR-9	0.000008	0.000040	80%	SWO-5	0.000005	0.000037	74%	SWO-3	0.000002	0.000033	67%	SWO-5	0.000001	0.000033	66%
6	0.00005	0.000032	SWO-1	0.000007	0.000039	78%	ZOR-3	0.000005	0.000037	73%	SWO-5	0.000001	0.000033	66%	SWO-3	0.000001	0.000033	66%
7	0.00005	0.000032	ZOR-6	0.000007	0.000039	78%	SWO-16	0.000004	0.000036	72%	ZOR-3	0.000001	0.000033	66%	ZOR-3	0.000001	0.000033	66%
8	0.00005	0.000032	SWO-2	0.000007	0.000039	78%	ZOR-4	0.000004	0.000036	71%	ZOR-11	0.000001	0.000033	66%	SWO-15	0.000001	0.000033	66%
9	0.00005	0.000032	ZOR-11	0.000007	0.000039	78%	SWO-3	0.000004	0.000035	71%	SWO-14	0.000001	0.000033	66%	SWO-14	0.000001	0.000033	66%
10	0.00005	0.000032	SWO-5	0.000007	0.000039	78%	SWO-15	0.000003	0.000035	70%	SWO-15	0.000001	0.000033	66%	SWO-16	0.000001	0.000033	66%

Benzo(a)pyrene
Annual

Rank	Criteria (ug m^{-3})	Background Concentration (ug m^{-3})	Receptor ID	Stage 1 (2023-2027) With Landfill			Receptor ID	Stage 1 (2023-2027) Without Landfill			Receptor ID	Stage 3 (2033-2037) With Landfill			Receptor ID	Stage 3 (2033-2037) Without Landfill		
				Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)		Maximum Concentration Without Background (ug m^{-3})	Maximum Concentration With Background (ug m^{-3})	Percent of Criteria (%)
1	0.00001	0.000032	SWO-18	0.00000698	0.00003882	388%	SWO-18	0.00000620	0.00003803	380%	SWO-18	0.00000120	0.00003304	330%	SWO-18	0.00000113	0.00003297	330%
2	0.00001	0.000032	SWO-4	0.00000671	0.00003855	385%	SWO-4	0.00000597	0.00003781	378%	SWO-4	0.00000117	0.00003300	330%	SWO-4	0.00000110	0.00003293	329%
3	0.00001	0.000032	SWO-19	0.00000609	0.00003793	379%	SWO-19	0.00000545	0.00003728	373%	SWO-19	0.00000105	0.00003288	329%	SWO-19	0.00000099	0.00003282	328%
4	0.00001	0.000032	SWO-17	0.00000185	0.00003369	337%	SWO-17	0.00000166	0.00003350	335%	SWO-17	0.00000033	0.00003216	322%	SWO-17	0.00000031	0.00003214	321%
5	0.00001	0.000032	SWO-5	0.00000083	0.00003267	327%	SWO-5	0.00000068	0.00003252	325%	SWO-5	0.00000015	0.00003198	320%	SWO-5	0.00000013	0.00003197	320%
6	0.00001	0.000032	SWO-16	0.00000053	0.00003236	324%	SWO-16	0.00000041	0.00003224	322%	SWO-3	0.00000009	0.00003193	319%	SWO-16	0.00000008	0.00003191	319%
7	0.00001	0.000032	SWO-3	0.00000052	0.00003236	324%	SWO-15	0.00000032	0.00003216	322%	SWO-16	0.00000009	0.00003193	319%	SWO-3	0.00000007	0.00003190	319%
8	0.00001	0.000032	SWO-15	0.00000043	0.00003226	323%	SWO-3	0.00000032	0.00003215	322%	SWO-3	0.00000007	0.00003191	319%	SWO-15	0.00000006	0.00003190	319%
9	0.00001	0.000032	SWO-15	0.00000045	0.00003229	323%	SWO-14	0.00000027	0.00003210	321%	SWO-15	0.00000007	0.00003191	319%	SWO-14	0.00000005	0.00003189	319%
10	0.00001	0.000032	SWO-14	0.00000038	0.00003221	322%	ZOR-7	0.00000025	0.00003208	321%	SWO-14	0.00000007	0.00003190	319%	ZOR-7	0.00000005	0.00003189	319%

REPORT

WALKER ENVIRONMENTAL GROUP INC.

THOROLD, ONTARIO

BLOWING LITTER | SOUTHWESTERN LANDFILL PROPOSAL ENVIRONMENTAL ASSESSMENT

RWDI #1800160

January 29, 2020

SUBMITTED TO

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1 INTRODUCTION

An Environmental Assessment ("EA") is being prepared by Walker Environmental Group Inc. ("Walker") under Ontario's Environmental Assessment Act ("Act") for the 'provision of future landfill capacity at the Carmeuse Lime (Canada) Ltd. (Carmeuse) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario'.

This is one in a series of technical studies that have been completed by qualified experts to examine the potential effects of the proposed landfill site on the environment, all in accordance with the requirements set out in the Approved Amended Terms of Reference ("ToR") dated May 10, 2016. This report accompanies and supports the Environmental Assessment Report prepared by Walker.

Note that Walker has carried out extensive consultation with government agencies, Indigenous groups and interested members of the public regarding this study; details are provided separately in the EA report.

2 PURPOSE & OBJECTIVES

The purpose of this study is to complete a blowing litter assessment of the landfill proposed by Walker.

The overall objectives of the study are listed below, in general accordance with the requirements for the assessment of an undertaking as set out in Section 6.1(2)(c) of the Environmental Assessment Act, and as specifically detailed in Section 8.1 of the ToR:

a. Describe the environment potentially affected by the proposed undertaking, including both the existing environment as well as the environment that would otherwise be likely to exist in the future without the proposed undertaking.
b. Carry out an evaluation of the environmental effects of the proposed undertaking, using the relevant environmental assessment criteria set out in the ToR (see **Appendix B**).
c. Carry out an evaluation of any additional impact management actions that may be necessary to prevent, change or mitigate any (negative) environmental effects.
d. Prepare a description and evaluation of the environmental advantages and disadvantages of the proposed undertaking, based on the net environmental effects that will result following mitigation.
e. Prepare monitoring, contingency and impact management plans to remedy the environmental effects of the proposed undertaking.

3 THE PROPOSED UNDERTAKING

The landfill proposed by Walker is described in detail in the Environmental Assessment Report. Following is a brief summary for the benefit of the reader, highlighting aspects of the proposal most relevant to this study.

The landfill is to be located on a portion of Carmeuse's landholdings at its Beachville Quarry Operations in the Township of Zorra, Oxford County. Approximately 17.4 million m3 of solid, non-hazardous waste and daily/intermediate cover will be deposited within a footprint of about 59 ha. The balance of the 81.6 ha site will be comprised of buffer areas for monitoring, maintenance, environmental controls and other necessary infrastructure. (**Figure 1**).

Landfill construction will proceed progressively in a series of cells, generally from north-to-south (**Figure 1**). The former quarry floor will be backfilled to within about 30 to 40 metres below ground surface with engineered fill, and then a Generic Design Option II – Double Liner system (as specified by the Ministry of Environment, Conservation & Parks in the Landfill Standards under O. Reg. 232/98; see **Figure 2**) will be constructed across the bottom and up the sides of the landfill to contain and collect leachate (**Figure 3**). Up to 850,000 tonnes per year of solid, non-hazardous waste, and up to 250,000 tonnes per year of daily/intermediate cover soils[1] will then be placed and compacted above the liner in a series of small working areas approximately 0.2 ha in size at any given time, in order to minimize the exposed waste. Waste will be covered with soil on a daily basis, and a final cover with vegetation will be applied as the landfill reaches its final height, which peaks at about 15 m above ground (**Figure 4**). A landfill gas collection system will also be installed as the landfill/cell development progresses.

Most of the supporting infrastructure for the landfill will be located in the buffer area along the northern site perimeter, including the leachate and gas treatment plants. Leachate collected from the liner system will be treated on-site and the clean effluent from the treatment plant will be discharged into the Patterson-Robbins Drain next to the treatment plant. Clean precipitation and groundwater that has not come into contact with waste will be segregated and treated in a stormwater management pond before being discharged from the site (**Figure 1**). Landfill gas will be collected in a network of extraction wells and pipes. Initially the landfill gas will be flared (combusted), but when the quantities permit the gas will be beneficially utilized as a renewable fuel.

The site will be open for waste deliveries from 7:00 a.m. to 5:00 p.m. on weekdays and from 7:00 a.m. to 1:00 p.m. on Saturdays, but closed on Sundays and statutory holidays. On-site construction activities may start up to one hour before opening and continue up to two hours after closure. The primary designated haul route (i.e., for all waste trucks except deliveries from the local area, if any) is from Highway 401 north along County Road #6, then west into the quarry property; trucks will then follow a newly constructed haul route across the quarry site to a landfill site entrance at the northwestern corner of the site (**Figure 5**). Vehicle traffic, including waste trucks as well as construction vehicles and staff, is expected to average approximately 210 trips per day.

[1] The daily/intermediate cover soil could consist of acceptable and suitable waste soils, and would be reported as waste, so the total reported waste receipts could be up to 1,100,000 tonnes per year.

Nuisance controls will include speed enforcement, regular haul road cleaning (on- and off-site), litter fencing and pick-up, and bird/pest management, with a public complaints reporting and response system.

There will be monitoring programs for equipment operations, leachate, groundwater, surface water, air emissions, gas, noise, and particulates (dust).

The landfill is anticipated to receive waste for approximately 20 years commencing in about 2023. After closure, maintenance and operation of the relevant environmental controls and monitoring will carry on during the post-closure period, until there is no further risk of environmental contamination. The end-use is assumed to be passive green space and agriculture, but the design is flexible to accommodate other potential end-uses.

4 ENVIRONMENTAL ASSESSMENT CRITERIA & INDICATORS

The environmental assessment criteria, as approved in the ToR, are tabulated in **Appendix B**, Table B-1. In the table, check marks indicate which technical studies are assigned primary ("lead") responsibility for assessing each of the criteria. Following are the EA criteria which are assigned to this study:

EA Criteria	Definition/Rationale
Disruption to use and enjoyment of residential properties.	Potential nuisance effects associated with the waste disposal facility operation, or traffic moving to and from the waste disposal facility along the haul route, may disturb the daily activities and uses of residential properties. Disturbances could result from noise, dust, litter, odour, visibility, birds and traffic congestion.
Disruption to use and enjoyment of public facilities and institutions.	Potential nuisance effects associated with waste disposal facility operations, or traffic moving to and from the waste disposal facility, may disturb the daily activities at community facilities. Disturbances could result from noise, dust, litter, odour, visibility, birds and traffic congestion.
Displacement/disturbance of cultural/heritage resources.	Cultural resources (including heritage buildings, cemeteries and cultural landscapes) are an important component of human heritage. These non-renewable cultural resources may be displaced by the construction of a waste disposal facility. The use and enjoyment of cultural resources may also be disturbed by the ongoing operation and traffic. Disturbances could result from noise, dust, odour, visibility, birds, litter and traffic congestion.

Furthermore, the criteria for this EA were designed to be cross-disciplinary to permit an assessment of cumulative effects. Table B-2 in **Appendix B**, from the ToR, illustrates some (though not necessarily all) of the key interconnectivities between the studies.

Indicators identify how the potential environmental effects will be measured for each criterion. Following are the indicators that were applied to each of the primary EA criteria addressed in this assessment:

EA Criteria	Proposed Indicators/Measures
Disruption to use and enjoyment of residential properties.	Area of potential effects encompasses residential properties
Disruption to use and enjoyment of public facilities and institutions.	Area of potential effects encompasses public facilities and institutions
Displacement/disturbance of cultural/heritage resources.	Area of potential effects encompasses cultural heritage resources.

5 STUDY DURATIONS

Two main study durations (or time frames) for this proposed landfill have been identified in the ToR:

Operational Period	The time during which the waste disposal facility is constructed, filled with waste, and capped. These activities are combined since they occur progressively (i.e., overlap) on a cell-by-cell basis, and they have a similar range of potential effects (e.g., there is heavy equipment active on the site).
Post-Closure Period	The time after the site is closed to waste receipt. Activities are normally limited to operation of control systems, routine property maintenance and monitoring, and thus have a more limited range of potential effects.

The approved EA Criteria in Table B-1, **Appendix B** indicate the relevant study duration(s) associated with each of the criteria used in this assessment.

6 STUDY AREAS

For the purposes of this EA, three general study areas were established in the ToR:

On-Site and in the Site Vicinity:	*On-site* includes the proposed waste disposal facility plus the associated buffer zones. *Site vicinity* is the area immediately adjacent to the waste disposal facility property that is directly affected by the on-site activities. Its size is variable depending on the particular criteria being addressed.
Along the Haul Route:	The primary route along which the waste disposal facility truck traffic would move between a major provincial highway and the proposed waste disposal facility site entrance, plus the properties directly adjacent to these roads.
Wider Area:	The broader community, generally beyond the immediate site vicinity. Depending on the particular criteria this may include neighbourhoods, local municipalities, the Oxford County, or the Province of Ontario.

The tables of approved EA Criteria in **Appendix B** indicate the relevant study duration(s) associated with each of the criteria in this assessment.

Although these three general study areas were common across all of the studies, their actual physical boundaries were not necessarily identical for every study or criterion; a flexible approach was used and the study area boundaries were adjusted as the work progressed to ensure that they adequately encompassed the potential significant effects of the proposed landfill.

For this assessment, the relevant final study area is on-site and in the site vicinity, within approximately 1 km of the landfill.

7 METHODOLOGIES

Blowing litter was assessed by means of the following tasks:

- Literature review for relevant information on wind speeds, potential zones of impact, and mitigation measures;
- Review of wind climate information for the study area; and
- Evaluation of proposed landfill characteristics and assumptions against literature and wind climate information.

8 DATA COLLECTION

8.1 Background Data

8.1.1 Wind Speed and Blowing Litter

Refuse is exposed to wind during unloading and landfilling operations, and lighter components of the refuse can be blown off-site. **Tables 1** and **2** show the approximate relationship between wind speed and type of refuse that is carried away from the working area of a landfill, based on two different studies.

Table 1: Wind Speed and Wastes Blown (based on calculations presented by Lapp, 1983)

Wind Speed Range (km/h)	Type of Waste
16 - 24	Envelope, dry slightly crumpled paper
24 – 32	Empty plastic bag
32 – 48	Corrugated cardboard, crumpled paper towel
48 - 62	Plastic strips, tissue box, tightly crumpled paper
62 - 88	Milk carton, corrugated box
> 88	170cc metal can

Table 2: Threshold Speeds for Blowing Litter (based on a previous RWDI wind tunnel study)

Wind Speed Range (km/h)	Type of Waste	Impact Category
0 - 22	None	None
22 – 33	Newsprint, tissue, paper towel, light bond paper	Light
33 – 47	All of the above plus plastic bags, small boxes, small cardboard tubes, paper bags, small plastic sheets	Moderate
> 47	All of the above plus heavy bond paper	Heavy

8.1.2 Zones of Impact

During the 1990's, Ontario's Interim Waste Authority Limited (IWA) conducted a literature review and interviewed landfill operators to get an indication of the potential for blowing litter impacts during high wind speed events as noted in **Tables 1** and **2**. Their findings are summarized in **Table 3**. In the present case, the profile will have a unique vertical profile. Over most of its life (approximately 80% of the waste storage capacity), it will be below the surrounding grade, within a former quarry. This is expected to result in reduced zones of impact compared to those shown in **Table 3**. The zones in **Table 3** will be most relevant to the later stage of the proposed quarry, once it rises above the surrounding grade.

Table 3: Blowing Litter Potential Zones of Impact for Above-Grade Landfills (IWA, 1994)

Distance from Landfill Perimeter	Finding	Impact Category
0 to 500 m	50% of escaping litter retained in this area	Medium
500 to 1,000 m	Remaining 50% of escaping litter retained in this area	Low
Beyond 1,000 m	Very little litter escapes beyond this distance	None

8.1.3 Mitigation Measures

There are several mitigation measures available to landfill operators to minimize the amount of litter that leaves the site. **Table 4** lists blowing litter control measures and references identified in the literature. (Note that Walker is already proposing to incorporate a number of these measures into its landfill design, based on its extensive experience with litter controls at its landfill sites in Niagara Falls, Ontario.)

Table 4: Litter Control Measures in the Literature

Mitigation Measure	References
Windbreaks (permanent and portable)	Lapp (1983)
Litter fences (perimeter, semi-permanent and portable)	Lapp (1983), Forward Landfill (2012), IWSA (2010), Martel and Helm (2004)
Shredding and baling	Lapp (1983), IWSA (2010)
Select tipping areas, minimized tipping areas	Forward Landfill (2012), IWSA (2010), Martel and Helm (2004)
Compaction, daily cover, alternative daily cover	Forward Landfill (2012), IWSA (2010), Martel and Helm (2004)
Litter retrieval/clean-up	Forward Landfill (2012), Martel and Helm (2004)
Embankments, berms	IWSA (2010)
Excavated pit for lightweight waste	IWSA (2010)
Restricted hours of operation	IWSA (2010)

Notes: IWSA is International Solid Waste Association

9 ENVIRONMENT POTENTIALLY AFFECTED BY THE UNDERTAKING

Section 6.1(2)(c)(i) of the Act requires a "description of the environment that will be affected or might reasonably be expected to be affected, directly or indirectly". Section 8.2 of the ToR describes the methodology by which the environment potentially affected by the proposed landfill is to be developed, notably including both the existing environment as well as the environment that would be expected to exist in the future without the proposed undertaking (i.e., the environmental baseline conditions, or the "do nothing" alternative).

9.1 Baseline Assumptions

9.1.1 Land Use Forecast

A common set of assumptions were provided by MHBC Planning on behalf of Walker regarding the forecast land uses in the area, so that this study could reflect any reasonably foreseeable changes in the uses of the land on and around the proposed landfill site (including the expected ongoing operation of the quarries and lime plants in the vicinity of the site). These assumptions are detailed in Walker's Environmental Assessment Report. Of particular note here is that, aside from the quarry advancement, little to no change in land uses are forecast within the 1 km study area around the site used in this assessment.

9.1.2 Climate Change Forecast

Another set of common assumptions that were established for the purpose of this EA is the potential for climate change, so that these could be considered in the individual studies of the potential effects of the proposed landfill. These assumptions are detailed in Walker's Environmental Assessment Report and basically adopt the guidance in the Ontario Ministry of Natural Resources and Forestry's Climate change projections for Ontario: An updated synthesis for policymakers and planners (McDermid et al. 2015).

9.2 Environmental Baseline Conditions

9.2.1 Existing Conditions

Currently, there are no landfilling activities at the Carmeuse property. Land uses within approximately 1 km of the proposed landfill are relevant to blowing litter, as indicated by the potential zones of impact presented in **Table 3**. The northeast corner of Ingersoll, to the southwest of the proposed landfill, lies approximately 1 km away. A rural cluster of residences lies to the south of the proposed landfill, at a distance less than 1 km. Another cluster of residences lies to the east of the proposed landfill, at a distance just over 1 km. There are two rural residences within 500 m of the proposed landfill boundary – one near the southwest corner and the other near the northwest corner of the proposed site. Other land uses within 1 km of the proposed landfill are largely agricultural and industrial.

Figure 6 is a wind rose based on a 20-year record (1998-2018) recorded at London Airport. A wind rose shows the joint distribution of wind speed and wind direction. A lobe indicates the direction that the wind originated from and the percentage of time. A longer lobe means that that wind direction occurred more frequently. Wind speeds above 22 km/h (6 m/s) are relevant to blowing litter, as demonstrated by the data presented previously in **Table 2**. Wind speeds above 22 km/hr. are coloured green, yellow, and red in **Figure 6**. The figure shows that such wind speeds can be associated with any wind direction, but are most often associated with winds coming from westerly directions (SSW through NW) and also winds from the east.

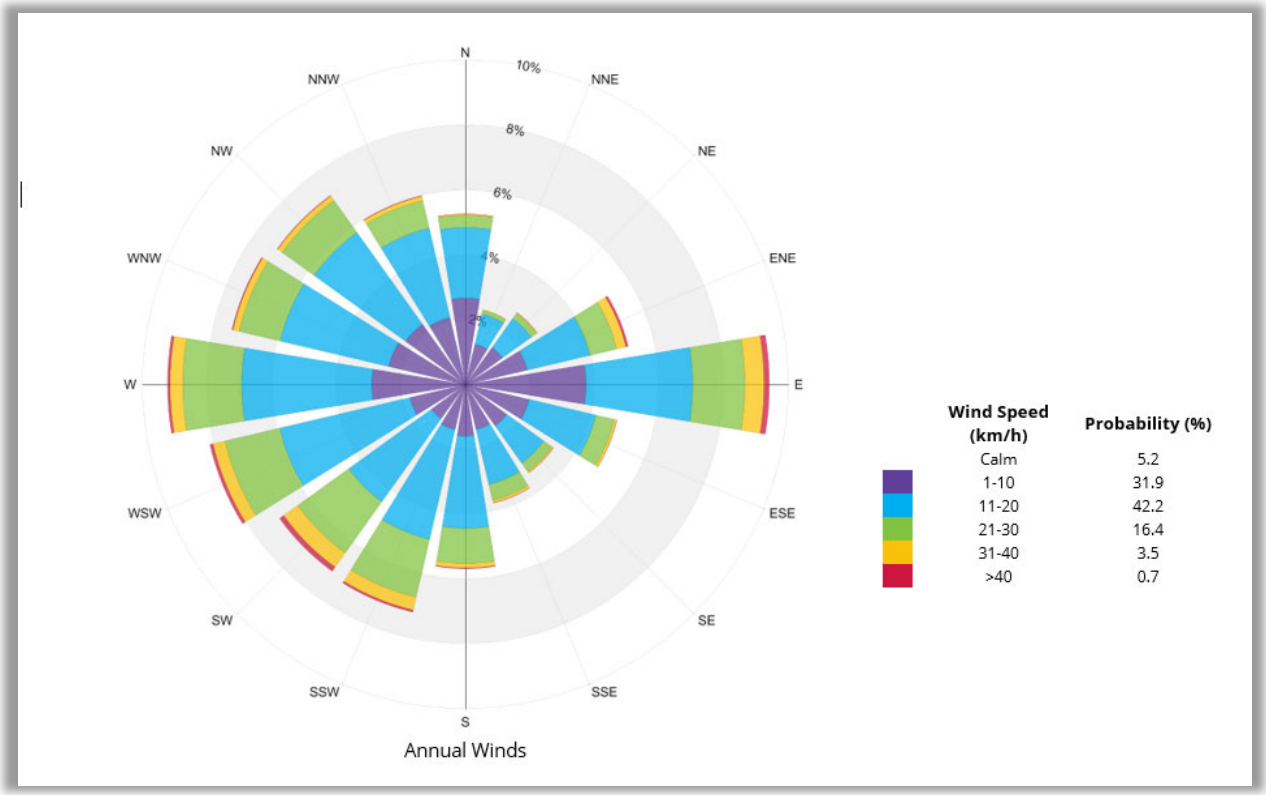

Figure 6: London Airport Wind Rose for the period 1998-2018. Wind Speeds in km/s.

9.2.2 Future Baseline Conditions

No significant changes to residential land uses within 1 km of the proposed landfill are anticipated in the future. The future wind climate is not expected to change to a degree that would affect the results of the blowing litter assessment.

10 EVALUATION OF THE PROPOSED LANDFILL

Section 6.1 (2)(c) and (d) of the Act, and the ToR, require an evaluation of:

- The effects that will be caused on the environment;
- The actions necessary to prevent, change, mitigate or remedy the effects on the environment; and
- An evaluation of the advantages and disadvantages (net effects) to the environment.

This section presents the assessment of these matters as it relates to blowing litter, and for each of the EA criteria related to this study.

10.1 Disruption to Use and Enjoyment of Residential Properties, Public Property, Institutions and Cultural Heritage Resources

10.1.1 Potential Effects

The background data presented previously in **Table 3** indicates that potential blowing litter impacts are expected to occur within 500 m of the proposed landfill and to a lesser degree limited to within 1 km of the proposed landfill. This applies to the late stage of the landfill, once it rises above the surrounding grade. Through most of the landfill life, it will be below surrounding grade and the range of potential blowing litter impacts will be less than that shown in **Table 3**.

Two rural residences are located within 500 m of the proposed landfill – one near the southwest corner and the other near the northwest corner of the site. Based on the wind rose presented in **Figure 6** and the wind speed thresholds presented previously in **Tables 1** and **2**, high winds that could potentially cause amounts of litter to blow toward these residences are expected to occur infrequently. The potential for blowing litter impacts at these residences is low.

Between a distance of 500 m and 1,000m to the south and southeast of the proposed landfill is a rural cluster of residences, primarily along Charles Street East/Beachville Road. This community includes a religious institution (Hi-Way Pentecostal Church). The potential for blowing litter impacts in this cluster is low throughout most of the landfill life, when it is below grade, and medium-to-low in the later stage of the landfill life.

A small number of residences within Ingersoll are located between 850 m and 1 km to the southwest of the proposed landfill. High winds from the northeast, that could cause litter to travel toward these houses are very infrequent, and the potential for blowing litter impacts in this area is low.

All other residences in the area are farther than 1 km from the proposed landfill and have little or no potential for blowing litter impacts.

10.1.2 Potential for Cumulative Effects

There are no existing or future landfill facilities in the study area that would contribute to causing a cumulative blowing litter effect in conjunction with the proposed landfill.

10.1.3 Additional Mitigation Recommendations

A document entitled Facility Characteristics Assumptions, Southwestern Landfill Environmental Assessment, Revision 03 (now incorporated into the accompanying Environmental Assessment Report, Section 7.2), sets out the following currently planned controls for blowing litter at the Southwestern Landfill are as follows:

- Compaction and application of daily cover on the working area;
- Permanent and temporary/mobile litter fencing around the working areas; and
- Regular litter collection.

These litter control measures are generally consistent with measures identified in the literature, with three exceptions that should be considered, as follows:

- Weather forecasts should be monitored and storm events or high wind speed events should enable decisions to reduce the size of the working face and/or suspend landfilling operations until the adverse weather event has passed;
- Select tipping areas, (i.e., secondary working areas) that are more sheltered from the prevailing wind directions, are to be used during high wind events, instead of the primary working area; and
- Berms, fencing or other permanent or mobile windbreaks that would be placed upwind of the tipping face.

Walker advises that these are standard operating practices at its Niagara Falls landfills that would also be employed at the proposed Southwestern Landfill site.

These measures are most relevant in the later stages of landfilling when the landfill elevation approaches and eventually exceeds that of the existing grade of the surrounding area.

Permanent high litter fences should be placed around the perimeter of the site with enhancement, where practical, to address conditions associated from the high winds from the west or east of the site. In addition to the permanent high litter fencing, windbreaks can be used upwind of the day's working area along with portable litter fencing downwind of the area.

Secondary working faces to be used during high wind conditions should likewise be planned with the knowledge of the actual days wind direction when high wind conditions are forecasted.

Since blowing litter will occur to the northeast, east and southeast of the landfill more often than in other areas, the landfill operators should ensure that staff can easily access these areas.

10.1.4 Net Effects

The net effect after implementation of mitigation measures is expected to be a low potential for blowing litter impacts at residences and institutions within 1 km of the proposed landfill.

11 MONITORING, CONTINGENCY & IMPACT MANAGEMENT RECOMMENDATIONS

11.1 Monitoring & Contingency Plans

Blowing litter is monitored through observations and inspections that are routinely performed by landfill staff. Should litter control measures prove to be insufficient to eliminate impacts to nearby residences, contingency plans would consist of the following:

- Investigation to determine why current litter control measures are insufficient;
- Investigation of the feasibility of extending, increasing the height of or relocating litter fences, windbreaks, changes to secondary working areas, etc.; and
- Implementation of feasible options.

11.2 Impact Management

The proponent should develop a written litter management plan and/or standard operating procedure (SOP) that sets out specifics of how blowing litter effects will be monitored, how wind forecasts and current wind conditions will be monitored, how placement of temporary/mobile litter fences and windbreaks will be managed, and how litter collection will be initiated and implemented. Such a plan will serve as a practical guide for landfill staff and help ensure that staff changes do not disrupt litter management practices.

12 REFERENCES

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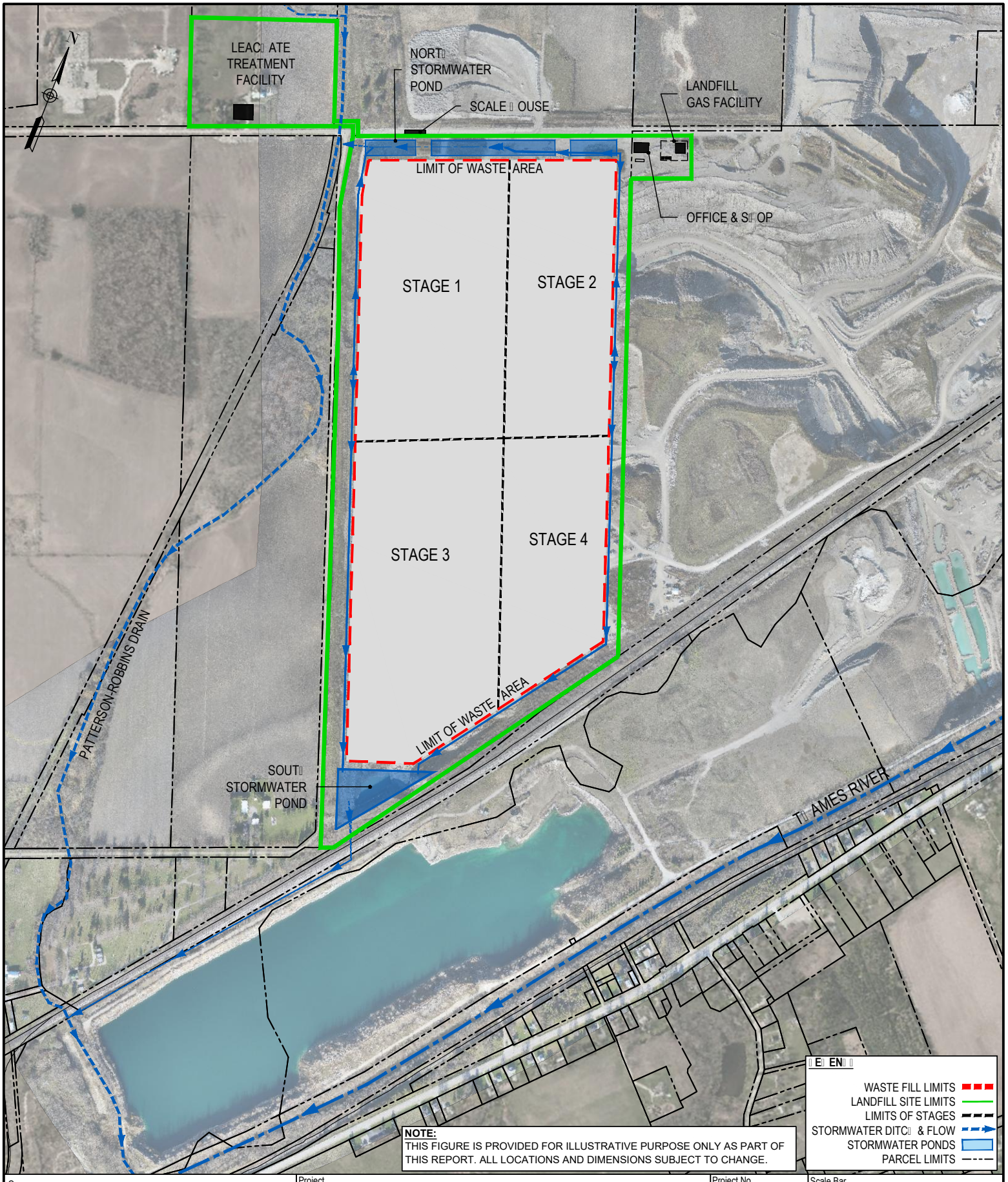
FIGURES



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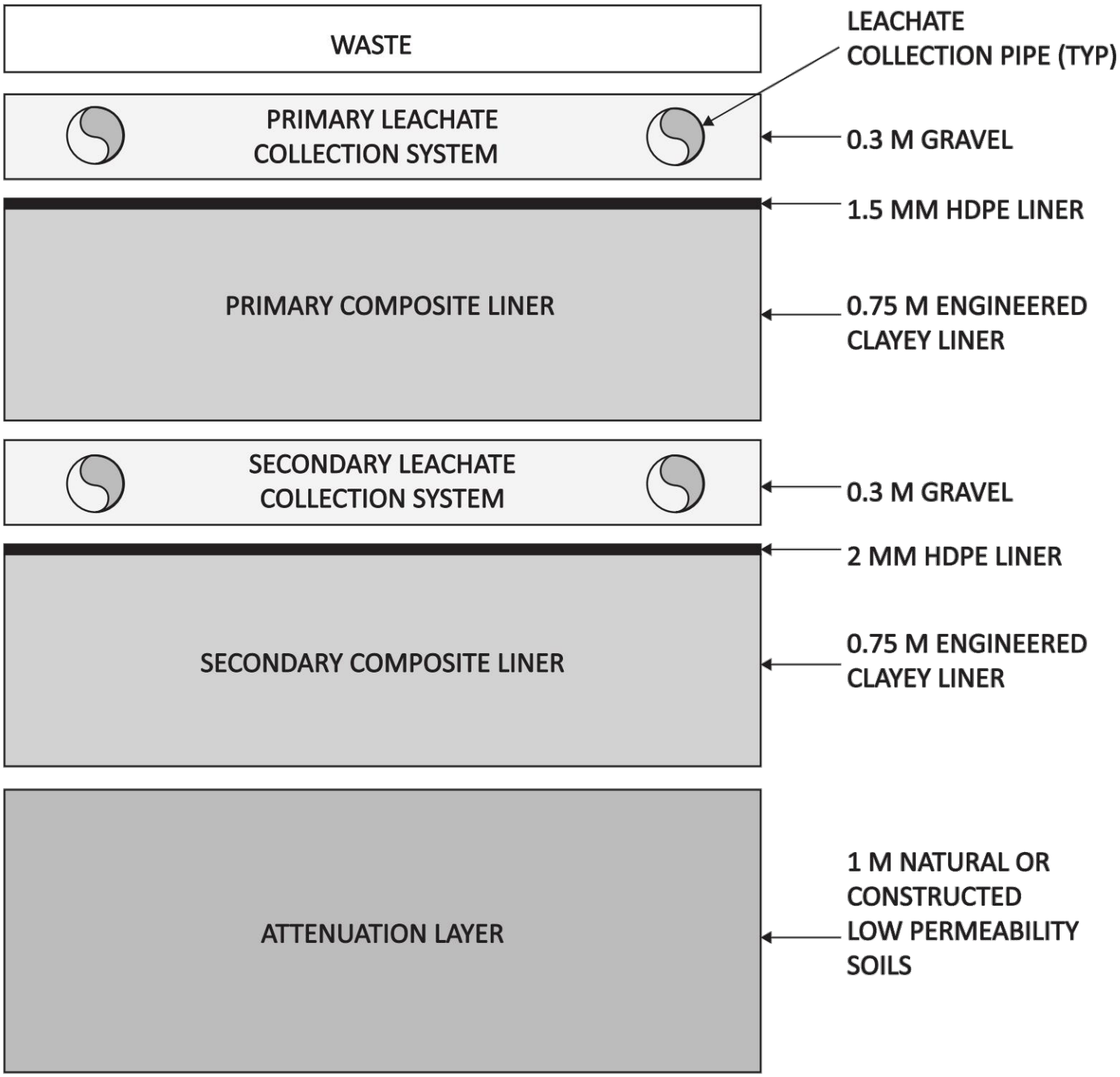

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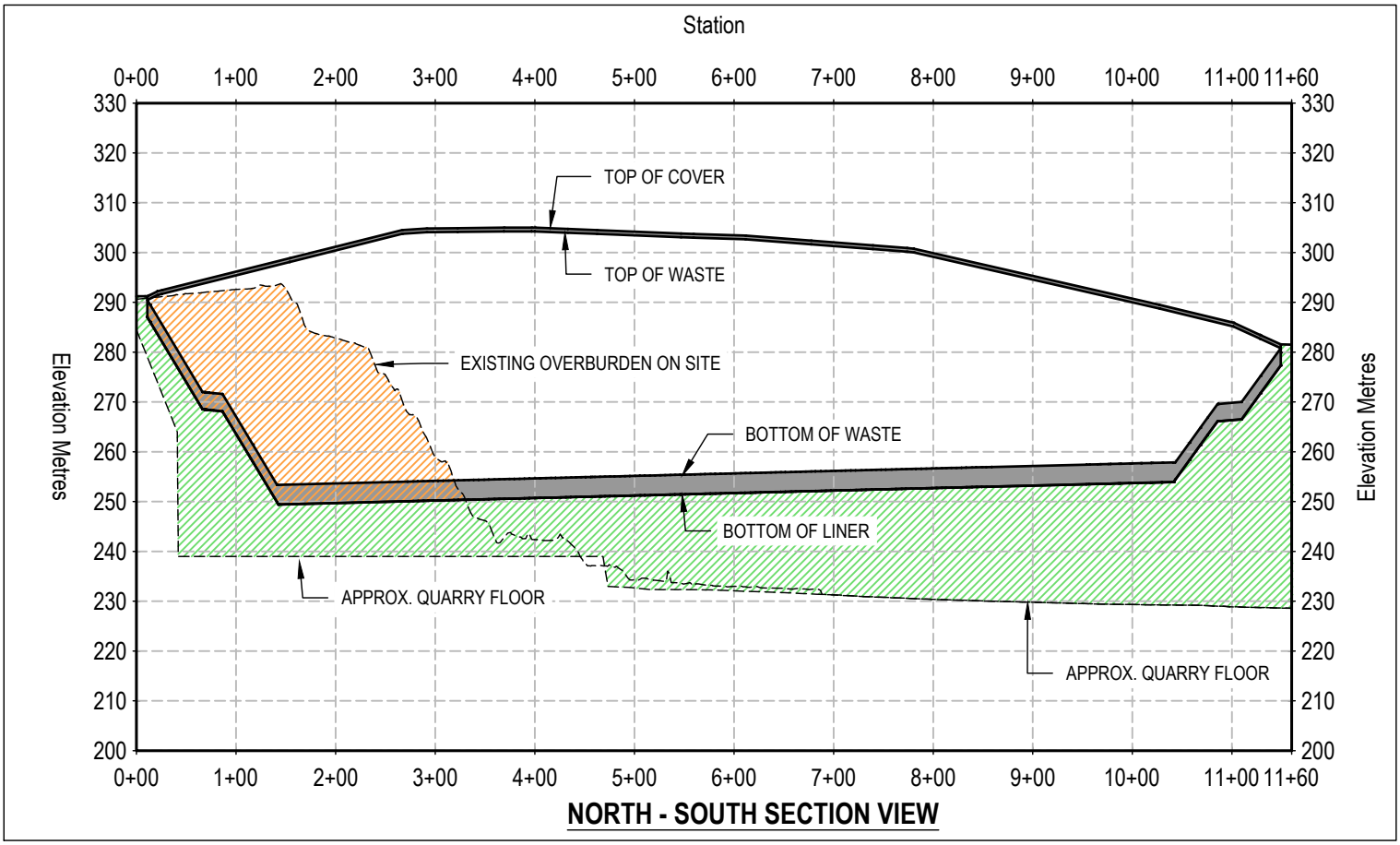
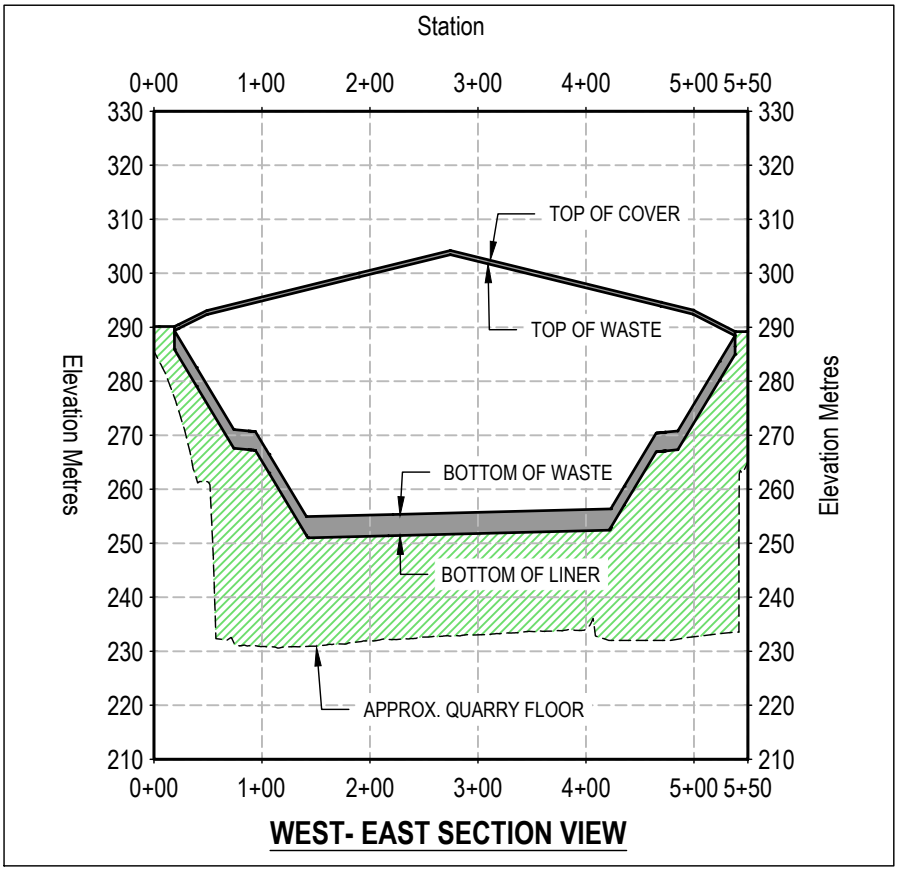


NORTH - SOUTH SECTION VIEW



WEST- EAST SECTION VIEW

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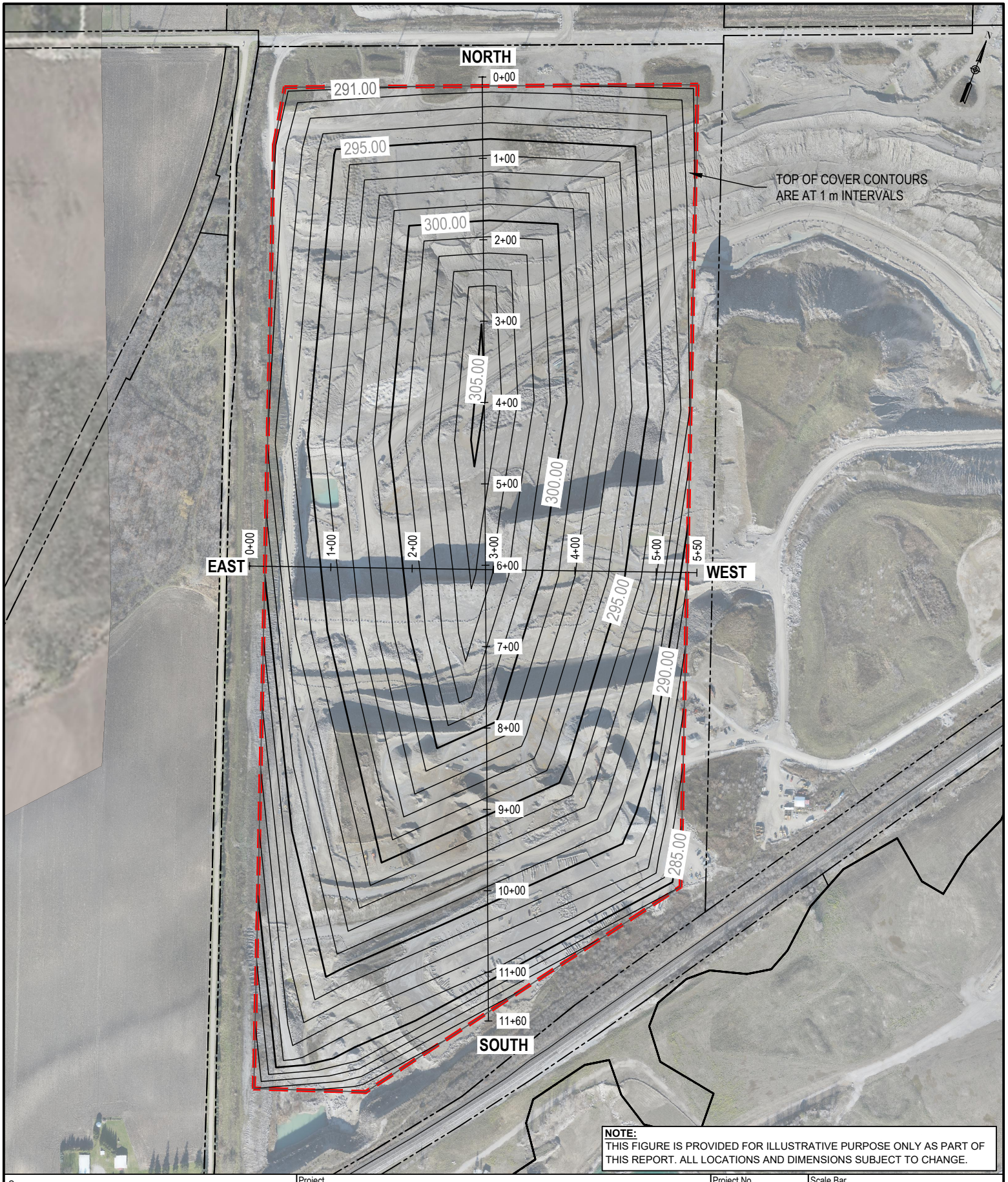

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Owner: walker environmental

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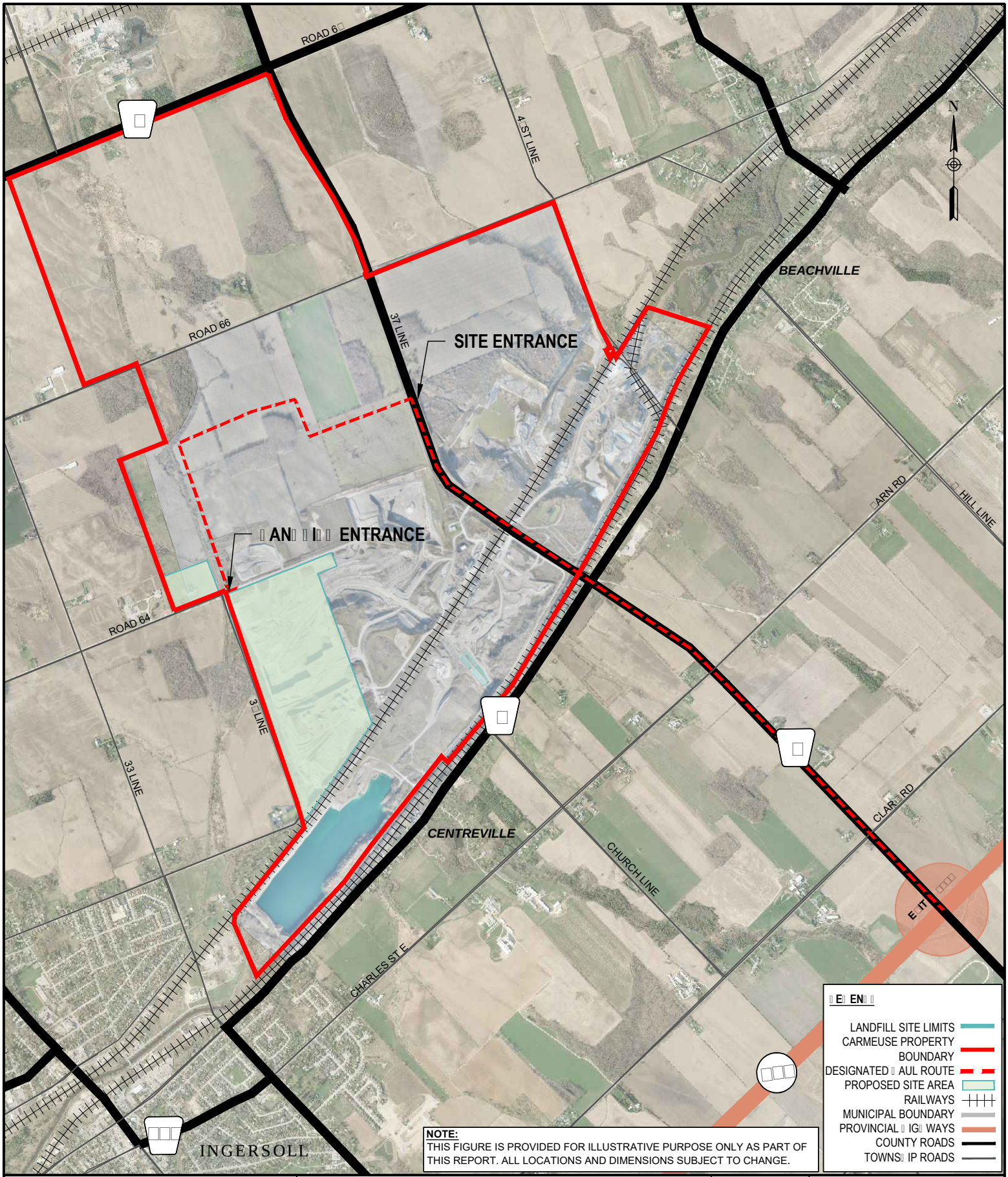

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Project: **SOUTHWESTERN LANDFILL**

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APPENDIX A:

Glossary of Terms

GLOSSARY OF TERMS

<<Add a glossary of technical terms related to your study here.>>

APPENDIX B:

Environmental Assessment Criteria and Studies

(From the Approved Amended Terms of Reference)

Table B-1 – EA Criteria Table

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
Public Health & Safety																				
1	Explosive hazard due to combustible gas accumulation in confined spaces.	Gas produced within a waste disposal facility (e.g., methane) can move through the ground and accumulate in confined spaces (e.g., manholes, basements, etc.) on or immediately adjacent to the waste disposal facility. There is potential for the gas to combust, creating an explosion and fire hazard.							☑							✓			✓	✓
2	Effects due to exposure to air emissions.	Waste disposal facilities can produce gases containing contaminants that degrade air quality if they are emitted to the atmosphere. Other operations, such as leachate collection facilities, can also produce emissions that could degrade air quality in the vicinity of the site. Air quality in the vicinity of the site should meet regulated air quality standards in order to protect public health.		☑						☑						✓			✓	✓
3	Effects due to fine particulate exposure.	Construction, operation, and truck haulage activities at a waste disposal facility can lead to increased levels of particulate (dust) in the air. Airbourne fine particulate is a health concern in certain size ranges exposure durations.		☑						☑						✓	✓		✓	
4	Effects due to contact with contaminated groundwater or surface water.	Contaminants associated with a waste disposal site have the potential to seep into the groundwater or surface water. This could pose a public health concern if it enters local drinking water supplies, or if it mixes with surface water.							☑	☑						✓			✓	✓

☑ Study that will be primarily responsible for addressing criterion.
Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
5	Flood hazard.	The construction of a waste disposal facility can disrupt natural surface water drainage patterns, causing a potential for increased flooding.							☑							✓			✓	✓
6	Disease transmission *via* insects or vermin.	Insects and vermin drawn to a waste disposal facility may have the potential to transmit diseases.					☑									✓			✓	✓
Public Health & Safety (continued)																				
7	Potential for traffic collisions.	The risk of traffic collisions may increase along the haul routes to the waste disposal facility. This includes the risk to pedestrian, bicycle and farm machinery.												☑			✓		✓	
8	Aviation impacts due to bird interference.	Birds may be attracted to waste disposal facilities. This can pose a risk of bird strikes on aircraft in the vicinity of the site, especially during take-off and landing altitudes.					☑									✓			✓	
Social and Cultural																				
9	Displacement of residents from houses.	Any residents living on a future waste disposal site will have to relocate, which can cause inconvenience and stress to the residents.											☑			✓			✓	✓
10	Disruption to use and enjoyment of residential properties.	Potential nuisance effects associated with the waste disposal facility operation, or traffic moving to and from the waste disposal facility along the haul route, may disturb the daily activities and uses of residential properties. Disturbances could result from noise, dust											☑			✓	✓		✓	✓
11	Disruption to use and enjoyment of public facilities and institutions.	Potential nuisance effects associated with waste disposal facility operations, or traffic moving to and from the waste disposal facility, may disturb the daily activities at community facilities. Disturbances could result from noise, dust, litter, odour, visibility											☑			✓	✓		✓	

☑ **Study that will be primarily responsible for addressing criterion.**

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
12	Disruption to local traffic networks.	Increased traffic volume resulting from a waste disposal facility could disturb the overall traffic flow along the haul routes, and effectively reduce the available road capacity.												☑			✓		✓	
13	Visual impact of the waste	Development and operation of a waste disposal facility can affect the visual appeal of													☑	✓			✓	✓
14	Nuisance associated with vermin.	Waste disposal facilities can attract vermin and birds, which can be a nuisance and lead to a decrease in property enjoyment by area residents. Vermin and birds can also be a											☑			✓			✓	
Social and Cultural (continued)																				
15	Displacement/disturbance of cultural/heritage resources.	Cultural resources (including heritage buildings, cemeteries and cultural landscapes) are an important component of human heritage. These non-renewable cultural resources may be displaced by the construction of a waste disposal facility. The use and enjoyment of cultural resources may also be disturbed by the ongoing operation and traffic. Disturbances could result from				☑										✓	✓		✓	✓
16	Effects on land resources, traditional activities or other	Major new developments of any type may have positive or negative effects on the interests of Aboriginal Communities (i.e., businesses opportunities, joint ventures)											☑					✓	✓	✓
17	Displacement/destruction of archaeological	Archaeological resources are non-renewable cultural resources that can be destroyed by the construction and operation of a waste			☑											✓			✓	
18	Level of public service provided by the waste disposal facility.	The presence of a waste disposal operation within a municipality can provide an increased level of public service (e.g., convenient access to waste disposal services) to local residents and businesses, as well as those in the						☑										✓	✓	✓

☑ **Study that will be primarily responsible for addressing criterion.**

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
19	Effects on other public services.	The presence of a waste disposal facility may have positive or negative spin-off effects on other public services in the community (e.g., leachate trucking, waste water treatment capacity, if there is discharge to the sewer						☑									✓	✓	✓	✓
Social and Cultural (continued)																				
20	Changes to community character/cohesion.	Community character and cohesion refer to physical characteristics, social stability, attractiveness as a place to live and patterns of social interaction. A waste disposal facility may actually or perceptually interfere with these important community attributes.											☑			✓	✓	✓	✓	✓
21	Compatibility with municipal land use designations and official plans.	A waste disposal facility has the potential to affect the viability of present and future land uses, which may have an effect on planning decisions made in the surrounding community.									☑					✓		✓	✓	✓
Economics																				
22	Displacement/disruption of businesses or farms.	Any on-site businesses or farms would be displaced by a waste disposal facility, and there could be financial losses as a result of relocation. Some types of businesses located in the site vicinity or along the haul routes may suffer financial losses due to the potential nuisance effects or perceived effects associated with the operation of a waste disposal facility such as noise, litter, dust, odour, visibility, birds, vermin and traffic congestion.						☑								✓	✓		✓	
23	Property value impacts.	The establishment and operation of a waste disposal facility may adversely affect property values in the site vicinity or along the haul routes.						☑								✓	✓		✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
24	Direct employment in waste disposal facility construction and operation.	A waste disposal facility may create new employment opportunities both in the construction and day-to-day operation.						☑										✓	✓	
25	Indirect employment in related industries and services.	A waste disposal facility has the potential to have impacts on employment opportunities in local firms supplying products or services directly, or as secondary suppliers.						☑										✓	✓	
Economics (continued)																				
26	New business opportunities related directly to waste disposal facility construction and operation.	A large capital project, such as the construction and operation of a waste disposal facility, can create new opportunities for local businesses supplying products or services.						☑										✓	✓	
27	New business opportunities in related industries and services.	New opportunities may be created for local businesses, or as secondary suppliers to industries working for the waste disposal facility (e.g., restaurants, gas stations, machine shops, repair shops, welding shops, equipment rentals, etc.).						☑										✓	✓	
28	Public costs for indirect liabilities.	Some public services may have to be upgraded to accommodate the establishment and operation of a waste disposal facility (e.g., snow removal, sewer and water connections, etc.).						☑										✓	✓	✓
29	Effects on the municipal tax base.	A waste disposal facility has the potential to affect municipal tax revenues from the site it occupies.						☑										✓	✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
30	Effect on the cost of service to customers.	The costs of constructing a waste disposal facility will effect the price of tipping fees to the site. This affects the cost of service to customers in Oxford County and the province.						☑										✓	✓	
31	Effects on the provincial/ federal tax base.	A waste disposal facility has the potential to affect provincial/federal tax revenues.						☑										✓	✓	✓
Natural Environment & Resources																				
32	Loss/displacement of surface water resources.	Construction of a waste disposal facility may cause the removal of all or part of a natural stream or pond.							☑							✓			✓	
33	Impact on the availability of groundwater supply to wells.	A waste disposal facility can impact the availability of groundwater supply if groundwater is pumped from aquifers or if recharge to aquifers is reduced.							☑							✓			✓	✓
34	Effects on stream baseflow quantity/quality.	The presence of a waste disposal facility has the potential to affect the quality or quantity of baseflow to surface water.							☑							✓			✓	✓
Natural Environment & Resources (Continued)																				
35	Loss/disturbance of terrestrial ecosystems.	Terrestrial ecosystems refer to the land-based habitats connected through the vegetation cover; their protection and integration maintains and regulates ecological health. Waste disposal facility operations and/or traffic may remove or disturb the functioning of these systems.					☑									✓	✓		✓	
36	Loss/disturbance of aquatic ecosystems.	Aquatic ecosystems refer to the water-based habitats connected through the surface water; their protection and integration maintains and regulates ecological health. Waste disposal facility operations may remove or disturb the functioning of these systems.					☑									✓			✓	

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

			Studies Addressing the Criteria													Study Areas			Duration	
	Criteria	Definition/ Rationale	Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
37	Displacement of agricultural land.	The establishment of a waste disposal facility has the potential to displace existing or potential agricultural resources, including the loss of prime agricultural land.	☑													✓			✓	✓
38	Disruption of farm operations.	The establishment and operation of the waste disposal facility may affect agricultural crop or livestock production and related agriculture activities	☑													✓	✓		✓	✓
39	Sterilization of industrial mineral resources.	The establishment of a waste disposal facility may limit the opportunity to extract industrial mineral resources located beneath the site.									☑					✓			✓	✓
40	Displacement of forestry resources.	The establishment of a waste disposal facility may limit the opportunity to utilize forestry resources on or near the site.									☑					✓			✓	✓
41	Loss/disruption of recreational resources.	Waste disposal facility operations and traffic may displace/disrupt existing recreational resources in the area, which could adversely affect the community at large. Disturbances could result from noise, dust, odour, visibility, birds and traffic congestion. Recreational resources include naturalist and interpretive opportunities.											☑			✓	✓		✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

TABLE B-2 – EA TECHNICAL STUDIES INTERCONNECTIVITY MATRIX

Because effectively evaluating the EA criteria provided in Table B-1 may require input from experts in many disciplines, WEG adopted a methodology that facilitates a cross-functional approach among the experts. Each EA criterion has been assigned a 'lead' expert for reporting purposes (see Table B-1). The lead expert is responsible for coordinating efforts with any other expert they determine necessary to effectively report on that criterion as well as providing information to other experts who need input from them to report on any other criteria. Table B-2 provides possible relationships required between experts to effectively report on their respective EA criteria. The actual relationships will be developed during the EA process in consultation with interested parties.

		Reference Studies												
		Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic / Financial	Groundwater / Surface Water	Human Health	Land Use	Noise / Vibration	Social	Traffic	Visual/ Landscape
Technical Studies	Agriculture		✓							✓	✓		✓	
	Air Quality												✓	
	Archaeology													
	Cultural Heritage									✓		✓		✓
	Ecology		✓					✓			✓		✓	
	Economic / Financial	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
	Groundwater / Surface Water	✓										✓		
	Human Health		✓					✓			✓			
	Land Use													
	Noise / Vibration													
	Social	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
	Traffic	✓								✓		✓		
	Visual Landscape											✓		

REPORT

WALKER ENVIRONMENTAL GROUP

INGERSOLL, ONTARIO

SOUTHWESTERN LANDFILL ENVIRONMENTAL ASSESSMENT 2019 Q1 & Q2 AIR QUALITY MONITORING REPORT

RWDI #1800160

May 13, 2019

SUBMITTED TO

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1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by Walker Environmental Group (WEG) to conduct discrete monitoring for Volatile Organic Compounds (VOCs), Total Reduced Sulfurs (TRS) and particulate matter of the following size fractions: total, PM_{10}, and $PM_{2.5}$. Additional monitoring was completed for particulate matter by the Ministry of Environment, Conservation and Parks (MECP). This report only covers the samples collected by RWDI. This monitoring was requested by WEG as a part of their Environmental Assessment (EA) studies for the provision of the proposed future waste landfill capacity at the Carmeuse Lime (Canada) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario. The Carmeuse site has numerous operations including quarry and crushing processes, earth-moving and material transport, blasting, etc. In addition, the area is surrounded by agricultural and aggregate processing facilities. This ambient air quality monitoring program will help assess the background/current levels of particulate matter, VOC's and TRS emissions existing in the area surrounding the Carmeuse site.

Air quality monitoring took place at three (3) separate locations surrounding the Carmeuse site; two (2) of which were co-located with existing MECP monitoring stations. These two co-located stations were: 1) the Bell building located at 584454 Beachville Road West (Bell), and 2) a private property at 334652 33rd Line (33rd Line). The third station setup by RWDI was located on a private property at 663951 Rd.66 (Rd. 66). This third station location (Rd. 66) was reviewed by the MECP to ensure compliance with the MECP siting criteria. The monitoring station locations can be seen in the **Figures Section** of this report.

This ambient monitoring program commenced at all three (3) locations on March 9, 2018 for TSP, PM_{10} and $PM_{2.5}$ and is ongoing. Due to troubleshooting difficulties experienced over March with the VOC and TRS collection, this part of the program officially commenced on April 2, 2018 at all three (3) locations for these parameters and is ongoing.

2 SAMPLING METHODOLOGY

The three (3) monitoring stations are all equipped with the following discrete monitors: High Volume (Hi-Vol) Air Sampler outfitted with a TSP inlet head, Hi-Vol Air Sampler outfitted with a PM_{10} inlet head, Hi-Vol Air Sampler outfitted with a $PM_{2.5}$ inlet head and an evacuated 6L Summa Canister with programmable timer for VOC and TRS sampling. As the Bell and 33rd Line stations are co-located with existing MECP discrete monitors, sampling of the MECP monitored parameters were not duplicated and the MECP results are not presented in this report. **Table 1** below outlines the equipment operated and results reported by RWDI for each of the stations.

Table 1: Summary of RWDI Operated Equipment at each WEG Monitoring Location

Station	TSP Hi-Vol	PM_{10} Hi-Vol	$PM_{2.5}$ Hi-Vol	Evacuated Canister (VOC's & TRS)
Bell			✓	✓
33rd Line		✓	✓	✓
Rd. 66	✓	✓	✓	✓

2.1 High Volume Air Samplers (Hi-Vols)

The particulate samples were collected using General Metal Works standard High-Volumetric air samplers outfitted with size-selective inlet heads capable of collecting TSP, PM_{10}, and $PM_{2.5}$ particulate size fractions. Each Hi-Vol is equipped with a mass flow controller, which ensures a flow rate of 40 cubic feet per minute (CFM) and a timer for starting and stopping each sample. All stations operate on a six-day cycle with a 24-hour (midnight to midnight) sampling schedule, concurrent with the National Air Pollution Surveillance (NAPS) U.S. EPA schedule. Each Hi-Vol was calibrated once per quarter to ensure accuracy and validity of the data. Pre-tared glass fibre filters were used, which were pre and post weighed by ALS Laboratory (ALS) located in Waterloo, ON.

2.2 Evacuated Canisters (VOCs and TRS)

The ambient VOC and TRS samples were collected in the same conditioned silica-lined evacuated canisters, as specified in EPA Compendium Method TO-14/15. The evacuated canisters were supplied, proofed and analyzed by ALS in Waterloo, ON. Critical orifice flow controllers approved for use by the MECP were used to maintain a constant flow rate of approximately 3.5 milliliters per minute over a sampling period of 24 hours. The controllers were supplied and conditioned by ALS, and were only used once, and then were returned to the ALS for cleaning/reconditioning. The controllers were constructed of inert materials including stainless steel, charcoal ferrules and Teflon coating, and were equipped with pressure gauges. Each controller was fitted every time with a RWDI supplied Neutech 2701 programmable automated sampling timer which both opens and closes the canister over a programmed time period. All three (3) stations operated on a six-day cycle, each consisting of 24-hour (midnight to midnight) sample, concurrent with the National Air Pollution Surveillance (NAPS) schedule.

3 AIR QUALITY CRITERIA AND STANDARDS

The monitored contaminant concentrations were compared to air quality criteria and standards set by the Ontario Ministry of the Environment and Climate Change (MECP) and by Environment Canada. The MECP has Ambient Air Quality Criteria (AAQCs) for select VOC's, Hydrogen Sulfide (H_2S), TRS, TSP and PM_{10}. These AAQCs are the maximum desirable concentrations in the outdoor air, based on effects to the environment and health (MECP, 2012). Environment Canada has established a Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ (Environment Canada, 2013). CAAQS are health-based air quality objectives for the outdoor air. It should be noted that the AAQC for PM_{10} is an interim value of 50 µg/m^3 for an averaging period of 24 hours, and the current CAAQS' for $PM_{2.5}$ is 28 µg/m^3 for the 3-year average of annual 98th percentile 24-hour concentration, and 10 µg/m^3 for the 3-year average of annual concentrations (in effect as of 2015). Since this program has been in place for less than a year, the CAAQS of 28 µg/m^3 will be used on a comparison basis only for 24-hour $PM_{2.5}$ measurements. Listed air quality criteria and standards can be found for each contaminant in **Appendix A**.

4 SUMMARY OF DISCRETE MONITORING DATA

All monitoring results from the periodic measurements for Q1& Q2 of 2019 are provided in **Appendix A.**

4.1 TSP Results

The TSP sampler operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 120 µg/m^3 were observed at Rd. 66.

4.2 PM_{10} Results

The PM_{10} samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 50 µg/m^3 were observed at 33rd Line or Rd. 66.

4.3 $PM_{2.5}$ Results

The $PM_{2.5}$ samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily CAAQS of 28 µg/m^3 were observed at Bell, 33rd Line or Rd. 66.

4.4 VOC Results

VOC samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. Over Q1& Q2. There were no exceedances over the daily VOC standards or criteria at Bell, 33rd Line or Rd. 66. Please see Tables D1, D2 and D3 for additional statistics and details.

4.5 TRS Results

TRS samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. At 33rd Line Station in Q1, there were two (2) exceedances for H_2S and TRS on February 20, 2019 with values of 16 µg/m^3 and 22 µg/m^3 respectively. At Bell Station in Q1, there were three (3) exceedances on two (2) days, February 20, 2019 for H_2S and TRS with values of 31.0 µg/m^3, and 31.0 µg/m^3 respectively, and March 10, 2019 for TRS with a value of 8.9 µg/m^3. Please see Tables D1, D2 and D3 for additional statistics and details.

5 DATA REQUESTS

5.1 VOCs and TRS

There were few failures that occurred during Q1& Q2 due to VOC/TRS sampling equipment issues. The issues are outlined below:

- Based on discussions with lab, the extreme cold can affect the flow and volume of air within the summa canister when it comes to room temperature. The cold air expands upon warming which increases the pressure. Several times during the Q1 a negative pressure was obtained in the field. However, the lab's final pressure was positive once the canister reached room temperature. After February 8th, sample run time was decreased based on a discussion with the lab to meet an acceptable pressure to account for the temperature fluctuation. After decreasing the sample run time, the sample success rate improved. This issue effected the following sites and samples:
    - Rd 66 samples on January 21, 27, 2019
    - 33rd Line samples on January 3, 15, 21, 27 and March 4, 2019
    - Bell samples on January 3, 15, 21, 27 and February 2, 2019
- The Rd 66, February 20, 2019 sample did not run on the appropriate day due to a timer error.
- The Rd 66, April 3 and 9, 2019 sample was invalid due to a malfunction during the analysis at ALS Environmental that resulted in the samples becoming contaminated with VOC analytes from a standard filled canister.
- The 33rd Line, April 3 and 9, 2019 sample was invalid due to a malfunction during the analysis at ALS Environmental that resulted in the samples becoming contaminated with VOC analytes from a standard filled canister.
- The Bell, April 3 and 9, 2019 sample was invalid due to a malfunction during the analysis at ALS Environmental that resulted in the samples becoming contaminated with VOC analytes from a standard filled canister.

5.2 Hi-Vol's

There were few failures occurred during Q1& Q2 due to Hi-Vol sampling equipment issues. Those issues are outlined below:

- The Rd 66, January 27, 2019 $PM_{2.5}$ and TSP samples were invalid as the GFI tripped. The GFI was reset for the following sample date.
- The Rd 66 $PM_{2.5}$ February 8, 2019 sample was invalid due to a motor malfunction which rendered the sampler unable to switch on and obtain an off pressure. The motor was re-brushed and re-deployed for the following sample date.
- The Rd 66, TSP February 14, 2019 TSP sample was invalid due to a motor malfunction which rendered the sampler unable to switch on and obtain an off pressure. The motor was taken back to the office and it was determined that it did not require re-brushing. During the testing at the office, the motor began working again. It is believed that the freezing rain and fluctuating temperatures experienced throughout February affected the motor in the field.
- The Rd 66 PM2.5 February 20, 2019 sample was invalid due to a motor malfunction which rendered the sampler unable to switch on and obtain an off pressure. It is believed the recently replaced motor brushes sparked out as it was not sufficiently broken in. A replacement motor was obtained and installed.

6 CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission. I can be reached at (519) 823-1311 ext. 2428.

Yours very truly,

RWDI

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal

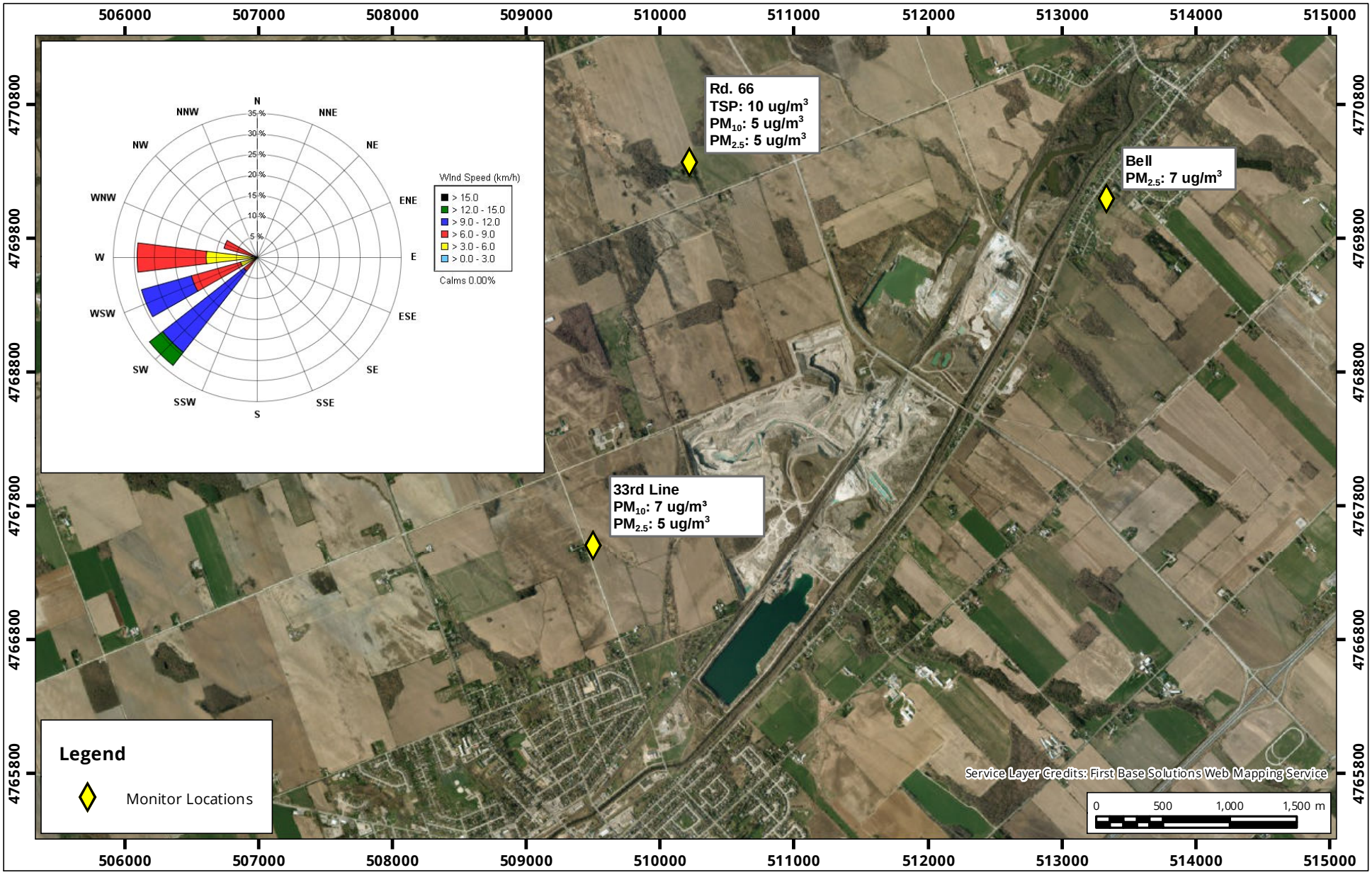
BCB/jo
Attach.

7 REFERENCES

Canadian Council of Ministers of the Environment, 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF

Environment Canada, 2013. Canadian Ambient Air Quality Standards. [Online]

FIGURES



Site Plan Showing Sampling Locations and Windrose

Sampling Period: January 3, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Mar 28, 2019	

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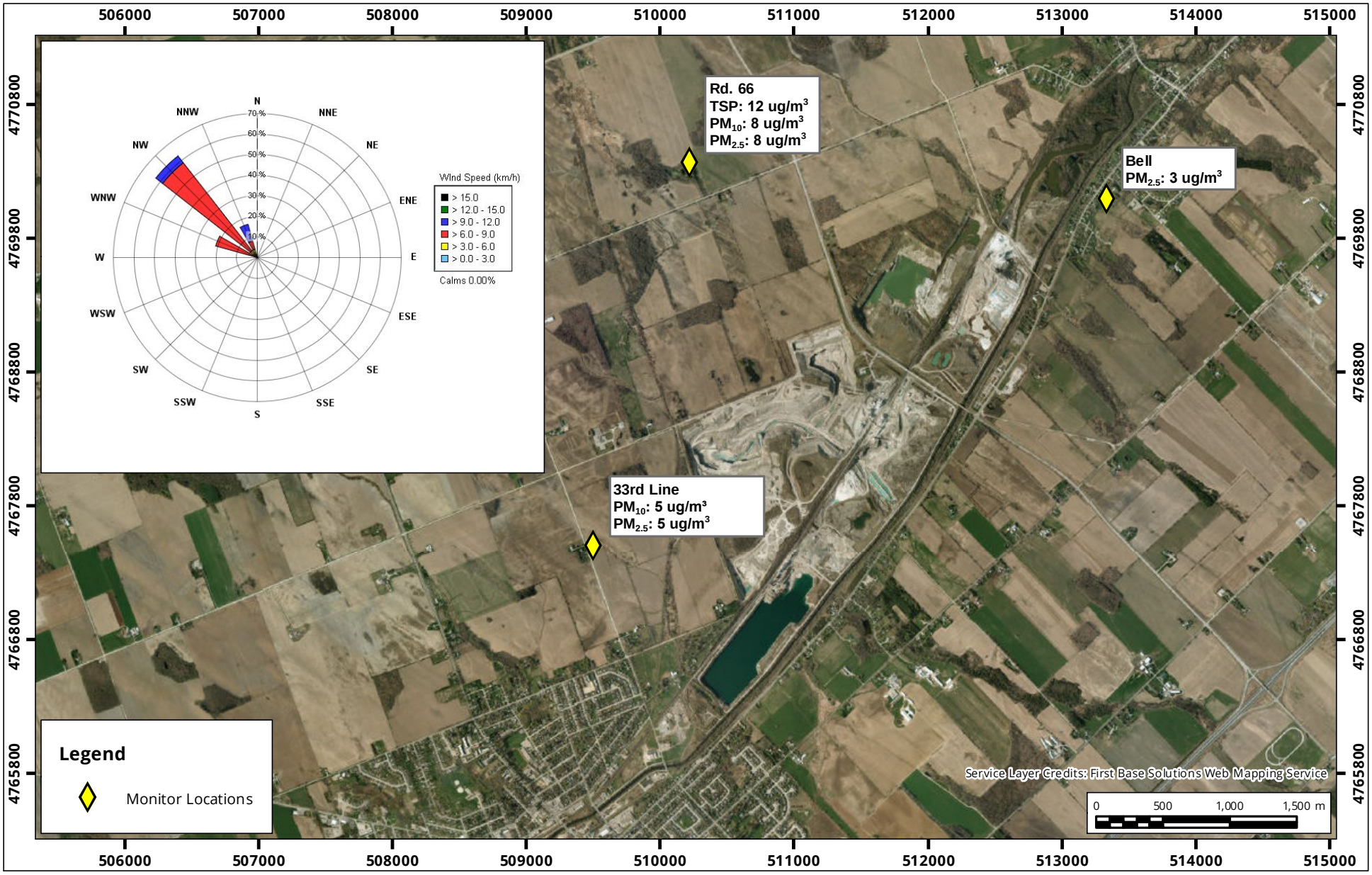

Site Plan Showing Sampling Locations and Windrose

Sampling Period: January 9, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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Date Revised:	March 28, 2019

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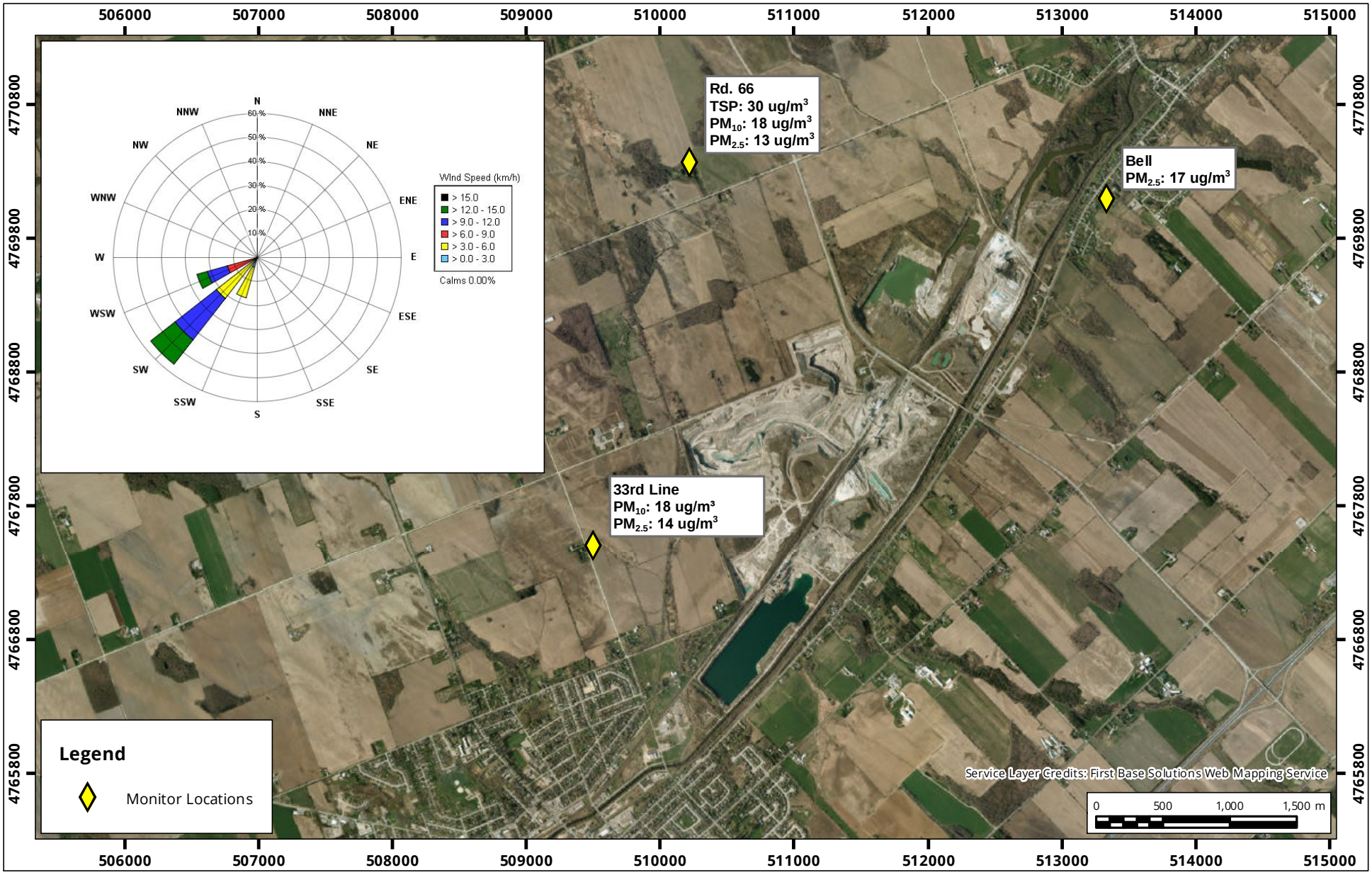

Site Plan Showing Sampling Locations and Windrose

Sampling Period: January 15, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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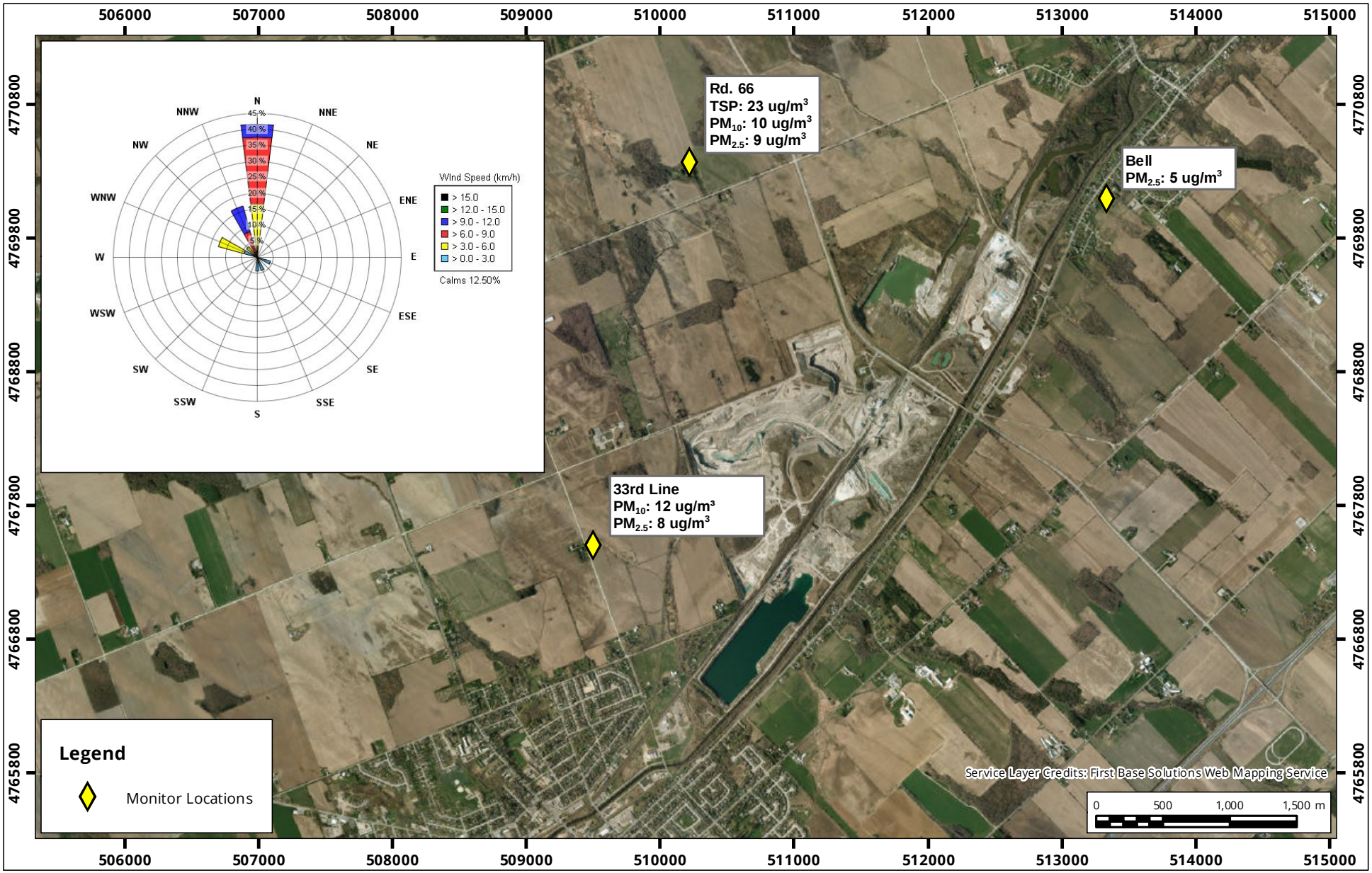

Site Plan Showing Sampling Locations and Windrose Sampling Period: January 21, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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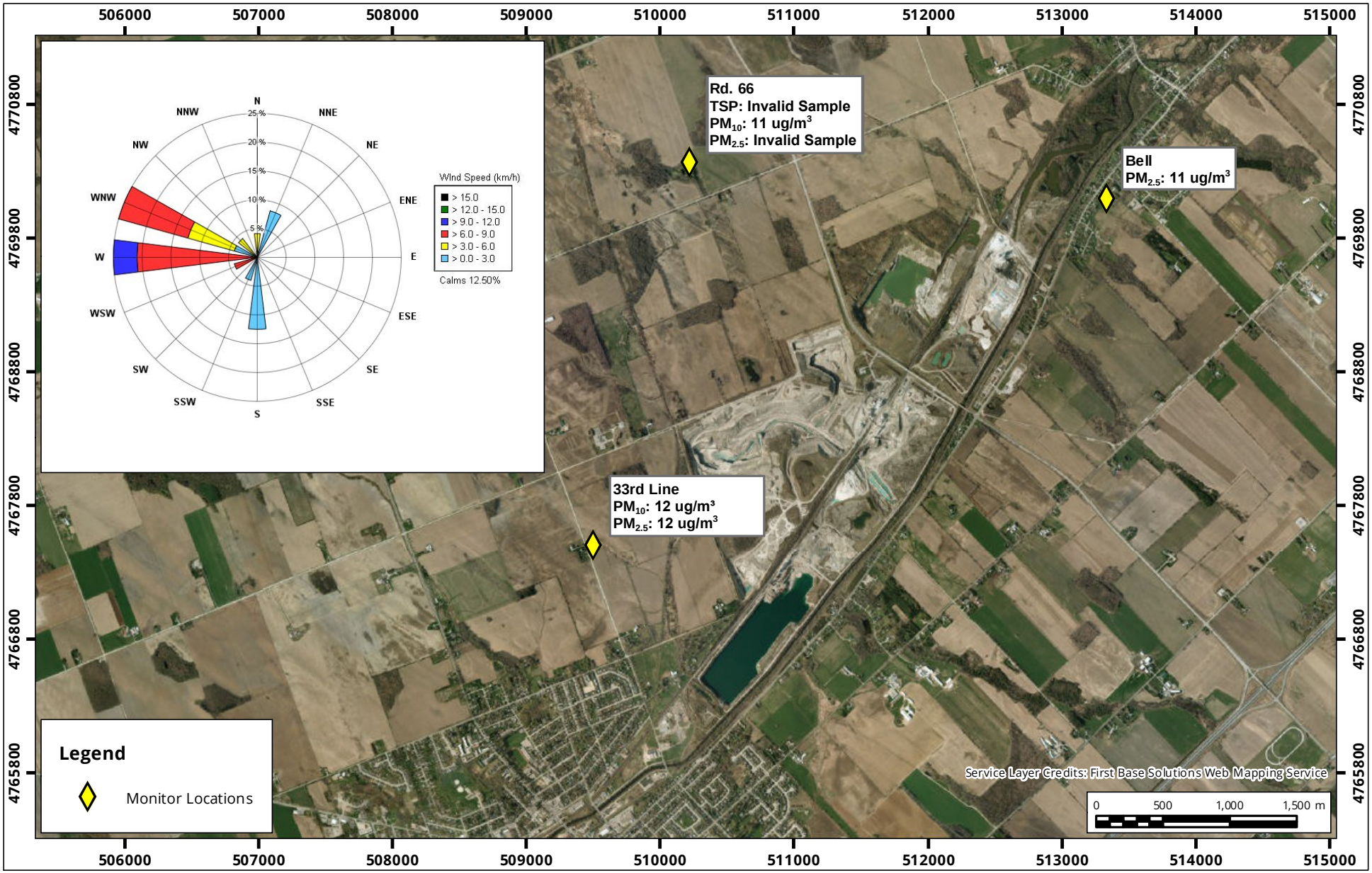


Site Plan Showing Sampling Locations and Windrose

Sampling Period: January 27, 2019

Map Projection: NAD 1983 UTM Zone 17N

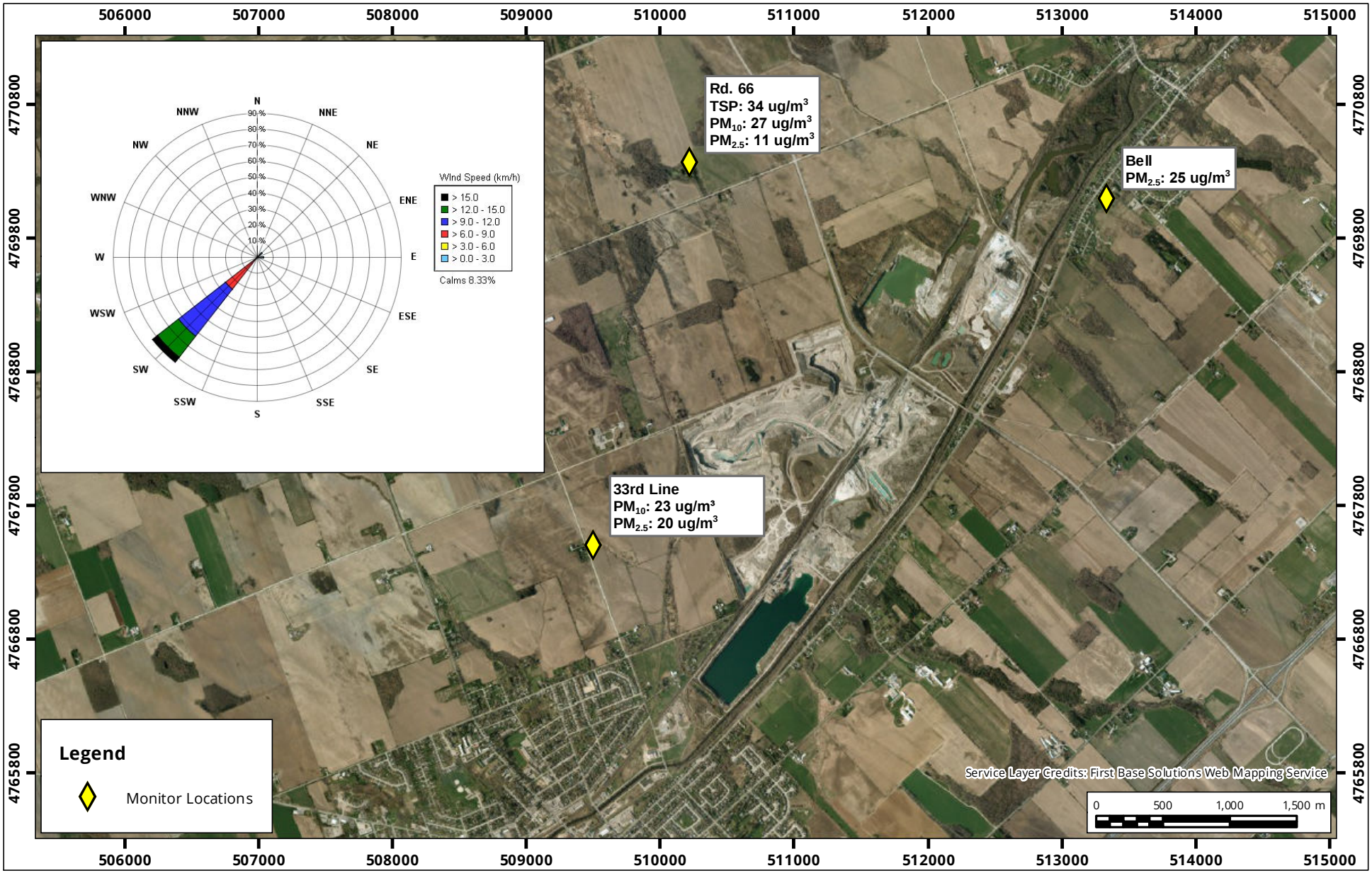
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 5
Approx. Scale:	1:40,000
Date Revised: Mar 28, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: February 2, 2019

Map Projection: NAD 1983 UTM Zone 17N

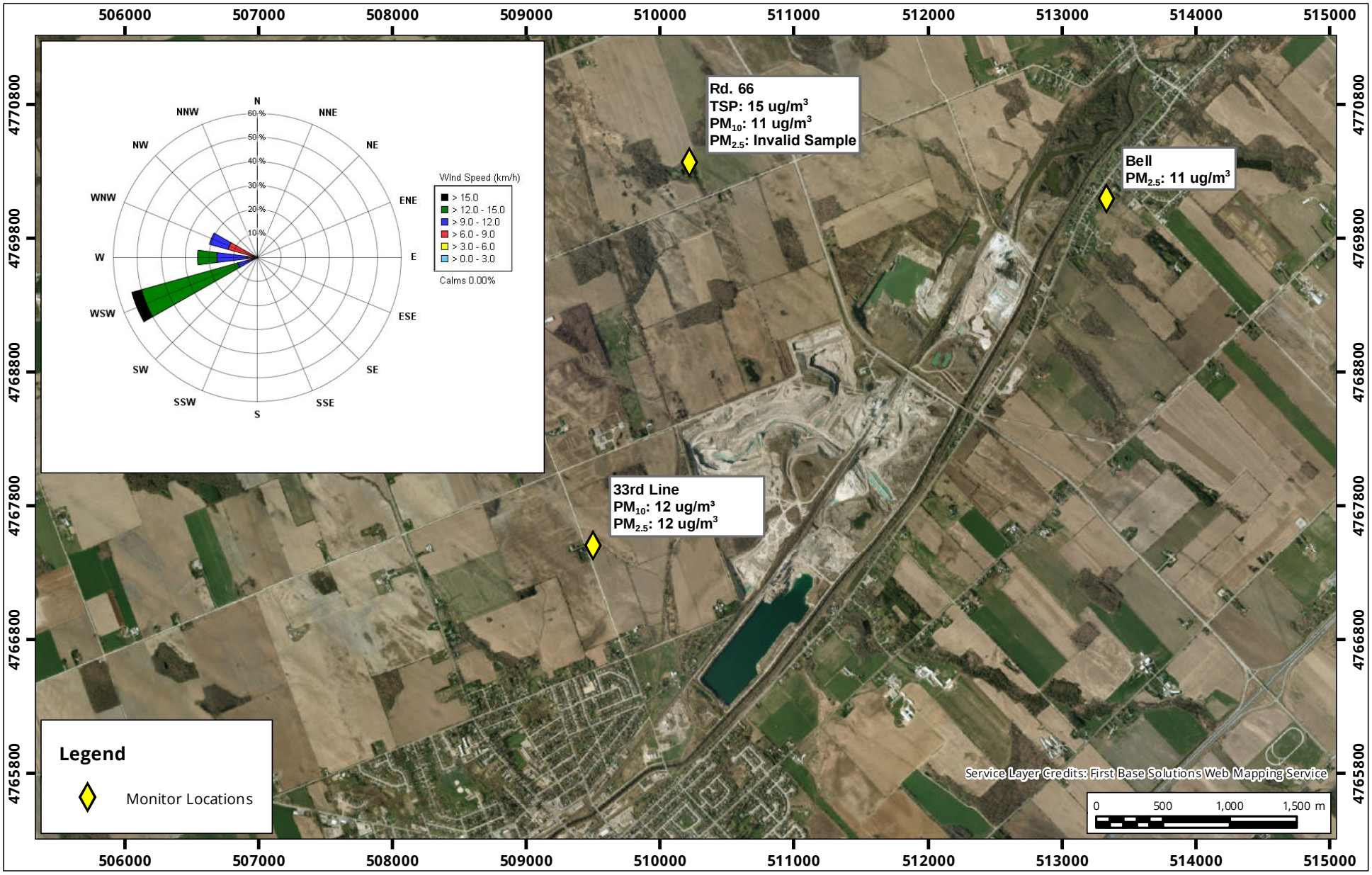
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 6
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: February 8, 2019

True North

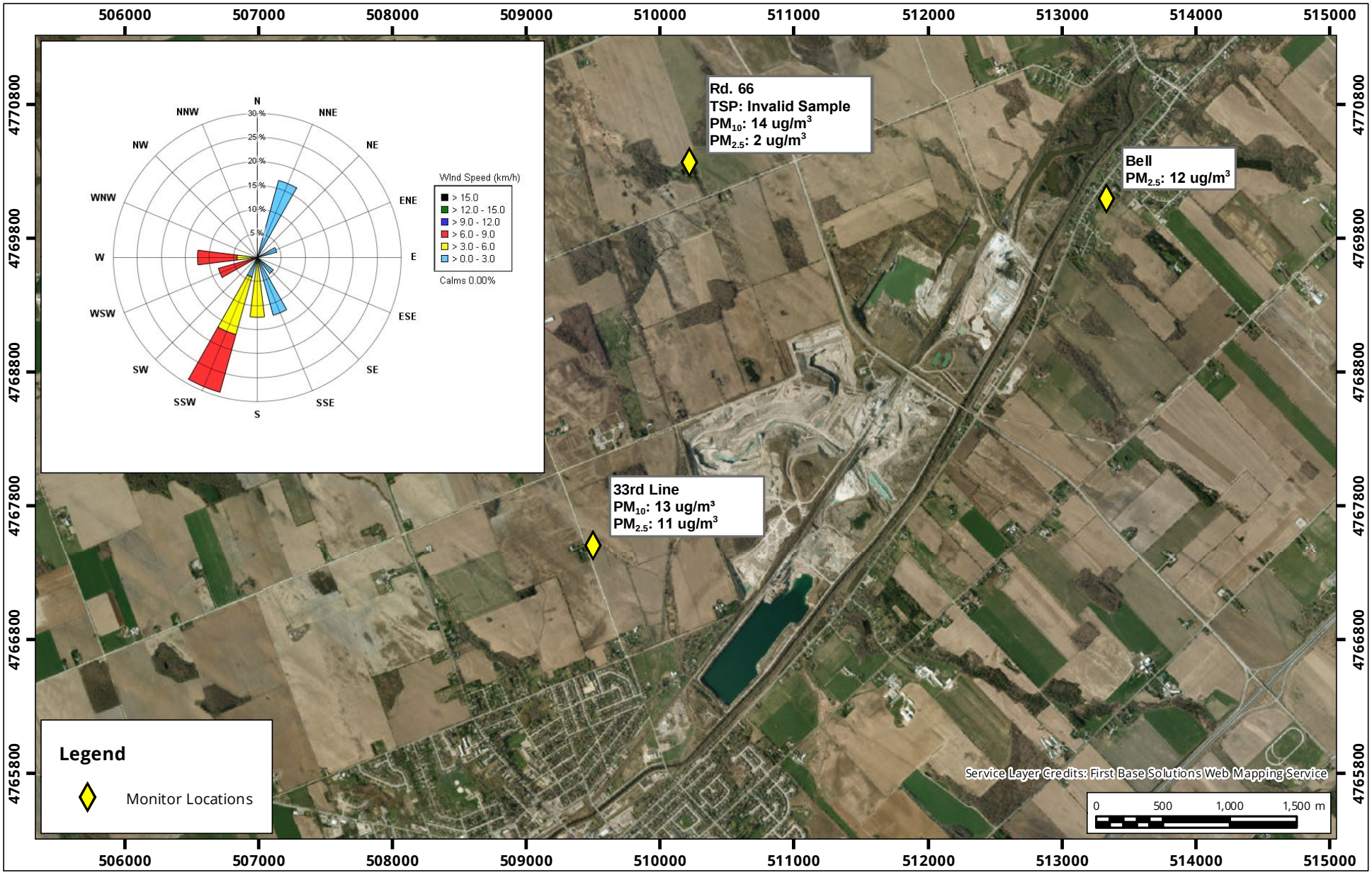
Drawn by: TFL	Figure: 7
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

Project #: 1800160

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: February 14, 2019

Map Projection: NAD 1983 UTM Zone 17N

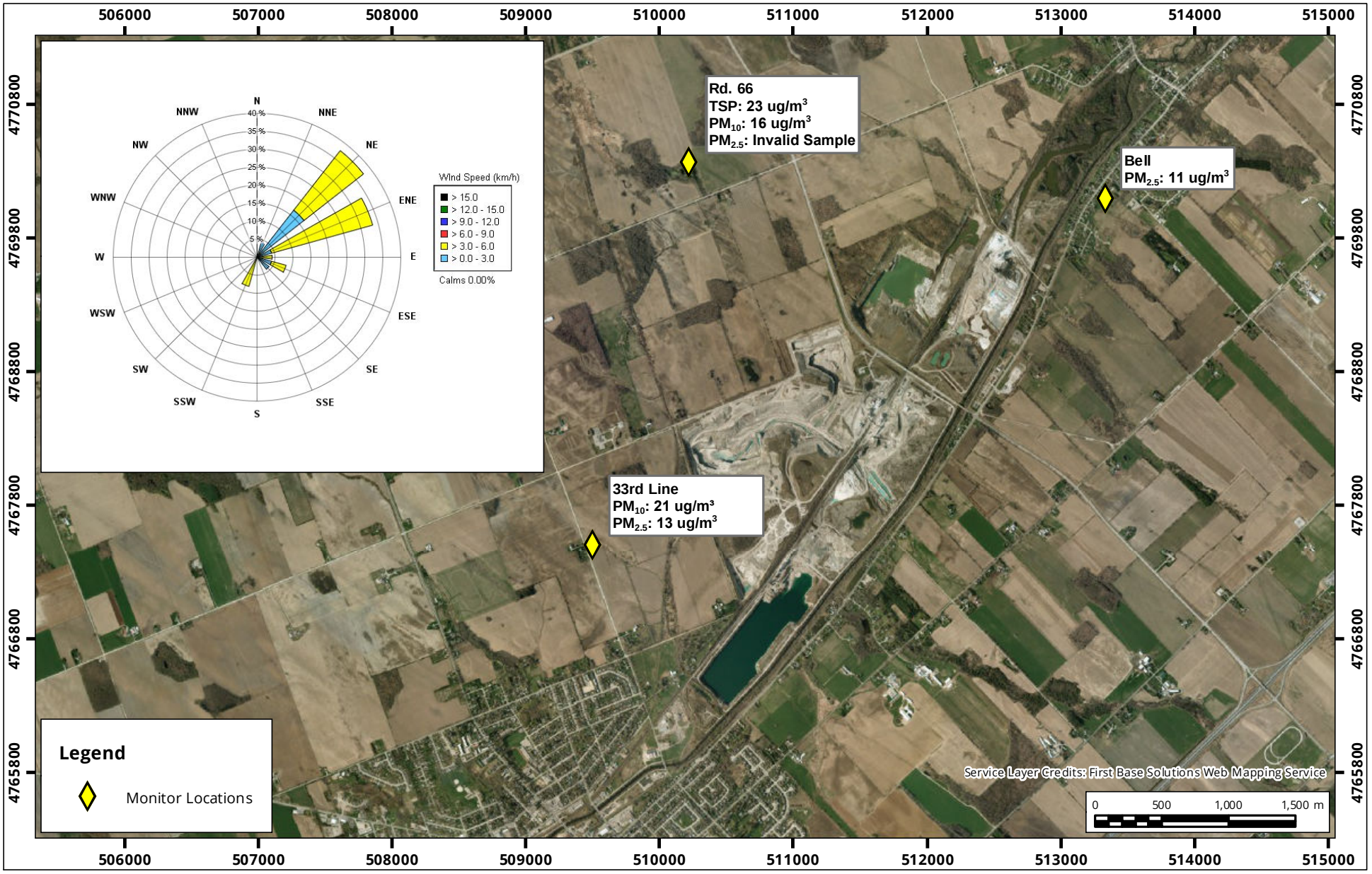
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 8
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: February 20, 2019

Map Projection: NAD 1983 UTM Zone 17N

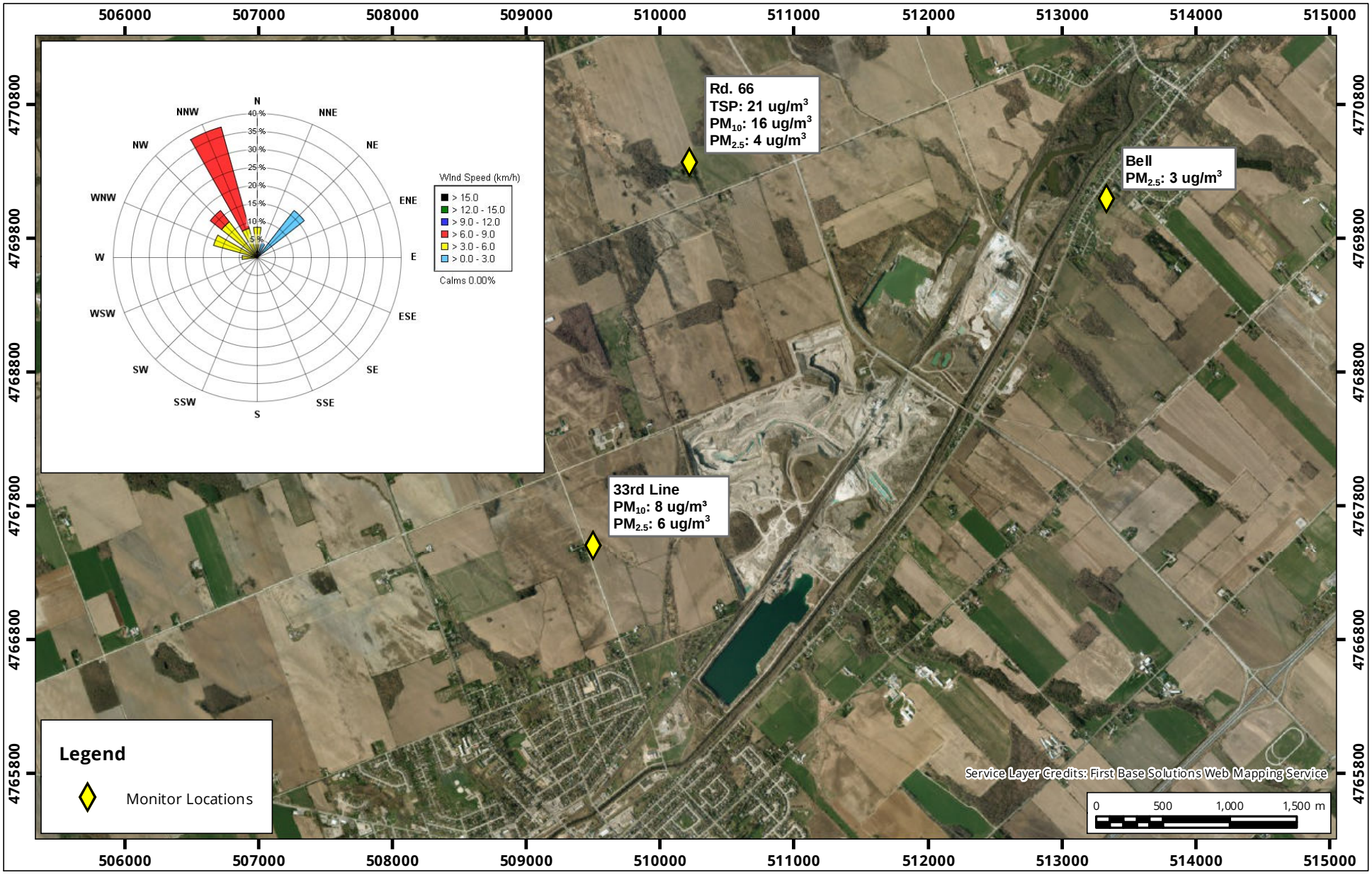
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 9
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: February 26, 2019

Map Projection: NAD 1983 UTM Zone 17N

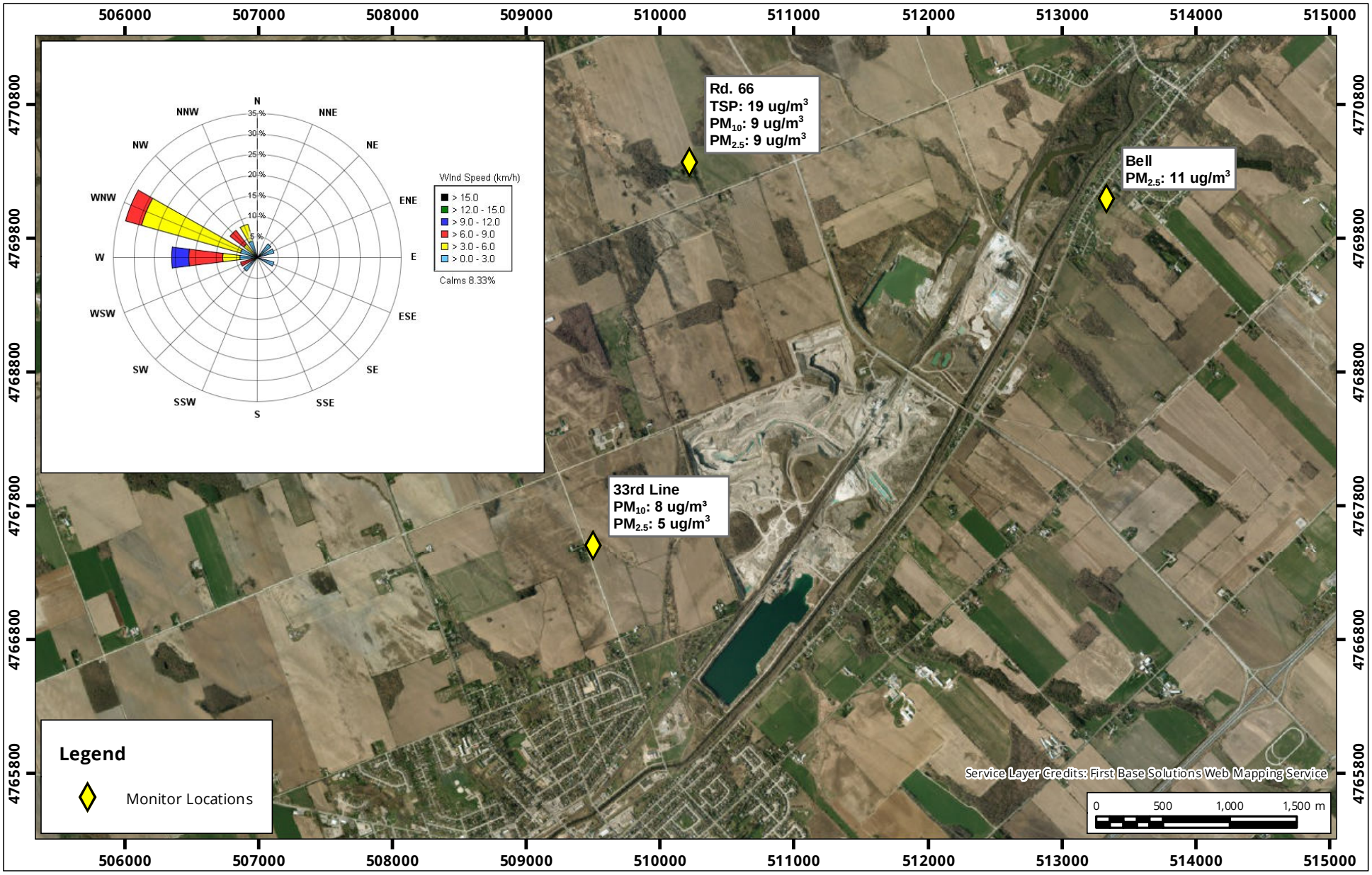
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 10
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 4, 2019

Map Projection: NAD 1983 UTM Zone 17N

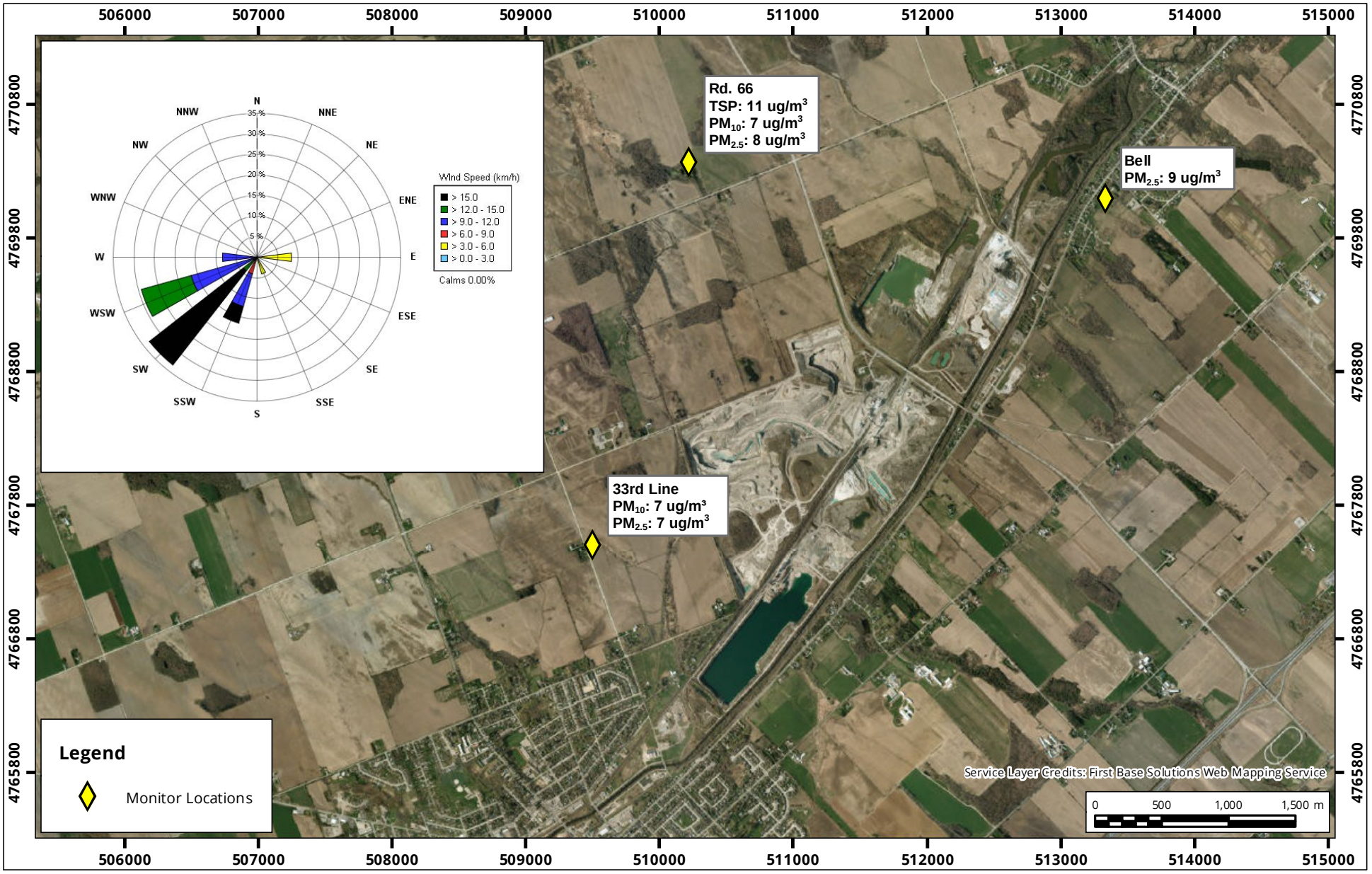
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure: 11
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 10, 2019

Map Projection: NAD 1983 UTM Zone 17N

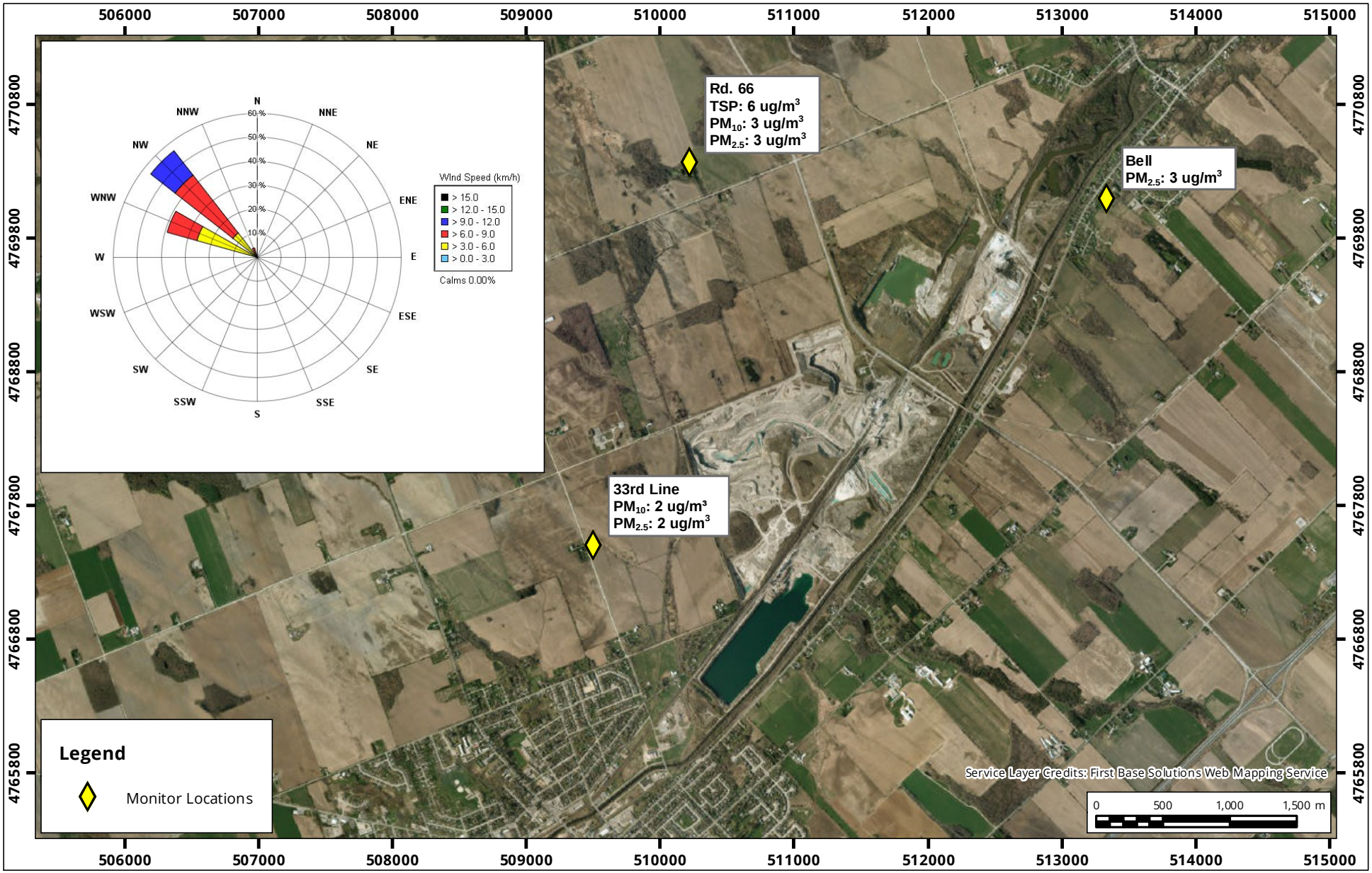
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 12
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 16, 2019

Map Projection: NAD 1983 UTM Zone 17N

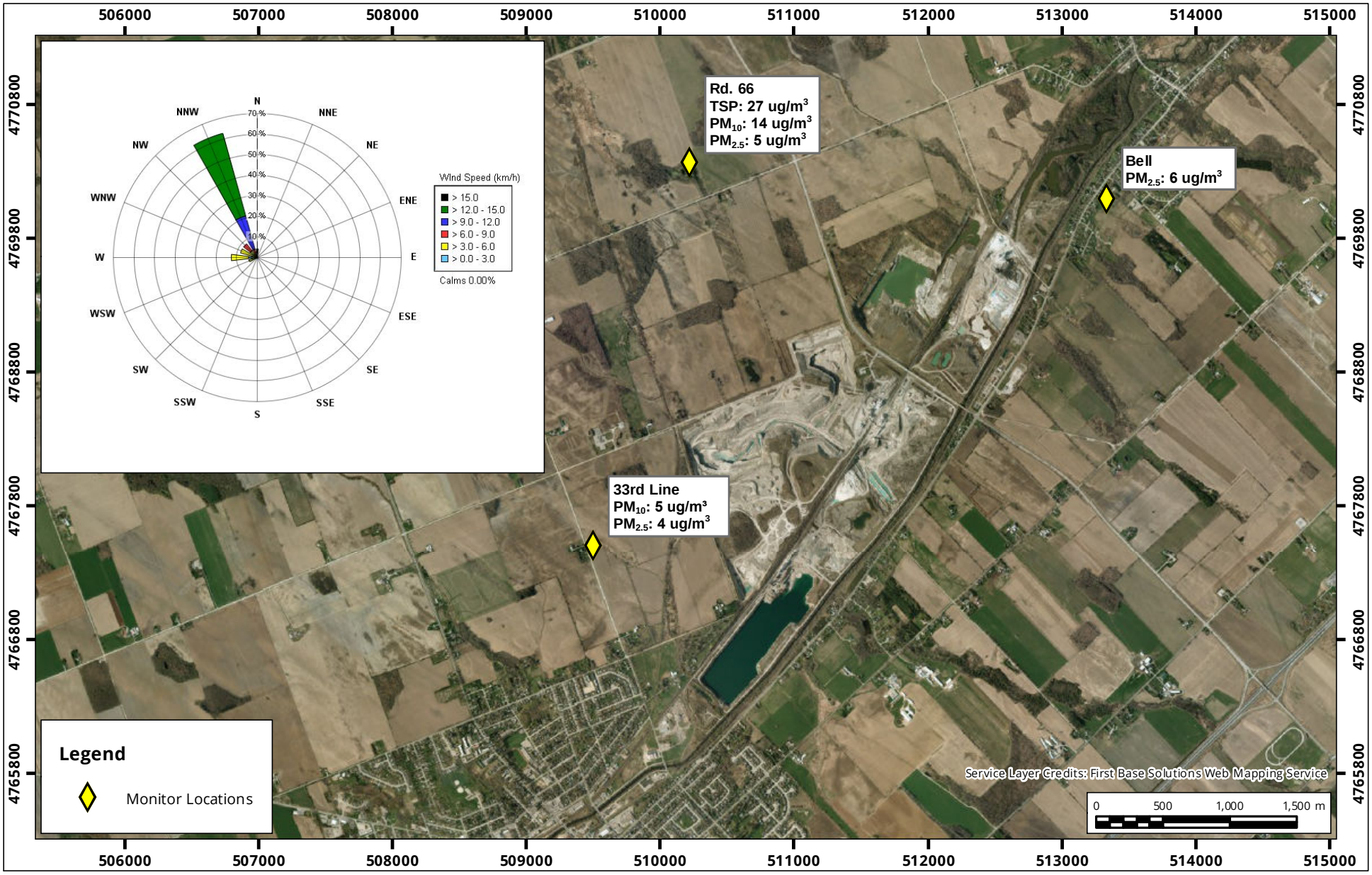
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 13
Approx. Scale:	1:40,000
Date Revised: Mar 29, 2019	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations andWindrose

Sampling Period: March 22, 2019

True North

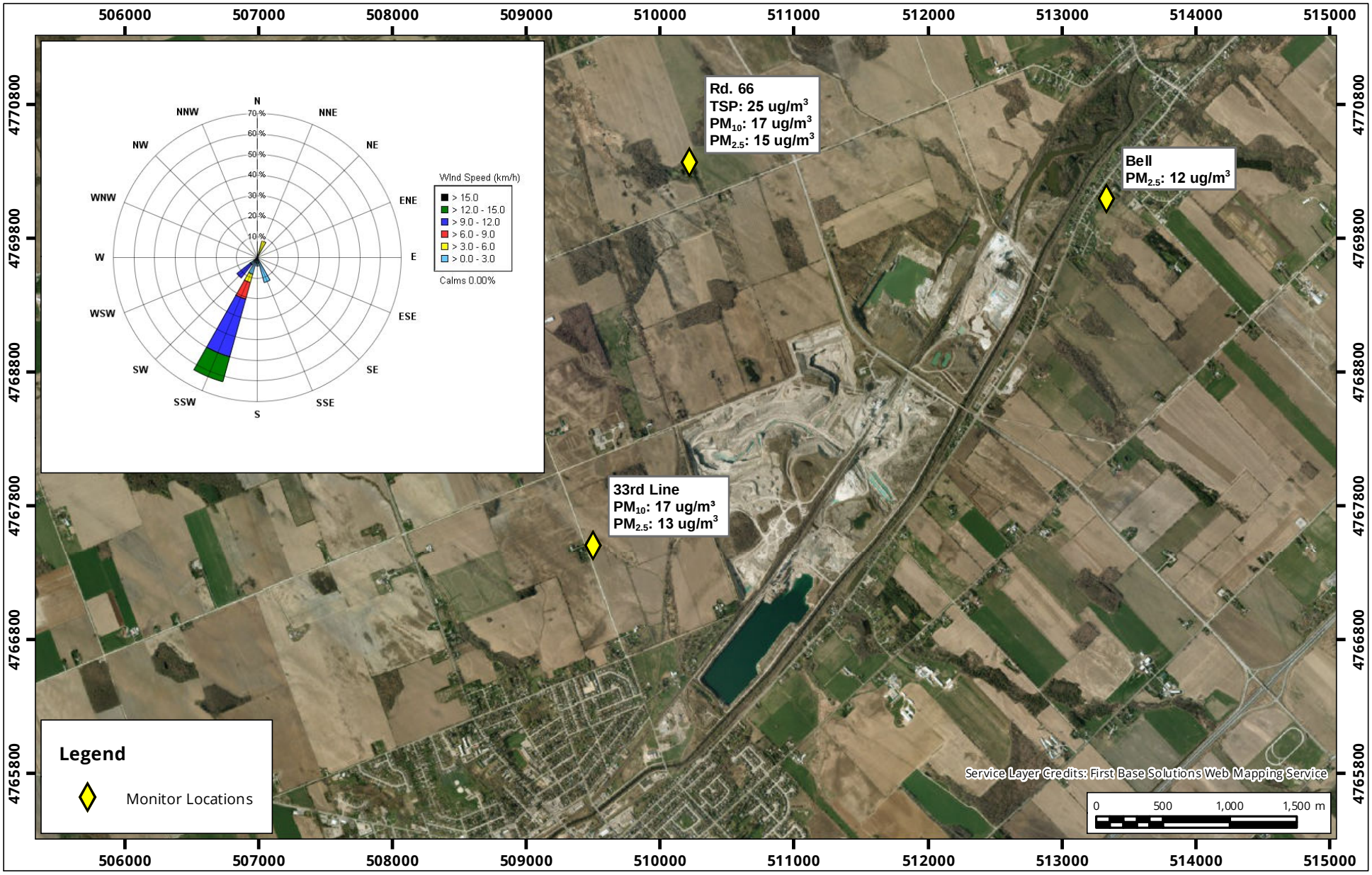
Drawn by: TFL	Figure: 14
Approx. Scale:	1:40,000
Date Revised:	April 24, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

Project #: 1800160

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 28, 2019

Map Projection: NAD 1983 UTM Zone 17N

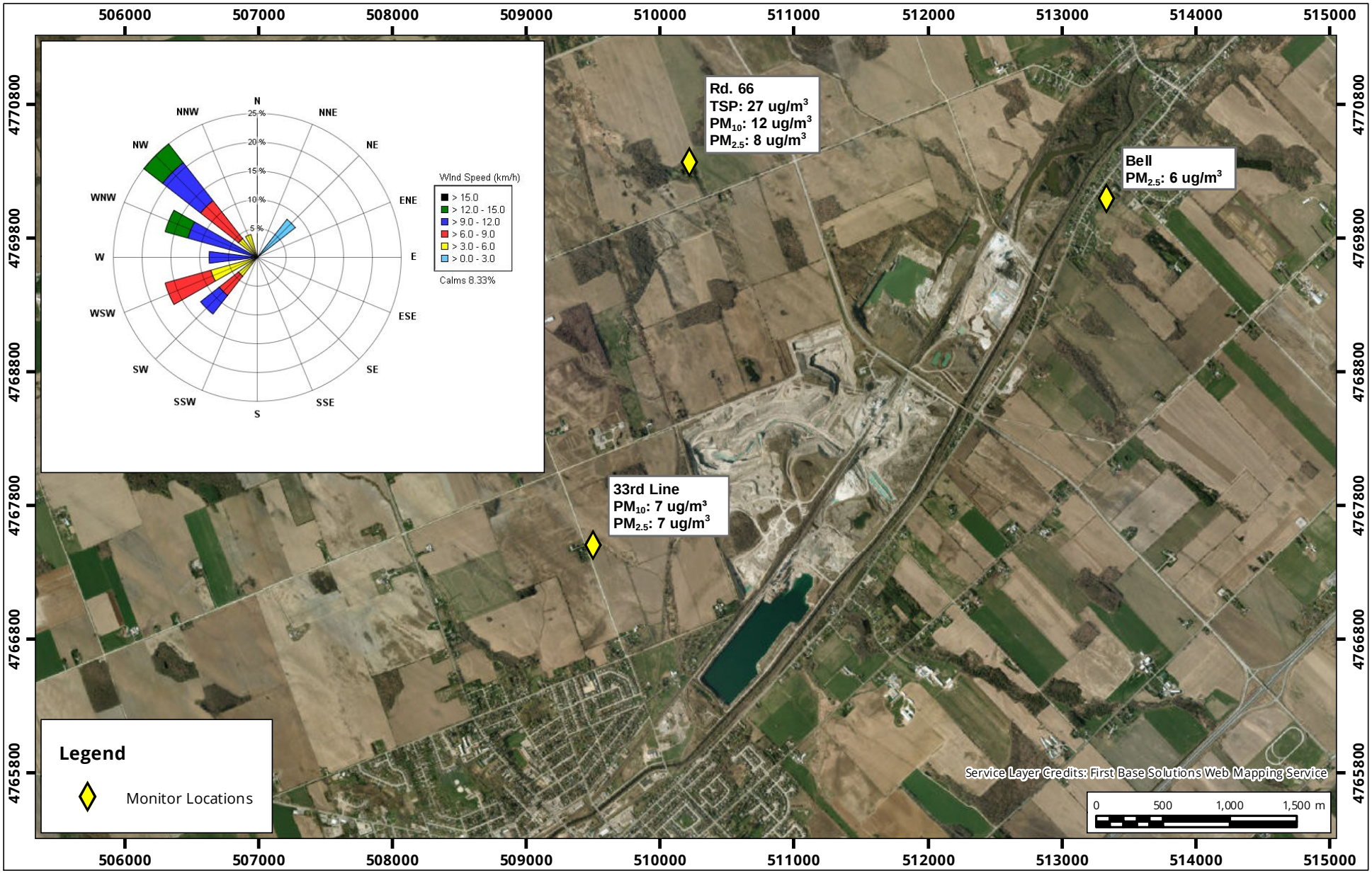
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure 15
Approx. Scale:	1:40,000
Date Revised:	April 24, 2019

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: April 3, 2019

Map Projection: NAD 1983 UTM Zone 17N

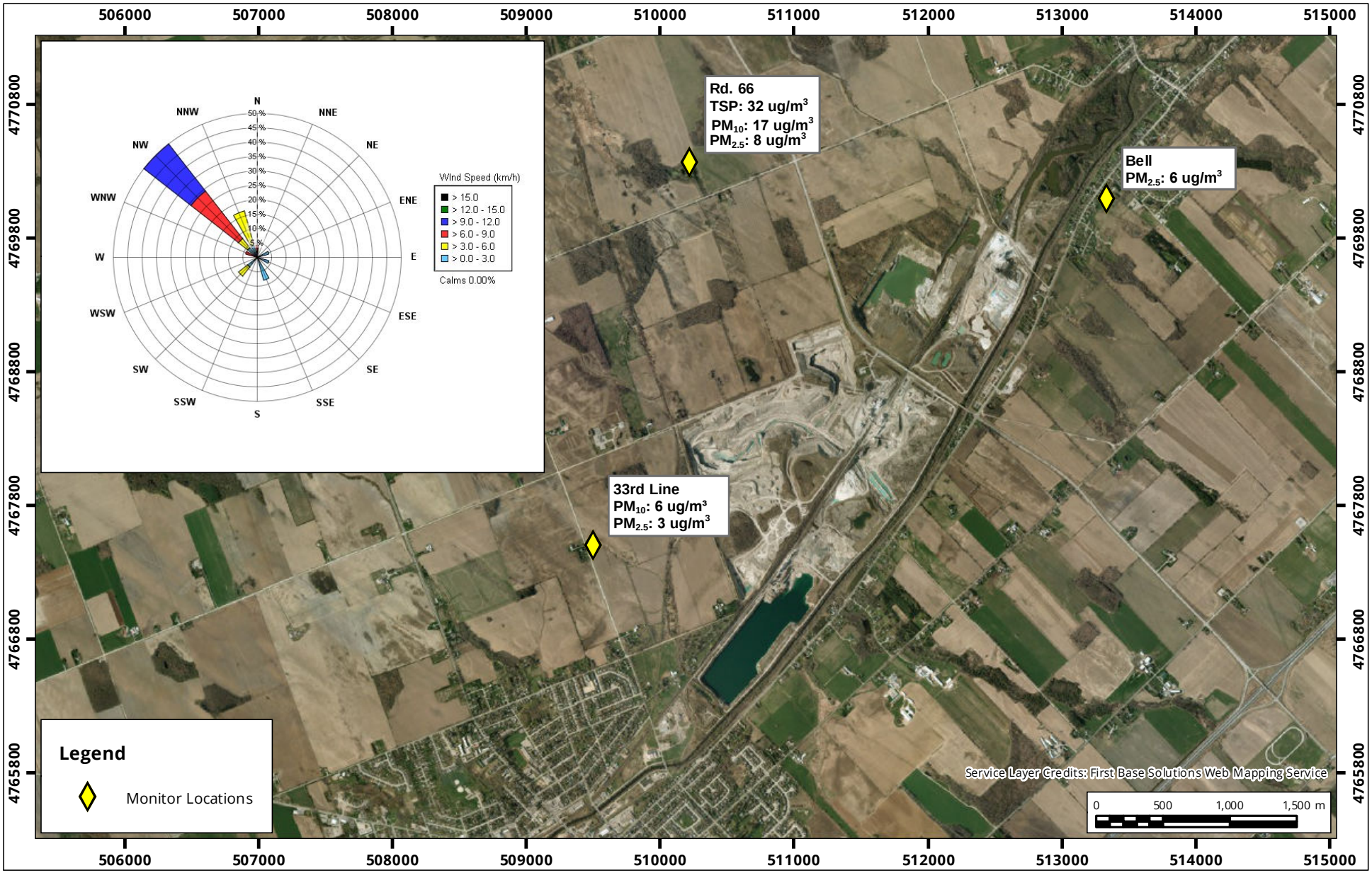
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure 15
Approx. Scale:	1:40,000
Date Revised:	April 24, 2019

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: April 9, 2019

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: TFL	Figure 15
Approx. Scale:	1:40,000
Date Revised:	April 24, 2019

Map Document: C:\Users\wny\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd

APPENDIX A

Table A1: Summary of Sample Flow Rate and Sample Duration for Rd 66 Station

Sample Date	Rd 66 Station - TSP			Rd 66 Station - PM_{10}			Rd 66 Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)	No.	(min)	(m^3)
January 3, 2019	738865	1402	1648	738864	1403	1642	738863	1408	1653
January 9, 2019	738871	1397	1659	738870	1402	1660	738869	1414	1660
January 15, 2019	738877	1401	1695	738876	1398	1663	738875	1411	1694
January 21, 2019	739076	1400	1667	738075	1401	1652	739074	1416	1659
January 27, 2019	Invalid Sample			739081	1405	1690	Invalid Sample		
February 2, 2019	739089	1394	1660	739088	1408	1656	739087	1407	1675
February 8, 2019	739095	1400	1640	739094	1405	1646	Invalid Sample		
February 14, 2019	Invalid Sample			739166	1404	1659	739165	1413	1676
February 20, 2019	739175	1396	1659	739174	1402	1659	Invalid Sample		
February 26, 2019	739183	1405	1599	739180	1401	1599	739179	1421	1611
March 4, 2019	739187	1405	1617	739186	1401	1472	739185	1417	1759
March 10, 2019	739312	1402	1617	739311	1403	1602	739310	1411	1764
March 16, 2019	739318	1401	1570	739317	1407	1569	739316	1412	1515
March 22, 2019	739324	1403	1579	739323	1407	1611	739322	1415	1548
March 28, 2019	739330	1400	1571	739329	1405	1598	739328	1410	1536
April 3, 2019	739540	1399	1595	739539	1405	1582	739538	1413	1520
April 9, 2019	739547	1409	1556	739546	1402	1555	739545	1411	1496

Table A2: Summary of Sample Flow Rate and Sample Duration for 33rd Line Station

Sample Date	33rd Line Station - PM_{10}			33rd Line Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
January 3, 2019	738867	1420	1611	738866	1411	1572
January 9, 2019	738873	1418	1540	738872	1406	1573
January 15, 2019	738879	1414	1641	738878	1399	1602
January 21, 2019	739078	1415	1628	739077	1400	1587
January 27, 2019	739084	1412	1526	739083	1403	1617
February 2, 2019	739091	1414	1620	739090	1404	1602
February 8, 2019	739097	1414	1571	739096	1412	1582
February 14, 2019	739169	1420	1620	739168	1410	1622
February 20, 2019	739177	1418	1626	739176	1406	1606
February 26, 2019	739182	1414	1601	739181	1404	1588
March 4, 2019	739307	1415	1627	739188	1401	1608
March 10, 2019	739314	1411	1597	739313	1405	1592
March 16, 2019	739320	1413	1533	739319	1407	1566
March 22, 2019	739326	1415	1593	739325	1411	1580
March 28, 2019	739535	1419	1605	739331	1408	1579
April 3, 2019	739542	1417	1572	739541	1408	1568
April 9, 2019	739548	1406	1529	739549	1414	1555

Table A3: Summary of Sample Flow Rate and Sample Duration for Bell Station

Sample Date	Bell Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)
January 3, 2019	738862	1405	1568
January 9, 2019	738868	1406	1589
January 15, 2019	738874	1402	1619
January 21, 2019	739073	1402	1593
January 27, 2019	739079	1403	1621
February 2, 2019	739086	1401	1574
February 8, 2019	739092	1408	1579
February 14, 2019	739164	1406	1600
February 20, 2019	739172	1404	1613
February 26, 2019	739178	1401	1581
March 4, 2019	739184	1404	1617
March 10, 2019	739309	1403	1604
March 16, 2019	739315	1404	1595
March 22, 2019	739321	1406	1585
March 28, 2019	739327	1404	1591
April 3, 2019	739537	1407	1589
April 9, 2019	739544	1403	1539

Table B1: 2019 Rd 66 Station Q1-2 Monitoring Results for TSP, PM10 and PM2.5

Walkers AAQM (1800160)			
Rd 66 Station Monitoring Results for TSP, PM_{10} and $PM_{2.5}$			
(results expressed in $\mu g/m^3$)			
	TSP	PM_{10}	$PM_{2.5}$
Air Quality Standard or POI Limit	*120* [1]	*50* [1]	*28* [2]
January 3, 2019	10	5	5
January 9, 2019	12	8	8
January 15, 2019	30	18	13
January 21, 2019	23	10	9
January 27, 2019	Invalid Sample	11	Invalid Sample
February 2, 2019	34	27	11
February 8, 2019	15	11	Invalid Sample
February 14, 2019	Invalid Sample	14	2
February 20, 2019	23	16	Invalid Sample
February 26, 2019	21	16	4
March 4, 2019	19	9	9
March 10, 2019	11	7	8
March 16, 2019	6	3	3
March 22, 2019	27	14	5
March 28, 2019	25	17	15
April 3, 2019	27	12	8
April 9, 2019	32	17	8

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*120*	*50*	*28*
No. > Standard/POI	0	0	0
Arithmetic Mean	20	12	8
Max. Concentration	34	27	15
Min. Concentration	6	3	2
% Valid data	87	100	80

Table B2: 2019 33rd Line Station Q1-2 Monitoring Results for PM10 and PM2.5

Walkers AAQM (1800160)		
33rd Line Station Monitoring Results for PM_{10} and $PM_{2.5}$		
(results expressed in $\mu g/m^3$)		
	PM_{10}	$PM_{2.5}$
Air Quality Standard or POI Limit	***50*** [1]	***28*** [2]
January 3, 2019	7	5
January 9, 2019	5	5
January 15, 2019	18	14
January 21, 2019	12	8
January 27, 2019	12	12
February 2, 2019	23	20
February 8, 2019	12	12
February 14, 2019	13	11
February 20, 2019	21	13
February 26, 2019	8	6
March 4, 2019	8	5
March 10, 2019	7	7
March 16, 2019	2	2
March 22, 2019	5	4
March 28, 2019	17	13
April 3, 2019	7	7
April 9, 2019	6	3

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*50*	*28*
No. > Standard/POI	0	0
Arithmetic Mean	11	9
Max. Concentration	23	20
Min. Concentration	2	2
% Valid data	100	100

Table B3: 2019 Bell Station Q1-2 Monitoring Results for PM2.5

Walkers AAQM (1800160)	
Bell Station Monitoring Results for $PM_{2.5}$	
(results expressed in µg/m^3)	
	$PM_{2.5}$
Air Quality Standard or POI Limit	***28*** [2]
January 3, 2019	7
January 9, 2019	3
January 15, 2019	17
January 21, 2019	5
January 27, 2019	11
February 2, 2019	25
February 8, 2019	11
February 14, 2019	12
February 20, 2019	11
February 26, 2019	3
March 4, 2019	11
March 10, 2019	9
March 16, 2019	3
March 22, 2019	6
March 28, 2019	12
April 3, 2019	6
April 9, 2019	6

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*28*
No. > Standard/POI	0
Arithmetic Mean	10
Max. Concentration	25
Min. Concentration	3
% Valid data	100

Table C1: Q1 & Q2 Summary of Sample Canister Pressures and Durations for VOCs/Total Reduced Sulfurs at Bell, Road 66 and 33rd Line Sampling Stations

Sample Date	Road 66 Sampling Station			33rd Line Sampling Station			Bell Sampling Station		
	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure
	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)
January 3, 2019	1438	-30	-0.6	Invalid Sample			Invalid Sample		
January 9, 2019	1438	-29.5	-2	1438	-29	-4	1438	-28	-0.6
January 15, 2019	1438	-30	-9	Invalid Sample			Invalid Sample		
January 21, 2019	Invalid Sample			Invalid Sample			Invalid Sample		
January 27, 2019	Invalid Sample			Invalid Sample			Invalid Sample		
February 2, 2019	1438	-29	-5	1438	-28	-4	Invalid Sample		
February 8, 2019	1438	-29	-5	1438	-28	-7	1438	-28.5	-5
February 14, 2019	1324	-29.5	-4	1324	-29	-4	1324	-30	-5
February 20, 2019	Invalid Sample			1324	-29	-5	1324	-29	-6
February 26, 2019	1324	-29	-1	1324	-30	-7	1324	-29	-5
March 4, 2019	1324	-28	-5	Invalid Sample			1324	-28	-5
March 10, 2019	1384	-28	-4	1384	-27	-4	1384	-27.5	-6
March 16, 2019	1384	-30	-5	1384	-29	-7	1384	-29	-6
March 22, 2019	1384	-28.5	-7	1384	-30	-7	1384	-27.5	-5
March 28, 2019	1384	-29	-5	1384	-30	-8	1384	-29	-3
April 3, 2019	1384	-28	-5	1384	-27	-1	1384	-30	-5
April 9, 2019	1384	-30	-7.5	1384	-30	-9	1384	-30	-6

Note: Final Canister Pressures recorded from ALS Lab reports

Table D1: Rd 66 Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
January 3, 2019	2.0	2.6	1.4	2.0	2.8	7.0	0.351	0.34	3.1	4.8	0.8	0.46	0.46	0.79	0.27	0.049	1.04	5.5	1.5	0.039	0.06
January 9, 2019	2.0	2.6	1.4	2.0	2.8	9.3	0.374	0.34	3.1	4.8	2.1	0.47	0.46	0.36	0.27	0.049	1.05	5.5	1.5	0.039	0.06
January 15, 2019	2.0	2.6	1.4	2.0	2.8	7.8	0.501	0.34	3.1	4.8	0.8	0.49	0.46	0.94	0.27	0.049	1.24	5.5	1.5	0.039	0.06
January 21, 2019																					
January 27, 2019																					
February 2, 2019	2.0	2.6	1.4	2.0	2.8	6.0	0.774	0.34	3.1	4.8	0.8	0.48	0.46	1.10	0.27	0.049	1.17	5.5	1.5	0.039	0.06
February 8, 2019	2.0	2.6	1.4	2.0	2.8	6.8	0.439	0.34	3.1	4.8	0.8	0.51	0.46	0.77	0.27	0.049	1.13	5.5	1.5	0.039	0.06
February 14, 2019	2.0	2.6	1.4	2.0	2.8	8.9	0.495	0.34	3.1	4.8	0.8	0.49	0.46	0.89	0.27	0.049	1.31	5.5	1.5	0.039	0.06
February 20, 2019																					
February 26, 2019	2.9	3.8	1.6	2.9	1.6	9.5	0.346	0.34	3.1	4.8	0.8	0.45	0.46	0.36	0.27	0.049	1.28	5.5	1.5	0.039	0.06
March 4, 2019	2.7	3.5	1.5	2.7	1.5	7.6	0.427	0.34	3.1	4.8	0.8	0.41	0.46	0.36	0.27	0.049	1.09	5.5	1.5	0.039	0.06
March 10, 2019	2.7	3.5	1.5	2.7	1.5	6.5	0.845	0.34	3.1	4.8	0.8	0.47	0.46	0.36	0.27	0.049	1.08	5.5	1.5	0.039	0.06
March 16, 2019	2.0	2.6	1.4	2.0	2.8	8.0	0.327	0.34	3.1	4.8	0.8	0.48	0.46	1.25	0.27	0.049	1.25	5.5	1.5	0.039	0.06
March 22, 2019	2.0	2.6	1.4	2.0	2.8	9.4	0.360	0.34	3.1	4.8	0.8	0.49	0.46	1.01	0.27	0.049	1.21	5.5	1.5	0.039	0.06
March 28, 2019	2.0	2.6	1.4	2.0	2.8	16.0	0.566	0.34	3.1	4.8	0.8	0.40	0.46	1.02	0.27	0.049	1.23	5.5	1.5	0.039	0.06
April 3, 2019	2.0	2.6	1.4	2.0	2.8																
April 9, 2019	2.0	2.6	1.4	2.0	2.8																

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	2.093	2.743	1.417	2.102	2.443	8.282	0.461	0.335	3.050	4.750	0.817	0.466	0.460	0.689	0.265	0.049	1.170	5.500	1.450	0.039	0.060
Arithmetic Mean	2.1	2.8	1.4	2.1	2.5	8.6	0.5	0.3	3.1	4.8	0.9	0.5	0.5	0.8	0.3	0.0	1.2	5.5	1.5	0.0	0.1
Max. Concentration	2.9	3.8	1.6	2.9	2.8	16.0	0.8	0.3	3.1	4.8	2.1	0.5	0.5	1.3	0.3	0.0	1.3	5.5	1.5	0.0	0.1
Min. Concentration	2.0	2.6	1.4	2.0	1.5	6.0	0.3	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.0	5.5	1.5	0.0	0.1
No. of valid samples	14	14	14	14	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
% Valid data	82	82	82	82	82	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71

Table D1: Rd 66 Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
January 3, 2019	2.35	0.041	0.083	0.040	0.040	0.040	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.98	0.30	4.1	0.41
January 9, 2019	2.25	0.041	0.089	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.99	0.30	4.1	0.41
January 15, 2019	2.33	0.041	0.095	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.84	0.30	4.1	0.41
January 21, 2019	Invalid Sample																				
January 27, 2019	Invalid Sample																				
February 2, 2019	2.30	0.041	0.099	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.36	0.74	4.1	0.41
February 8, 2019	2.24	0.041	0.085	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.76	1.3	5.5	0.94	0.30	4.1	0.41
February 14, 2019	2.22	0.041	0.087	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.19	0.30	4.1	0.41
February 20, 2019	Invalid Sample																				
February 26, 2019	2.52	0.041	0.087	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.79	0.30	4.1	0.41
March 4, 2019	2.30	0.041	0.084	0.040	0.040	0.040	0.35	4.2	2.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.71	0.30	4.1	0.41
March 10, 2019	2.54	0.041	0.086	0.040	0.040	0.040	0.35	4.2	2.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.03	0.78	4.1	0.41
March 16, 2019	2.48	0.041	0.084	0.040	0.040	0.040	0.35	4.2	2.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
March 22, 2019	2.52	0.041	0.094	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.68	0.30	4.1	0.41
March 28, 2019	2.55	0.041	0.079	0.040	0.040	0.040	0.35	4.2	3.3	0.36	0.44	0.49	1.0	0.41	0.35	3.6	5.5	1.08	0.78	4.1	0.41
April 3, 2019	Invalid Sample																				
April 9, 2019	Invalid Sample																				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	2.380	0.041	0.087	0.040	0.040	0.040	0.345	4.200	1.898	0.360	0.435	0.490	1.000	0.410	0.373	1.365	5.500	0.856	0.375	4.100	0.410
Arithmetic Mean	2.4	0.0	0.1	0.0	0.0	0.0	0.3	4.2	2.1	0.4	0.4	0.5	1.0	0.4	0.4	1.4	5.5	0.9	0.4	4.1	0.4
Max. Concentration	2.6	0.0	0.1	0.0	0.0	0.0	0.3	4.2	3.4	0.4	0.4	0.5	1.0	0.4	0.8	3.6	5.5	1.4	0.8	4.1	0.4
Min. Concentration	2.2	0.0	0.1	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
No. of valid samples	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
% Valid data	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71

Table D1: Rd 66 Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
January 3, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.71	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
January 9, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
January 15, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.320	1.20	0.49	0.49	0.49
January 21, 2019																					
January 27, 2019																					
February 2, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.95	0.49	0.43	0.035	0.07	0.78	0.8	0.6	0.068	0.055	1.20	0.49	0.49	0.49
February 8, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.80	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.068	0.055	1.20	0.49	0.49	0.49
February 14, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.70	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.066	0.055	1.30	0.49	0.49	0.49
February 20, 2019																					
February 26, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.40	0.49	0.49	0.49
March 4, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
March 10, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.63	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49
March 16, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.40	0.49	0.49	0.49
March 22, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.60	0.49	0.49	0.49
March 28, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
April 3, 2019																					
April 9, 2019																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	0.410	0.350	0.350	0.400	0.650	0.500	0.465	0.476	0.490	0.425	0.035	0.070	0.399	0.750	0.550	0.034	0.064	1.220	0.490	0.490	0.490
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.3	0.5	0.5	0.5
Max. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	1.0	0.5	0.4	0.0	0.1	0.8	0.8	0.6	0.1	0.3	1.6	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
No. of valid samples	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
% Valid data	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71

Table D1: Rd 66 Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
January 3, 2019	0.026	0.44	0.9	50.0
January 9, 2019	0.026	0.44	0.9	50.0
January 15, 2019	0.026	0.44	0.9	50.0
January 21, 2019				
January 27, 2019				
February 2, 2019	0.026	0.44	0.9	50.0
February 8, 2019	0.026	0.44	0.9	50.0
February 14, 2019	0.026	0.44	0.9	50.0
February 20, 2019				
February 26, 2019	0.026	0.44	0.9	130.0
March 4, 2019	0.026	0.44	0.9	130.0
March 10, 2019	0.026	0.44	0.9	50.0
March 16, 2019	0.026	0.44	0.9	50.0
March 22, 2019	0.026	0.44	0.9	50.0
March 28, 2019	0.026	0.44	0.9	130.0
April 3, 2019				
April 9, 2019				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Geometric Mean	0.026	0.435	0.850	63.491
Arithmetic Mean	0.0	0.4	0.85	70.0
Max. Concentration	0.0	0.4	0.85	130.0
Min. Concentration	0.0	0.4	0.85	50.0
No. of valid samples	12	12	12	12
% Valid data	71	71	71	71

Table D1: 33rd Line Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																					
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
January 3, 2019																							
January 9, 2019	2.0	2.6	1.4	2.0	2.8	7.5	0.343	0.34	3.1	4.8	0.8	0.45	0.46	0.81	0.27	0.049	1.05	5.5	1.5	0.039	0.06	2.25	0.041
January 15, 2019																							
January 21, 2019																							
January 27, 2019																							
February 2, 2019	2.0	2.6	1.4	2.0	2.8	6.6	0.810	0.34	3.1	4.8	0.8	0.47	0.46	0.97	0.27	0.115	1.11	5.5	1.5	0.039	0.06	2.19	0.041
February 8, 2019	2.0	2.6	1.4	2.0	2.8	9.3	0.608	0.34	3.1	4.8	0.8	0.49	0.46	0.87	0.27	0.049	1.10	5.5	1.5	0.039	0.06	2.30	0.041
February 14, 2019	2.0	2.6	1.4	2.0	2.8	8.8	0.498	0.34	3.1	4.8	0.8	0.50	0.46	0.81	0.27	0.049	1.17	5.5	1.5	0.039	0.06	2.16	0.041
February 20, 2019	3.8	5.0	16.0	3.9	22.0	16.7	0.589	0.34	3.1	4.8	0.8	0.44	0.46	0.87	0.27	0.049	1.20	5.5	1.5	0.039	0.06	2.34	0.041
February 26, 2019	2.9	3.8	1.6	2.9	1.6	9.4	0.364	0.34	3.1	4.8	0.8	0.48	0.46	0.36	0.27	0.049	1.20	5.5	1.5	0.039	0.06	2.60	0.041
March 4, 2019																							
March 10, 2019	2.7	9.1	1.5	2.7	4.8	6.7	1.070	0.34	3.1	4.8	0.8	0.48	0.46	0.36	0.27	0.049	1.30	5.5	1.5	0.039	0.06	2.50	0.041
March 16, 2019	2.0	2.6	1.4	2.0	2.8	9.8	0.390	0.34	3.1	4.8	4.0	0.46	0.46	0.36	0.27	0.119	1.05	5.5	1.5	0.039	0.06	2.48	0.041
March 22, 2019	2.0	2.6	1.4	2.0	2.8	16.2	0.413	0.34	3.1	4.8	0.8	0.50	0.46	0.86	0.27	0.151	1.16	5.5	1.5	0.039	0.06	2.45	0.041
March 28, 2019	2.0	2.6	1.4	2.0	2.8	18.5	0.744	0.34	3.1	4.8	0.8	0.43	0.46	0.91	0.27	0.049	1.33	5.5	1.5	0.039	0.06	2.61	0.041
April 3, 2019	2.0	2.6	1.4	2.0	2.8																		
April 9, 2019	2.0	2.6	1.4	2.0	2.8																		

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
No. > Standard/POI	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.3	3.6	2.9	2.3	4.8	11.0	0.6	0.3	3.1	4.8	1.1	0.5	0.5	0.7	0.3	0.1	1.2	5.5	1.5	0.0	0.1	2.4	0.0
Max. Concentration	3.8	9.1	16.0	3.9	22.0	18.5	1.1	0.3	3.1	4.8	4.0	0.5	0.5	1.0	0.3	0.2	1.3	5.5	1.5	0.0	0.1	2.6	0.0
Min. Concentration	2.0	2.6	1.4	2.0	1.6	6.6	0.3	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.1	5.5	1.5	0.0	0.1	2.2	0.0
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D1: 33rd Line Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																					
	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane
Air Quality Standard or POI Limit [1]	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
January 3, 2019	Invalid Sample																						
January 9, 2019	0.086	0.040	0.040	0.040	0.35	4.2	2.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.91	0.30	4.1	0.41	0.41	0.35	0.35	0.40
January 15, 2019	Invalid Sample																						
January 21, 2019	Invalid Sample																						
January 27, 2019	Invalid Sample																						
February 2, 2019	0.126	0.040	0.040	0.040	0.35	4.2	3.3	0.36	0.44	0.49	1.0	0.41	0.35	2.6	5.5	1.46	0.63	4.1	0.41	0.41	0.35	0.35	0.40
February 8, 2019	0.082	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	2.8	5.5	0.90	0.30	4.1	0.41	0.41	0.35	0.35	0.40
February 14, 2019	0.083	0.040	0.040	0.040	0.35	4.2	2.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.15	0.65	4.1	0.41	0.41	0.35	0.35	0.40
February 20, 2019	0.082	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.33	0.87	4.1	0.41	0.41	0.35	0.35	0.40
February 26, 2019	0.090	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.93	0.30	4.1	0.41	0.41	0.35	0.35	0.40
March 4, 2019	Invalid Sample																						
March 10, 2019	0.088	0.040	0.040	0.040	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.98	1.07	4.1	0.41	0.41	0.35	0.35	0.40
March 16, 2019	0.082	0.040	0.040	0.040	0.35	4.2	4.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.67	2.75	4.1	0.41	0.41	0.35	0.35	0.40
March 22, 2019	0.098	0.040	0.040	0.040	0.35	4.2	2.3	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.73	0.30	4.1	0.41	0.41	0.35	0.35	0.40
March 28, 2019	0.071	0.040	0.040	0.040	0.35	4.2	2.4	0.36	0.44	0.49	1.0	0.41	0.35	3.4	5.5	1.59	0.82	4.1	0.41	0.41	0.35	0.35	0.40
April 3, 2019	Invalid																						
April 9, 2019	Invalid																						

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.1	0.0	0.0	0.0	0.3	4.2	2.5	0.4	0.4	0.5	1.0	0.4	0.4	1.8	5.5	1.1	0.8	4.1	0.4	0.4	0.4	0.4	0.4
Max. Concentration	0.1	0.0	0.0	0.0	0.3	4.2	4.1	0.4	0.4	0.5	1.0	0.4	0.4	3.4	5.5	1.6	2.8	4.1	0.4	0.4	0.4	0.4	0.4
Min. Concentration	0.1	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.7	0.3	4.1	0.4	0.4	0.4	0.4	0.4
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D1: 33rd Line Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
January 3, 2019																					
January 9, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
January 15, 2019																					
January 21, 2019																					
January 27, 2019																					
February 2, 2019	0.7	0.5	0.47	0.93	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.138	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
February 8, 2019	0.7	0.5	0.47	0.78	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.068	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
February 14, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.069	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
February 20, 2019	0.7	0.5	0.47	0.73	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49	0.026	0.44	0.9	120.0
February 26, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49	0.026	0.44	0.9	120.0
March 4, 2019																					
March 10, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49	0.026	0.44	0.9	50.0
March 16, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49	0.026	0.44	0.9	130.0
March 22, 2019	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49	0.026	0.44	0.9	50.0
March 28, 2019	3.6	0.5	0.47	0.83	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49	0.026	0.44	0.9	140.0
April 3, 2019																					
April 9, 2019																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.9	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.3	0.5	0.5	0.5	0.0	0.4	0.85	81.0
Max. Concentration	3.6	0.5	0.5	0.9	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.1	0.1	1.5	0.5	0.5	0.5	0.0	0.4	0.85	140.0
Min. Concentration	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5	0.0	0.4	0.85	50.0
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D1: Bell Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
January 3, 2019																					
January 9, 2019	2.0	2.6	1.4	2.0	2.8	6.5	0.345	0.34	3.1	4.8	0.8	0.46	0.46	0.95	0.27	0.049	1.21	5.5	1.5	0.039	0.06
January 15, 2019	2.0	2.6	1.4	2.0	2.8	4.4	0.627	0.34	3.1	4.8	0.8	0.46	0.46	1.13	0.27	0.049	1.23	5.5	1.5	0.039	0.13
January 21, 2019																					
January 27, 2019																					
February 2, 2019																					
February 8, 2019	2.0	2.6	1.4	2.0	2.8	9.2	0.391	0.34	3.1	4.8	0.8	0.48	0.46	0.97	0.27	0.049	1.21	5.5	1.5	0.039	0.06
February 14, 2019	2.0	2.6	1.4	2.0	2.8	13.9	0.495	0.34	3.1	4.8	0.8	0.47	0.46	0.79	0.27	0.049	1.21	5.5	1.5	0.039	0.06
February 20, 2019	3.8	5.0	31.0	3.9	31.0	5.0	0.681	0.34	3.1	4.8	0.8	0.45	0.46	0.36	0.27	0.049	1.00	5.5	1.5	0.039	0.06
February 26, 2019	2.9	3.8	1.6	2.9	1.6	3.3	0.373	0.34	3.1	4.8	0.8	0.45	0.46	0.36	0.27	0.049	1.13	5.5	1.5	0.039	0.06
March 4, 2019	2.7	3.5	1.5	2.7	1.5	4.7	0.441	0.34	3.1	4.8	0.8	0.40	0.46	0.87	0.27	0.049	1.24	5.5	1.5	0.039	0.06
March 10, 2019	2.7	17.0	1.5	2.7	8.9	4.4	0.414	0.34	3.1	4.8	0.8	0.46	0.46	0.36	0.27	0.049	1.17	5.5	1.5	0.039	0.06
March 16, 2019	2.0	2.6	1.4	2.0	2.8	5.0	0.248	0.34	3.1	4.8	0.8	0.44	0.46	0.86	0.27	0.049	1.24	5.5	1.5	0.039	0.06
March 22, 2019	2.0	2.6	1.4	2.0	2.8	4.1	0.385	0.34	3.1	4.8	0.8	0.48	0.46	0.36	0.27	0.049	1.20	5.5	1.5	0.039	0.06
March 28, 2019	2.0	2.6	1.4	2.0	2.8	4.8	0.466	0.34	3.1	4.8	0.8	0.41	0.46	0.92	0.27	0.049	1.15	5.5	1.5	0.039	0.06
April 3, 2019	2.0	2.6	1.4	2.0	2.8																
April 9, 2019	2.0	2.6	1.4	2.0	2.8																

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.3	4.3	4.1	2.4	5.7	5.9	0.4	0.3	3.1	4.8	0.8	0.5	0.5	0.7	0.3	0.0	1.2	5.5	1.5	0.0	0.1
Max. Concentration	3.8	17.0	31.0	3.9	31.0	13.9	0.7	0.3	3.1	4.8	0.8	0.5	0.5	1.1	0.3	0.0	1.2	5.5	1.5	0.0	0.1
Min. Concentration	2.0	2.6	1.4	2.0	1.5	3.3	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.0	5.5	1.5	0.0	0.1
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D1: Bell Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
January 3, 2019	Invalid Sample																				
January 9, 2019	2.23	0.041	0.083	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.99	0.30	4.1	0.41
January 15, 2019	2.47	0.041	0.089	0.040	0.040	0.040	0.35	4.2	5.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.22	0.30	4.1	0.41
January 21, 2019	Invalid Sample																				
January 27, 2019	Invalid Sample																				
February 2, 2019	Invalid Sample																				
February 8, 2019	2.33	0.041	0.086	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.96	0.30	4.1	0.41
February 14, 2019	2.14	0.041	0.085	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.17	0.30	4.1	0.41
February 20, 2019	2.57	0.041	0.086	0.040	0.040	0.040	0.35	4.2	3.9	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.42	0.91	4.1	0.41
February 26, 2019	2.44	0.041	0.087	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
March 4, 2019	2.24	0.041	0.088	0.040	0.040	0.040	0.35	4.2	2.0	0.36	0.44	0.49	1.0	0.41	0.35	4.0	5.5	0.69	0.30	4.1	0.41
March 10, 2019	2.50	0.041	0.086	0.040	0.040	0.040	0.35	4.2	4.2	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.04	1.01	4.1	0.41
March 16, 2019	2.40	0.041	0.081	0.040	0.040	0.040	0.35	4.2	2.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.79	0.30	4.1	0.41
March 22, 2019	2.82	0.041	0.095	0.040	0.040	0.040	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
March 28, 2019	2.28	0.041	0.065	0.040	0.040	0.040	0.35	4.2	3.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.17	1.03	4.1	0.41
April 3, 2019	Invalid																				
April 9, 2019	Invalid																				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.4	0.0	0.1	0.0	0.0	0.0	0.3	4.2	2.5	0.4	0.4	0.5	1.0	0.4	0.4	1.5	5.5	0.9	0.5	4.1	0.4
Max. Concentration	2.8	0.0	0.1	0.0	0.0	0.0	0.3	4.2	5.1	0.4	0.4	0.5	1.0	0.4	0.4	4.0	5.5	1.4	1.0	4.1	0.4
Min. Concentration	2.1	0.0	0.1	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D1: Bell Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
January 3, 2019																					
January 9, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.66	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
January 15, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.69	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
January 21, 2019																					
January 27, 2019																					
February 2, 2019																					
February 8, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.73	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.070	0.055	1.20	0.49	0.49	0.49
February 14, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.60	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.070	0.055	1.20	0.49	0.49	0.49
February 20, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.90	0.49	0.43	0.035	0.07	1.03	0.8	0.6	0.028	0.055	1.40	0.49	0.49	0.49
February 26, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.40	0.49	0.49	0.49
March 4, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
March 10, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49
March 16, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.50	0.49	0.49	0.49
March 22, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.60	0.49	0.49	0.49
March 28, 2019	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.73	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.120	1.30	0.49	0.49	0.49
April 3, 2019																					
April 9, 2019																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.4	0.5	0.5	0.5
Max. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.9	0.5	0.4	0.0	0.1	1.0	0.8	0.6	0.1	0.1	1.6	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D1: Bell Q1 & Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
January 3, 2019				
January 9, 2019	0.026	0.44	0.9	100.0
January 15, 2019	0.026	0.44	0.9	50.0
January 21, 2019				
January 27, 2019				
February 2, 2019				
February 8, 2019	0.026	0.44	0.9	50.0
February 14, 2019	0.026	0.44	0.9	50.0
February 20, 2019	0.026	0.44	0.9	110.0
February 26, 2019	0.026	0.44	0.9	100.0
March 4, 2019	0.026	0.44	0.9	50.0
March 10, 2019	0.026	0.44	0.9	50.0
March 16, 2019	0.026	0.44	0.9	110.0
March 22, 2019	0.026	0.44	0.9	50.0
March 28, 2019	0.026	0.44	0.9	100.0
April 3, 2019				
April 9, 2019				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Arithmetic Mean	0.0	0.4	0.85	74.5
Max. Concentration	0.0	0.4	0.85	110.0
Min. Concentration	0.0	0.4	0.85	50.0
% Valid data	73	73	73	73

APPENDIX B

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2217215-COFC

COC Number: 17 - 726299

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	
Company:	RWDI	Select Report Format:	PDF EXCEL EDD (DIGITAL)
Contact:	Steve Saunderson / Brad Bergeron	Quality Control (QC) Report with Report	YES NO
Phone:	519-823-1311	Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX
Street:	600 Southgate Drive	Email 1 or Fax	Brad.Bergeron@rwdi.com
City/Province:	Guelph	Email 2	Steve.Saunderson@rwdi.com
Postal Code:		Email 3	Nathan.McShane@rwdi.com
Invoice To	Same as Report To YES NO	**Invoice Distribution**	
	Copy of Invoice with Report YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
Company:	WAA	Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#:
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-161	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2217215	ALS Contact:	Sampler:

Turnaround Time (TAT) Options - below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] X Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

Emergency: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	738862 - Bell Pm 2.5 - Jan 3	04-01-19	00:00	AA	X			
	738863 - ROGG Pm 2.5 - Jan 3	↓	↓	↓	X			
	738864 - ROGG Pm 10 - Jan 3				X			
	738865 - ROGG TSP - Jan 3				X			
	738866 - 33rd Pm 2.5 - Jan 3				X			
	738867 - 33rd Pm 10 - Jan 3				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: AP	Date: 7-1-19	Time: 15:00
	01/07/19							

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2220041-COFC

COC Number: 17 - 726291

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL | EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	STEVE SAUNDERSON / BRAD BERGERON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL | MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax: BRAD.BERGERON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH	Email 2: STEVE.SAUNDERSON@RWDI.COM	
Postal Code:		Email 3: MATTHEW.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☒ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	180016	Major/Minor Code:	Routing Code:
PO / AFE:	180160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2220041	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	738868 - BELL PM2.5 - JAN 9	10-01-19	00:00	AA	X			
	738869 - RD 66 PM2.5 - JAN 9				X			
	738870 - RD 66 PM10 - JAN 9				X			
	738871 - RD 66 TSP - JAN 9				X			
	738872 - 33RD PM2.5 - JAN 9				X			
	738873 - 33RD PM10 - JAN 9				X			

Drinking Water (OW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? | | YES | | NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: AP	Date: 14-1-19	Time: 13:30

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2221921-COFC

COC Number: 17 - 726296

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format:	PDF EXCEL EDD (DIGITAL)	Regular [R] standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	STEVE SANDERSON / BRAD BERGERON	Quality Control (QC) Report with Report	YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	519-823-1311	Compare Results to Criteria on Report - provide details below if box checked		EMERGENCY: 1 Business day [E-100%] / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX	
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax	BRAD.BERGERON@RWDI.COM	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	GUELPH ON	Email 2	STEVE.SANDERSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	NATHAN.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution	
	Same as Report To YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
	Copy of Invoice with Report YES NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INDERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2221921	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738874 - BELL PM 2.5 - JAN 15	16-01-19	00:00	AA	X			
2	738875 - RO 66 PM 2.5 - JAN 15				X			
3	738876 - RO 66 PM 10 - JAN 15				X			
4	738877 - RO 66 TSP - JAN 15				X			
5	738878 - 33RD PM 2.5 - JAN 15				X			
6	738879 - 33RD PM 10 - JAN 15				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No	
Ice Packs	Ice Cubes	Custody seal intact	Yes		No	
Cooling Initiated						

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				N.A.			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 01/17/19	Time:	Received by:	Date:	Time:	Received by:	Date: 17/Jan/2019.	Time: 14:55

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2223497-COFC

COC Number: 17 - 726297

Page 1 of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	BRAD BERGERON / STEVE SANDERSON
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 SOUTHGATE DRIVE
City/Province:	GUELPH ON
Postal Code:	

Invoice To	
Same as Report To	☐ YES ☐ NO
Copy of Invoice with Report	☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: BRAD.BERGERON@RWDI.COM
Email 2: STEVE.SANDERSON@RWDI.COM
Email 3: NATHAN.MCFADDEN@RWDI.COM

Invoice Distribution

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐
EMERGENCY: 1 Business day [E-100%] ☐ Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	WALKER INGERSOLL
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	
ALS Lab Work Order # (lab use only):	L2223497 ~~22~~ 28

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739073-BELL PM 2.5-JAN21	01/22/19	00:00	AA	X			
2	739074-~~[illegible]~~ ROGG PM 2.5-JAN21	↓	↓	↓	X			
3	739075-ROGG PM 10-JAN21	↓	↓	↓	X			
4	739076-ROGG TSP-JAN21	↓	↓	↓	X			
5	739077-33RD PM 2.5-JAN21	↓	↓	↓	X			
6	739078-33RD PM 10-JAN21	↓	↓	↓	X			
7.	739085-BLANK-JAN21	↓	↓	↓	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C: N/A

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: [signature]	Date:	Time:	Received by:	Date:	Time:	Received by: [signature]	Date: 22/Jan/2019	Time: 15:50

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2226878-COFC

COC Number: 17 - 726292

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Di
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL | EDD (DIGITAL)
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL | ☐ MAIL ☐ FAX
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BERGERON@RWDI.COM
City/Province:	GUELPH, ON	Email 2 STEVE.SANDERSON@RWDI.COM
Postal Code:		Email 3 NATHAN.MCFADDEN@RWDI.COM
Invoice To	Same as Report To ☒ YES ☐ NO	**Invoice Distribution**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2226878	ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739079 - RELL Pm2.5 - JAN 27	28-01-19	00:00	AA	X			
	~~739080 - RELL Pm10 - JAN 27~~				X			
2	739081 - RELL Pm10 - JAN 27				X			
	~~739082 - RELL Pm2.5 - JAN 27~~				X			
3	739083 - 33RD Pm 2.5 - JAN 27				X			
4	739084 - 33RD Pm 10 - JAN 27				X			

- THESE SAMPLES NOT SUBMITTED NJM 01/30/19

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☒

Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
23.6°C	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	01/30/19		AARON BURTON	31-JAN-2019	11:50		Jan 30/19	15:45

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2230278-COFC

COC Number: 17 - 726298

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BERGERON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH, ON	Email 2 STEVE.SANDERSON@RWDI.COM	
Postal Code:		Email 3 NATHAN.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ YES ☐ NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000701	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2230278	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739085 - BELL PM2.5 - FEB 2	03-02-19	00:00	AA	✓			
2	739087 - RO66 PM2.5 - FEB 2 (739087)				✓			
3	739088 - RO66 PM10 - FEB 2				✓			
4	739089 - RO66 TSP - FEB 2				✓			
5	739090 - 33RD PM2.5 - FEB 2				✓			
6	739091 - 33RD PM10 - FEB 2				✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated ☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 02/07/19	Time:	Received by:	Date: Feb 07/19	Time:	Received by:	Date: Feb 07/19	Time: 15:35

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2232542-COFC

COC Number: 17 - 726295

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL | EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BELLERIVE / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL | ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BELLERIVE@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH, ON	Email 2 STEVE.SANDERSON@RWDI.COM	
Postal Code:		Email 3 NATHAN.MCGUINNESS@RWDI.COM	
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INDUSTRIES	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-107	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2232542-COFC	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	~~[illegible]~~	09-02-19	00:00	AIR	✓			
1	739092 - BGL PM 2.6 - FEB 8				✓			
2	739094 - RO66 - PM10 - FEB 8				✓			
3	739095 - RO66 TSP - FEB 8				✓			
4	739096 - 33RD PM 2.5 - FEB 8							
5	739097 - 33RD PM 10 - FEB 8							

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 2019/02/13	Time:	Received by:	Date:	Time:	Received by:	Date: Feb 13/19	Time: 19:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2234084-COFC

COC Number: 17 - 726294

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Company:	RWDI	Select Report Format:	PDF EXCEL EDD (DIGITAL)	Regular [R]	Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BERCEROU / STEVE SANDERSON	Quality Control (QC) Report with Report	YES NO	PRIORITY (Business Days) 4 day [P4-20%]	EMERGENCY 1 Business day [E-100%]
Phone:	519-823-1311	Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%]	Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX	2 day [P2-50%]	
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax	BRAD.BERCEROU@RWDI.COM	Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
City/Province:	GUELPH, ON	Email 2	STEVE.SANDERSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.	
Postal Code:		Email 3	NATHAN.MCFADDEN@RWDI.COM		

Invoice To		Invoice Distribution	
	Same as Report To YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
	Copy of Invoice with Report YES NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INCERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2234084 19	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739164 - BELL PM2.5 - FEB14	15-02-19	00:00	AA	✓			
2	739165 - RD66 PM2.5 - FEB14				✓			
3	739166 - RD66 PM10 - FEB14				✓			
4	739168 - 33RD PM2.5 - FEB14				✓			
5	739169 - 33RD PM10 - FEB14				✓			
6	739170 - BLANK - FEB14				✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				N/A			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	02/19/19						19/Feb/19.	15:15.

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2236067-COFC

COC Number: 17 - 726571

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BERGERON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH	Email 2 STEVE.SANDERSON@RWDI.COM	
Postal Code:		Email 3 NATHAN.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ YES ☐ NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2236067	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739172 - BELL PM2.5 - FEB 20	21-02-19	00:00	AA	✓			
	~~739173 - RO66 PM2.5 - FEB 20~~	〃	〃	〃				
2	739174 - RO66 PM10 - FEB 20				✓			
3	739175 - RO66 TSP - FEB 20				✓			
4	739177 - 33RD PM2.5 - FEB 20				✓			
5	739176 - 33RD PM10 - FEB 20				✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐		
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					N/A		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 02/22/19	Time:	Received by:	Date:	Time:	Received by:	Date: 22/Feb/2019	Time: 16:55

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 - 726293

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	BRAD BERGERON / STEVE SANDERSON
Phone:	519-831-1311
	Company address below will appear on the final report
Street:	600 SOUTHGATE DRIVE
City/Province:	GUELPH, ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL | ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☒ EMAIL | ☐ MAIL ☐ FAX
Email 1 or Fax: BRAD.BERGERON@RWDI.COM
Email 2: STEVE.SANDERSON@RWDI.COM
Email 3: NATHAN.MCFADDEN@RWDI.COM

Invoice Distribution

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: WALKER INGERSOLL
Job #: 1800160
PO / AFE: 1800160-1008-10
LSD:
ALS Lab Work Order # (lab use only): L2384446 28

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:
ALS Contact: | Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PERCULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739178 - BELL PM2.5 - FEB 26	27-02-19	00:00	AA	✓			
2	739179 - ROSS PM2.5 - FEB 26				✓			
3	739180 - ROSS PM10 - FEB 26				✓			
4	739183 - ROSS TSP - FEB 26				✓			
5	739184 - 33RD PM2.5 - FEB 26				✓			
6	739185 - 33RD PM10 - FEB 26				✓			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
22.4°C	N/A

SHIPMENT RELEASE (client use)

Released by: NATHAN MCFADDEN | Date: 02/28/19 | Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: AARON BURTON | Date: 1-March-2019 | Time: 12:45

FINAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: 28 Feb 2019 | Time: 15:30

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2240852-COFC

COC Number: 17 - 726576

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	
Company:	RWDI	Select Report Format:	PDF EXCEL EDD (DIGITAL)
Contact:	BRIAN BERGERON / BRIAN STEVE SHANDERSON	Quality Control (QC) Report with Report	YES NO
Phone:	519-	Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax	BRIAN.BERGERON@RWDI.COM
City/Province:	GUELPH, ON	Email 2	STEVE.SHANDERSON@RWDI.COM
Postal Code:		Email 3	NATHAN.MCFADDEN@RWDI.COM
Invoice To	Same as Report To YES NO	**Invoice Distribution**	
	Copy of Invoice with Report YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2240852	ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739184 - BELL PM2.5 - MARCH 4	05-03-19	00:00	AA	✓			
2	739185 - RD66 PM2.5 - MARCH 4	"	"	"	✓			
3	739186 - RD66 PM10 - MARCH 4	"	"	"	✓			
4	739187 - RD66 TSP - MARCH 4	"	"	"	✓			
5	739188 - 33RD PM2.5 - MARCH 4	"	"	"	✓			
6	739307 - 33RD PM10 - MARCH 4	"	"	"	✓			
7	BLANK - MARCH 4	05-03-19	00:00	AA	✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
22.0°C	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
NATHAN MCFADDEN	03/06/19		AARON BURTON	7-March-2019	13:00		March 6/2019	2:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2243621-COFC

COC Number: 17 - 726575

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-631-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BERGERON@RWDI.COM	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	GUELPH, ON	Email 2 STEVE.SANDERSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 NATHAN.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ YES ☐ NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2243621	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739309 - BELL PM2.5 - MARCH 10	11-03-19	00:00	AA	✓			
2	739310 - RO 66 PM2.5 - MARCH 10				✓			
3	739311 - RO 66 PM10 - MARCH 10				✓			
4	739312 - RO66 TSP - MARCH 10				✓			
5	739313 - 33RO PM2.5 - MARCH 10				✓			
6	739314 - 33RO PM10 - MARCH 10				✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐		
Ice Packs	☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐		
Cooling Initiated	☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
NATHAN MCFADDEN	03/13/19						March 13/19	2:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2012 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2246241-COFC

COC Number: 17 - 726572

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distr...	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☒ PDF ☒ EXCEL | EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-831-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL | MAIL ☐ FAX	
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax BRAD.BERGERON@RWDI.COM	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	GUELPH, ON	Email 2 STEVE.SANDERSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 NATHAN.MCFADDEN@RWDI.COM	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2246241 19	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739315 - BELL PM 2.5 - MARCH 16	19-03-19	00:00	AA	✓			
2	739316 - RD 66 PM 2.5 - MARCH 16	↓	↓	↓	✓			
3	739317 - RD 66 PM 10 - MARCH 16				✓			
4	739318 - RD 66 ISP - MARCH 16				✓			
5	739319 - 33RD PM 2.5 - MARCH 16				✓			
6	739320 - 33RD PM 10 - MARCH 16				✓			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
NATHAN MCFADDEN	03/19/19						March 19/19	2:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2249160-COFC

COC Number: 17 - 726574

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	STEVE SAUDERSON / BRAD BERGERON
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 SOUTHGATE DRIVE
City/Province:	GUELPH ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	BRAD.BERGERON@RWDI.COM
Email 2	STEVE.SAUDERSON@RWDI.COM
Email 3	NATHAN.MCFADDEN@RWDI.COM
Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	☒ Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days) 4 day [P4-20%]	☐
3 day [P3-25%]	☐
2 day [P2-50%]	☐
EMERGENCY 1 Business day [E-100%]	☐
Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]	☐
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.	

Project Information	
ALS Account # / Quote #:	WALKER INGERSOLL
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	
ALS Lab Work Order # (lab use only):	L2249160 COC

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ANALYTICAL MATRIX

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
1	739321 - BELL PM2.5 - MARCH 22	23-03-19	00:00	AA			
2	739322 - RO66 PM2.5 - MARCH 22						
3	739323 - RO66 PM10 - MARCH 22						
4	739324 - RO66 TSP - MARCH 22						
5	739325 - 33RD PM2.5 - MARCH 22						
6	739326 - 33RD PM10 - MARCH 22						

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO

Are samples for human consumption/ use?
☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: NATHAN MCFADDEN	Date: 03/26/19	Time:	Received by:	Date:	Time:	Received by:	Date: Mar 26/19	Time: 14:15

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 - 726573

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	FNWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph ON
Postal Code:	

Invoice To		
	Same as Report To	☐ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☐ NO
Company:		
Contact:		

Project Information	
ALS Account # / Quote #:	Walker Ingersol
Job #:	1900160
PO / AFE:	1900160-1000-101
LSD:	
ALS Lab Work Order # (lab use only):	

Report Format / Distribution	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Brad.Bergeron@fwdi.com
Email 2	Nathan.McFadden@fwdi.com
Email 3	Thomas.Langille@fwdi.com

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☒ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E-100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		
Date and Time Required for all E&P TATs:		dd-mmm-yy hh:mm	

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
12	739327-Bell PM 2.5 - March 26		00:00	AA	X			
	739328 - Rd 66 PM2.5 - March 28				X			
	739329 - Rd 66 PM 10 - March 25				X			
	739330 - Rd 66 TSP - March 25				X			
	739331 - 33rd Line PM 2.5 - March 25				X			
	739535 - 33rd Line PM 10 - March 25				X			
	739536 - BLANK-MARCH 28				X			

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
J T. Langille	Apr 1, 2019	11:30					April 01/2019	3:00

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

JULY 2017 FRONT

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 - 727017

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph ON
Postal Code:	

Invoice To		
	Same as Report To	☐ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☐ NO
Company:		
Contact:		

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Brad.Bergeron@rwdi.com
Email 2: Nathan.McFaddenarwdi.com
Email 3:

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☐

EMERGENCY:
- 1 Business day [E-100%] ☐
- Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	Walker-Ingersol
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	739537 - Bell PM2.5 - Apr.13	08-04/19	00:00	AA	X			
	739538 - Rd 66 PM2.5 - Apr.13	"	"	"	X			
	739539 - Rd 66 PM10 - Apr.13	"	"	"	X			
	739540 - Rd 66 TSP - Apr.13	"	"	"	X			
	739541 - 33rd Line PM2.5 - Apr.13	"	"	"	X			
	739542 - 33rd Line PM10 - Apr.13	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Thomas F/T. Lapille	Apr.18, 2019	13:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
WM	Apr.18/19	14:00

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2257537-COFC

COC Number: 17 - 726569

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: [X] PDF [X] EXCEL | EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson / Brad Bergeron	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	519-823-1311	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL | [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 Southgate Dr.	Email 1 or Fax Brad.Bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Guelph, ON	Email 2 Nathan.McFadden@rwdi.com	
Postal Code:		Email 3 Thomas.Langille@rwdi.com	
Invoice To	Same as Report To [ ] YES [ ] NO	**Invoice Distribution**	
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walkers Ingersoll	AFE/Cost Center:	PO#
Job #:	K800160	Major/Minor Code:	Routing Code:
PO / AFE:	K800160-1000.1001	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2257537	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE MATTER	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	739544 - Bell PM2.5 - April 9	04/10/19	00:00	AA	X			
2	739545 - Rd 66 PM2.5 - April 9				X			
3	739546 - Rd 66 PM 10 - April 9				X			
4	739547 - Rd 66 TSP - April 9				X			
5	739548 - 33rd PM2.5 - April 9				X			
6	739549 - 33rd PM 10 April 9				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated [ ]					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				AIR			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	04112/19						Apr 12/19	14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ORTHLAND ROAD, UNIT 1
ERLOO, ON N2V 2B8
e: (519) 886-6910
519) 886-9047
ree: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

ANY NAME: RWDI
: GUELPH
CT MANAGER: BRAD BERGERON
CT #: 1800160
: 519-823-1311 FAX
UNT #: WALKER INCERSOLL
ATION #: PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX BOTH
SELECT: PDF DIGITAL BOTH
EMAIL 1 BRAD.BERGERON@RWDI.COM
EMAIL 2 STEVE.JANNERSON@RWDI.COM
NATHAN.MCFARREN@RWDI.COM

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2217214
ENTERED BY: AP
DATE/TIME ENTERED: 7-1-19 16:12
BIN #:

SAMPLING INFORMATION

Sample Date/Time		Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI INCERSOLL-AA-WT	H_2S	METHYL MERCAPTAN	DIMETHYL SULPHIDE	DIMETHYL DISULPHIDE	TBAS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
e (dd-mmm-yy)	Time (24hr) (hh:mm)																
04/01/19	00:00	15107	0040	AA	BELL-JAN3-VOC		X	X	X	X	X	X	-7				
04/01/19	00:00	12892	0009		R066-JAN3-VOC		X	X	X	X	X	X					
04/01/19	00:00	15792	0078	↓	33RD-JAN3-VOC		X	X	X	X	X	X	-2			IF NO RESIDUAL PRESSURE DO NOT ANALYZE	

L2217214-COFC

SPECIAL INSTRUCTIONS/COMMENTS

Samples

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP

Matrix Type
Soil Gas Vapour = .
Ambient Air = AA
Indoor Air = IA
Industrial Hygiene = IH

D BY: NJM NATHAN MCFARREN
UISHED BY:

DATE & TIME: 01/07/19
RECEIVED BY:
DATE & TIME
DATE & TIME: 01/07/19
RECEIVED AT LAB BY: AP
DATE & TIME: 7-1-19 15:00

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

e number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2220040-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

.USTODY FORM - Canister/Tube/Gas Bag

Page 1 of 1

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular) ☑	Rush 5 day (50%) ☐	Rush 3 day (100%) ☐	Rush 2 day (200%) ☐
			Rush 1 day (300%) - Enquire ☐	

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101
REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
~~[illegible]@rwdi.com~~
Nathan.McFadden@rwdi.com

SUBMISSION #: L2220040
ENTERED BY: AP
DATE/TIME ENTERED: 14-1-19 20:45
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST: TUBE AIR VOLUME - L ☐ or m³ ☐ | RWDI Ingersoll-AA-WT | H2S | Methyl Mercaptan | Dimethyl Sulphide | Dimethyl Disulphide | TRS | STARTING PRESSURE - Pre-Sampling ("Hg) | ENDING PRESSURE - Post Sampling ("Hg) | COLLECTION TIME (HRS)

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	Tube Air Volume	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	Starting Pressure	Ending Pressure	Collection Time (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
10/01/19	00:00	~~04[illegible]~~ 4970	0129	AA	BELL JAN 9 - VOC		X	X	X	X	X	X					
10/01/19	00:00	4565	0105	AA	RD 66 JAN 9 - VOC		X	X	X	X	X	X					
10/01/19	00:00	31407	0139	AA	33RD JAN 9 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If yes add SIF INIT

SAMPLED BY: NJM	DATE & TIME	RECEIVED BY:		DATE & TIME	
RELINQUISHED BY: [signature]	DATE & TIME	RECEIVED AT LAB BY: AP		DATE & TIME 14-1-19 13:30	

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD,
WATERLOO, ON N2V 2B
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

L2221916-COFC

...ITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

...T Quoted is in business days which exclude ...days and weekends. TAT of samples received past ...aturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lafam@rwdi.com

SUBMISSION #: L2221916
ENTERED BY: ESmith - 38
DATE/TIME ENTERED: 17/Jan/2019
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
16/01/19	00:00	~~0478~~ 31410	0011	AA	Bell JAN 15-Voc		X	X	X	X	X	X					1
16/01/19	00:00	21945	0006	AA	RD 66 JAN 15-Voc		X	X	X	X	X	X					2
16/01/19	00:00	10759	0068	AA	33RD JAN 15-Voc		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☐
MEAN TEMP: N/A

Matrix Type
Soil Gas Vapour = SG
Ambient Air = AA
Indoor Air = IA
Industrial Hygiene = IH

SAMPLED BY:	NJM	DATE & TIME	~~01~~ 17/01/19	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:		DATE & TIME	17/01/19	RECEIVED AT LAB:	DATE & TIME: 17/Jan/2019 14:55

OBSERVATIONS Yes ☐ No ☐ If Yes, add SIF
INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CU

L2226873-COFC

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

REQUIRED

10 day (regular)	☑
Rush 5 day (50%)	☐
Rush 3 day (100%)	☐
Rush 2 day (200%)	☐
Rush 1 day (300%) - Enquire	☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 irene.saunderson@rwdi.com victoria.latam@rwdi.com

SUBMISSION #: L2226873
ENTERED BY: ESmith 30
DATE/TIME ENTERED: 30/Jan/2019
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
28-01-19	00:00	21753	0213	AA	BELL JAN 27-VOC		X	X	X	X	X	X				→ CHECK FINAL PRESSURE	1
1	1	20698	0031	1	RD66 JAN27-VOC		X	X	X	X	X	X				→ IF AT OR ABOVE ZERO (0)	2
↓	↓	20163	0103	↓	33RD JAN 27-VOC		X	X	X	X	X	X				→ DO NOT ANALYZE	3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

		MEAN TEMP
FROZEN	☐	
COLD	☐	
COOLING INITIATED	☐	
AMBIENT	☐	

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INT

SAMPLED BY: NATHAN MCELROY	DATE & TIME 01/30/19	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME 01/30/19	RECEIVED AT LAB BY:	DATE & TIME Jan 30/19 15:45

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

L2230045-COFC

60 NORTHLANE
WATERLOO, ON

Phone: (519) 886-....
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

(ALS) Environmental

R QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page 1 of 1

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular) ☑	Rush 3 day (100%) ☐	Rush 2 day (200%) ☐	Rush 1 day (300%) - Enquire ☐
	Rush 5 day (50%) ☐			

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101
REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.nafam@rwdi.com

SUBMISSION #: 28
L000 L2230045
ENTERED BY: ESmith 28
DATE/TIME ENTERED: 07/Feb/2019
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
03-02-19	00:00	3494	0139	AA	Bell FEB2-VOC		✓	✓	✓	✓	✓	✓					1
↓	↓	3498	0105	↓	R066 FEB2-VOC		✓	✓	✓	✓	✓	✓		→		PLEASE REPORT FINAL PRESSURE BEFORE ANALYSIS	2
↓	↓	21748	0129	↓	33RO FEB2-VOC		✓	✓	✓	✓	✓	✓					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If yes add SIF. INIT

SAMPLED BY: [signature]	DATE & TIME 04/02/19	RECEIVED BY:	DATE & TIME
RELINQUISHED BY: Nathan McFadden	DATE & TIME 04/02/19	RECEIVED AT LAB BY: W	DATE & TIME Feb 07/19 15:30

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROA
WATERLOO, ON N2V
Phone: (519) 886-691
Fax: (519) 886-9047
Toll Free: 1-800-668-98

L2232541-COFC

ALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page 1 of 1

TAT Quoted is in business days which exclude olidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED		Rush 3 day (100%)	☐
	10 day (regular)	☑	Rush 2 day (200%)	☐
	Rush 5 day (50%)	☐	Rush 1 day (300%) - Enquire	☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com victoria.lafan@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #: L2232541
ENTERED BY: ESmith
DATE/TIME ENTERED: 13 Feb 2019
BIN #:

ANALYSIS REQUEST

SAMPLING INFORMATION

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
09-02-19	00:00	20681	0014	AA	BELL FEB 8-VOC		✓	✓	✓	✓	✓	✓					1
↓	↓	20160	0120	↓	RO66 FEB 8-VOC		✓	✓	✓	✓	✓	✓					2
↓	↓	4432? CANT READ LAST DIGIT	0144	↓	3320 FEB 8-VOC		✓	✓	✓	✓	✓	✓					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP

SAMPLED BY: [signature]	DATE & TIME 02/13/19	RECEIVED BY:	DATE & TIME
RELINQUISHED BY: NATHAN ADKFAORCK	DATE & TIME 02/13/19	RECEIVED AT LAB BY: [initials]	DATE & TIME Feb 13/19 19:10

OBSERVATIONS Yes ☐ No ☐ If yes add SIF
INIT

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTH
WATERLO
Phone: (5
Fax: (519) _
Toll Free: 1-800-668-9878

L2234056-COFC

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED — SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION: | CRITERIA: | OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.tatam@rwdi.com

SUBMISSION #: L2234056
ENTERED BY: ESmith
DATE/TIME ENTERED: 19/Feb/2019
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI IngerSoil-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - PreSampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
15-02-19	00:00	3490	0150	AA	BELL FEB 14-VOC		✓	✓	✓	✓	✓	✓					
↓	↓	15074	0025	↓	RD66 FEB 14-VOC		✓	✓	✓	✓	✓	✓					
↓	↓	20161	0039	↓	33RD FEB 14-VOC		✓	✓	✓	✓	✓	✓					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples.

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP: N/A

SAMPLED BY:	DATE & TIME	RECEIVED BY:	DATE & TIME
NATHAN McFADDEN	02/19/19		
RELINQUISHED BY:	DATE & TIME	RECEIVED AT LAB BY:	DATE & TIME
	02/19/19		19/Feb/2019 15:15

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

+ 3 canister returns.

60 NORTHLAND ROAD, U
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

L2236059-COFC

ITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Quoted is in business days which exclude /s and weekends. TAT of samples received past ...turday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enqutre ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com victoria.lafam@rwdi.com

SUBMISSION #: L2236059
ENTERED BY: ESmith 28
DATE/TIME ENTERED: 22/Feb/2019
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - PreSampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
21/02/19	00:00	4422	0211	AA	BELL-FEB 20		✓	✓	✓	✓	✓	✓					1
↓	↓	4557	0191		~~BELL FEB 20~~		✓	✓	✓	✓	✓	✓	—	—		→ SAMPLE DID NOT RUN	RETURNING AT -30° NO ANALYSIS REQ FOR THIS SAMPLE
		17873	0188	↓	33RD LINE - FEB 20		✓	✓	✓	✓	✓	✓					2

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP: N/A

OBSERVATIONS Yes ☐ No ☐ If yes, add SIF

INIT

SAMPLED BY: NATHAN MCFADDEN	DATE & TIME 02/22/19	RECEIVED BY:	DATE & TIME	
RELINQUISHED BY: NATHAN MCFADDEN	DATE & TIME 02/22/19	RECEIVED AT LAB BY:	DATE & TIME 22/Feb/2019 16:55	

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2238362-COFC

60 NORTHLAND R
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com victoria.farfan@rwdi.com

SUBMISSION #: L2238362
ENTERED BY: ESmith
DATE/TIME ENTERED: 28/Feb/2019
BIN #:

SAMPLING INFORMATION

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSV)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
27-02-19	00:00	20675	0208	AA	BELLFeb26-VOC		✓	✓	✓	✓	✓	✓					1
↓	↓	12901	0064	↓	RO66Feb26-VOC		✓	✓	✓	✓	✓	✓					2
↓	↓	12914	0091	↓	33RO Feb26-VOC		✓	✓	✓	✓	✓	✓					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type:
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP

SAMPLED BY: Nathan McFarlane	DATE & TIME 02/28/19	RECEIVED BY:	DATE & TIME	OBSERVATIONS Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY:	DATE & TIME 02/28/19	RECEIVED AT LAB BY:	DATE & TIME 28/Feb/2019 15:20	INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected Hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2240847-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED — SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ____ BOTH ____
SELECT: PDF ✓ DIGITAL ✓ BOTH ____
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.tatarin@rwdi.com

SUBMISSION #: L2240847
ENTERED BY: AP
DATE/TIME ENTERED: 6-3-19 17:12
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - PreSampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
05-03-19	00:00	20697	0213	AA	BELL MARCH 4 - VOC		✓	✓	✓	✓	✓	✓					
		2766	0200		R066 MARCH 4 - VOC		✓	✓	✓	✓	✓	✓					
		20686	0021		8390 MARCH 4 - VOC		✓	✓	✓	✓	✓	✓					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐
MEAN TEMP

SAMPLED BY: NATHAN MCFADDEN	DATE & TIME	RECEIVED BY:	DATE & TIME 240	OBSERVATIONS. Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY: NATHAN MCFADDEN	DATE & TIME	RECEIVED AT LAB BY:	DATE & TIME March 4/19	INIT

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND F
WATERLOO, ON N
Phone: (519) 886
Fax: (519) 886-90-..
Toll Free: 1-800-668-9878

L2243627-COFC

QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

All TAT Quoted is in business days which exclude ...ory holidays and weekends. TAT of samples received past ...pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED		
	10 day (regular)	☑	Rush 3 day (100%) ☐
	Rush 5 day (50%)	☐	Rush 2 day (200%) ☐
			Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com victoria.lefaivre@rwdi.com

SUBMISSION #: L2243627

ENTERED BY: ESmith 28

DATE/TIME ENTERED: 13/Mar/2019

BIN #: ___

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
11-03-19	00:00	31410	0207	AA	BELL MARCH 10-VOC		✓	✓	✓	✓	✓	✓					1
↓	↓	12903	0216	↓	R066 MARCH 10-VOC		✓	✓	✓	✓	✓	✓					2
↓	↓	20696	0209	↓	33RD MARCH 10-VOC		✓	✓	✓	✓	✓	✓					3
N/A	N/A	0409	0047	NA	NOT USED - FOR RETURN TO LAB												

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

SAMPLED BY: NATHAN MCFADDEN	DATE & TIME 13/03/19	RECEIVED BY:	DATE & TIME 23:	
RELINQUISHED BY: NATHAN MCFADDEN	DATE & TIME 13/03/19	RECEIVED AT LAB BY:	DATE & TIME MARCH 13/19	

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

60 NORTHLAND
WATERLOO, ON
Phone: (519) 88
Fax: (519) 886-9
Toll Free: 1-800-668-9878

L2246235-COFC

R QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com
victoria.latam@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #: L2246235

ENTERED BY: ESmith

DATE/TIME ENTERED: 19/Mar/2019

BIN #: —

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
17-03-19	00:00	10759	0205		BELL MARCH 16 - VOC		✓	✓	✓	✓	✓	✓					1
↓	↓	15107	0068		ROGG MARCH 16 - VOC		✓	✓	✓	✓	✓	✓					2
		4555	0087		53RD MARCH 16 - VOC		✓	✓	✓	✓	✓	✓					3
		0479	0002		→ FOR RETURN ONLY NO ANALYSIS		N/A	→	→	→	→	→				DID NOT USE	4

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

SAMPLED BY:	NATHAN MCFADDEN	DATE & TIME: 03/19/19	
RELINQUISHED BY:		DATE & TIME: 03/19/19	
RECEIVED BY:		DATE & TIME: 2:40	
RECEIVED AT LAB BY:		DATE & TIME: 19-03-19	

Notes

1. Quote number must be provided to ensure proper pricing.

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
C 519-823-1311	FAX
ACCOUNT #	Walker Ingersoll
QUOTATION #	PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lafrain@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: RWDI Ingersoll-AAWT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
23-03-19	00:00	4437	0221	AA	BELL-MARCH 22		✓	✓	✓	✓	✓	✓					
↓	↓	17936	0175	↓	RD66-MARCH 22		✓	✓	✓	✓	✓	✓					
↓	↓	4417	0160	↓	33RD-MARCH 22		✓	✓	✓	✓	✓	✓					
		4970	0039	→	FOR RETURN DO NOT USE (FULL CAN)		→	→	→	→	→	→	→	→	→	DO NOT USE FOR RETURN	

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY:			
RELINQUISHED BY: Nathan McFadden	DATE & TIME 03/26/19	RECEIVED BY:	DATE & TIME
	DATE & TIME 03/26/19	RECEIVED AT LAB BY:	DATE & TIME Mar 26/19 14:15

Notes

1. Quote number must be provided to ensure proper pricing.
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
AC[illegible] #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ____ BOTH ____
SELECT: PDF ____ DIGITAL ✓ BOTH ____
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lafram@rwdi.com

SUBMISSION #:

ENTERED BY:

DATE/TIME ENTERED:

BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
	00:00	21748	0207	AA	BELL - March 28		X	X	X	X	X	X					
	↓	4432	0005		Rd 66 - March 28		X	X	X	X	X	X					
	↓	3498	0033	↓	33rd - March 29		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Ambient Air = AA; Indoor Air = IA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

SAMPLED BY:	T. Langille		
RELINQUISHED BY:	T. Langille	DATE & TIME	RECEIVED BY:
		DATE & TIME	RECEIVED AT LAB BY:
		DATE & TIME	3-00
		DATE & TIME	1 Apr 10/19

Notes

1. Quote number must be provided to ensure proper pricing.
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular)	☑	Rush 3 day (100%)	☐
	Rush 5 day (50%)	☐	Rush 2 day (200%)	☐
			Rush 1 day (300%) - Enquire	☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101
REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sandersone@rwdi.com
victoria.latam@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION / ANALYSIS REQUEST

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
	~~00:00~~	~~40627~~ TL	~~0034~~	~~AA~~	~~Bell - April 3~~ TL												
		~~1294~~	~~0160~~		~~Rd 66 - April 3~~												
					~~32rd - April 3~~												
04-04-19	00:00	20681	0154	AA	Bell - April 3		X	X	X	X	X	X					
↓	↓	20160	0143	↓	Rd 66 - April 3		X	X	X	X	X	X					
		20698	0208	↓	33rd - April 3		X	X	X	X	X	X					
← N/A →		3494	0209		For Return - Not Used N/A ←	→										Not used for return only	

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☐
MEAN TEMP
OBSERVATIONS Yes ☐ No ☐
If yes add SIF
INIT

SAMPLED BY: Thomas Langille / [signature]	DATE & TIME	RECEIVED BY:		DATE & TIME	
RELINQUISHED BY: Thomas Langille [signature]	DATE & TIME	RECEIVED AT LAB BY: [signature]		DATE & TIME April 8/19 14:00	

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2257531-COFC

60 NORTHLAND ROAD,
WATERLOO, ON N2V 2B
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

(ALS) Environmental

ITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
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ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com
victoria.latham@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2257531

ENTERED BY: ESmith

DATE/TIME ENTERED: 12/Apr/2019

BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSV)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WI	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
10-04-19	00:00	3149	0079	AA	BELL-APRIL 9		✓	✓	✓	✓	✓	✓					1
↓	↓	12911	0160		R066-APRIL 9		✓	✓	✓	✓	✓	✓					2
↓	↓	15804	0832	↓	33RD-APRIL 9		✓	✓	✓	✓	✓	✓					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

SAMPLED BY:		DATE & TIME 04/12/19	RECEIVED BY:	DATE & TIME	FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐
RELINQUISHED BY: NATHAN MCFADDEN		DATE & TIME 04/12/19	RECEIVED AT LAB BY:	DATE & TIME Apr 12/19 2:40pm	OBSERVATIONS Yes ☐ No ☐ If yes add SIF

MEAN TEMP: AIR

INIT:

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

REPORT

WALKER ENVIRONMENTAL GROUP

INGERSOLL, ONTARIO

SOUTHWESTERN LANDFILL ENVIRONMENTAL ASSESSMENT 2018 Q2 AIR QUALITY MONITORING REPORT

RWDI #1800160

August 15, 2018

SUBMITTED TO

Joe Tomaino
EA Process Manager

Walker Environmental Group
160 Carnegie Street
Ingersoll, Ontario N5C 4A8

SUBMITTED BY

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal
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Consulting Engineers & Scientists
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F: 519.823.1316

TABLE OF CONTENTS

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LIST OF APPENDICES

1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by Walker Environmental Group (WEG) to conduct discrete monitoring for Volatile Organic Compounds (VOCs), Total Reduced Sulfurs (TRS) and particulate matter of the following size fractions: total, PM_{10}, and $PM_{2.5}$. Additional monitoring was completed for particulate matter by the Ministry of Environment, Conservation and Parks (MECP). This report only covers the samples collected by RWDI. This monitoring was requested by WEG as a part of their Environmental Assessment (EA) studies for the provision of the proposed future waste landfill capacity at the Carmeuse Lime (Canada) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario. The Carmeuse site has numerous operations including quarry and crushing processes, earth-moving and material transport, blasting, etc. In addition, the area is surrounded by agricultural and aggregate processing facilities. This ambient air quality monitoring program will help assess the background/current levels of particulate matter, VOC's and TRS emissions existing in the area surrounding the Carmeuse site.

Air quality monitoring took place at three (3) separate locations surrounding the Carmeuse site; two (2) of which were co-located with existing MECP monitoring stations. These two co-located stations were: 1) the Bell building located at 584454 Beachville Road West (Bell), and 2) a private property at 334652 33rd Line (33rd Line). The third station setup by RWDI was located on a private property at 663951 Rd.66 (Rd. 66). This third station location (Rd. 66) was reviewed by the MECP to ensure compliance with the MECP siting criteria. The monitoring station locations can be seen in the Figures section of this report.

This ambient monitoring program commenced at all three (3) locations on March 9, 2018 for TSP, PM_{10} and $PM_{2.5}$ and is ongoing. Due to troubleshooting difficulties experienced over March with the VOC and TRS collection, this part of the program officially commenced on April 2, 2018 at all three (3) locations for these parameters and is ongoing.

2 SAMPLING METHODOLOGY

The three (3) monitoring stations are all equipped with the following discrete monitors: High Volume (Hi-Vol) Air Sampler outfitted with a TSP inlet head, Hi-Vol Air Sampler outfitted with a PM_{10} inlet head, Hi-Vol Air Sampler outfitted with a $PM_{2.5}$ inlet head and an evacuated 6L Summa Canister with programmable timer for VOC and TRS sampling. As the Bell and 33rd Line stations are co-located with existing MECP discrete monitors, sampling of the MECP monitored parameters were not duplicated and the MECP results are not presented in this report. Table 1 below outlines the equipment operated and results reported by RWDI for each of the stations.

Table 1: Summary of RWDI Operated Equipment at each WEG Monitoring Location

Station	TSP Hi-Vol	PM_{10} Hi-Vol	$PM_{2.5}$ Hi-Vol	Evacuated Canister (VOC's & TRS)
Bell			✓	✓
33rd Line		✓	✓	✓
Rd. 66	✓	✓	✓	✓

2.1 High Volume Air Samplers (Hi-Vols)

The particulate samples were collected using General Metal Works standard High-Volumetric air samplers outfitted with size-selective inlet heads capable of collecting TSP, PM_{10}, and $PM_{2.5}$ particulate size fractions. Each Hi-Vol is equipped with a mass flow controller, which ensures a flow rate of 40 cubic feet per minute (CFM) and a timer for starting and stopping each sample. All stations operate on a six-day cycle with a 24-hour (midnight to midnight) sampling schedule, concurrent with the National Air Pollution Surveillance (NAPS) U.S. EPA schedule. Each Hi-Vol was calibrated once per quarter to ensure accuracy and validity of the data. Pre-tared glass fibre filters were used, which were pre and post weighed by ALS Laboratory (ALS) located in Waterloo, ON.

2.2 Evacuated Canisters (VOCs and TRS)

The ambient VOC and TRS samples were collected in the same conditioned silica-lined evacuated canisters, as specified in EPA Compendium Method TO-14/15. The evacuated canisters were supplied, proofed and analyzed by ALS in Waterloo, ON. Critical orifice flow controllers approved for use by the MECP were used to maintain a constant flow rate of approximately 3.5 milliliters per minute over a sampling period of 24 hours. The controllers were supplied and conditioned by ALS, and were only used once, and then were returned to the ALS for cleaning/reconditioning. The controllers were constructed of inert materials including stainless steel, charcoal ferrules and Teflon coating, and were equipped with pressure gauges. Each controller was fitted every time with a RWDI supplied Neutech 2701 programmable automated sampling timer which both opens and closes the canister over a programmed time period. All three (3) stations operated on a six-day cycle, each consisting of 24-hour (midnight to midnight) sample, concurrent with the National Air Pollution Surveillance (NAPS) schedule.

3 AIR QUALITY CRITERIA AND STANDARDS

The monitored contaminant concentrations were compared to air quality criteria and standards set by the Ontario Ministry of the Environment and Climate Change (MECP) and by Environment Canada. The MECP has Ambient Air Quality Criteria (AAQCs) for select VOC's, Hydrogen Sulfide (H_2S), TRS, TSP and PM_{10}. These AAQCs are the maximum desirable concentrations in the outdoor air, based on effects to the environment and health (MECP, 2012). Environment Canada has established a Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ (Environment Canada, 2013). CAAQS are health-based air quality objectives for the outdoor air. It should be noted that the AAQC for PM_{10} is an interim value of 50 µg/m^3 for an averaging period of 24 hours, and the current CAAQS' for $PM_{2.5}$ is 28 µg/m^3 for the 3-year average of annual 98th percentile 24-hour concentration, and 10 µg/m^3 for the 3-year average of annual concentrations (in effect as of 2015). Since this program has been in place for less than a year, the CAAQS of 28 µg/m^3 will be used on a comparison basis only for 24-hour $PM_{2.5}$ measurements. Listed air quality criteria and standards can be found for each contaminant in Appendix A.

4 SUMMARY OF DISCRETE MONITORING DATA

All monitoring results from the periodic measurements for Q2 of 2018 are provided in Appendix A.

4.1 TSP Results

The TSP sampler operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 120 µg/m^3 were observed at Rd. 66.

4.2 PM_{10} Results

The PM_{10} samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 50 µg/m^3 were observed at 33rd Line or Rd. 66.

4.3 $PM_{2.5}$ Results

The $PM_{2.5}$ samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily CAAQS of 28 µg/m^3 were observed at Bell, 33rd Line or Rd. 66.

4.4 VOC Results

VOC samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. Over Q2 there was one (1) VOC exceedance on May 8, 2018 at the Rd. 66 station for chloroform with a value of 3.790 µg/m^3. At 33rd Line in Q2, there were two (2) exceedances on two (2) days June 19 and 25, 2018, Chloroform values of 2.010 µg/m^3 and 2.510 µg/m^3 respectively. At Bell in Q2, there were five (5) exceedances of Chloroform on April 14, May 2, May 8, May 14, and May 20, 2018 with values of 3.290 µg/m^3, 1.860 µg/m^3, 3.420 µg/m^3, 2.850 µg/m^3 and 1.970 µg/m^3 respectively. Please see Tables D1, D2 and D3 for additional statistics and details.

4.5 TRS Results

TRS samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. At Rd. 66 in Q2, there were two (2) exceedances on one (1) day June 13, 2018, for H_2S and TRS with values of 12.1 µg/m^3 and 12.1 µg/m^3 respectively. There were no exceedances over the listed daily AAQC's for speciated TRS at 33rd Line during Q2. At Bell in Q2, there were two (2) exceedances for H_2S and TRS with values of 8.8 µg/m^3 and 8.8 µg/m^3 respectively on May 26, 2018, and there were two (2) exceedances for H_2S and TRS with values of 12.3 µg/m^3 and 12.3 µg/m^3 respectively on June 1, 2018. Please see Tables D1, D2 and D3 for additional statistics and details.

5 DATA REQUESTS

5.1 VOCs and TRS

There were several failures that occurred during the month of March due to equipment start-up issued for the VOC/TRS samples, therefore the data was excluded this month for all three (3) stations.

- The samples on April 2, 2018 at all three (3) locations were invalid due to low battery automated timer issues that resulted in the samples not being initiated during this sample day. This was later resolved by correcting the charging systems on the controllers.

- It was reported by ALS that the April 14, 2018 Rd. 66 sample was irretrievably lost just prior to analysis and that there were no results available for that sample.

- The Bell April 20, 2018 sample was deemed invalid, as the controller did not engage properly and the canister did not capture the recommended amount of sample air.

- On May 2, 2018 the sample was lost at the Rd. 66 station due to automated timer issues that resulted in the sample not being initiated during this sample day. This timer was replaced to correct the issue.

- On June 13, 2018 the sample was lost at the Bell station due to automated timer issues that resulted in the sample not being initiated during this sample day. This timer was replaced to correct the issue.

- The Bell June 25, 2018 sample was deemed invalid, as the controller and sample timer orientation was modified, at the request of ALS (to not dismantle their controllers) and this reorientation presented a small leak which resulted in the canister slowly leaking until it was fully evacuated. This leak was fixed before the following sample day.

5.2 Hi-Vol's

The April 26, May 2 and May 8, 2018 TSP, PM_{10} and $PM_{2.5}$ Rd. 66 station samples were deemed invalid, as they had insufficient sample duration and volume captured.

On April 26 and May 2, the hi-vol's experienced power issues due to what is believed to be insufficient current supplied to the hi-vol's. With the seasonal change to warmer weather (~20 °C) on these sample days, it is believed that the main cable supplying power to the outlet box which powers the hi-vol's heated up and increased resistance for the current flowing through the cable. The extension cords being used were also fairly long which compounded this issue. It is believed that this current restriction and heating of these cables caused the mass flow controller fuses to pop and the GFI outlet to trip. This was rectified after the May 2, 2018 sample date, when an electrician was able to bury the cable going to the outlet, in addition to RWDI installing shorter extension cords running power from the outlet to the hi-vol units themselves.

On May 8, 2018, the power outage is believed to have been due to a wind storm that interrupted the power at this location which prevented all three (3) stations from collecting hi-vol samples.

On June 13, 2018 the 33rd Line PM_{10} unit and Rd. 66 PM_{10} unit samples were deemed invalid due to an insufficient sample volume being collected.

6 CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission. I can be reached at (519) 823-1311 ext. 2428.

Yours very truly,

RWDI AIR Inc.

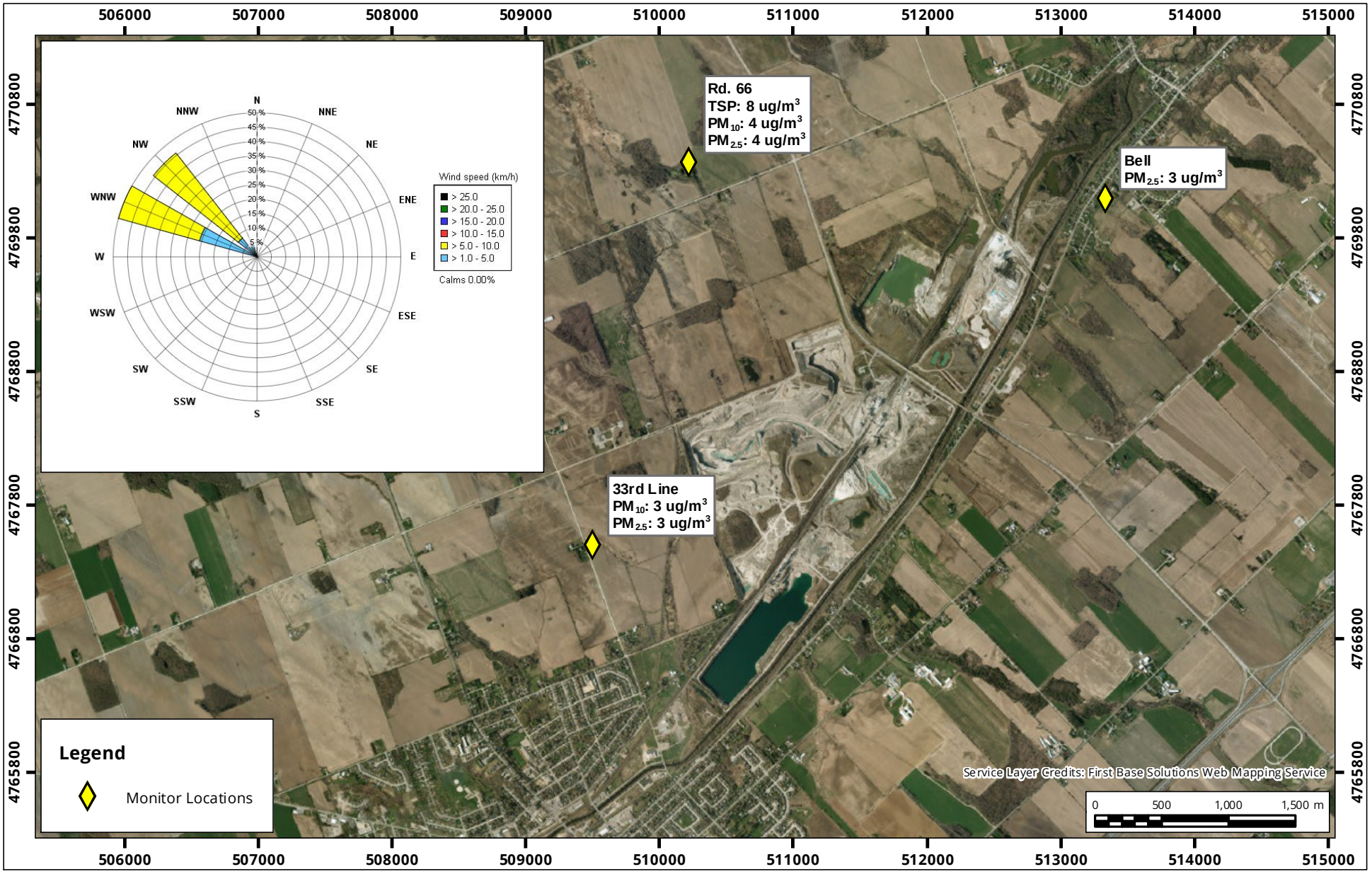
Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager/Principal

7 REFERENCES

Canadian Council of Ministers of the Environment, 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF

Environment Canada, 2013. Canadian Ambient Air Quality Standards. [Online]

FIGURES



Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 9, 2018

True North

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Date Revised:	Jul 30, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

Project #: 1800160

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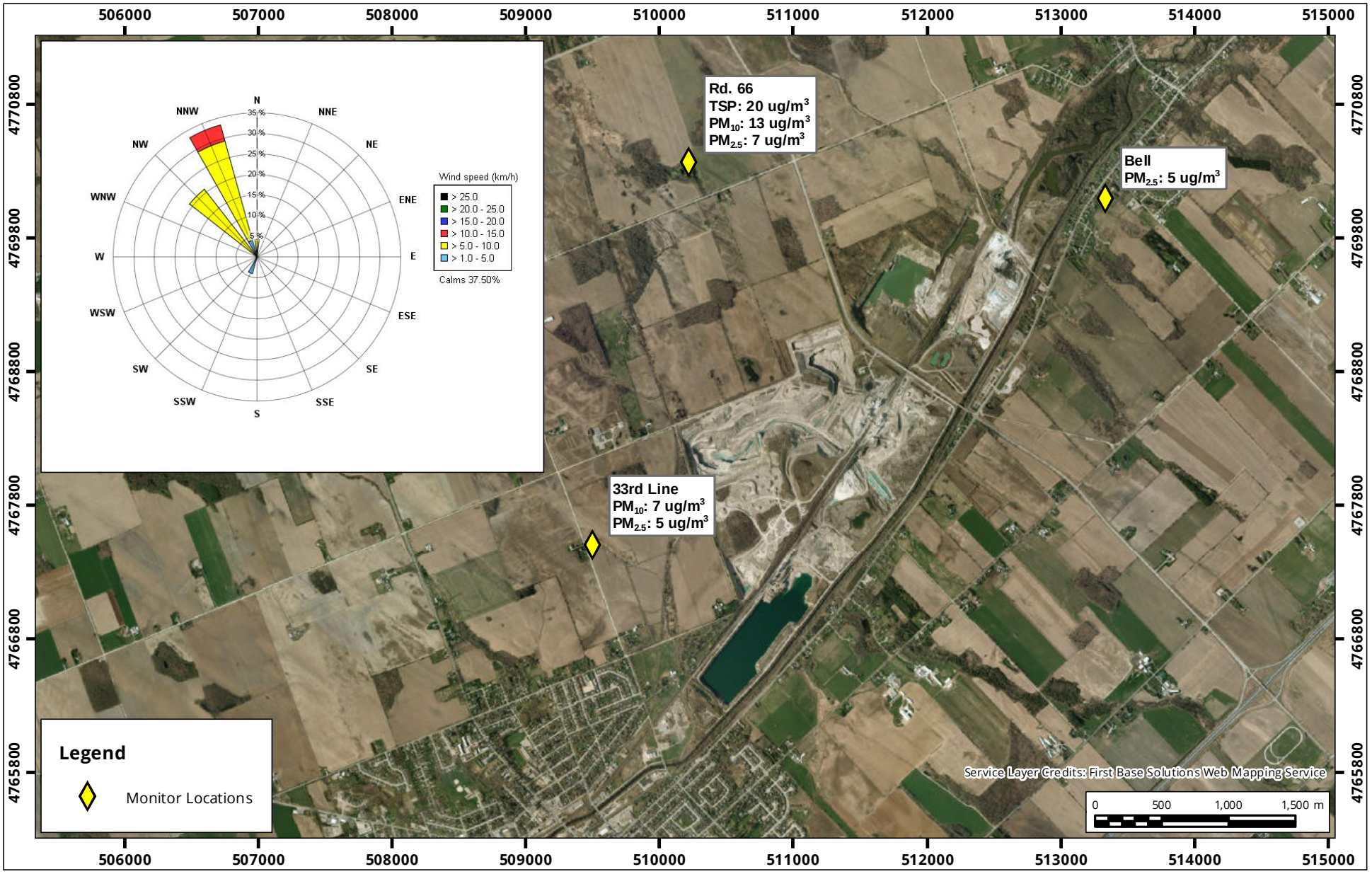

Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 15, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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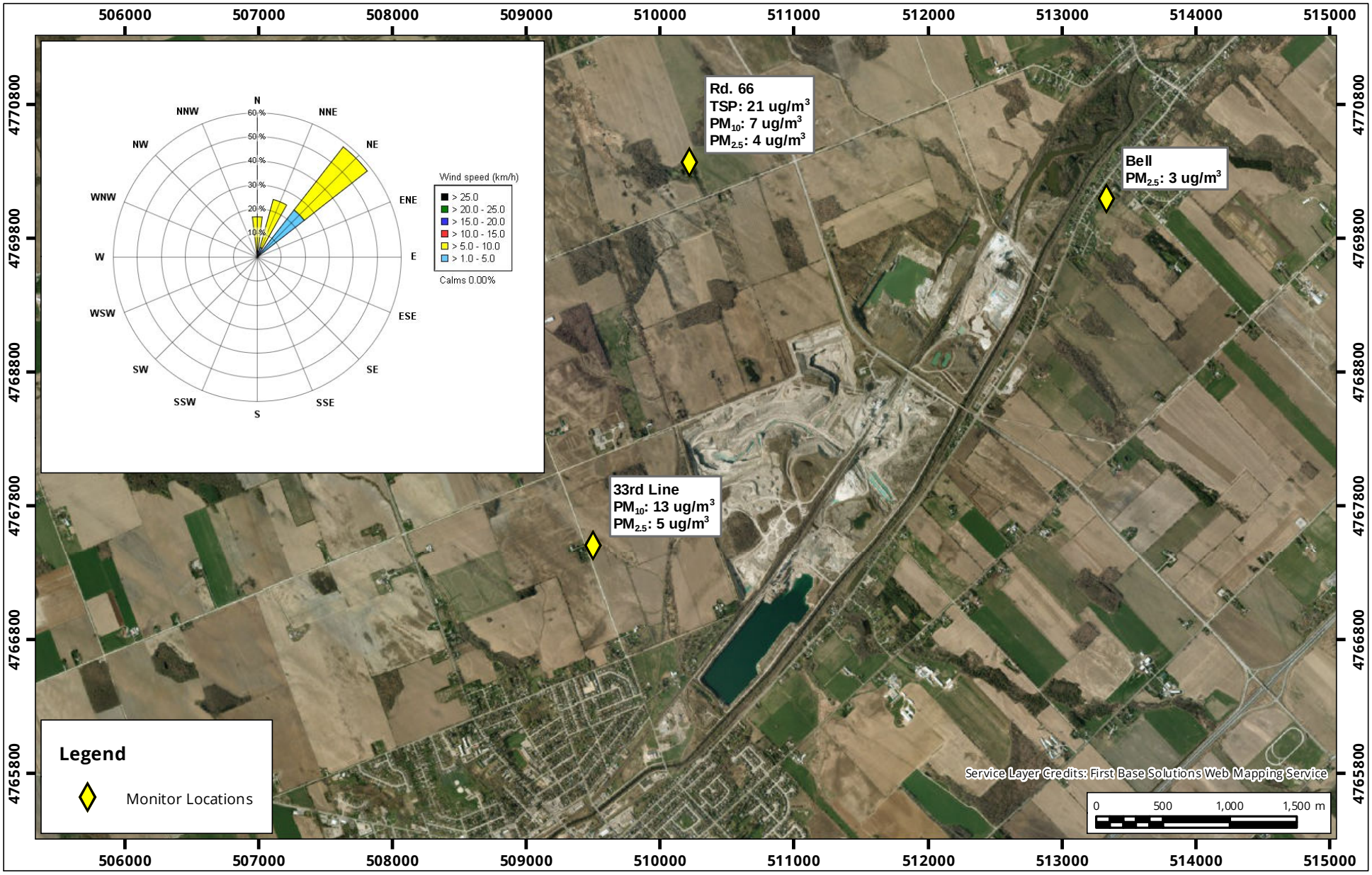

Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 21, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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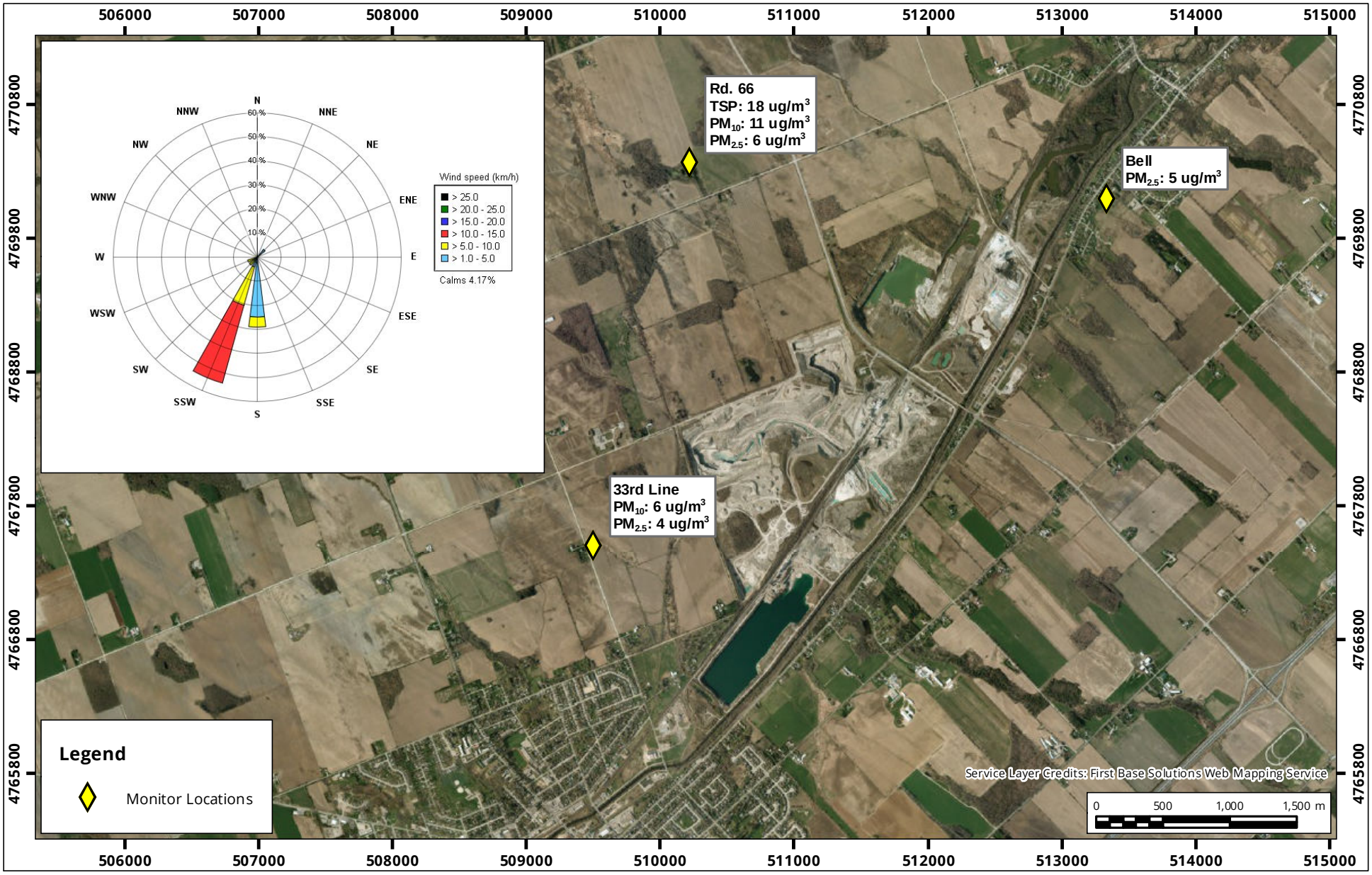

Site Plan Showing Sampling Locations and Windrose

Sampling Period: March 27, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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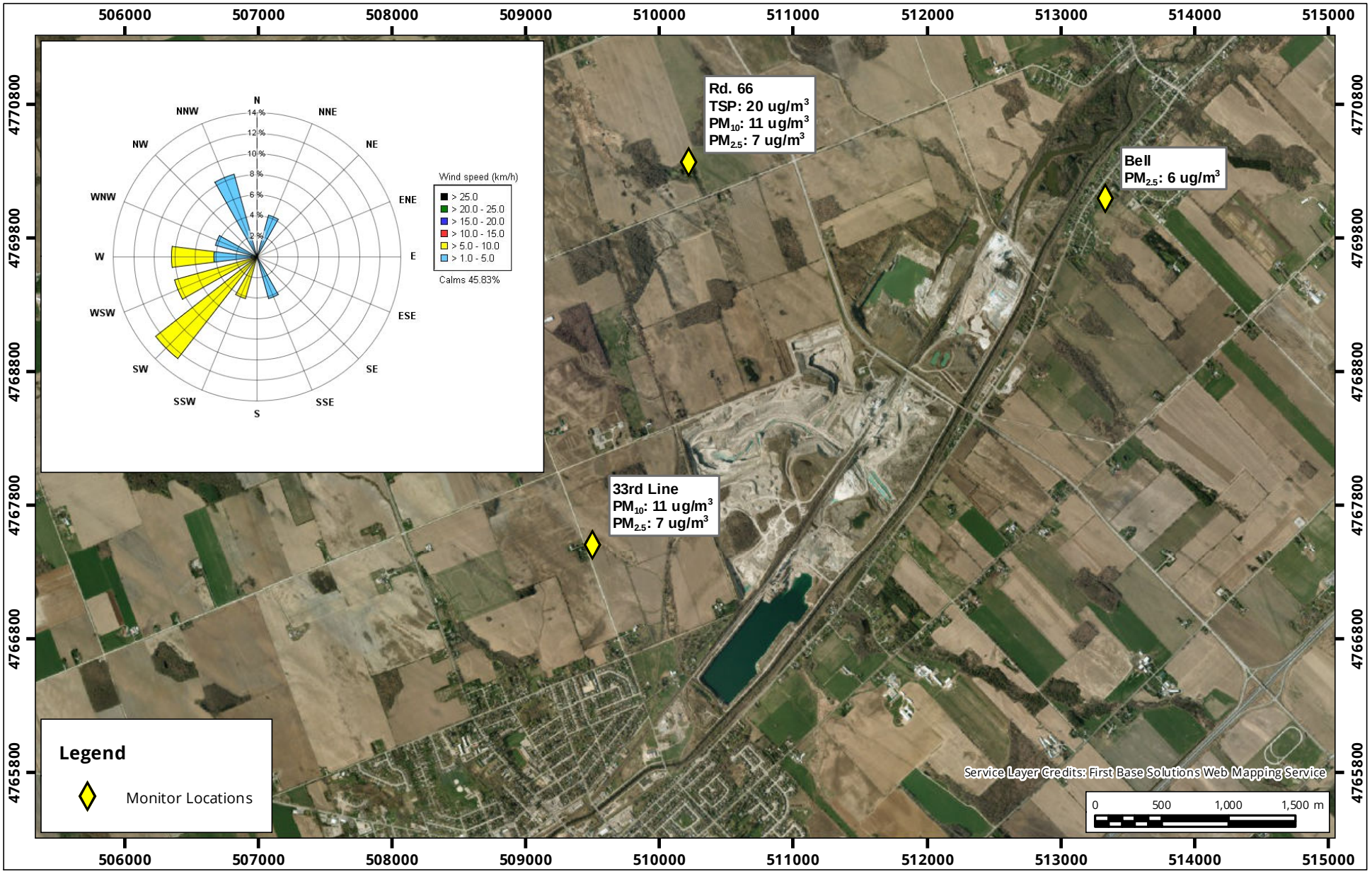

Site Plan Showing Sampling Locations and Windrose

Sampling Period: April 2, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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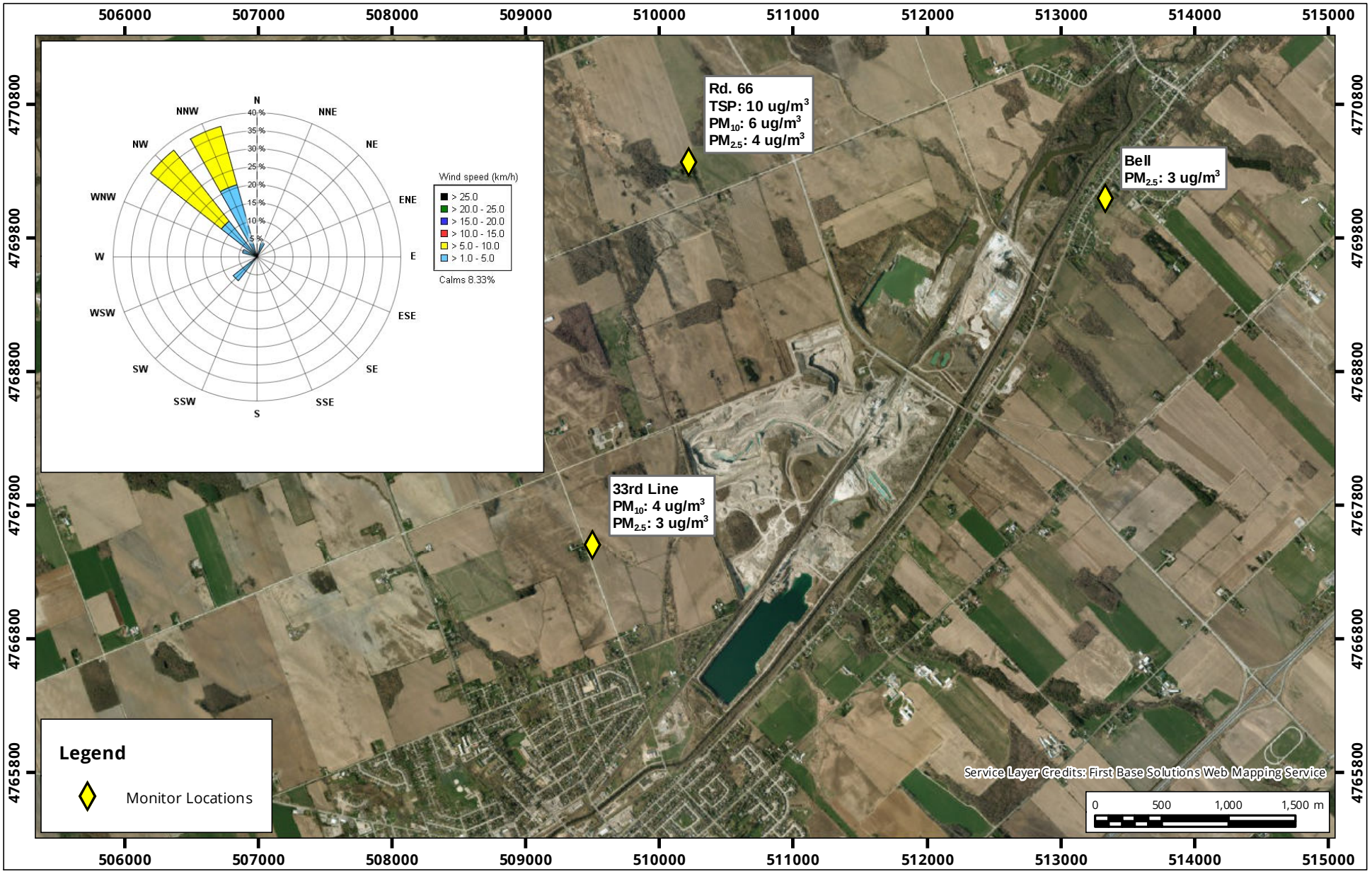

Site Plan Showing Sampling Locations and Windrose

Sampling Period: April 8, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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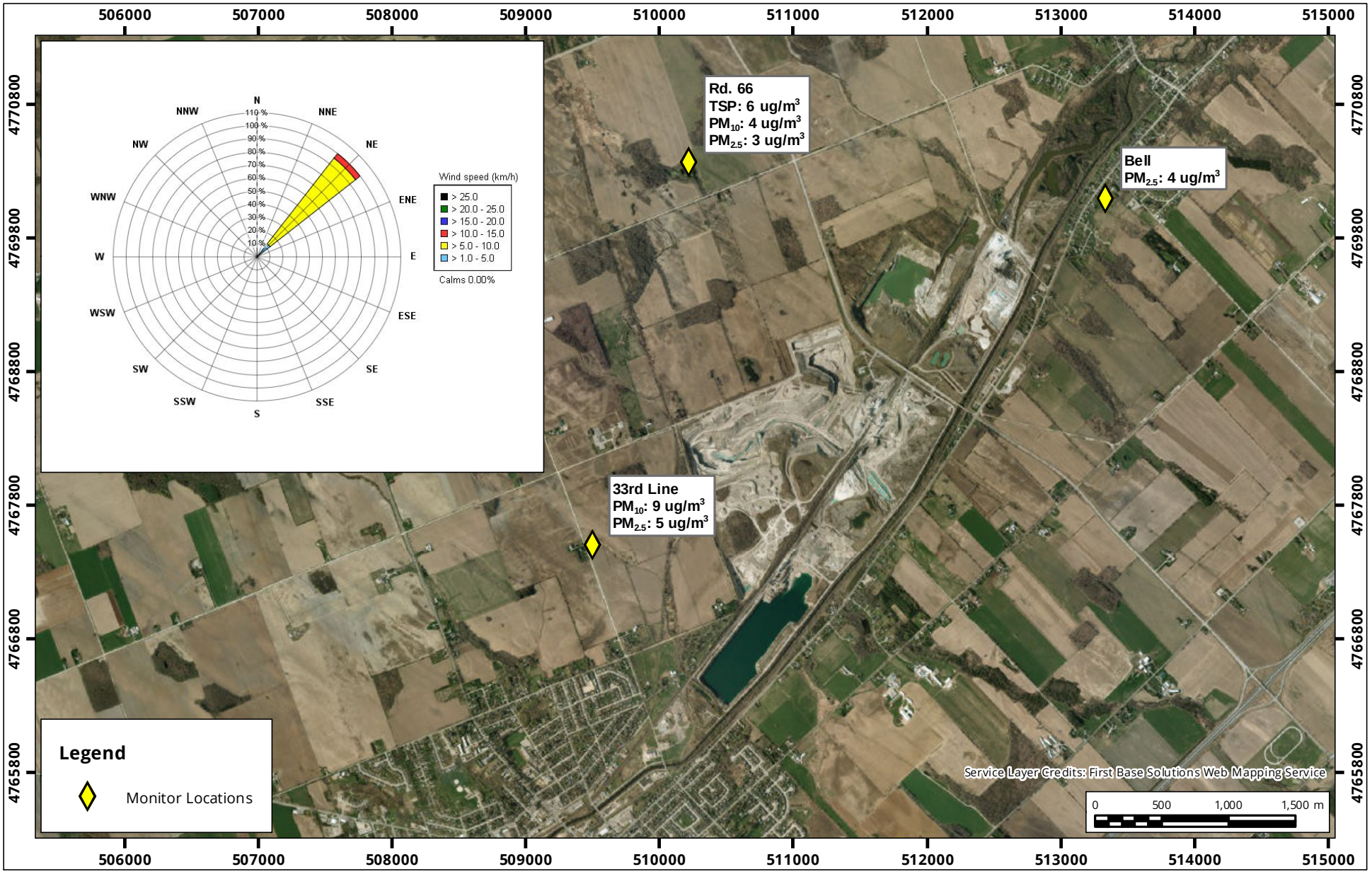

Site Plan Showing Sampling Locations and Windrose

Sampling Period: April 14, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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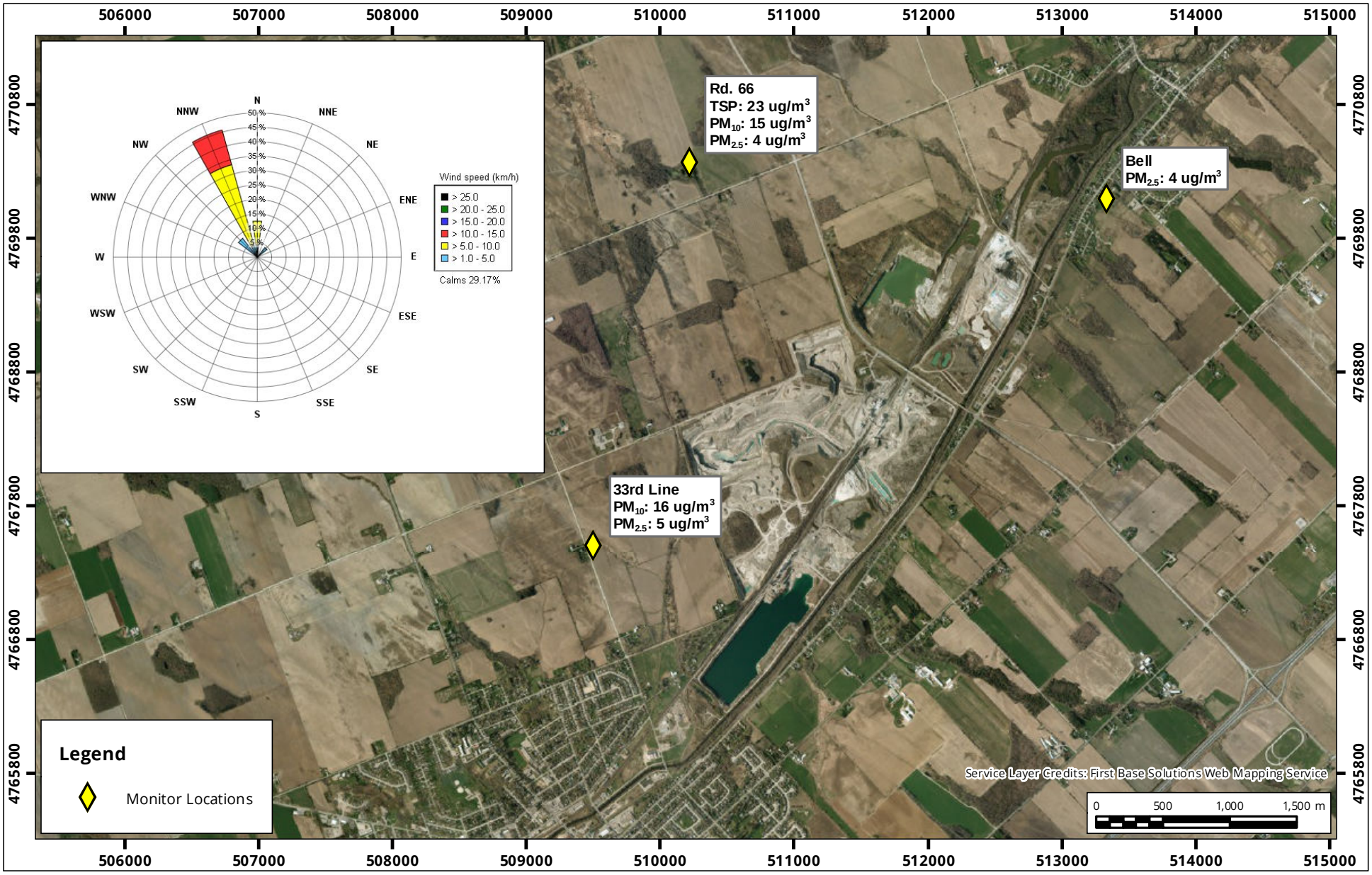

Site Plan Showing Sampling Locations and Windrose

Sampling Period: April 20, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

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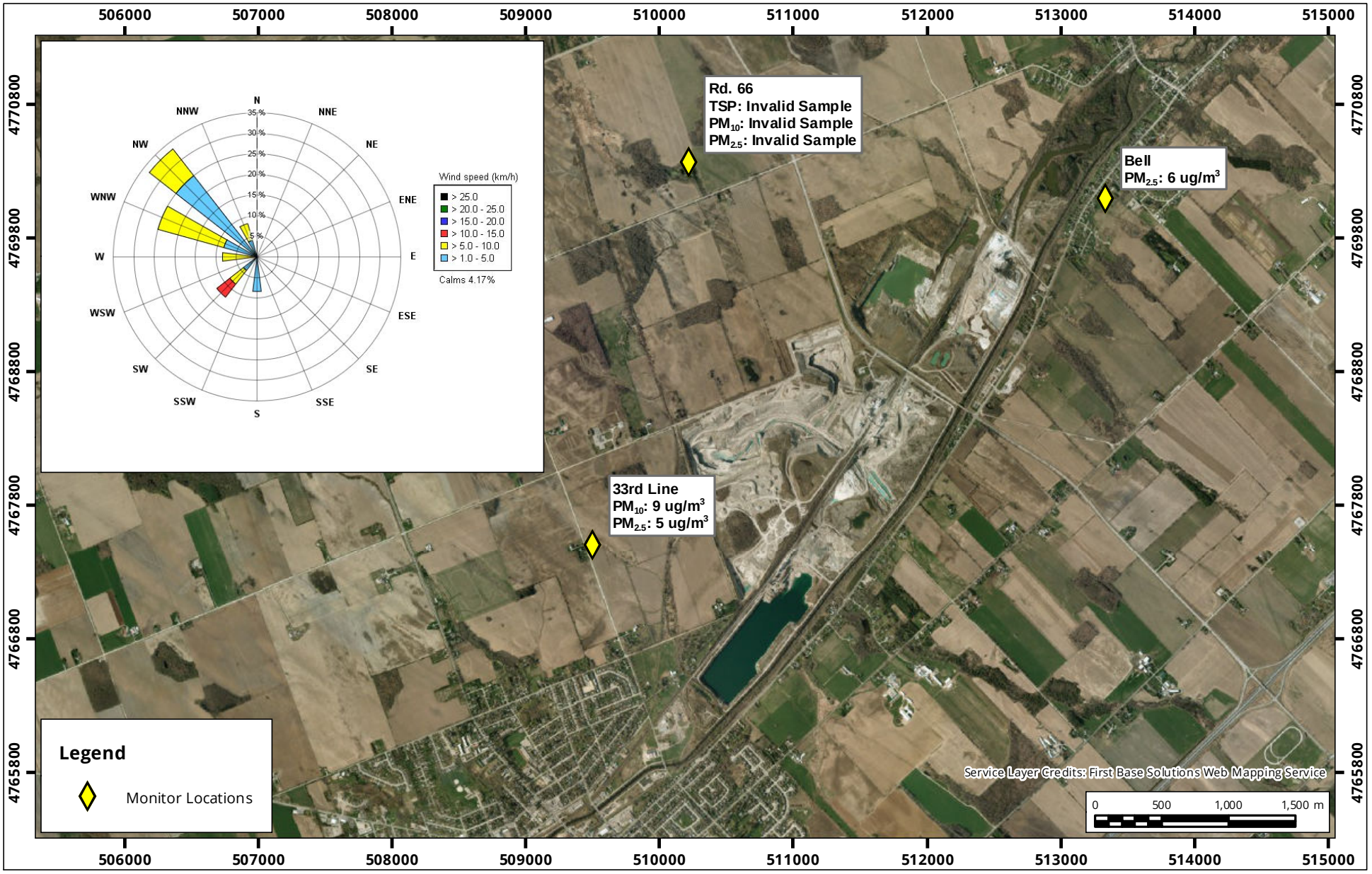

Site Plan Showing Sampling Locations and Windrose

Sampling Period: April 26, 2018

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Walker Environmental Group - Ingersoll, Ontario

True North

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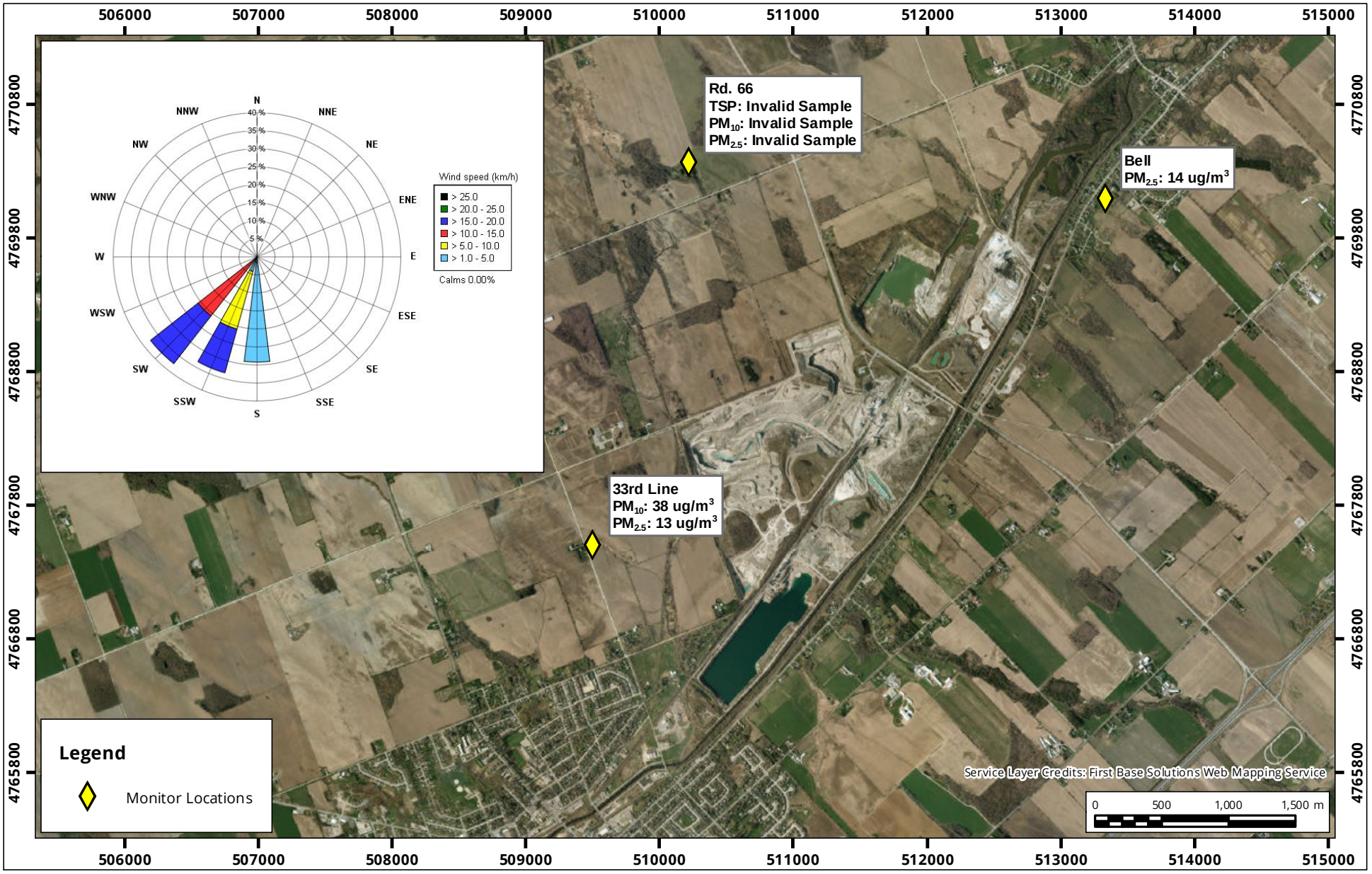

Site Plan Showing Sampling Locations and Windrose

Sampling Period: May 2, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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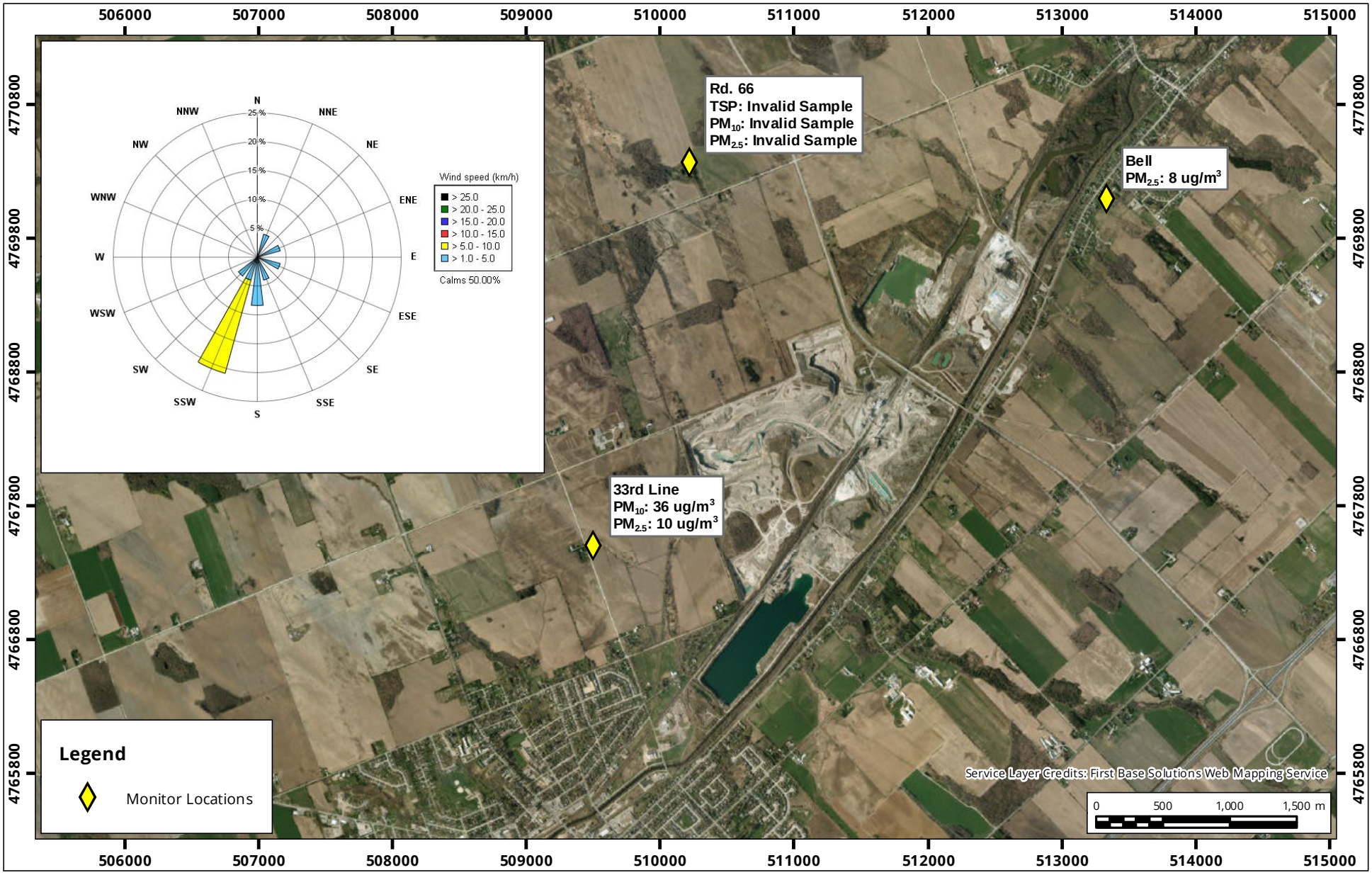

Site Plan Showing Sampling Locations and Windrose

Sampling Period: May 8, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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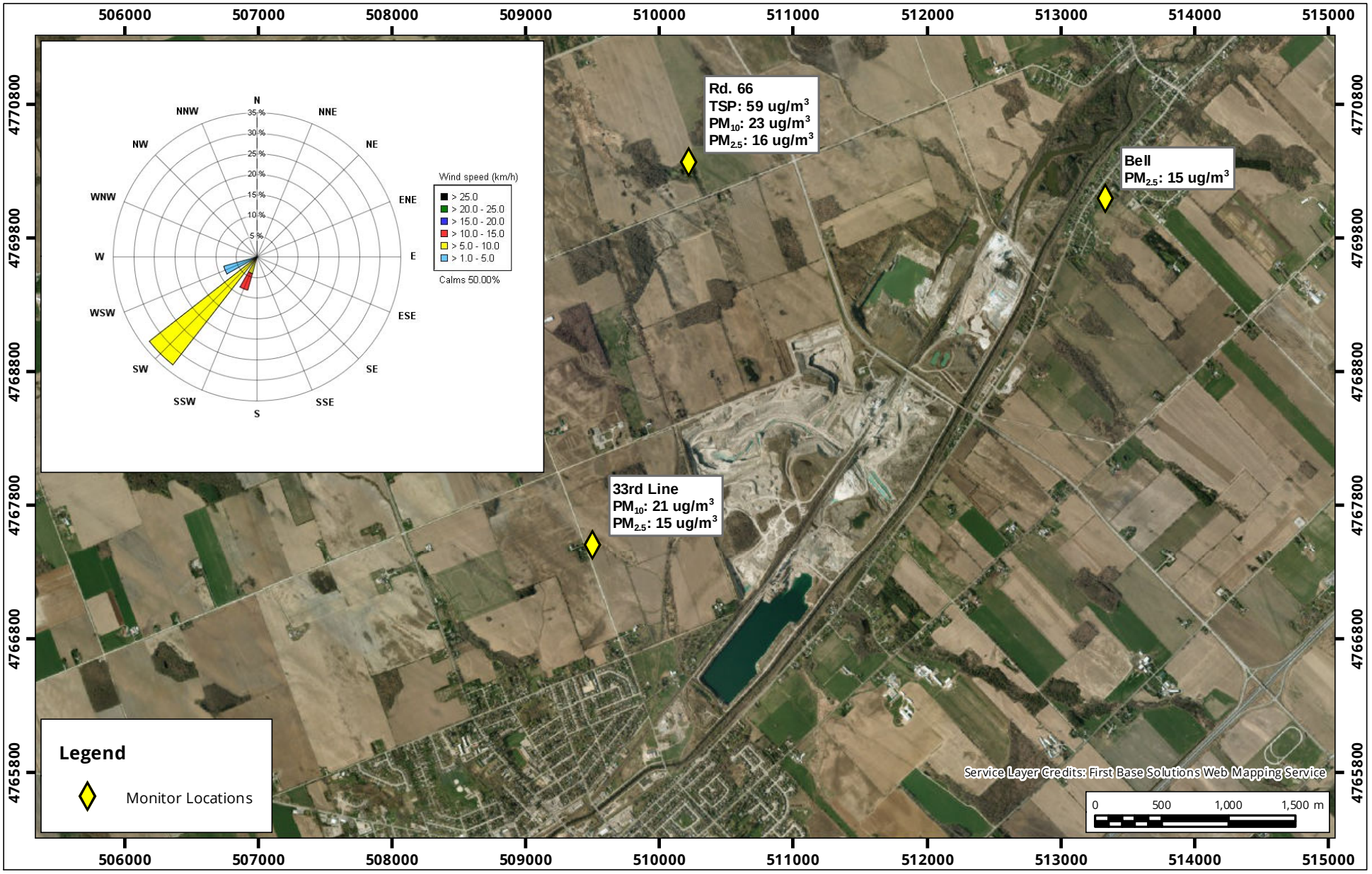

Site Plan Showing Sampling Locations and Windrose

Sampling Period: May 14, 2018

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Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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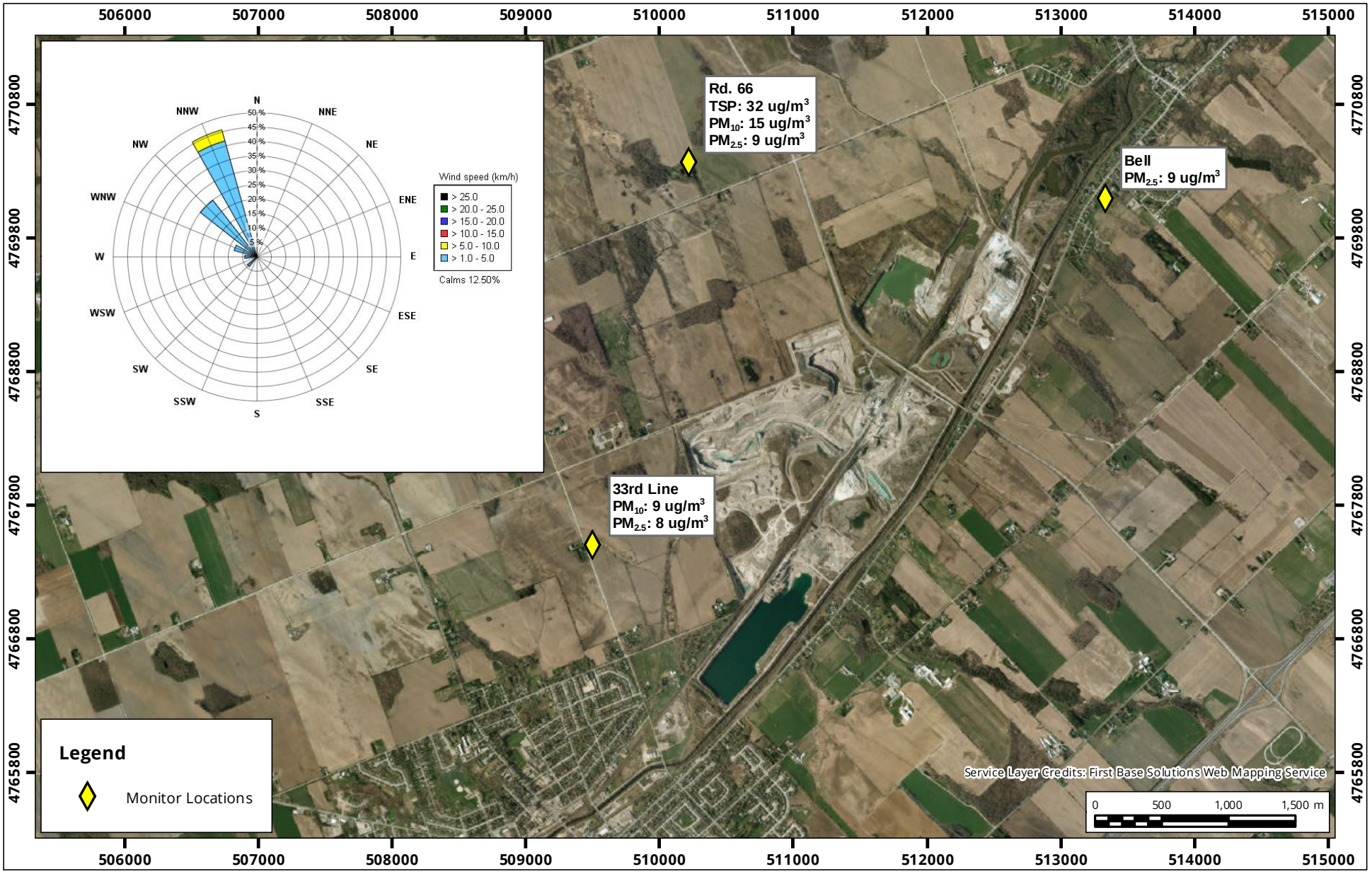

Site Plan Showing Sampling Locations and Windrose

Sampling Period: May 20, 2018

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Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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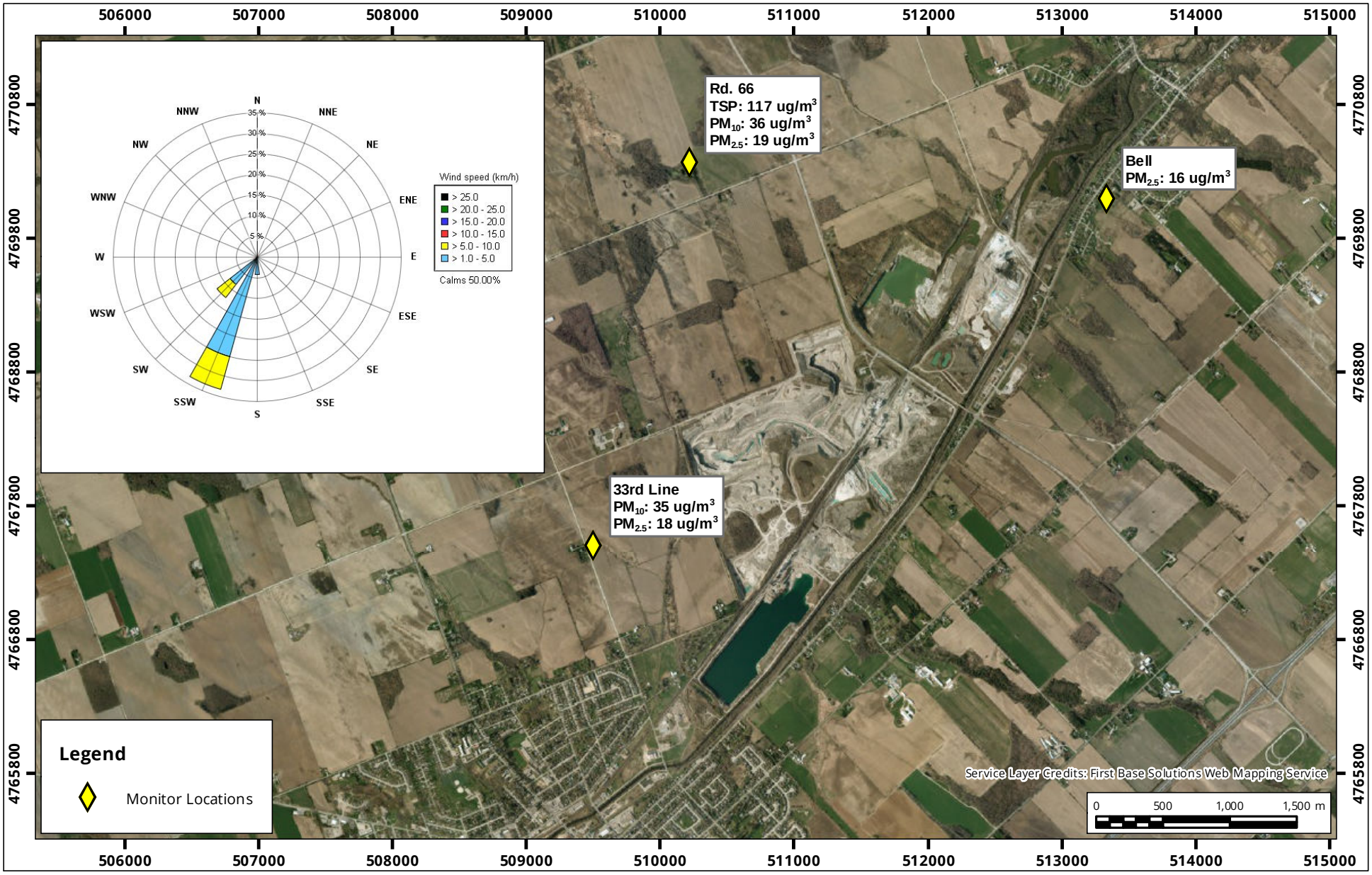

Site Plan Showing Sampling Locations and Windrose

Sampling Period: May 26, 2018

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Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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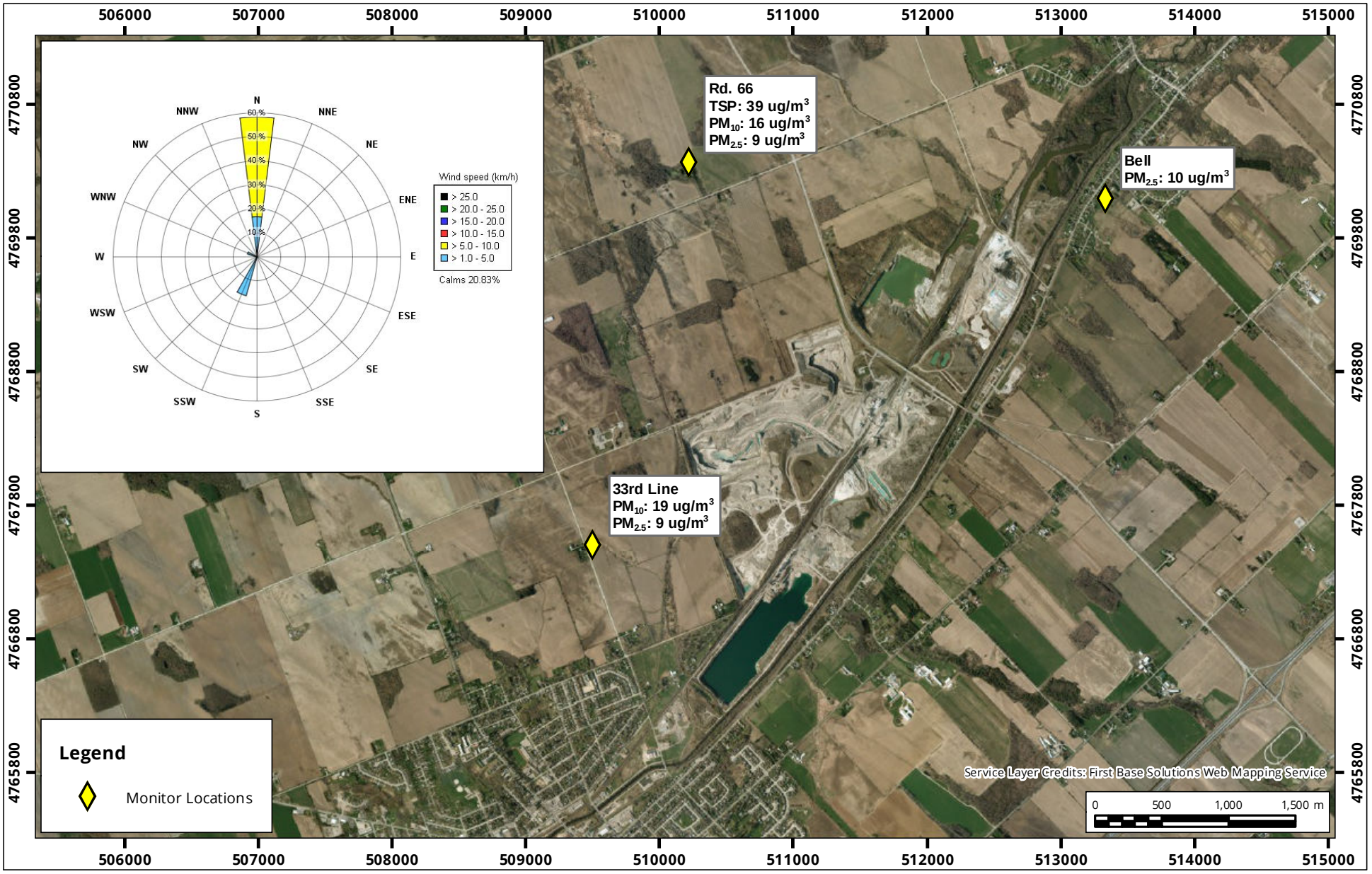

Site Plan Showing Sampling Locations and Windrose

Sampling Period: June 1, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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Date Revised:	Jul 30, 2018	

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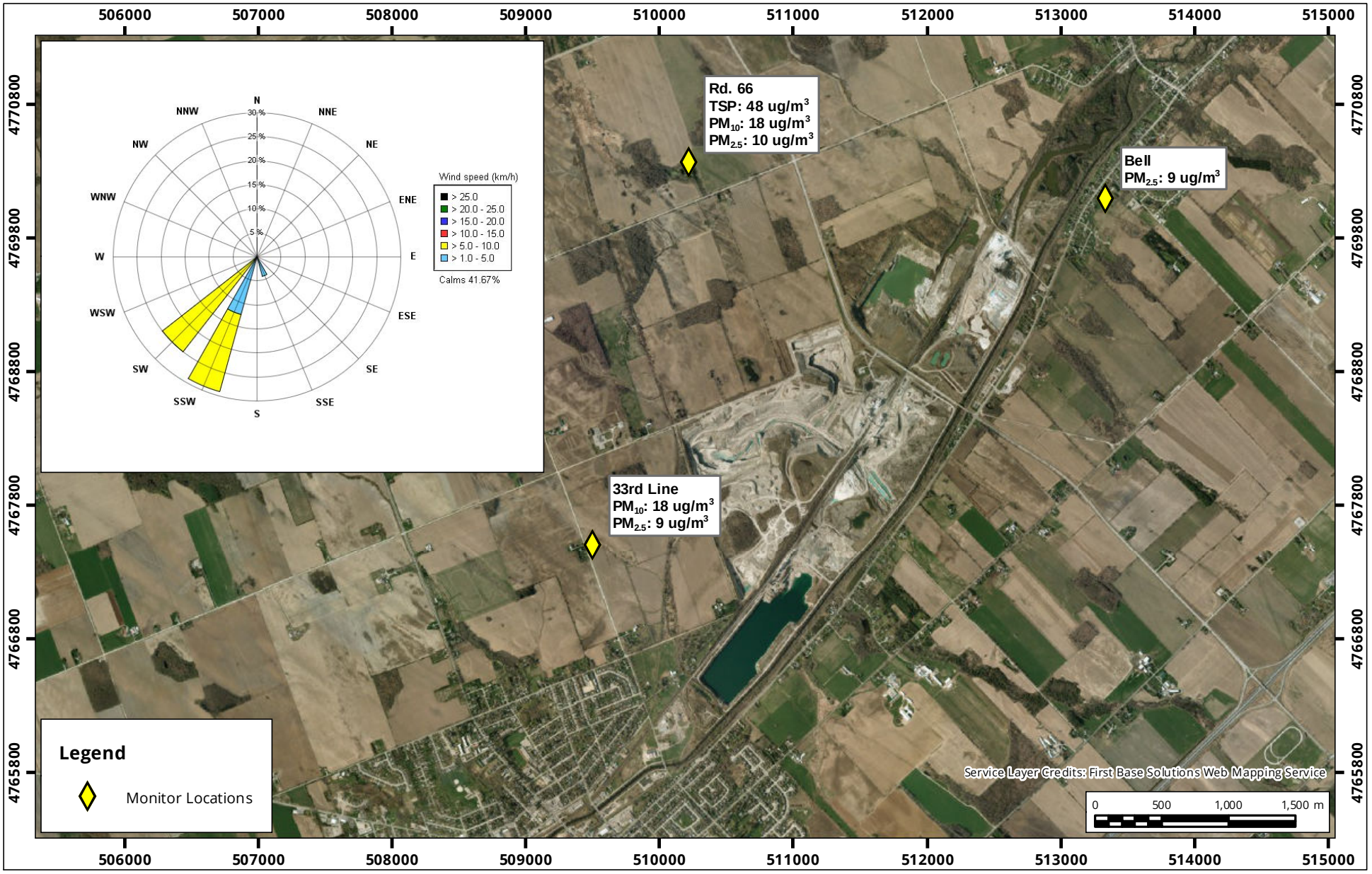


Site Plan Showing Sampling Locations and Windrose

Sampling Period: June 7, 2018

Map Projection: NAD 1983 UTM Zone 17N

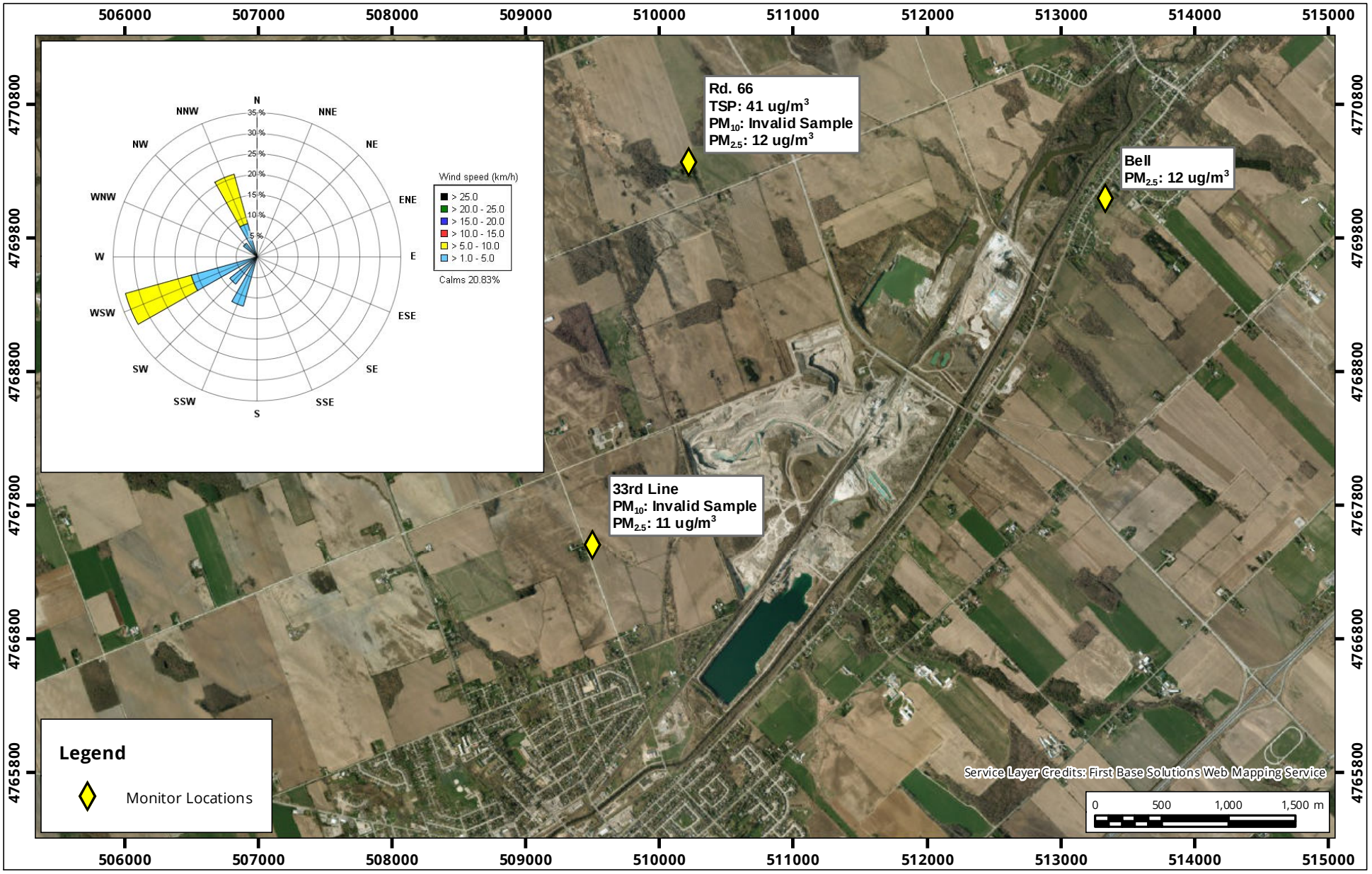
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 16
Approx. Scale:	1:40,000
Date Revised:	Jul 30, 2018

Map Document: C:\Users\vmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: June 13, 2018

Map Projection: NAD 1983 UTM Zone 17N

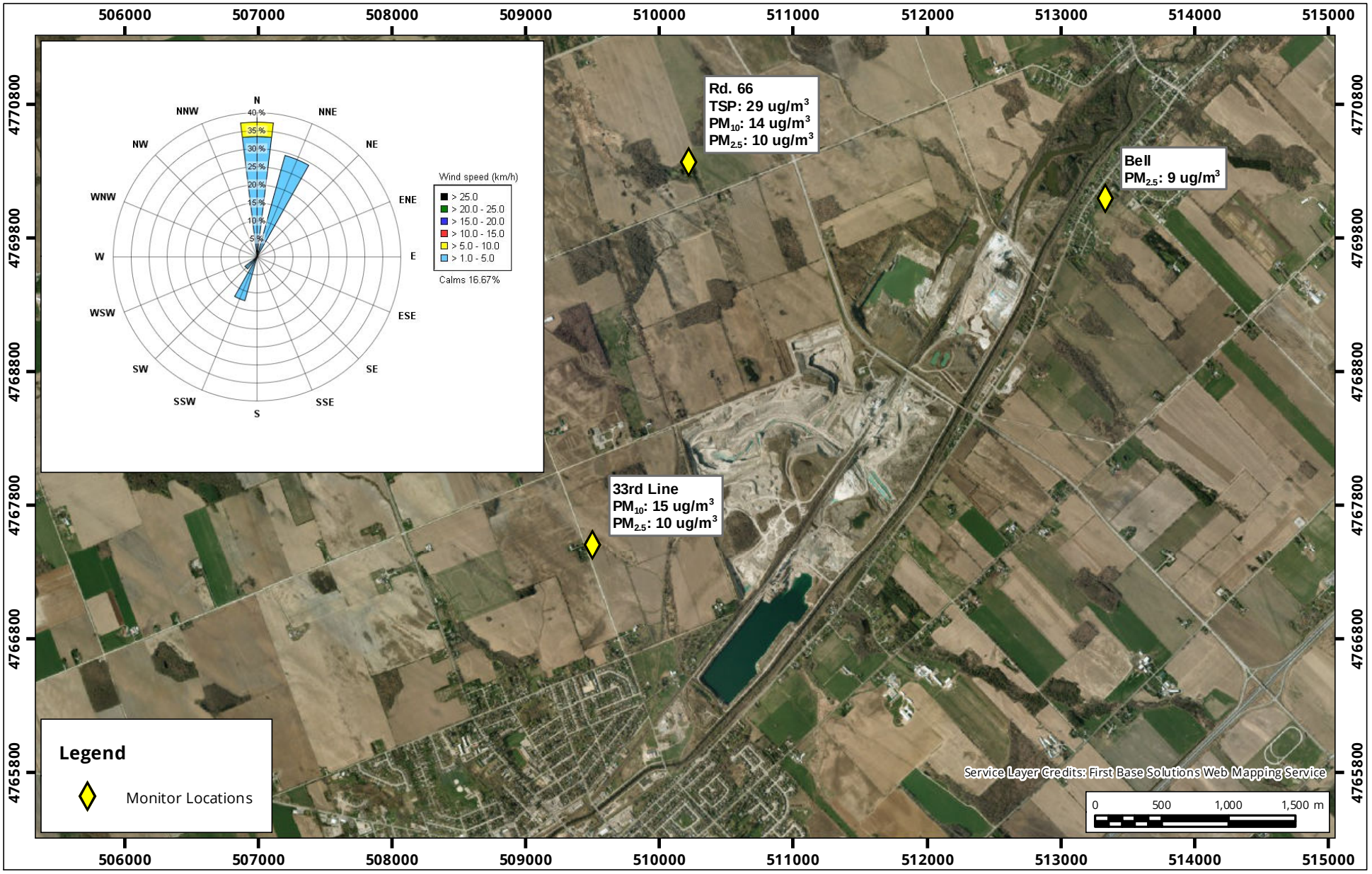
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 17
Approx. Scale:	1:40,000
Date Revised:	Jul 30, 2018

Map Document: C:\Users\vmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: June 19, 2018

Map Projection: NAD 1983 UTM Zone 17N

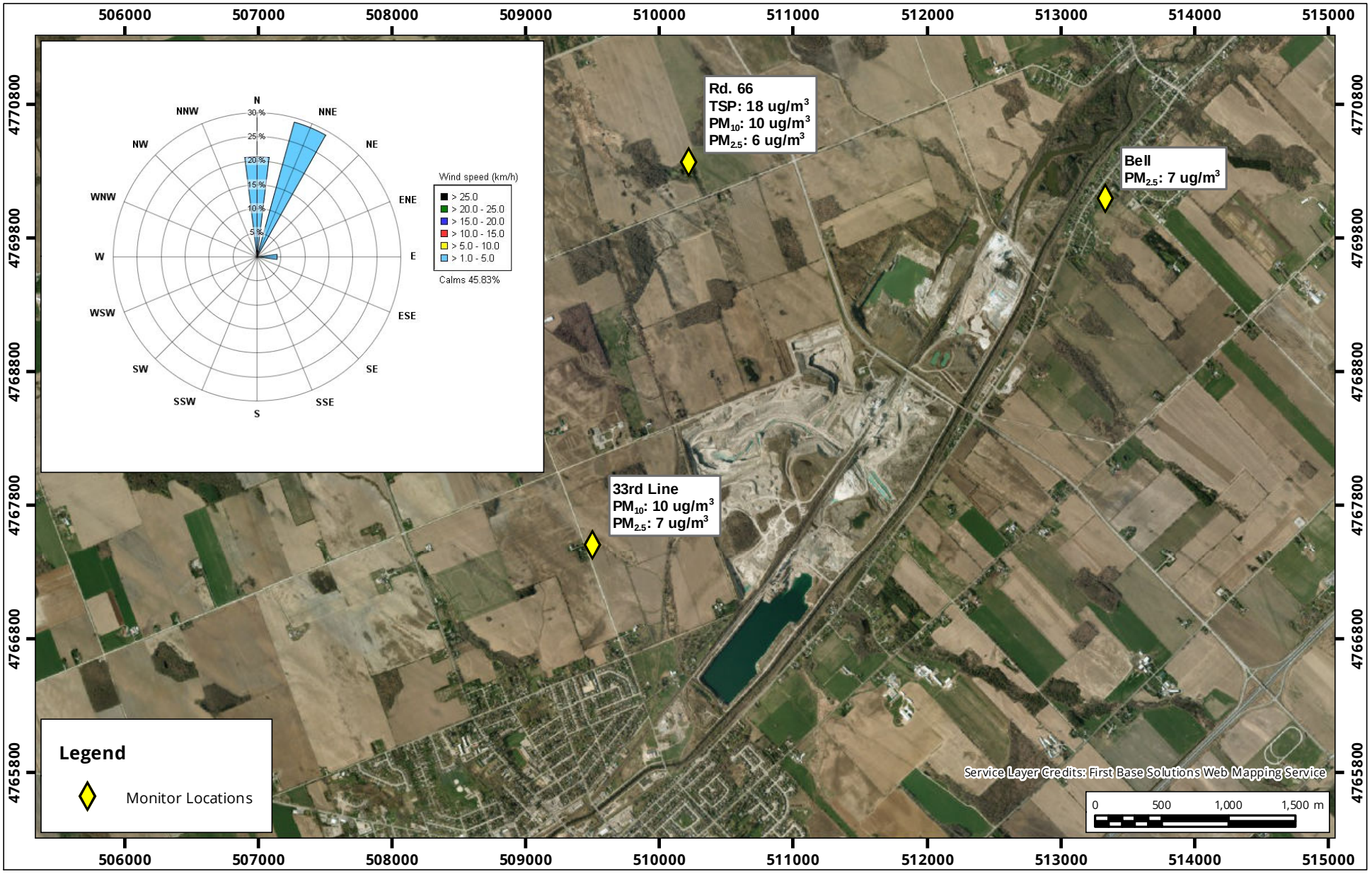
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure:	18
Approx. Scale:	1:40,000	
Date Revised:	Jul 30, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: June 25, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 19
Approx. Scale:	1:40,000
Date Revised:	Jul 30, 2018

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd

APPENDIX A

Table A1: Summary of Sample Flow Rate and Sample Duration for Rd 66 Station

Sample Date	Rd 66 Station - TSP			Rd 66 Station - PM_{10}			Rd 66 Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)	No.	(min)	(m^3)
March 9, 2018	736989	1401	1482	736990	1407	1528	736988	1411	1607
March 15, 2018	736993	1402	1474	736994	1404	1509	736995	1413	1610
March 21, 2018	737008	1403	1469	737007	1403	1500	737006	1414	1642
March 27, 2018	736999	1405	1587	737001	1401	1584	737000	1411	1581
April 2, 2018	737088	1403	1589	737089	1403	1583	737090	1410	1554
April 8, 2018	737069	1405	1572	737068	1405	1585	737067	1412	1600
April 14, 2018	737073	1404	1575	737075	1408	1598	737074	1414	1597
April 20, 2018	737304	1404	1561	737303	1404	1529	737302	1412	1558
April 26, 2018	Invalid Sample			Invalid Sample			Invalid Sample		
May 2, 2018	Invalid Sample			Invalid Sample			Invalid Sample		
May 8, 2018	Invalid Sample			Invalid Sample			Invalid Sample		
May 14, 2018	737316	1403	1518	737315	1406	1534	737314	1409	1540
May 20, 2018	737325	1405	1528	737322	1405	1537	737321	1410	1541
May 26, 2018	737504	1405	1546	737503	1410	1508	737502	1409	1544
June 1, 2018	737509	1404	1539	737510	1411	1553	737511	1413	1538
June 7, 2018	737516	1405	1537	737515	1405	1491	737514	1412	1547
June 13, 2018	737522	1405	1515	Invalid Sample			737520	1417	1503
June 19, 2018	737646	1413	1538	737645	1402	1547	737644	1411	1539
June 25, 2018	737652	1413	1534	737651	1405	1496	737650	1409	1527

Table A2: Summary of Sample Flow Rate and Sample Duration for 33rd Line Station

Sample Date	33rd Line Station - PM_{10}			33rd Line Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
March 9, 2018	736992	1412	1603	736991	1412	1497
March 15, 2018	736996	1417	1635	736997	1411	1514
March 21, 2018	737009	1419	1624	737010	1407	1510
March 27, 2018	737003	1418	1597	737002	1401	1579
April 2, 2018	737086	1415	1592	737087	1401	1557
April 8, 2018	737071	1412	1591	737070	1401	1574
April 14, 2018	737077	1413	1613	737076	1402	1621
April 20, 2018	737306	1414	1543	737305	1404	1550
April 26, 2018	737083	1417	1565	737082	1405	1567
May 2, 2018	737311	1420	1543	737310	1406	1534
May 8, 2018	737318	1417	1540	737317	1406	1523
May 14, 2018	737324	1415	1520	737323	1403	1519
May 20, 2018	737500	1412	1572	737499	1404	1486
May 26, 2018	737506	1412	1544	737505	1409	1551
June 1, 2018	737508	1418	1576	737507	1412	1565
June 7, 2018	737518	1418	1534	737517	1409	1561
June 13, 2018	Invalid Sample			737523	1409	1523
June 19, 2018	737648	1414	1571	737647	1406	1553
June 25, 2018	737654	1414	1571	737653	1407	1541

Table A3: Summary of Sample Flow Rate and Sample Duration for Bell Station

Sample Date	Bell Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)
March 9, 2018	736987	1402	1526
March 15, 2018	737011	1402	1555
March 21, 2018	No filter number	1405	1546
March 27, 2018	736998	1404	1605
April 2, 2018	737091	1404	1587
April 8, 2018	737004	1406	1600
April 14, 2018	737072	1402	1566
April 20, 2018	737301	1401	1622
April 26, 2018	737078	1402	1566
May 2, 2018	737084	1403	1548
May 8, 2018	737313	1406	1559
May 14, 2018	737319	1404	1542
May 20, 2018	737320	1405	1525
May 26, 2018	737501	1401	1574
June 1, 2018	737512	1397	1528
June 7, 2018	737513	1402	1583
June 13, 2018	737519	1402	1549
June 19, 2018	737643	1400	1569
June 25, 2018	737649	1405	1550

Table B1: 2018 Rd 66 Station Q1-2 Monitoring Results for TSP, PM_{10} and $PM_{2.5}$

Walkers AAQM (1800160)			
Rd 66 Station Monitoring Results for TSP, PM_{10} and $PM_{2.5}$			
(results expressed in $\mu g/m^3$)			
	TSP	**PM_{10}**	**$PM_{2.5}$**
Air Quality Standard or POI Limit	***120*** [1]	***50*** [1]	***28*** [2]
March 9, 2018	8	4	4
March 15, 2018	20	13	7
March 21, 2018	21	7	4
March 27, 2018	18	11	6
April 2, 2018	20	11	7
April 8, 2018	10	6	4
April 14, 2018	6	4	3
April 20, 2018	23	15	4
April 26, 2018	Invalid Sample	Invalid Sample	Invalid Sample
May 2, 2018	Invalid Sample	Invalid Sample	Invalid Sample
May 8, 2018	Invalid Sample	Invalid Sample	Invalid Sample
May 14, 2018	59	23	16
May 20, 2018	32	15	9
May 26, 2018	117	36	19
June 1, 2018	39	16	9
June 7, 2018	48	18	10
June 13, 2018	41	Invalid Sample	12
June 19, 2018	29	14	10
June 25, 2018	18	10	6

Notes:

[1] MOECC AAQC's

[2] CAAQS

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*120*	*50*	*28*
No. > Standard/POI	0	0	0
Arithmetic Mean	32	13	8
Max. Concentration	117	36	19
Min. Concentration	6	4	3
% Valid data	84	79	84

Table B2: 2018 33rd Line Station Q1-2 Monitoring Results for PM_{10} and $PM_{2.5}$

Walkers AAQM (1800160)		
33rd Line Station Monitoring Results for PM_{10} and $PM_{2.5}$		
(results expressed in µg/m^3)		
	PM_{10}	$PM_{2.5}$
Air Quality Standard or POI Limit	*50* [1]	*28* [2]
March 9, 2018	3	3
March 15, 2018	7	5
March 21, 2018	13	5
March 27, 2018	6	4
April 2, 2018	11	7
April 8, 2018	4	3
April 14, 2018	9	5
April 20, 2018	16	5
April 26, 2018	9	5
May 2, 2018	38	13
May 8, 2018	36	10
May 14, 2018	21	15
May 20, 2018	9	8
May 26, 2018	35	18
June 1, 2018	19	9
June 7, 2018	18	9
June 13, 2018	Invalid Sample	11
June 19, 2018	15	10
June 25, 2018	10	7

Notes:

[1] MOECC AAQC's

[2] CAAQS

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*50*	*28*
No. > Standard/POI	0	0
Arithmetic Mean	16	8
Max. Concentration	38	18
Min. Concentration	3	3
% Valid data	95	100

Table B3: 2018 Bell Station Q1-2 Monitoring Results for $PM_{2.5}$

Walkers AAQM (1800160)	
Bell Station Monitoring Results for $PM_{2.5}$	
(results expressed in µg/m^3)	
	$PM_{2.5}$
Air Quality Standard or POI Limit	***28*** [2]
March 9, 2018	3
March 15, 2018	5
March 21, 2018	3
March 27, 2018	5
April 2, 2018	6
April 8, 2018	3
April 14, 2018	4
April 20, 2018	4
April 26, 2018	6
May 2, 2018	14
May 8, 2018	8
May 14, 2018	15
May 20, 2018	9
May 26, 2018	16
June 1, 2018	10
June 7, 2018	9
June 13, 2018	12
June 19, 2018	9
June 25, 2018	7

Notes:

[1] MOECC AAQC's

[2] CAAQS

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*28*
No. > Standard/POI	0
Arithmetic Mean	8
Max. Concentration	16
Min. Concentration	3
% Valid data	100

Table C1: Q2 Summary of Sample Canister Pressures and Durations for VOCs/Total Reduced Sulfurs at Bell, Road 66 and 33rd Line Sampling Stations

Sample Date	Road 66 Sampling Station			33rd Line Sampling Station			Bell Sampling Station		
	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure
	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)
April 2, 2018	Invalid Sample			Invalid Sample			Invalid Sample		
April 8, 2018	1438	-31	-6.7	1438	-29	-7.8	1438	-30	-4.7
April 14, 2018	Invalid Sample			1438	-29	-3.5	1438	-28	-0.4
April 20, 2018	1438	-28.5	-4.9	1438	-30	-2.4	Invalid Sample		
April 26, 2018	1438	-28	-9	1438	-28	-5.5	1438	-26	-6.5
May 2, 2018	Invalid Sample			1438	-29	-10.6	1438	-31	-3.3
May 8, 2018	1438	-29	-6.9	1438	-30	-7.6	1438	-29.5	-8.8
May 14, 2018	1438	-30	-10.8	1438	-30	-9.6	1438	-29	-8.4
May 20, 2018	1438	-29.5	-10.8	1438	-30	-9.4	1438	-30	-4.1
May 26, 2018	1438	-29.5	-7.8	1438	-29.5	-5.9	1438	-30	-6.7
June 1, 2018	1438	-28.5	-9.4	1438	-27	-5.9	1438	-29	-9.2
June 7, 2018	1438	-30.5	-5.7	1438	-30	-7.1	1438	-28.5	-5.9
June 13, 2018	1438	-30.5	-7.8	1438	-31	-8.2	Invalid Sample		
June 19, 2018	1438	-30	-7.6	1438	-28	-4.7	1438	-27.5	-5.7
June 25, 2018	1438	-30	-7.6	1438	-30.5	-0.4	Invalid Sample		

Note: Final Canister Pressures recorded from ALS Lab reports

Table D1: Rd 66 Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
April 2, 2018																					
April 8, 2018	3.9	7.5	2.8	4.0	5.0	2.8	0.306	0.34	3.1	4.8	0.8	0.42	0.46	0.86	0.27	0.133	1.23	5.5	1.5	0.039	0.06
April 14, 2018																					
April 20, 2018	3.9	7.5	2.8	4.0	5.0	5.2	0.201	0.34	3.1	4.8	0.8	0.42	0.46	1.02	0.27	0.863	1.10	5.5	1.5	0.039	0.06
April 26, 2018	3.9	7.5	2.8	4.0	5.0	3.4	0.276	0.34	3.1	4.8	0.8	0.43	0.46	1.01	0.27	0.218	1.32	5.5	1.5	0.039	0.06
May 2, 2018																					
May 8, 2018	3.9	7.5	2.8	4.0	5.0	21.7	0.207	0.34	3.1	4.8	0.8	0.44	0.46	1.28	0.27	3.790	1.03	5.5	1.5	0.039	0.06
May 14, 2018	2.0	2.6	1.4	2.0	2.8	6.2	0.332	0.34	3.1	4.8	0.8	0.47	0.46	1.02	0.27	0.184	1.30	5.5	1.5	0.039	0.69
May 20, 2018	2.0	2.6	1.4	2.0	2.8	7.5	0.356	0.34	3.1	4.8	0.8	0.47	0.46	0.36	0.27	0.156	1.21	5.5	1.5	0.039	0.53
May 26, 2018	2.0	2.6	3.1	2.0	2.8	18.4	0.355	0.34	3.1	4.8	0.8	0.43	0.46	1.47	0.27	0.100	1.25	5.5	1.5	0.039	0.54
June 1, 2018	2.0	2.6	6.0	2.0	6.0	27.8	0.149	0.34	3.1	4.8	0.8	0.41	0.46	0.36	0.27	0.107	1.25	5.5	1.5	0.039	0.52
June 7, 2018	2.0	2.6	3.3	2.0	2.8	20.3	0.190	0.34	3.1	4.8	0.8	0.44	0.46	0.83	0.27	0.103	1.06	5.5	1.5	0.039	0.13
June 13, 2018	2.0	2.6	12.1	2.0	12.1	19.1	0.211	0.34	3.1	4.8	0.8	0.41	0.46	0.84	0.27	0.049	1.81	5.5	1.5	0.039	0.29
June 19, 2018	2.0	2.6	1.4	2.0	2.8	13.1	0.098	0.34	3.1	4.8	0.8	0.37	0.46	0.36	0.27	0.161	1.21	5.5	1.5	0.039	0.32
June 25, 2018	2.0	2.6	1.4	2.0	2.8	8.4	0.091	0.34	3.1	4.8	0.8	0.46	0.46	0.80	0.27	0.180	1.19	5.5	1.5	0.039	0.27

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Arithmetic Mean	2.6	4.2	3.4	2.6	4.6	12.8	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.8	0.3	0.5	1.2	5.5	1.5	0.0	0.3
Max. Concentration	3.9	7.5	12.1	4.0	12.1	27.8	0.4	0.3	3.1	4.8	0.8	0.5	0.5	1.5	0.3	3.8	1.8	5.5	1.5	0.0	0.7
Min. Concentration	2.0	2.6	1.4	2.0	2.8	2.8	0.1	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	1.0	5.5	1.5	0.0	0.1
% Valid data	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80

Table D1: Rd 66 Q2 Monitoring Results for V

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
April 2, 2018	Invalid Sample																				
April 8, 2018	1.95	0.041	0.052	0.040	0.040	0.040	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
April 14, 2018	Invalid Sample																				
April 20, 2018	1.90	0.041	0.054	0.040	0.040	0.040	0.35	4.2	4.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
April 26, 2018	1.95	0.041	0.068	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.67	0.65	4.1	0.41
May 2, 2018	Invalid Sample																				
May 8, 2018	1.59	0.041	0.085	0.040	0.040	0.040	0.35	4.2	6.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.15	0.84	4.1	0.41
May 14, 2018	2.07	0.041	0.072	0.040	0.040	0.040	0.35	4.2	2.8	0.36	0.44	0.49	1.0	0.41	0.72	4.2	5.5	0.87	0.84	4.1	0.41
May 20, 2018	1.80	0.041	0.057	0.040	0.040	0.040	0.35	4.2	3.0	0.36	0.44	0.49	1.0	0.41	0.35	3.6	5.5	0.74	1.09	4.1	0.41
May 26, 2018	2.00	0.041	0.059	0.040	0.040	0.040	0.35	4.2	7.0	0.36	0.44	0.49	1.0	0.41	0.35	5.6	5.5	1.58	1.39	4.1	0.41
June 1, 2018	1.79	0.041	0.075	0.040	0.040	0.040	0.35	4.2	4.5	0.36	0.44	0.49	1.0	0.41	0.35	7.0	5.5	0.30	0.84	4.1	0.41
June 7, 2018	1.78	0.041	0.065	0.040	0.040	0.040	0.35	4.2	4.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.35	0.92	4.1	0.41
June 13, 2018	1.89	0.041	0.050	0.040	0.040	0.040	0.35	4.2	5.3	0.36	0.44	0.49	1.0	0.41	0.35	11.9	5.5	1.18	1.46	4.1	0.41
June 19, 2018	1.88	0.041	0.042	0.040	0.040	0.040	0.35	4.2	3.6	0.36	0.44	0.49	1.0	0.41	0.35	2.8	5.5	0.30	0.59	4.1	0.41
June 25, 2018	1.84	0.041	0.065	0.040	0.040	0.040	0.35	4.2	4.3	0.36	0.44	0.49	1.0	0.41	0.35	4.1	5.5	0.30	0.30	4.1	0.41

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m ^{3})	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	1.9	0.0	0.1	0.0	0.0	0.0	0.3	4.2	4.3	0.4	0.4	0.5	1.0	0.4	0.4	3.8	5.5	0.8	0.8	4.1	0.4
Max. Concentration	2.1	0.0	0.1	0.0	0.0	0.0	0.3	4.2	7.0	0.4	0.4	0.5	1.0	0.4	0.7	11.9	5.5	1.6	1.5	4.1	0.4
Min. Concentration	1.6	0.0	0.0	0.0	0.0	0.0	0.3	4.2	2.7	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
% Valid data	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80

Table D1: Rd 66 Q2 Monitoring Results for V

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
April 2, 2018																					
April 8, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
April 14, 2018																					
April 20, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
April 26, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.78	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 2, 2018																					
May 8, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 14, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	1.05	0.49	0.43	0.035	0.07	0.96	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
May 20, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
May 26, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.64	0.49	0.43	0.035	0.07	0.91	0.8	0.6	0.028	0.310	1.20	0.49	0.49	0.49
June 1, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.94	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 7, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.77	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 13, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 19, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 25, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.5	0.8	0.6	0.0	0.1	0.8	0.5	0.5	0.5
Max. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	1.1	0.5	0.4	0.0	0.1	1.0	0.8	0.6	0.0	0.3	1.3	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
% Valid data	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80

Table D1: Rd 66 Q2 Monitoring Results for V

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
April 2, 2018				
April 8, 2018	0.026	0.44	0.9	98.9
April 14, 2018				
April 20, 2018	0.026	0.44	0.9	98.2
April 26, 2018	0.026	0.44	0.9	98.4
May 2, 2018				
May 8, 2018	0.026	0.44	0.9	99.8
May 14, 2018	0.026	0.44	0.9	96.2
May 20, 2018	0.026	0.44	0.9	98.4
May 26, 2018	0.026	0.44	0.9	104.5
June 1, 2018	0.026	0.44	0.9	88.1
June 7, 2018	0.026	0.44	0.9	98.9
June 13, 2018	0.026	0.44	0.9	100.2
June 19, 2018	0.026	0.44	0.9	99.9
June 25, 2018	0.026	0.44	0.9	104.9

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Arithmetic Mean	0.0	0.4	0.85	98.9
Max. Concentration	0.0	0.4	0.85	104.9
Min. Concentration	0.0	0.4	0.85	88.1
% Valid data	80	80	80	80

Table D2: 33rd Line Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																					
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
April 2, 2018																							
April 8, 2018	3.9	7.5	2.8	4.0	5.0	1.5	0.294	0.34	3.1	4.8	0.8	0.41	0.46	0.75	0.27	0.049	1.09	5.5	1.5	0.039	0.06	2.06	0.041
April 14, 2018	3.9	7.5	2.8	4.0	5.0	2.4	0.301	0.34	3.1	4.8	0.8	0.41	0.46	0.83	0.27	0.049	1.02	5.5	1.5	0.039	0.06	2.06	0.041
April 20, 2018	3.9	7.5	2.8	4.0	5.0	2.5	0.226	0.34	3.1	4.8	0.8	0.40	0.46	0.36	0.27	0.049	1.14	5.5	1.5	0.039	0.06	1.88	0.041
April 26, 2018	3.9	7.5	2.8	4.0	5.0	2.9	0.292	0.34	3.1	4.8	0.8	0.40	0.46	0.36	0.27	0.049	0.85	5.5	1.5	0.039	0.06	1.81	0.041
May 2, 2018	3.9	7.5	2.8	4.0	5.0	6.1	0.235	0.34	3.1	4.8	0.8	0.44	0.46	1.21	0.27	0.049	1.22	5.5	1.5	0.039	0.13	1.67	0.041
May 8, 2018	3.9	7.5	2.8	4.0	5.0	4.2	0.250	0.34	3.1	4.8	0.8	0.42	0.46	1.01	0.27	0.100	1.05	5.5	1.5	0.039	0.06	1.71	0.041
May 14, 2018	2.0	2.6	1.4	2.0	2.8	5.1	0.386	0.34	3.1	4.8	0.8	0.47	0.46	0.36	0.27	0.142	1.18	5.5	1.5	0.039	0.12	2.26	0.041
May 20, 2018	2.0	2.6	1.4	2.0	2.8	6.7	0.262	0.34	3.1	4.8	0.8	0.48	0.46	0.81	0.27	0.049	1.17	5.5	1.5	0.039	0.34	2.10	0.041
May 26, 2018	2.0	2.6	2.8	2.0	2.8	19.2	1.000	0.34	3.1	4.8	2.7	0.40	0.46	0.91	0.27	0.117	1.29	5.5	1.5	0.039	0.17	2.03	0.041
June 1, 2018	2.0	2.6	4.7	2.0	2.8	35.6	0.958	0.34	3.1	4.8	1.5	0.42	0.46	0.36	0.27	0.237	1.16	5.5	1.5	0.039	0.36	1.93	0.041
June 7, 2018	2.0	2.6	3.4	2.0	2.8	14.7	0.276	0.34	3.1	4.8	1.9	0.41	0.46	0.36	0.27	0.273	0.81	5.5	1.5	0.039	0.27	1.85	0.041
June 13, 2018	2.0	2.6	1.4	2.0	2.8	26.0	0.435	0.34	3.1	4.8	3.5	0.32	0.46	0.90	0.27	0.195	1.18	5.5	1.5	0.039	0.21	1.58	0.041
June 19, 2018	2.0	2.6	1.4	2.0	2.8	58.2	0.370	0.34	3.1	4.8	13.4	0.37	0.46	0.88	0.27	2.010	1.24	5.5	1.5	0.039	2.88	1.80	0.041
June 25, 2018	2.0	2.6	1.4	2.0	2.8	68.1	0.417	0.34	3.1	4.8	17.5	0.41	0.46	0.72	0.27	2.510	0.92	5.5	1.5	0.039	2.23	1.74	0.041

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0
Arithmetic Mean	2.8	4.7	2.5	2.8	3.7	18.1	0.4	0.3	3.1	4.8	3.3	0.4	0.5	0.7	0.3	0.4	1.1	5.5	1.5	0.0	0.5	1.9	0.0
Max. Concentration	3.9	7.5	4.7	4.0	5.0	68.1	1.0	0.3	3.1	4.8	17.5	0.5	0.5	1.2	0.3	2.5	1.3	5.5	1.5	0.0	2.9	2.3	0.0
Min. Concentration	2.0	2.6	1.4	2.0	2.8	1.5	0.2	0.3	3.1	4.8	0.8	0.3	0.5	0.4	0.3	0.0	0.8	5.5	1.5	0.0	0.1	1.6	0.0
% Valid data	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93

Table D2: 33rd Line Q2 Monitoring Results f

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																					
	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane
Air Quality Standard or POI Limit [1]	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
April 2, 2018	Invalid Sample																						
April 8, 2018	0.043	0.040	0.040	0.040	0.35	4.2	4.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.64	0.30	4.1	0.41	0.41	0.35	0.35	0.40
April 14, 2018	0.054	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.71	0.68	4.1	0.41	0.41	0.35	0.35	0.40
April 20, 2018	0.045	0.040	0.040	0.040	0.35	4.2	2.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40
April 26, 2018	0.049	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.06	0.30	4.1	0.41	0.41	0.35	0.35	0.40
May 2, 2018	0.073	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.12	0.88	4.1	0.41	0.41	0.35	0.35	0.40
May 8, 2018	0.070	0.040	0.040	0.040	0.35	4.2	48.8	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.78	0.30	4.1	0.41	0.41	0.35	0.35	0.40
May 14, 2018	0.065	0.040	0.040	0.040	0.35	4.2	13.8	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	2.32	0.91	4.1	0.41	0.41	0.35	0.35	0.40
May 20, 2018	0.075	0.040	0.040	0.040	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	0.35	4.6	5.5	0.74	0.82	4.1	0.41	0.41	0.35	0.35	0.40
May 26, 2018	0.062	0.040	0.040	0.040	0.35	4.2	5.6	0.36	0.44	0.49	1.0	0.41	0.35	12.0	5.5	4.22	1.61	4.1	0.41	0.41	0.35	0.35	0.40
June 1, 2018	0.074	0.040	0.040	0.040	0.87	4.2	31.5	0.36	0.44	0.49	1.0	0.41	0.35	6.6	5.5	2.07	8.65	4.1	0.41	0.41	0.35	0.35	0.40
June 7, 2018	0.070	0.040	0.040	0.040	1.28	4.2	21.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	3.10	0.91	4.1	0.41	0.41	0.86	0.35	0.40
June 13, 2018	0.020	0.040	0.040	0.040	0.84	4.2	17.6	0.36	0.44	0.49	1.0	0.41	0.35	12.1	5.5	0.78	1.60	4.1	0.41	0.41	0.35	0.35	0.40
June 19, 2018	0.047	0.040	0.040	0.040	7.76	4.2	251.0	0.36	0.44	0.49	1.0	0.41	0.35	8.1	5.5	0.91	1.00	4.1	0.41	0.41	0.35	0.35	0.40
June 25, 2018	0.068	0.040	0.040	0.040	10.60	4.2	560.0	0.36	0.44	0.49	1.0	0.41	0.35	4.1	5.5	1.40	0.84	4.1	0.41	0.41	0.35	0.35	0.40

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.1	0.0	0.0	0.0	1.7	4.2	68.8	0.4	0.4	0.5	1.0	0.4	0.4	4.1	5.5	1.4	1.4	4.1	0.4	0.4	0.4	0.4	0.4
Max. Concentration	0.1	0.0	0.0	0.0	10.6	4.2	560.0	0.4	0.4	0.5	1.0	0.4	0.4	12.1	5.5	4.2	8.7	4.1	0.4	0.4	0.9	0.4	0.4
Min. Concentration	0.0	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4	0.4	0.4	0.4	0.4
% Valid data	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93

Table D2: 33rd Line Q2 Monitoring Results f

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
April 2, 2018																					
April 8, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	96.0
April 14, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.7
April 20, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	94.4
April 26, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	96.1
May 2, 2018	0.7	0.5	0.47	0.78	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.2
May 8, 2018	0.7	0.5	0.47	0.97	0.49	0.43	0.035	0.07	0.86	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	99.4
May 14, 2018	0.7	0.5	0.47	0.86	0.49	0.43	0.035	0.07	0.92	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	99.9
May 20, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	97.8
May 26, 2018	0.7	0.5	0.47	1.92	0.49	0.43	0.035	0.07	1.28	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	100.3
June 1, 2018	0.7	0.5	0.47	2.73	0.49	0.43	0.035	0.07	13.60	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	97.1
June 7, 2018	0.7	0.5	0.47	1.81	0.49	0.43	0.035	0.07	0.95	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	93.5
June 13, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	102.1
June 19, 2018	2.6	0.5	0.47	0.30	0.49	1.34	0.035	0.07	2.26	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	98.7
June 25, 2018	1.8	0.5	0.47	0.30	0.49	1.17	0.035	0.07	1.51	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	106.1

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.9	0.5	0.5	0.8	0.5	0.5	0.0	0.1	1.7	0.8	0.6	0.0	0.1	0.7	0.5	0.5	0.5	0.0	0.4	0.85	98.5
Max. Concentration	2.6	0.5	0.5	2.7	0.5	1.3	0.0	0.1	13.6	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5	0.0	0.4	0.85	106.1
Min. Concentration	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	93.5
% Valid data	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93

Table D3: Bell Q2 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
April 2, 2018																					
April 8, 2018	3.9	7.5	2.8	4.0	5.0	4.1	0.362	0.34	3.1	4.8	0.8	0.39	0.46	0.81	0.27	0.191	1.05	5.5	1.5	0.039	0.06
April 14, 2018	3.9	7.5	2.8	4.0	5.0	9.0	0.442	0.34	3.1	4.8	0.8	0.41	0.46	0.90	0.27	3.290	1.20	5.5	1.5	0.039	0.23
April 20, 2018																					
April 26, 2018	3.9	7.5	2.8	4.0	5.0	5.2	0.380	0.34	3.1	4.8	0.8	0.43	0.46	1.28	0.27	0.177	0.77	5.5	1.5	0.039	0.06
May 2, 2018	3.9	7.5	2.8	4.0	5.0	9.4	0.251	0.34	3.1	4.8	3.4	0.42	0.46	1.06	0.27	1.860	1.20	5.5	1.5	0.039	0.34
May 8, 2018	3.9	7.5	2.8	4.0	5.0	7.4	0.346	0.34	3.1	4.8	0.8	0.46	0.46	1.02	0.27	3.420	1.09	5.5	1.5	0.039	0.26
May 14, 2018	2.0	2.6	1.4	2.0	2.8	9.8	0.376	0.34	3.1	4.8	0.8	0.42	0.46	0.36	0.27	2.850	1.46	5.5	1.5	0.039	0.23
May 20, 2018	2.0	2.6	2.9	2.0	2.8	16.0	0.209	0.34	3.1	4.8	0.8	0.44	0.46	1.20	0.27	1.970	1.34	5.5	1.5	0.039	0.06
May 26, 2018	2.0	2.6	8.8	2.0	8.8	15.8	0.749	0.34	3.1	4.8	1.8	0.41	0.46	0.75	0.27	0.049	1.15	5.5	1.5	0.039	0.06
June 1, 2018	2.0	2.6	12.3	2.0	12.3	28.0	0.321	0.34	3.1	4.8	0.8	0.41	0.46	0.87	0.27	0.049	1.24	5.5	1.5	0.039	0.41
June 7, 2018	2.0	2.6	4.3	2.0	2.8	7.5	0.210	0.34	3.1	4.8	0.8	0.41	0.46	0.71	0.27	0.049	0.91	5.5	1.5	0.039	0.06
June 13, 2018																					
June 19, 2018	2.0	2.6	3.3	2.0	2.8	13.6	0.387	0.34	3.1	4.8	1.7	0.38	0.46	0.75	0.27	0.049	1.11	5.5	1.5	0.039	0.06
June 25, 2018																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
Arithmetic Mean	2.8	4.8	4.3	2.9	5.2	11.4	0.4	0.3	3.1	4.8	1.2	0.4	0.5	0.9	0.3	1.3	1.1	5.5	1.5	0.0	0.2
Max. Concentration	3.9	7.5	12.3	4.0	12.3	28.0	0.7	0.3	3.1	4.8	3.4	0.5	0.5	1.3	0.3	3.4	1.5	5.5	1.5	0.0	0.4
Min. Concentration	2.0	2.6	1.4	2.0	2.8	4.1	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.8	5.5	1.5	0.0	0.1
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D3: Bell Q2 Monitoring Results for VO

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
April 2, 2018	Invalid Sample																				
April 8, 2018	1.94	0.041	0.047	0.040	0.040	0.040	0.79	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.66	0.30	4.1	0.41
April 14, 2018	1.82	0.041	0.058	0.040	0.040	0.040	0.35	4.2	7.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	3.15	0.69	4.1	0.41
April 20, 2018	Invalid Sample																				
April 26, 2018	1.88	0.041	0.066	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.62	4.1	0.41
May 2, 2018	1.66	0.041	0.084	0.040	0.040	0.040	0.35	4.2	7.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.78	1.25	4.1	0.41
May 8, 2018	1.69	0.041	0.086	0.040	0.040	0.040	0.35	4.2	42.5	0.36	0.44	0.49	1.0	0.41	0.35	2.9	5.5	1.59	0.66	4.1	0.41
May 14, 2018	2.00	0.041	0.020	0.040	0.040	0.040	1.02	4.2	16.0	0.36	0.44	0.49	1.0	0.41	0.35	9.4	5.5	0.30	2.04	4.1	0.41
May 20, 2018	1.83	0.041	0.061	0.040	0.040	0.040	0.35	4.2	3.9	0.36	0.44	0.49	1.0	0.41	0.35	8.2	5.5	0.30	1.14	4.1	0.41
May 26, 2018	2.07	0.041	0.053	0.040	0.040	0.040	0.35	4.2	12.1	0.36	0.44	0.49	1.0	0.41	1.74	4.2	5.5	4.06	1.86	4.1	0.41
June 1, 2018	1.85	0.041	0.073	0.040	0.040	0.040	0.35	4.2	11.0	0.36	0.44	0.49	1.0	0.41	0.96	3.6	5.5	3.01	1.39	4.1	0.41
June 7, 2018	1.74	0.041	0.063	0.040	0.040	0.040	0.35	4.2	3.5	0.36	0.44	0.49	1.0	0.41	0.35	3.1	5.5	1.02	0.30	4.1	0.41
June 13, 2018	Invalid Sample																				
June 19, 2018	1.88	0.041	0.043	0.040	0.040	0.040	0.35	4.2	5.3	0.36	0.44	0.49	1.0	0.41	0.35	2.5	5.5	0.88	0.85	4.1	0.41
June 25, 2018	Invalid Sample																				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	1.9	0.0	0.1	0.0	0.0	0.0	0.4	4.2	10.4	0.4	0.4	0.5	1.0	0.4	0.5	3.5	5.5	1.5	1.0	4.1	0.4
Max. Concentration	2.1	0.0	0.1	0.0	0.0	0.0	1.0	4.2	42.5	0.4	0.4	0.5	1.0	0.4	1.7	9.4	5.5	4.1	2.0	4.1	0.4
Min. Concentration	1.7	0.0	0.0	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D3: Bell Q2 Monitoring Results for VO

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
April 2, 2018																					
April 8, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
April 14, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	2.33	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
April 20, 2018																					
April 26, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.98	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 2, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 8, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.07	0.86	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 14, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	4.30	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 20, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.75	0.49	0.43	0.035	0.07	4.23	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
May 26, 2018	0.41	1.43	1.17	0.40	0.7	0.5	0.47	2.45	0.49	0.43	0.035	0.07	3.98	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 1, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	2.72	0.49	0.43	0.035	0.07	5.44	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 7, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.63	0.49	0.43	0.035	0.07	0.96	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
June 13, 2018																					
June 19, 2018	0.41	0.35	0.35	0.40	7.2	0.5	0.47	0.91	0.49	0.43	0.035	0.07	1.61	0.8	0.6	0.028	0.055	0.55	1.37	3.19	0.49
June 25, 2018																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.4	0.4	0.4	0.4	1.2	0.5	0.5	1.1	0.5	0.4	0.0	0.1	2.1	0.8	0.6	0.0	0.1	0.6	0.6	0.7	0.5
Max. Concentration	0.4	1.4	1.2	0.4	7.2	0.5	0.5	2.7	0.5	0.4	0.0	0.1	5.4	0.8	0.6	0.0	0.1	0.6	1.4	3.2	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
% Valid data	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73

Table D3: Bell Q2 Monitoring Results for VO

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
April 2, 2018				
April 8, 2018	0.026	0.44	0.9	96.4
April 14, 2018	0.026	0.44	0.9	98.8
April 20, 2018				
April 26, 2018	0.026	0.44	0.9	99.2
May 2, 2018	0.026	0.44	0.9	98.5
May 8, 2018	0.026	0.44	0.9	100.0
May 14, 2018	0.026	0.44	0.9	101.0
May 20, 2018	0.026	0.44	0.9	100.6
May 26, 2018	0.026	0.44	2.0	105.7
June 1, 2018	0.026	0.44	0.9	105.9
June 7, 2018	0.026	0.44	0.9	96.6
June 13, 2018				
June 19, 2018	0.026	0.44	0.9	99.6
June 25, 2018				

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Arithmetic Mean	0.0	0.4	0.95	100.2
Max. Concentration	0.0	0.4	2.00	105.9
Min. Concentration	0.0	0.4	0.85	96.4
% Valid data	73	73	73	73

APPENDIX B

Chain of Custody (COC) / Analytical Request Form

L2067377-COFC

COC Number: 14 - 468843

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	Email 2		

Invoice To Same as Report To ☑ Yes ☐ No	**Invoice Distribution**	**Analysis Request**	
Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company:	Email 1 or Fax	Particulate on Filter	Number of Containers
Contact:	Email 2		

Project Information	**Oil and Gas Required Fields (client use)**		
ALS Quote #:	Approver ID:	Cost Center:	
Job #: 1201998	GL Account:	Routing Code:	
PO / AFE: 1201998-3000-300	Activity Code:		
LSD:	Location:		
ALS Lab Work Order # (lab use only)	**ALS Contact:**	**Sampler:**	

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	736991 - 33rd line PM2.5 Mar. 9	9/3/18	24 hr	AA	X	
2	736992 - 33rd line PM10 Mar. 9	"	"	"	X	
3	736988 - Rd 66 PM2.5 Mar. 9	"	"	"	X	
4	736990 - Rd 66 PM10 Mar 9	"	"	"	X	
5	736989 - Rd 66 TSP Mar 9	"	"	"	X	
6	736987 - Bell PM2.5 Mar. 9	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	**Special Instructions / Specify Criteria to add on report (client Use)**	**SAMPLE CONDITION AS RECEIVED (lab use only)**
Are samples taken from a Regulated DW System? ☐ Yes ☑ No		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☐ Yes ☑ No		Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
23.0°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Mar. 14'18	Time: 10:45	Received by: AARON BURTON	Date: 14-March-2018	Time: 10:45	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v05-Front-04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System** please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468848

L2069496-COFC

Page ____ of ____

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To RWDI	**Report Format / Distribution**	**Select Service Level Below** (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☐ Regular (Standard TAT if received by 3pm)
Contact: Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report ☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address: 600 Southgate Dr.	☐ Criteria on Report - provide details below if box checked	E ☐ Emergency (1-2 business days if received by 3pm)
Phone: 519 - 823 - 1311	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
	Email 1 or Fax Brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
	Email 2 steve.sanderson@rwdi.com	**Analysis Request**
Invoice To Same as Report To ☑ Yes ☐ No	**Invoice Distribution**	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
~~Copy of Invoice with Report~~ ☐ Yes ☐ No	~~Select Invoice Distribution:~~ ☑ EMAIL ☐ MAIL ☐ FAX	
Company:	Email 1 or Fax	
Contact:	Email 2	

Project Information		**Oil and Gas Required Fields (client use)**	
ALS Quote #:		Approver ID:	Cost Center:
Job #: 1201998		GL Account:	Routing Code:
PO / AFE: 1201998-3000-300		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	**ALS Contact:**	**Sampler:**

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	Number of Containers
1	736997 - 33rd line PM2.5 Mar. 15	15/03/18	24 hr	AA	X	
2	736996 - 33rd line PM10 Mar. 15	"	"	"	X	
3	736995 - Rd 66 PM2.5 Mar. 15	"	"	"	X	
4	736994 - Rd 66 PM10 - Mar 15	"	"	"	X	
5	736993 - Rd 66 TSP - Mar. 15	"	"	"	X	
6	737011 - Bell PM2.5 - Mar. 15	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	**Special Instructions / Specify Criteria to add on report (client Use)**
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes	☐	No	☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes	☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
22.8°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Mar. 19	Time: 17:00	Received by: AARON BURTON	Date: 19-March-2018	Time: 17:00	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2072546-COFC

COC Number: 14 - 468849

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Beggeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	1201998	GL Account:	Routing Code:
PO / AFE:	1201998-3000-300	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2072546

ALS Contact: | Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
	Bell PM2.5 - Mar. 21	21/03/18	24hr	AA	X	
	737006 - Rd 66 PM2.5 - Mar. 21	"	"	"	X	
	737007 - Rd 66 PM10 - Mar. 21	"	"	"	X	
	737008 - Rd 66 TSP - Mar. 21	"	"	"	X	
	737010 - 33rd line PM2.5 - Mar. 21	"	"	"	X	
	737009 - 33rd line PM10 - Mar. 21	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
N/A					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
							3/27/18	1115

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2073933-COFC

COC Number: 14 - 468865

Page ____ of ____

Report To ~~Brad~~	Report Format / Distribution		Turnaround Time (TAT) is not available for all tests)
Company: BRAD BERGERON	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☐	Regular (Standard TAT if received by 3pm)
Contact: RWDI	Quality Control (QC) Report with Report ☐ Yes ☐ No	P ☐	Priority (2-4 business days if received by 3pm)
Address: 600 SOUTHGATE DR.	☐ Criteria on Report - provide details below if box checked	E ☐	Emergency (1-2 business days if received by 3pm)
Phone:	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
	Email 1 or Fax BRAD.BERGERON@RWDI.COM	Specify Date Required for E2,E or P:	
	Email 2		

Invoice To Same as Report To ☐ Yes ☐ No	Invoice Distribution	Analysis Request	
Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company:	Email 1 or Fax	PARTICULATE ON FILTER	
Contact:	Email 2		

Project Information	Oil and Gas Required Fields (client use)		
ALS Quote #:	Approver ID:	Cost Center:	
Job #: 1201998-	GL Account:	Routing Code:	
PO / AFE: 1201998-3000 -300	Activity Code:		
LSD:	Location:		

ALS Lab Work Order # (lab use only): L2073933 GN

ALS Contact: | Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
1	737002 - 33RD PM2.5 - MAR 27	27-03-18	24HR	AA	X
2	737003 - 3RD PM10 - MAR 27	↓	↓	↓	X
3	737000 - RDG6 PM2.5 - MAR 27				X
4	737001 - RDG6 PM10 - MAR 27				X
5	736999 - RDG6 TSP - MAR 27				X
6	736998 BECC PM2.5 - MAR 27				X

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☐ Yes ☐ No		Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: AP	Date: 28-3-18	Time: 17:00
	MAR 28	4:30						

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-03256 v06 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468866

I 2075119-COFC

Page ____ of ____

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	Brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	Analysis Request

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	1800160-1000-110	GL Account:	Routing Code:
PO / AFE:	1800160-1000-110	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	737091 - Rel PM2.5 - Apr. 2	02/04/18	24 hr	AA	X	
2	737090 - Rd 66 PM2.5 - Apr 2	"	"	"	X	
3	737089 - Rd66 PM10 - Apr. 2	"	"	"	X	
4	737088 - Rd66 TSP - Apr. 2	"	"	"	X	
5	737087 - 33rd Line PM2.5 - Apr 2	"	"	"	X	
6	737086 - 33rd Line PM10 - Apr 2	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
15.4°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
			APRON BURTON	2-Apr-2018	15:35			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System** please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468864

L2078370-COFC

Page ___ of ___

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R	☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron	Quality Control (QC) Report with Report	☐ Yes ☐ No	P	☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Drive, Guelph	☐ Criteria on Report - provide details below if box checked		E	☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2	☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:	
		Email 2			

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	brad.bergeron@rwdi.com
Contact:		Email 2	steve.sanderson@rwdi.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	Number of Containers
1	737004 - Bell PM2.5 Apr. 8	08-04-18	24 hr	AA	X	
2	737067 - Rd 66 PM2.5 Apr. 8	"	"	"	X	
3	737068 - Rd 66 PM10 Apr. 8	"	"	"	X	
4	737069 - Rd 66 TSP Apr. 8	"	"	"	X	
5	737070 - 33rd line PM2.5 Apr. 8	"	"	"	X	
6	737071 - 33rd line PM10 Apr. 8	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
10.8°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Apr-11'18	10:13	Marlon Burton	11-Apr-2018	10:10			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-03256 v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2081900-COFC

COC Number: 14 - 468851

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr. Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution		Analysis Request
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	1800160-1000-101	GL Account:	Routing Code:
PO / AFE:	Walker	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)	L2081900	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
	737072 - Bell PM2.5 Apr. 14	14/04/18	24hr	AA	X	
	737074 - Rd 66 PM 2.5 Apr. 14	"	"	"	X	
	737075 - Rd 66 PM10 Apr 14	"	"	"	X	
	737078 - Rd 66 TSP Apr. 14	"	"	"	X	
	737076 - 33rd line PM2.5	"	"	"	X	
	737077 - 33rd line PM10	"	"	"	X	
	737307 - Blank Apr. 14	"			X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)					
Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Apr 18 18	Time: 17:10	Received by:	Date:	Time:	Received by:	Date: April 18 18	Time: 17:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0323e 709 Front/64 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2083667-COFC

COC Number: 14 - 468863

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	Brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	737301 - Bell PM2.5 - Apr. 20	20-4-18	24 hr	AA	X	
2	737302 - Rd 66 PM2.5 - Apr. 20	"	"	"	X	
3	737303 - Rd 66 PM10 - Apr. 20	"	"	"	X	
4	737304 - Rd 66 TSP - Apr. 20	"	"	"	X	
5	737305 - 33rd line PM2.5 - Apr. 20	"	"	"	X	
6	737306 - 33rd line PM10 - Apr. 20	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐ No ☐
Cooling Initiated	☐			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
21.4 °C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
			HARRY BURTON	23-Apr-2018	16:20			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468850

L2086430-COFC

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑	Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐	Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr, Guelph	☐ Criteria on Report - provide details below if box checked		E ☐	Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:	
		Email 2			

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	brad.bergeron@rwdi.com
Company:		Email 2	steve.sanderson@rwdi.com
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers	
	737078 - Bell PM2.5 - Apr. 26	26/04/18	24 hr	AA	X		
	737079 - Rd 66 PM2.5 - Apr. 26	"	"	"	X		Invalid sample
	737080 - Rd 66 PM10 - Apr. 26	"	"	"	X		Invalid sample
	737081 - Rd 66 TSP - Apr. 26	"	"	"	X		Invalid sample
	737082 - 33rd line PM2.5 Apr. 26	"	"	"	X		
	737083 - 33rd line PM10 - Apr. 26	"	"	"	X		
	737312 - Blank - Apr. 26	"	N/A	"	X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☒
Ice packs	Yes ☐	No ☒	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
23.4°C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Apr. 27	Time: 5:30 pm	Received by: W. DAVIS	Date: 27-Apr-18	Time: 17:31	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0326e v09 Front04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

L2089872-COFC

COC Number: 14 - 468853

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
		Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Phone:	519-823-1311	Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
	737084 - Bell PM2.5 - May 2	2/5/18	24 hr.	AA	X	
	~~737085 - Rd 66 PM2.5 - May 2~~	"	"	"	X	} Invalid
	~~737308 - Rd 66 PM10 - May 2~~	"	"	"	X	
	~~737309 - Rd 66 TSP - May 2~~	"	"	"	X	
	737310 - 33rd line PM2.5 - May 2	"	"	"	X	
	737311 - 33rd line PM10 - May 2	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes ☐	No ☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
24.6°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: May 4 '18	Time: 17:05	Received by: L. Wrona	Date: 04-May-18	Time: 17:05	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS-FM-0329e v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468862

L2092914-COFC

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R	☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P	☐ Prionty (2-4 business days if received by 3pm)
Address:	600 Southgate Dr. Guelph	☐ Criteria on Report - provide details below if box checked		E	☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2	☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:	
		Email 2			

Invoice To	Same as Report To	☑ Yes ☐ No	Invoice Distribution		
	Copy of Invoice with Report	☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	
Company:			Email 1 or Fax		
Contact:			Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160 - 1000 - 101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	737313 - Bell PM2.5 - May 8	08/05/18	24 hr	AA	X	
2	737317 - [redacted] 33rd line PM2.5 May 8	"	"	"	X	
3	737318 - 33rd line PM10 - May 8	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
12.2°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: May 11 '18	Time: 9:53	Received by: ARRON BURTON	Date: 11-May-2018	Time: 9:55	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS-FM-0326ev09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

L2098098-COFC

COC Number: 14 - 468854

Page ____ of ____

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Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑	Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐	Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐	Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:	
		Email 2	steve.sanderson@rwdi.com		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	737319 - Bell PM2.5 - May 14	14/05/18	24 hr	AA	X	
2	737314 - Rd 66 PM2.5 - May 14	"	"	"	X	
3	737315 - Rd 66 PM10 - May 14	"	"	"	X	
4	737316 - Rd 66 TSP - May 14	"	"	"	X	
5	737323 - [redacted] 33rd line PM2.5 May 14	"	"	"	X	
6	737324 - 33rd line PM10 - May 14	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
23.8°C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only) 13:00			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	May 17	15:40	AARON BURTON	22-May-2018	15:15		17-May-18	15:50

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NA-FM-0326 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2098391-COFC

COC Number: 14 - 468861

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:
		Email 2		

Invoice To	Same as Report To ☐ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Industrial	Approver ID:	Cost Center:
Job #:	800160	GL Account:	Routing Code:
PO / AFE:	800160-1000-101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	Number of Containers
1	737320 - Bell PM2.5 - May 20	20/05/18	24 hr	AA	X	
2	737321 - Rd 66 PM2.5 - May 20	"	"	"	X	
3	737322 - Rd 66 PM10 - May 20	"	"	"	X	
4	737325 - Rd 66 TSP - May 20	"	"	"	X	
5	737323 - 33rd line PM2.5 - May 20	"	"	"	X	
6	737324 - 33rd line PM10 - May 20	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
19.8°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: May 23'18	Time: 10:03	Received by: HARV BURTON	Date: 23-May-2018	Time: 10:05	Received by:	Date:	Time:

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

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Canada Toll Free: 1 800 668 9878

L2106917-COFC

COC Number: 14 - 468860

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑	Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeson / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐	Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐	Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:	
		Email 2			

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	brad.bergeson@rwdi.com
Company:		Email 2	steve.sanderson@rwdi.com
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	Number of Containers
1	737501 - Bell PM2.5 - May 26	26/05/18	24 hr	AA	X	
2	737502 - Rd 66 PM25 - May 26	"	"	"	X	
3	737503 - Rd 66 PM10 - May 26	"	"	"	X	
4	737504 - Rd 66 TSP - May 26	"	"	"	X	
5	737505 - 33rd line PM2.5 - May 26	"	"	"	X	
6	737506 - 33rd line PM10 - May 26	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
20.0°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: June 6'18	Time:	Received by: AARON BURTON	Date: 6-June-2018	Time: 11:40	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0326e v09 Front 04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

Chain of Custody (COC) / Analytical Request Form

L2106926-COFC

COC Number: 14 - 468859

Page ____ of ____

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To		Invoice Distribution	
	Same as Report To ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	Number of Containers
1	737512 - Bell PM2.5 - June 1	01/06/18	24hr	AA	X	
2	737511 - Rd 66 PM2.5 - June 1	"	"	"	X	
3	737510 - Rd 66 PM10 - June 1	"	"	"	X	
4	737509 - Rd 66 TSP - June 1	"	"	"	X	
5	737507 - 33rd line PM2.5 - June 1	"	"	"	X	
6	737508 - 33rd line PM10 - June 1	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
20.0°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: June 6 '18	Time:	Received by: AARON BURTON	Date: 6 June 2018	Time: 11:40	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2111257-COFC

COC Number: 14 - 468858

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☐ Regular (Standard TAT if received by 3pm)
Contact:	BRAD BERGERON / STEVE SANDERSON	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 SOUTHGATE DR. GUELPH	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	WALKER - INGERSOLL	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-100-101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2111057	ALS Contact: Whitney-BC	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE ON FILTER	Number of Containers
1	737513 - BECC PM2.5 - JUNE 7	7/06/18	24 HR	AA	X	
2	737514 - RD66 PM2.5 - JUNE 7	↓	↓	↓	X	
3	737515 - RD66 PM10 - JUNE 7				X	
4	737516 - RD66 PTSP - JUNE 7				X	
5	737517 - 55RD PM2.5 - JUNE 7				X	
6.	737518 - 55RD PM10 - JUNE 7				X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	06/12/18						13-Jun-18	9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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AA-FM-0328e v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

White Paper Co. 604 951-3900

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2114697-COFC

COC Number: 17 - 619492

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R]: ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Company address below will appear on the final report		Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 Southgate Dr.	Email 1 or Fax: brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Guelph, ON	Email 2: steve.sanderson@rwdi.com	
Postal Code:		Email 3:	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#:
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2114697 SH	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	737519 - Bell PM2.5 - June 13	13/06/18	24 hr	AA	X			
2	737520 - Rd 66 PM2.5 - June 13	"	"	"	X			
3	737521 - Rd 66 PM10 - June 13	"	"	"	X			
4	737522 - Rd 66 TSP - June 13	"	"	"	X			
5	737523 - 33rd line PM2.5 - June 13	"	"	"	X			
6	737642 - 33rd line PM10 - June 13	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: June 19 '18	Time: 10:44	Received by:	Date:	Time:	Received by: SB.	Date: 19 June 18	Time: 6:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 - 626876

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL | EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax: brad.bergeron@rwdi.com
Email 2: steve.sanderson@rwdi.com
Email 3:

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	
ALS Lab Work Order # (lab use only):	L2117816

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on Filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	737643 - Rell PM2.5 - June 19	19/06/18	24 hr	AA	X			
2	737644 - Rd 66 pm 2.5 - June 19	"	"	"	X			
3	737645 - Rd 66 PM10 - June 19	"	"	"	X			
4	737646 - Rd 66 TSP - June 19	"	"	"	X			
5	737647 - 33rd line PM2.5 - June 19	"	"	"	X			
6.	737648 - 33rd line PM10 - June 19	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? | | YES | | NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☑
Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
23.6				N/A			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: June 22 18	Time: 17:03	Received by: CKochavattkal	Date: 25-June-2018	Time: 12:45	Received by:	Date: 22-Jun-18	Time: 17:05

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 - 626875

L2121163-COFC

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron/Steve Sanderson	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	650 Southgate Dr.	Email 1 or Fax brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Guelph	Email 2 steve.sanderson@rwdi.com	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	~~Copy of Invoice with Report~~ ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	B800160	Major/Minor Code	Routing Code:
PO / AFE:	B800160-1000-101	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Perform w/ other & filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	737649 - Bell PM2.5 - June 25	June 25'18	24hr	AA	X			
2	737650 - Rd 66 PM2.5 - June 25	"	"	"	X			
3	737651 - Rd 66 PM10 - June 25	"	"	"	X			
4	737652 - Rd 66 TSP - June 25	"	"	"	X			
5	737653 - [redacted] 33rd line PM2.5 - June 25	"	"	"	X			
6	737654 - 33rd line PM10 - June 25	"	"	"	X			
7	Blank - June 28 - 737761	June 28'18	N/A	N/A	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐
Ice Packs ☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated ☐			

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
28.2°C							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	June 28 '18	17:25	ARRAN BURTON	28-June-2018	17:25			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

L2075123-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: **All TAT Quoted** is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-110

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ____ BOTH ____
SELECT: PDF ____ DIGITAL ____ BOTH ____
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-LIT	TICS	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Apr. 2 '18	24hr	20173	0076	AA	Bell Apr. 2 VOC		X	X	X	X	X	X					
"	"	15832	0130	"	Rd 66 Apr 2 VOC		X	X	X	X	X	X					
"	"	20171	0177	"	33rd line Apr. 2 VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☒

MEAN TEMP: 15.4°C

SAMPLED BY:	DATE & TIME	RECEIVED BY: AARON BURTON	DATE & TIME 3-Apr-2018 15:35	OBSERVATIONS Yes ☐ No ☒ If yes add SIF
RELINQUISHED BY:	DATE & TIME	RECEIVED AT LAB BY:	DATE & TIME	INIT NB

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2078379-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of___

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- [ ] Rush 3 day (100%)
- [ ] Rush 2 day (200%)
- [ ] Rush 1 day (300%) - Enquire
- [x] 10 day (regular)
- [ ] Rush 5 day (50%)

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160-1000-101
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-10

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX BOTH
SELECT: PDF DIGITAL BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time		Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Date (dd-mmm-yy)	Time (24hr) (hh:mm)																
08/04/18	24hr	4546	0001	AA	Bell Apr. 8 VOC		X	X	X	X	X	X					
"	"	1536	0114	"	Rd 66 Apr. 8 VOC		X	X	X	X	X	X					
"	"	3497	0021	"	33rd line Apr. 8 VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

Matrix Type

This Chain of Custody Form is only to be used for Air Quality Samples

Soil Gas Vapour = SG | Indoor Air = IA
Ambient Air = AA | Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- [ ] FROZEN
- [ ] COLD
- [ ] COOLING INITIATED
- [x] AMBIENT

MEAN TEMP 10.8°C

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT MS

SAMPLED BY:	Steve Sanderson	DATE & TIME: Apr. 8 '18	RECEIVED BY:	DATE & TIME: 11-Apr-2018 10:10	
RELINQUISHED BY:		DATE & TIME: Apr. 11 '18	RECEIVED AT LAB BY:	DATE & TIME:	

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2081899-COFC

60 NORTHLAND ROAD, UNIT
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED	
	10 day (regular)	☑
	Rush 5 day (50%)	☐
	Rush 3 day (100%)	☐
	Rush 2 day (200%)	☐
	Rush 1 day (300%) - Enquire	☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX BOTH
SELECT: PDF DIGITAL BOTH ✓
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION # L2081899
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: RWDI-Intersol-AT-VT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Apr. 14 '18	24hr	12905	0060	AA	Bell Apr. 14 VOC		X	X	X	X	X	X					
"	"	15804	0070	"	Rd 66 Apr. 14 VOC		X	X	X	X	X	X					
"	"	21754	0174	"	33rd line Apr. 14 VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP

SAMPLED BY:	Steve Sanderson	DATE & TIME: Apr 18/18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:		DATE & TIME: 17:11	RECEIVED AT LAB BY:	DATE & TIME: Apr 18/18

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2083488-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bargeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION

EMAIL____FAX____BOTH ____
SELECT: PDF____DIGITAL____BOTH ____
EMAIL 1 ____
EMAIL 2 ____

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time		Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: KWAI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Date (dd-mmm-yy)	Time (24hr) (hh:mm)																
20/04/18	24hr	20686	0190	AA	Bell Apr. 20 VOC		X	X	X	X	X	X					
"	"	20170	0058	"	Rd 66 Apr. 20 VOC		X	X	X	X	X	X					
"	"	17873	0043	"	33rd Line Apr 20 VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☑

MEAN TEMP 24°C

OBSERVATIONS Yes ☐ No ☑
If yes add SIF

INIT: MS

SAMPLED BY:	Steve Sanderson	DATE & TIME: Apr. 20 '18	RECEIVED BY: AARON BURTON
RELINQUISHED BY:		DATE & TIME: Apr. 23 '18	RECEIVED AT LAB BY:
			DATE & TIME: 23-Apr-2018 16:20
			DATE & TIME:

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2086427

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX BOTH
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
26/04/18	24hr	12228	0170	AA	Bell Apr. 26 - VOC		X	X	X	X	X	X					
"	"	1557	0144	"	Rd 66 Apr. 26 - VOC		X	X	X	X	X	X					
"	"	17987	0158	"	33rd line Apr. 26 - VOC		X	X	X	X	X	X					
"	N/A	20694	N/A	"	Blank Apr. 26 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
- Soil Gas Vapour = SG
- Indoor Air = IA
- Ambient Air = AA
- Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☑

MEAN TEMP 21.2°C

SAMPLED BY: Steve Sanderson	DATE & TIME	RECEIVED BY: IN-DAVIS	DATE & TIME 27-Apr-18 17:31
RELINQUISHED BY:	DATE & TIME Apr. 27 5:30pm	RECEIVED AT LAB BY:	DATE & TIME

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2089875-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular) ☑		Rush 3 day (100%) ☐	
	Rush 5 day (50%) ☐		Rush 2 day (200%) ☐	
			Rush 1 day (300%) - Enquire ☐	

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
2/5/18	24h	20675	0198	AA	Bell May 2 - VOC		X	X	X	X	X	X					
~~"~~	~~"~~	~~20164~~	~~0039~~	~~"~~	~~Rd 66 May 2 - VOC~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				Invalid	
"	"	20161	0178	"	33rd line May 2 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type:
Soil Gas Vapour = SG — Indoor Air = IA
Ambient Air = AA — Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☒
MEAN TEMP: 24.8°C
OBSERVATIONS Yes ☐ No ☐
If yes add SIF

SAMPLED BY: Steve Sanderson	DATE & TIME 17:07	RECEIVED BY: L. Wrona	DATE & TIME 04-May-18 17:07		
RELINQUISHED BY: [signature]	DATE & TIME May 5 18	RECEIVED AT LAB BY:	DATE & TIME		

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2092912

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED: 10 day (regular) ☑ | Rush 5 day (50%) ☐ | Rush 3 day (100%) ☐ | Rush 2 day (200%) ☐ | Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-44-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
08/05/18	24hr	2766	0180	AA	Bell May 8 - I/R		X	X	X	X	X	X					
"	"	20698	0014	"	Rd 66 May 8 - VOC		X	X	X	X	X	X					
"	"	20700	0022	"	Third line May 8 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG | Indoor Air = IA | Ambient Air = AA | Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ | COLD ☐ | COOLING INITIATED ☐ | AMBIENT ☒ | MEAN TEMP 12.2°C
OBSERVATIONS Yes ☐ No ☒ If yes, add SIF | INIT. AB

SAMPLED BY:	Steve Sanderson	DATE & TIME May 11 '18	RECEIVED BY: Aaron Burton
RELINQUISHED BY:		DATE & TIME 9:52	RECEIVED AT LAB BY:
			DATE & TIME 11-May-18 9:55

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2097139-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED — SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

SUBMISSION #: L2097139
ENTERED BY: XP
DATE/TIME ENTERED: 18-5-18 13:40
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
May 14'18	24 hr	illegible	0076	AA	Bell - May 14 - VOC		X	X	X	X	X	X					
"	"	17933	0114	"	Rd 66 - May 14 - VOC		X	X	X	X	X	X					
"	"	21748	0080	"	33rd line - May 14 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐
- MEAN TEMP

SAMPLED BY:	Steve Sanderson	DATE & TIME: May 17 16:40	
RELINQUISHED BY:		DATE & TIME: May 17 15:40	
RECEIVED BY:		DATE & TIME	
RECEIVED AT LAB BY:		DATE & TIME: 17-May-18 15:30	

OBSERVATIONS Yes ☐ No ☐ If yes add SIF
INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2098387

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received past **3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time		Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: RWDI-Ingersoll-44-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Date (dd-mmm-yy)	Time (24hr) (hh:mm)																
09-20-18	24hr	3507	0130	AA	Bell May 20-VOC		X	X	X	X	X	X					
"	"	3505	0049	"	Rd 66 May 20-VOC		X	X	X	X	X	X					
"	"	12911	0094	"	33rd Line May 20-VOC		X	X	X	X	X	X					
"																	

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☒
MEAN TEMP
OBSERVATIONS Yes ☐ No ☒ If yes, add SIF
INITIAL

SAMPLED BY:	S. Sanderson	DATE & TIME: May 23 '18	RECEIVED BY:	AARON BURTON	DATE & TIME: 23-May-2018 10:05
RELINQUISHED BY:		DATE & TIME: 10:03	RECEIVED AT LAB BY:		DATE & TIME:

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2104080-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #: L2104080
ENTERED BY: XD
DATE/TIME ENTERED: 31-5-18 17:29
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-44-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
26-05-18	24hr	4546	0035	AA	Bell May 26		X	X	X	X	X	X					
"	"	20173	0074	"	Rd 66 May 26		X	X	X	X	X	X					
"	"	1536	~~0089~~	"	33rd Line May 26		X	X	X	X	X	X					
—	—	15832	—	—	Test	—	Do	Not	Analyze				—	—	0		

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP.

SAMPLED BY:	S. Sanderson	DATE & TIME	May 31/18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	V. Latam	DATE & TIME	4:35pm	RECEIVED AT LAB BY:	DATE & TIME 31-May-18 17:36

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2106727

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Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED — SERVICE REQUESTED

- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
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EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-44-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
01/06/18	24hr	20171	0090	AA	Bel-June 1 - VOC		X	X	X	X	X	X	-29	-10	24		
"	"	21754	0137	"	Rd 66 - June 1 - VOC		X	X	X	X	X	X	-28	-9	"		
"	"	12905	0135	"	33rd line - June 1 - VOC		X	X	X	X	X	X	-27	-5	"		

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS-RECEIVED

FROZEN ☐ COOLED ☐ COOLING INITIATED ☐ AMBIENT ☒ MEAN TEMP 20.0°C

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT

SAMPLED BY: S. Sanderson	DATE & TIME June 6	RECEIVED BY: AARON BURTON	DATE & TIME 6-June-2018 11:42	
RELINQUISHED BY:	DATE & TIME 11:42	RECEIVED AT LAB BY:	DATE & TIME	

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

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Toll Free: 1-800-668-9878

L2111202-COFC

IN OF CUSTODY FORM - Canister/Tube/Gas Bag

Turnaround Time is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED		
	10 day (regular)	☑	Rush 3 day (100%) ☐
	Rush 5 day (50%)	☐	Rush 2 day (200%) ☐
			Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ____ FAX ____ BOTH ✓
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EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #: L2111202
ENTERED BY: ESmith ES
DATE/TIME ENTERED: 13-Jun-18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # (CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
7/06/18	24HRS	15811	0090		Becc - SUMA		X	X	X	X	X	X					1
		12901	0188		FD. 66 - SUMA		X	X	X	X	X	X					2
		20165	0999		35RD LINE - SUMA		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP

SAMPLED BY: SRS / JDI	DATE & TIME	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME	RECEIVED AT LAB BY:	DATE & TIME: 13-Jun-18 940

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

Whitney - BU.

L2114321-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED	
	10 day (regular) ☑	Rush 3 day (100%) ☐
	Rush 5 day (50%) ☐	Rush 2 day (200%) ☐
		Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE 519-823-1311	FAX
ACCOUNT #	
QUOTATION #	PO # 1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #: L2114321
ENTERED BY: SW
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
June 13'18	24hr	20686	0163	AA	Rd 66 - June 13 - VOC		X	X	X	X	X	X	-30.5	-6.5	24		
"	"	12228	0165	"	33rd line - June 13 - VOC		X	X	X	X	X	X	-31	-9	24		
							X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If yes add SIF INIT

SAMPLED BY: JDF	DATE & TIME	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME June 19 '18 10:38	RECEIVED AT LAB BY: SW	DATE & TIME 19 JUN 18 1040

Notes

1. Quote number must be provided to ensure proper pricing
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3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

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60 NORTHLAND ROAD, UNIT 1
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Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #: LA117815
ENTERED BY: ESmith
DATE/TIME ENTERED: 03-Jun-18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	ANALYSIS REQUEST: RWDI-Ingersoll-44-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
19-06-18	24hr	15804	0145	AA	Bell - June 19 - VOC		X	X	X	X	X	X	-28	-45	24		1
"	"	1557	0144	"	Rd 66 - June 19 - VOC		X	X	X	X	X	X	-30	-8	24		2
"	"	12221	0147	"	33rd line - June 19 - VOC		X	X	X	X	X	X	-28	-45	24		3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP: N/A

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY: S. Sanderson	DATE & TIME	RECEIVED BY:	DATE & TIME	
RELINQUISHED BY:	DATE & TIME June 22 17:03	RECEIVED AT LAB BY:	DATE & TIME 03-Jun-18 17:05	

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

Whitney - in BU.

L2121164

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Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE 519-823-1311	FAX
ACCOUNT #	
QUOTATION #	PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
25-06-18	24hr	20694	0001	AA	Bell-June 25-VOC		X	X	X	X	X	X					
"	"	20170	0115	"	Rd 66-June 25-VOC		X	X	X	X	X	X					
"	"	17927	0164	"	33rd line-June 26-VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

Matrix Type

This Chain of Custody Form is only to be used for Air Quality Samples

Soil Gas Vapour = SG | Indoor Air = IA
Ambient Air = AA | Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☒

MEAN TEMP 28.3°C

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT. AB

SAMPLED BY:	DATE & TIME	RECEIVED BY: AARON BUETA	DATE & TIME 28-June-2018 17:25
RELINQUISHED BY:	DATE & TIME June 28 '18 5:25 pm	RECEIVED AT LAB BY:	DATE & TIME

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

REPORT

WALKER ENVIRONMENTAL GROUP

INGERSOLL, ONTARIO

SOUTHWESTERN LANDFILL ENVIRONMENTAL ASSESSMENT 2018 Q3 AIR QUALITY MONITORING REPORT

RWDI #1800160

November 21, 2018

SUBMITTED TO

Joe Tomaino
EA Process Manager
jtomaino@Walkerind.com

Walker Environmental Group
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SUBMITTED BY

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Consulting Engineers & Scientists
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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by Walker Environmental Group (WEG) to conduct discrete monitoring for Volatile Organic Compounds (VOCs), Total Reduced Sulfurs (TRS) and particulate matter of the following size fractions: total, PM_{10}, and $PM_{2.5}$. Additional monitoring was completed for particulate matter by the Ministry of Environment, Conservation and Parks (MECP). This report only covers the samples collected by RWDI. This monitoring was requested by WEG as a part of their Environmental Assessment (EA) studies for the provision of the proposed future waste landfill capacity at the Carmeuse Lime (Canada) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario. The Carmeuse site has numerous operations including quarry and crushing processes, earth-moving and material transport, blasting, etc. In addition, the area is surrounded by agricultural and aggregate processing facilities. This ambient air quality monitoring program will help assess the background/current levels of particulate matter, VOC's and TRS emissions existing in the area surrounding the Carmeuse site.

Air quality monitoring took place at three (3) separate locations surrounding the Carmeuse site; two (2) of which were co-located with existing MECP monitoring stations. These two co-located stations were: 1) the Bell building located at 584454 Beachville Road West (Bell), and 2) a private property at 334652 33rd Line (33rd Line). The third station setup by RWDI was located on a private property at 663951 Rd.66 (Rd. 66). This third station location (Rd. 66) was reviewed by the MECP to ensure compliance with the MECP siting criteria. The monitoring station locations can be seen in the **Figures section** of this report.

This ambient monitoring program commenced at all three (3) locations on March 9, 2018 for TSP, PM_{10} and $PM_{2.5}$ and is ongoing. Due to troubleshooting difficulties experienced over March with the VOC and TRS collection, this part of the program officially commenced on April 2, 2018 at all three (3) locations for these parameters and is ongoing.

2 SAMPLING METHODOLOGY

The three (3) monitoring stations are all equipped with the following discrete monitors: High Volume (Hi-Vol) Air Sampler outfitted with a TSP inlet head, Hi-Vol Air Sampler outfitted with a PM_{10} inlet head, Hi-Vol Air Sampler outfitted with a $PM_{2.5}$ inlet head and an evacuated 6L Summa Canister with programmable timer for VOC and TRS sampling. As the Bell and 33rd Line stations are co-located with existing MECP discrete monitors, sampling of the MECP monitored parameters were not duplicated and the MECP results are not presented in this report. **Table 1** below outlines the equipment operated and results reported by RWDI for each of the stations.

Table 1: Summary of RWDI Operated Equipment at each WEG Monitoring Location

Station	TSP Hi-Vol	PM_{10} Hi-Vol	$PM_{2.5}$ Hi-Vol	Evacuated Canister (VOC's & TRS)
Bell			✓	✓
33rd Line		✓	✓	✓
Rd. 66	✓	✓	✓	✓

2.1 High Volume Air Samplers (Hi-Vols)

The particulate samples were collected using General Metal Works standard High-Volumetric air samplers outfitted with size-selective inlet heads capable of collecting TSP, PM_{10}, and $PM_{2.5}$ particulate size fractions. Each Hi-Vol is equipped with a mass flow controller, which ensures a flow rate of 40 cubic feet per minute (CFM) and a timer for starting and stopping each sample. All stations operate on a six-day cycle with a 24-hour (midnight to midnight) sampling schedule, concurrent with the National Air Pollution Surveillance (NAPS) U.S. EPA schedule. Each Hi-Vol was calibrated once per quarter to ensure accuracy and validity of the data. Pre-tared glass fibre filters were used, which were pre and post weighed by ALS Laboratory (ALS) located in Waterloo, ON.

2.2 Evacuated Canisters (VOCs and TRS)

The ambient VOC and TRS samples were collected in the same conditioned silica-lined evacuated canisters, as specified in EPA Compendium Method TO-14/15. The evacuated canisters were supplied, proofed and analyzed by ALS in Waterloo, ON. Critical orifice flow controllers approved for use by the MECP were used to maintain a constant flow rate of approximately 3.5 milliliters per minute over a sampling period of 24 hours. The controllers were supplied and conditioned by ALS, and were only used once, and then were returned to the ALS for cleaning/reconditioning. The controllers were constructed of inert materials including stainless steel, charcoal ferrules and Teflon coating, and were equipped with pressure gauges. Each controller was fitted every time with a RWDI supplied Neutech 2701 programmable automated sampling timer which both opens and closes the canister over a programmed time period. All three (3) stations operated on a six-day cycle, each consisting of 24-hour (midnight to midnight) sample, concurrent with the National Air Pollution Surveillance (NAPS) schedule.

3 AIR QUALITY CRITERIA AND STANDARDS

The monitored contaminant concentrations were compared to air quality criteria and standards set by the Ontario Ministry of the Environment and Climate Change (MECP) and by Environment Canada. The MECP has Ambient Air Quality Criteria (AAQCs) for select VOC's, Hydrogen Sulfide (H_2S), TRS, TSP and PM_{10}. These AAQCs are the maximum desirable concentrations in the outdoor air, based on effects to the environment and health (MECP, 2012). Environment Canada has established a Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ (Environment Canada, 2013). CAAQS are health-based air quality objectives for the outdoor air. It should be noted that the AAQC for PM_{10} is an interim value of 50 µg/m^3 for an averaging period of 24 hours, and the current CAAQS' for $PM_{2.5}$ is 28 µg/m^3 for the 3-year average of annual 98th percentile 24-hour concentration, and 10 µg/m^3 for the 3-year average of annual concentrations (in effect as of 2015). Since this program has been in place for less than a year, the CAAQS of 28 µg/m^3 will be used on a comparison basis only for 24-hour $PM_{2.5}$ measurements. Listed air quality criteria and standards can be found for each contaminant in **Appendix A**.

4 SUMMARY OF DISCRETE MONITORING DATA

All monitoring results from the periodic measurements for Q3 of 2018 are provided in **Appendix A.**

4.1 TSP Results

The TSP sampler operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 120 µg/m^3 were observed at Rd. 66.

4.2 PM_{10} Results

The PM_{10} samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 50 µg/m^3 were observed at 33rd Line or Rd. 66.

4.3 $PM_{2.5}$ Results

The $PM_{2.5}$ samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily CAAQS of 28 µg/m^3 were observed at Bell, 33rd Line or Rd. 66.

4.4 VOC Results

VOC samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. Over Q3 there were no exceedances over the daily VOC standards or criteria at Bell, 33rd Line or Rd. 66. Please see Tables D1, D2 and D3 for additional statistics and details.

4.5 TRS Results

TRS samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. At Rd. 66 Station in Q3, there were two (2) exceedances on one (1) day, September 5, 2018, for H_2S and TRS with values of 13.7 µg/m^3 and 13.7 µg/m^3 respectively. There were no exceedances over the listed daily AAQC's for speciated TRS at 33rd Line Station during Q3. At Bell Station in Q3, there were two (2) exceedances on one (1) day, September 5, 2018, for H_2S and TRS with values of 16.8 µg/m^3 and 16.8 µg/m^3 respectively. Please see Tables D1, D2 and D3 for additional statistics and details.

5 DATA REQUESTS

5.1 VOCs and TRS

There were a few failures that occurred during Q3 due to VOC/TRS sampling equipment issues. The issues are outlined below:

- The Rd 66 July 7, 2018 sample was invalid due to automated timer setup issues that resulted in the sample not being initiated during this sample day. The issue was resolved by the next sample date.
- The 33rd Line August 12, 2018 sample was invalid due to automated timer setup issues that resulted in the sample not being initiated during this sample day. The issue was resolved by the next sample date.
- The 33rd Line September 5, 2018 sample was invalid due to automated timer setup issues that resulted in the sample not being initiated during this sample day. The issue was resolved by the next sample date.

5.2 Hi-Vol's

There were a few failures that occurred during Q3 due to Hi-Vol sampling equipment issues. The issues are outlined below:

- The Rd 66 TSP, PM_{10} and $PM_{2.5}$ July 7, 2018 samples were invalid due to a power outage on July 5, 2018 confirmed by the wheel timer and noted by the home resident, which resulted in the sample running on the wrong sample day after power was restored to the units.
- The 33rd Line PM_{10} July 1, 2018 sample was invalid due to a popped mass flow controller fuse which prevented the Hi-Vol from running on the sample day. It was replaced and sample collection resumed as normal.
- The 33rd Line $PM_{2.5}$ August 12, 2018 sample was invalid due to operator error while setting up the sampler.

6 CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission. I can be reached at (519) 823-1311 ext. 2428.

Yours very truly,

RWDI

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal

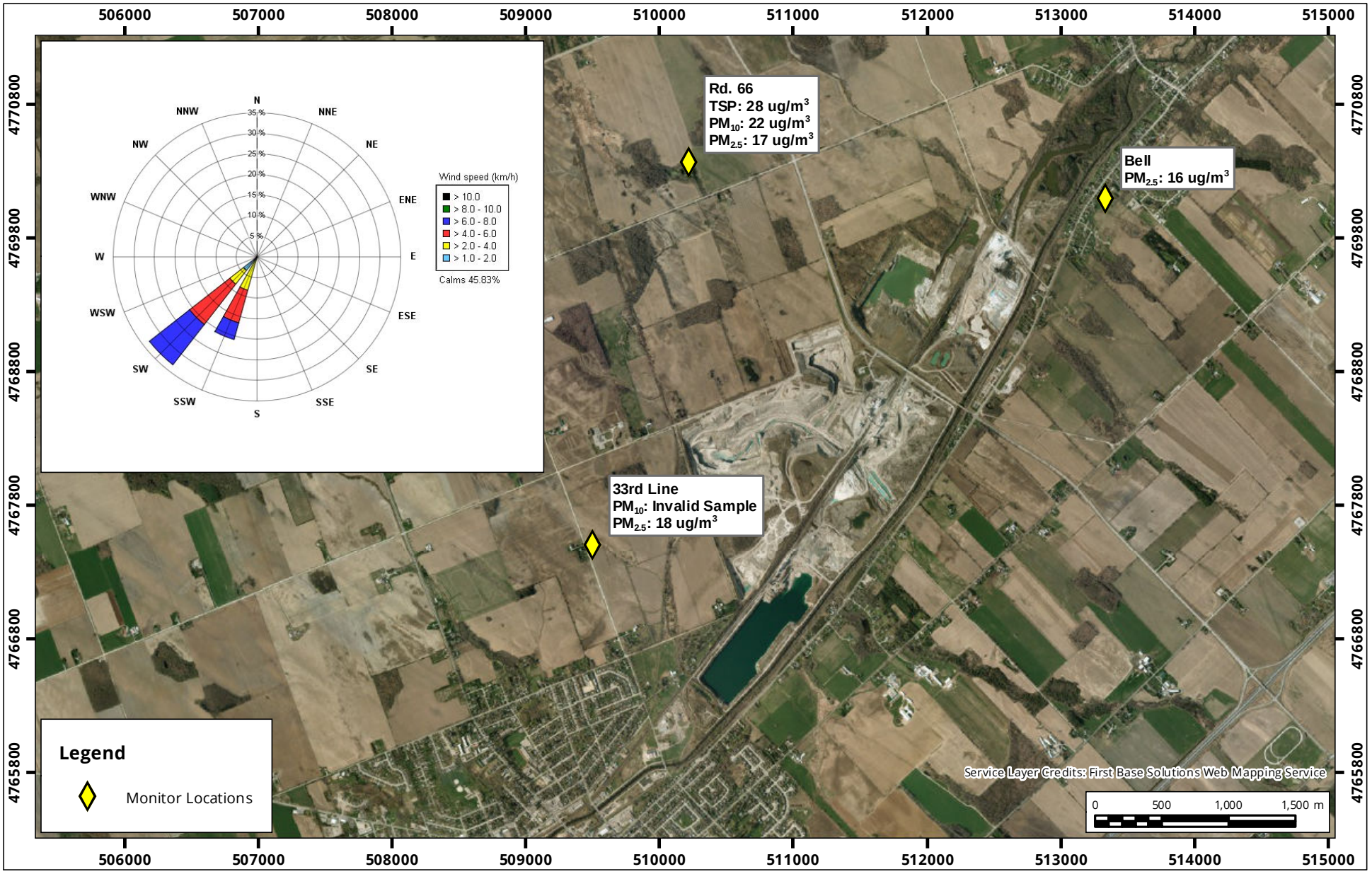
BCB/jo
Attach.

7 REFERENCES

Canadian Council of Ministers of the Environment, 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF

Environment Canada, 2013. Canadian Ambient Air Quality Standards. [Online]

FIGURES



Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 1, 2018

Map Projection: NAD 1983 UTM Zone 17N

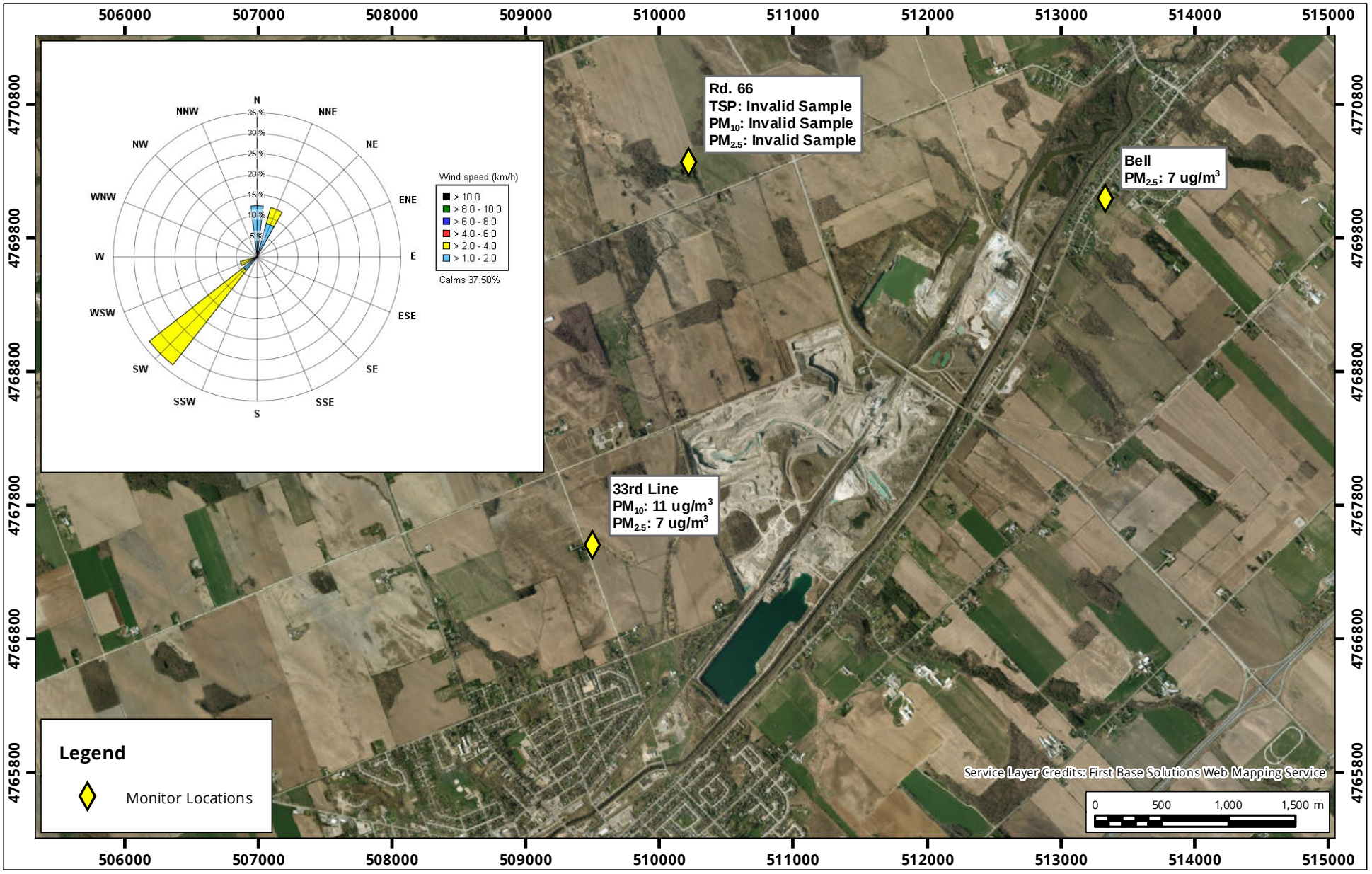
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 7, 2018

Map Projection: NAD 1983 UTM Zone 17N

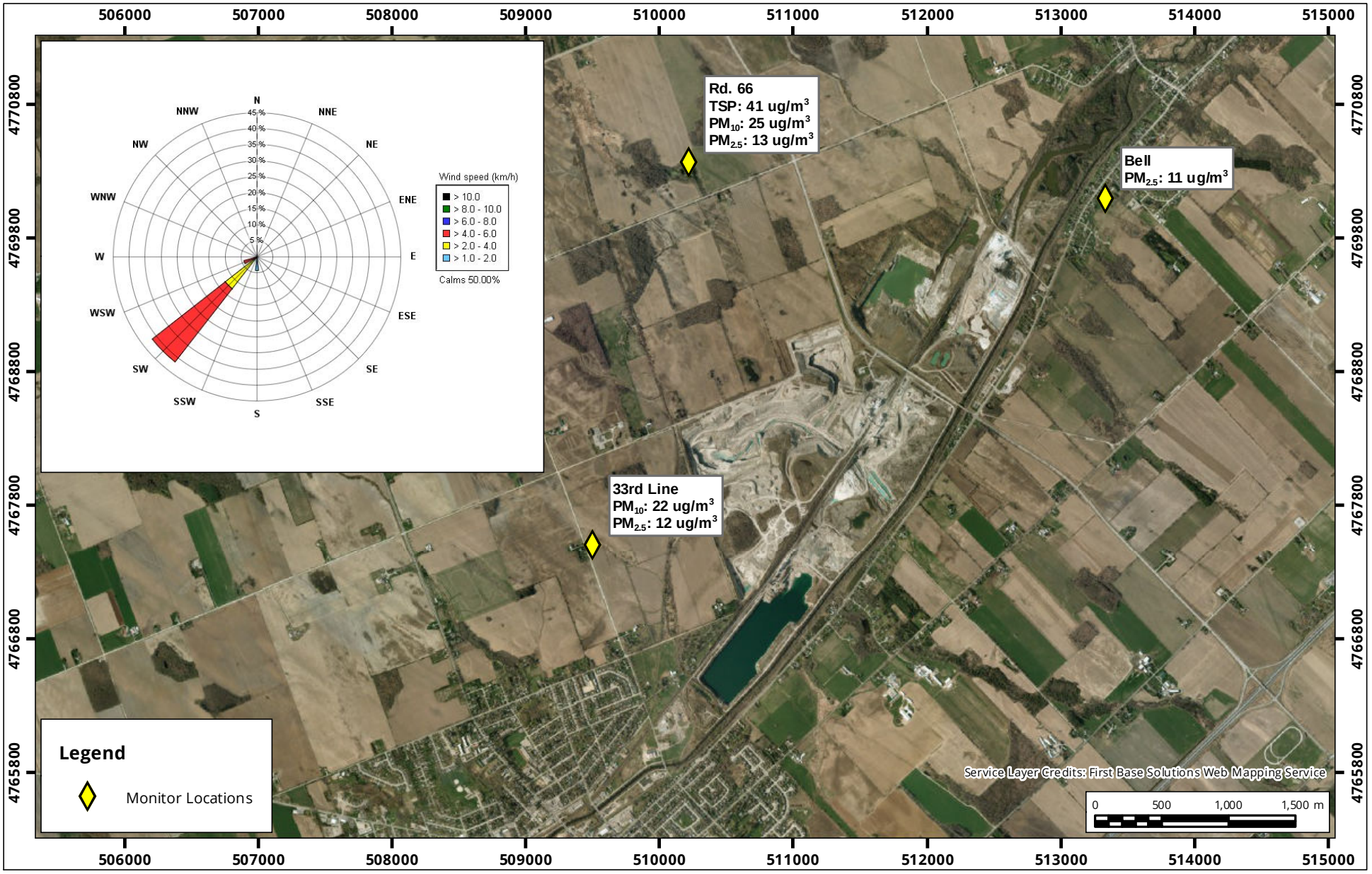
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 2
Approx. Scale:	1:40,000
Date Revised:	Nov 19, 2018

Map Document: C:\Users\vmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 13, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 3
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Date Revised: Nov 19, 2018	

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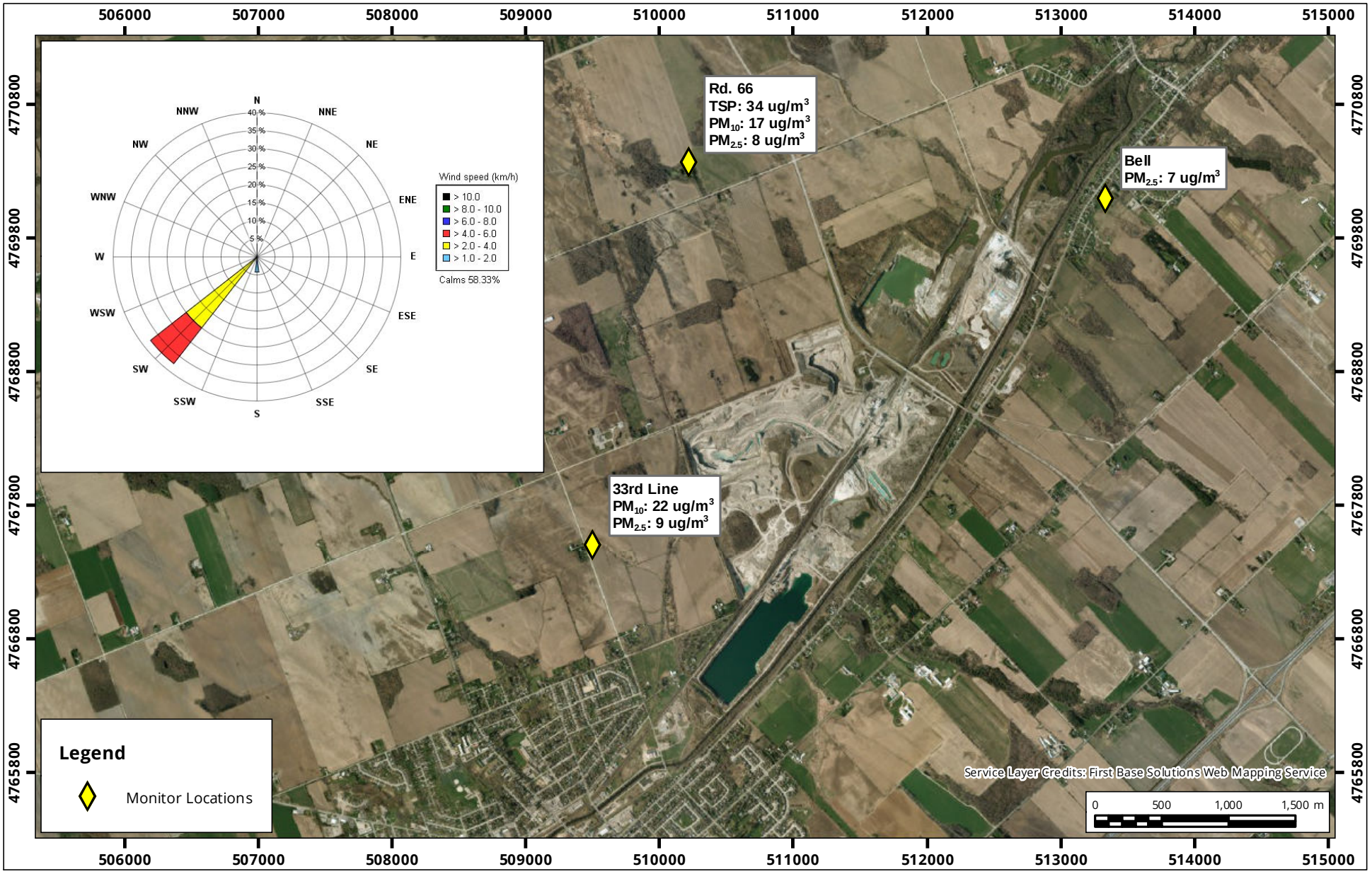

Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 19, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 4
Approx. Scale:	1:40,000
Date Revised:	Nov 19, 2018

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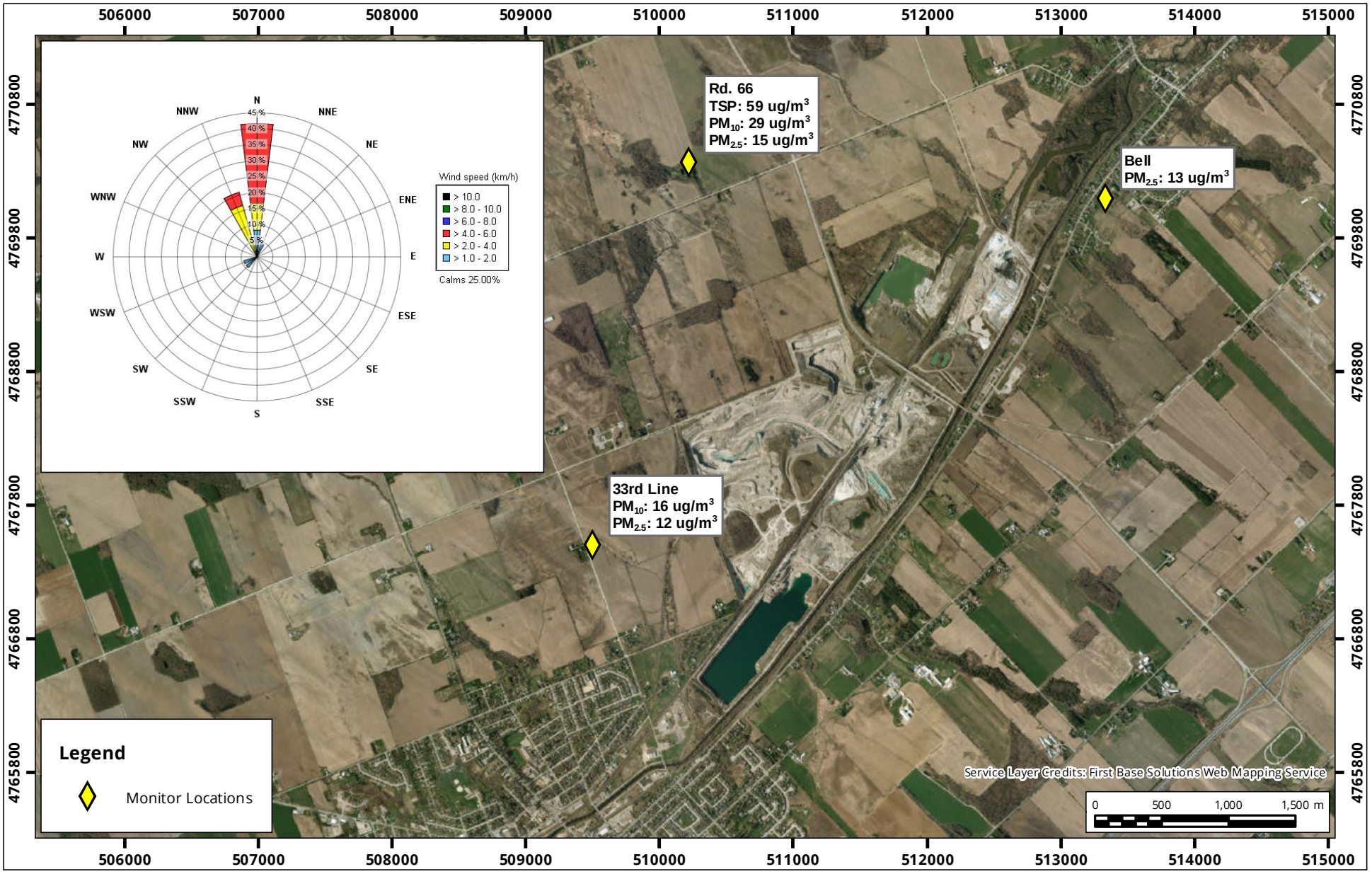

Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 25, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 5
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Date Revised:	Nov 19, 2018

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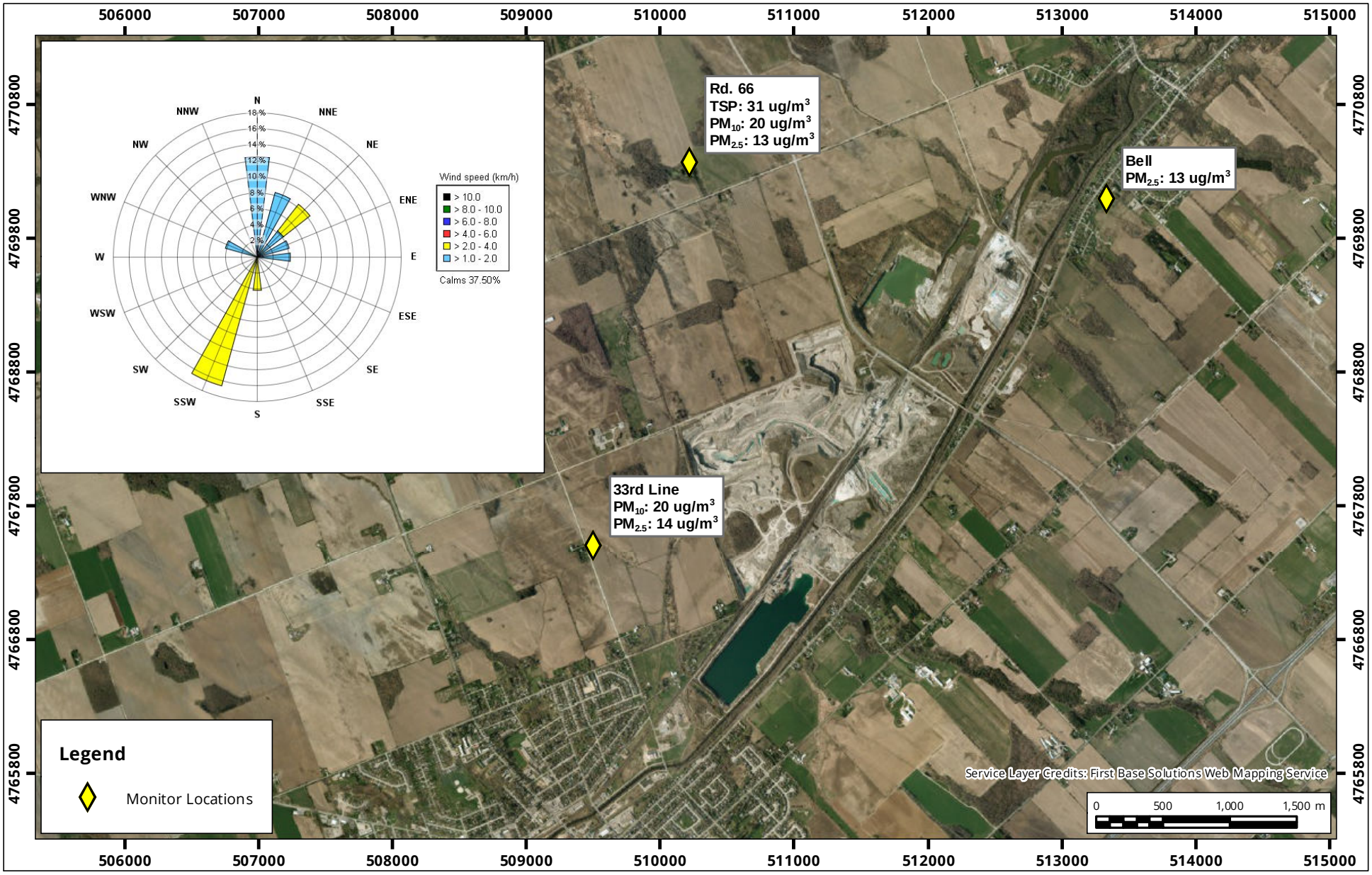

Site Plan Showing Sampling Locations and Windrose

Sampling Period: July 31, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 6
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

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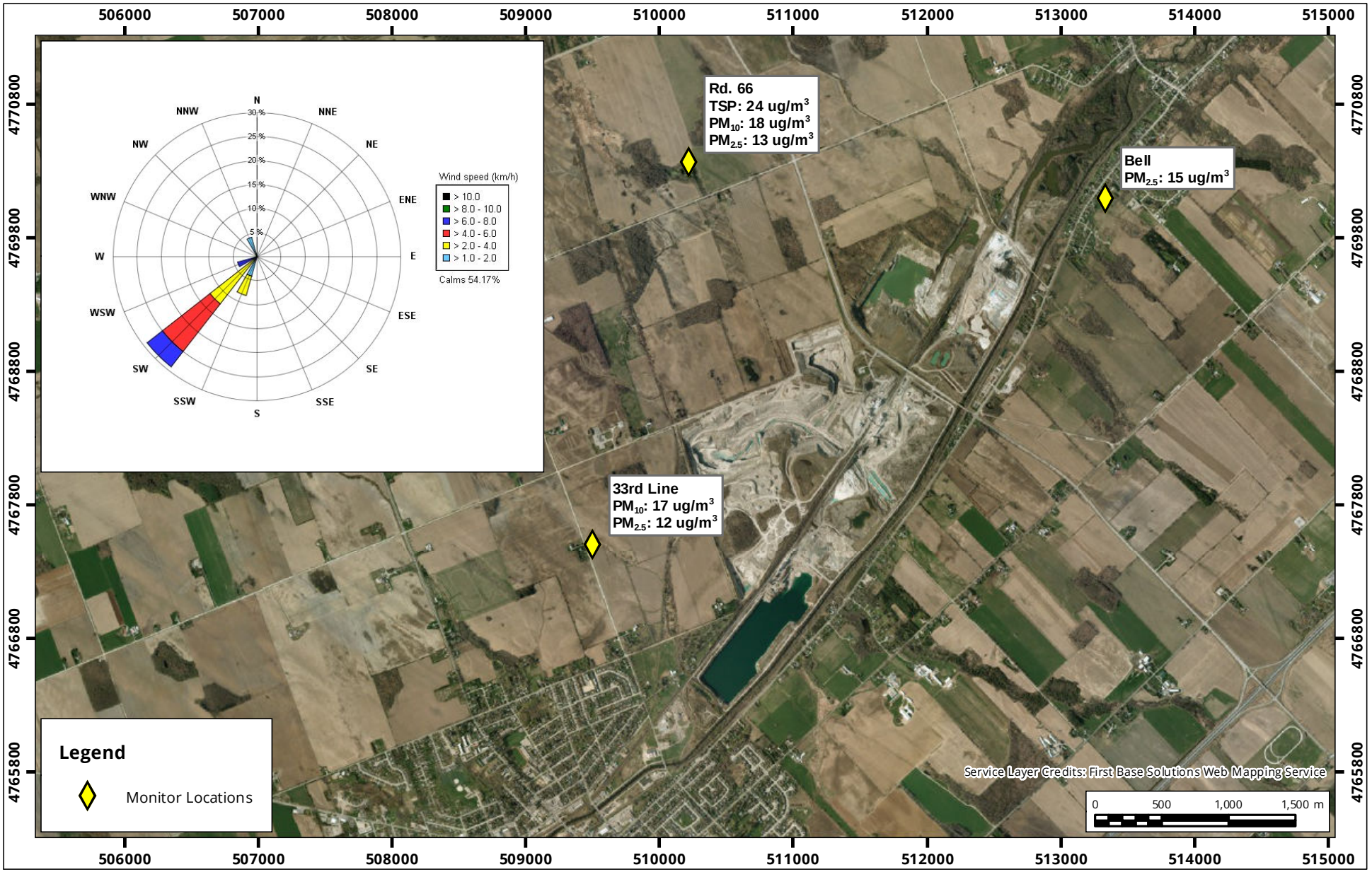

Site Plan Showing Sampling Locations and Windrose

Sampling Period: August 6, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 7
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

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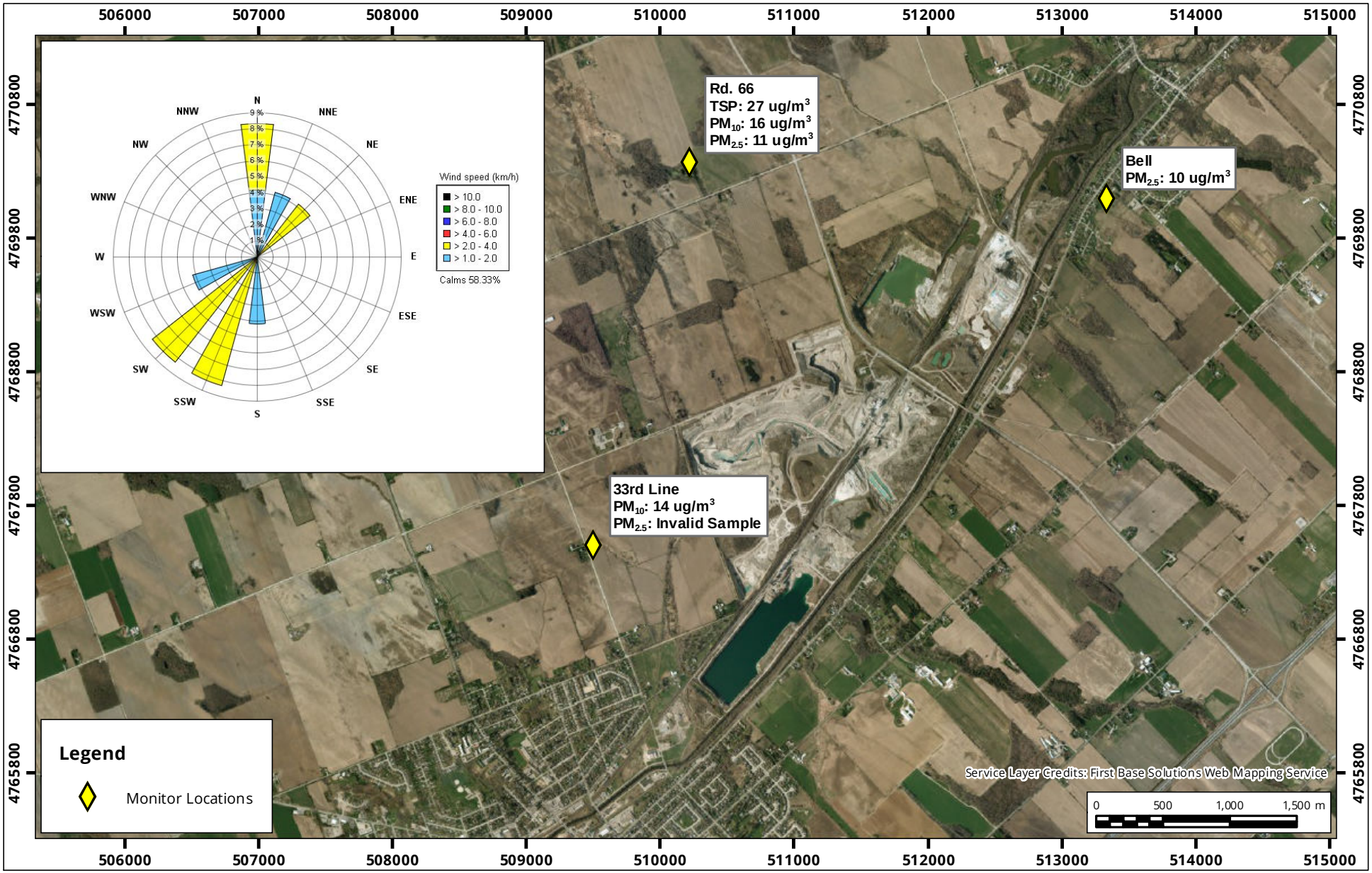

Site Plan Showing Sampling Locations and Windrose

Sampling Period: August 12, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 8
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Date Revised: Nov 19, 2018	

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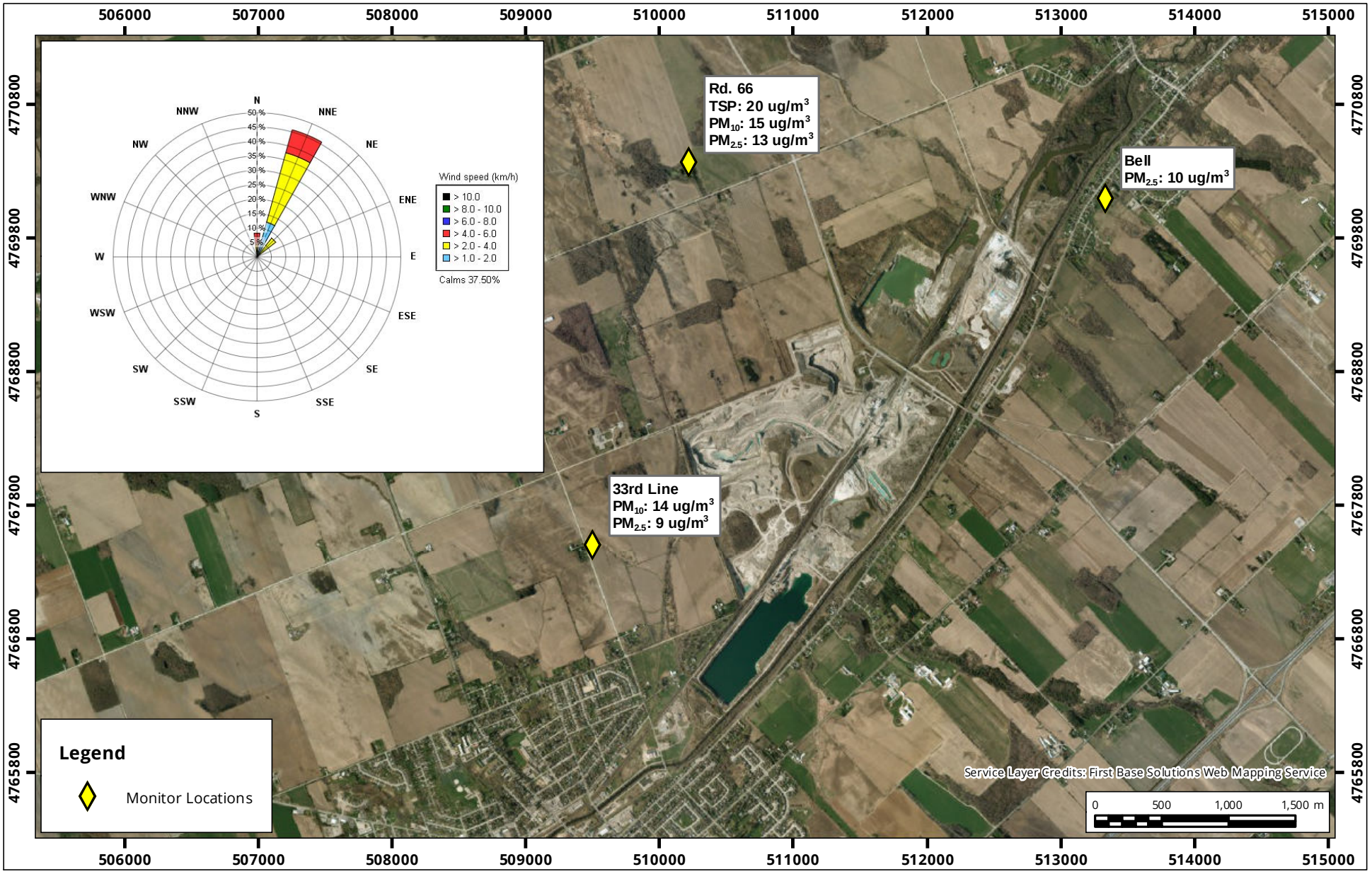

Site Plan Showing Sampling Locations and Windrose

Sampling Period: August 18, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 9
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

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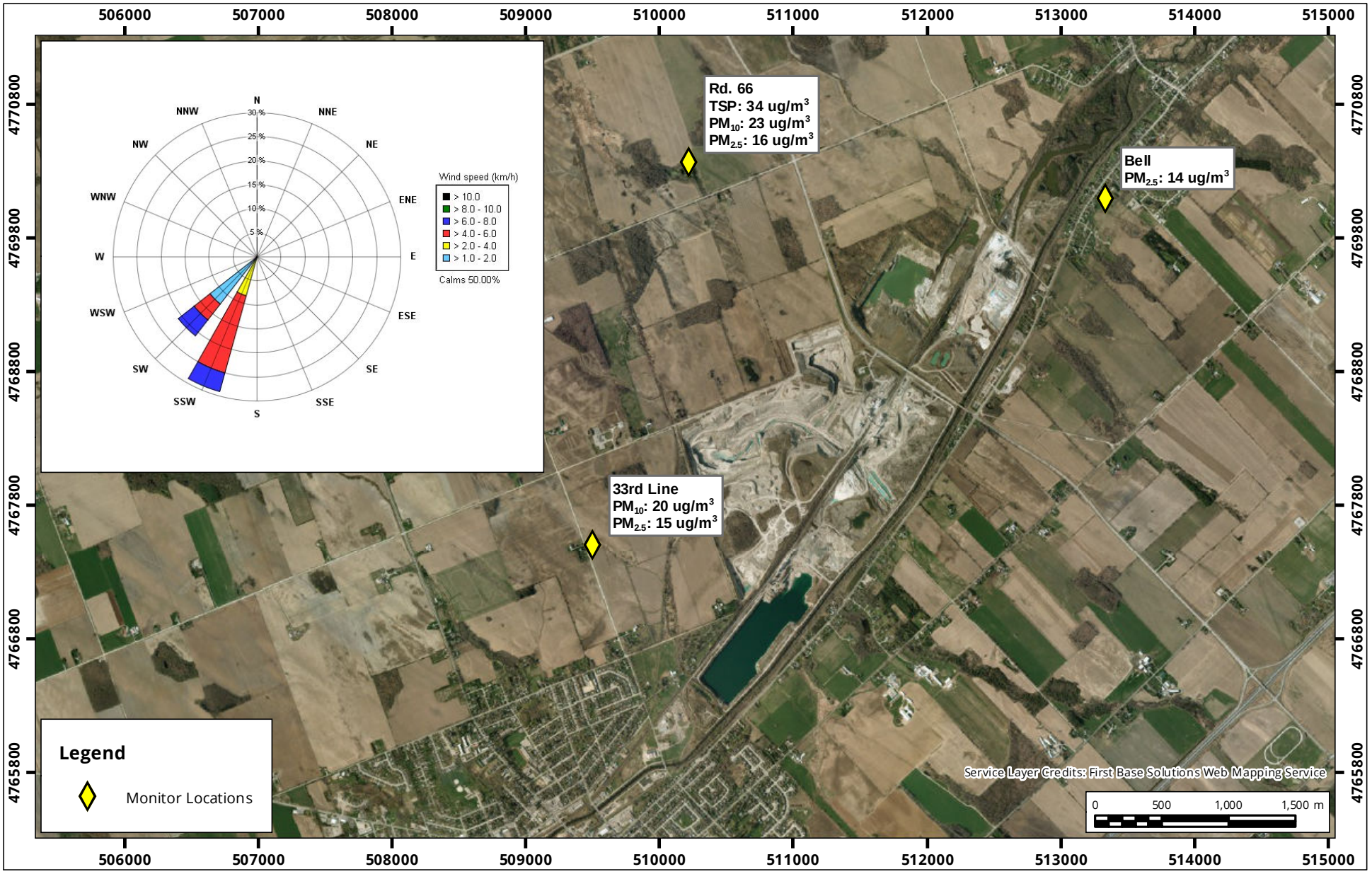

Site Plan Showing Sampling Locations and Windrose

Sampling Period: August 24, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 10
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

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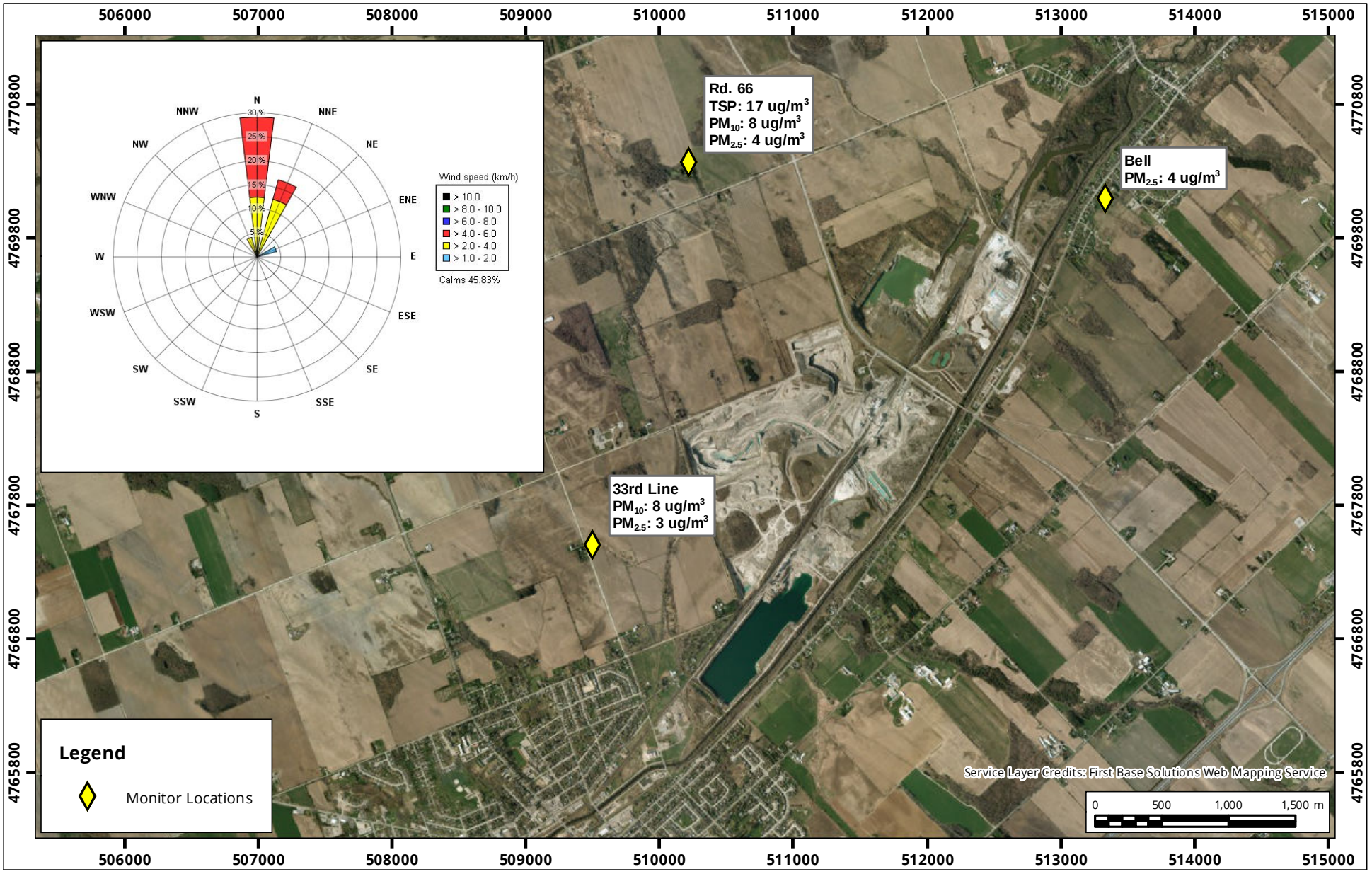


Site Plan Showing Sampling Locations and Windrose

Sampling Period: August 30, 2018

Map Projection: NAD 1983 UTM Zone 17N

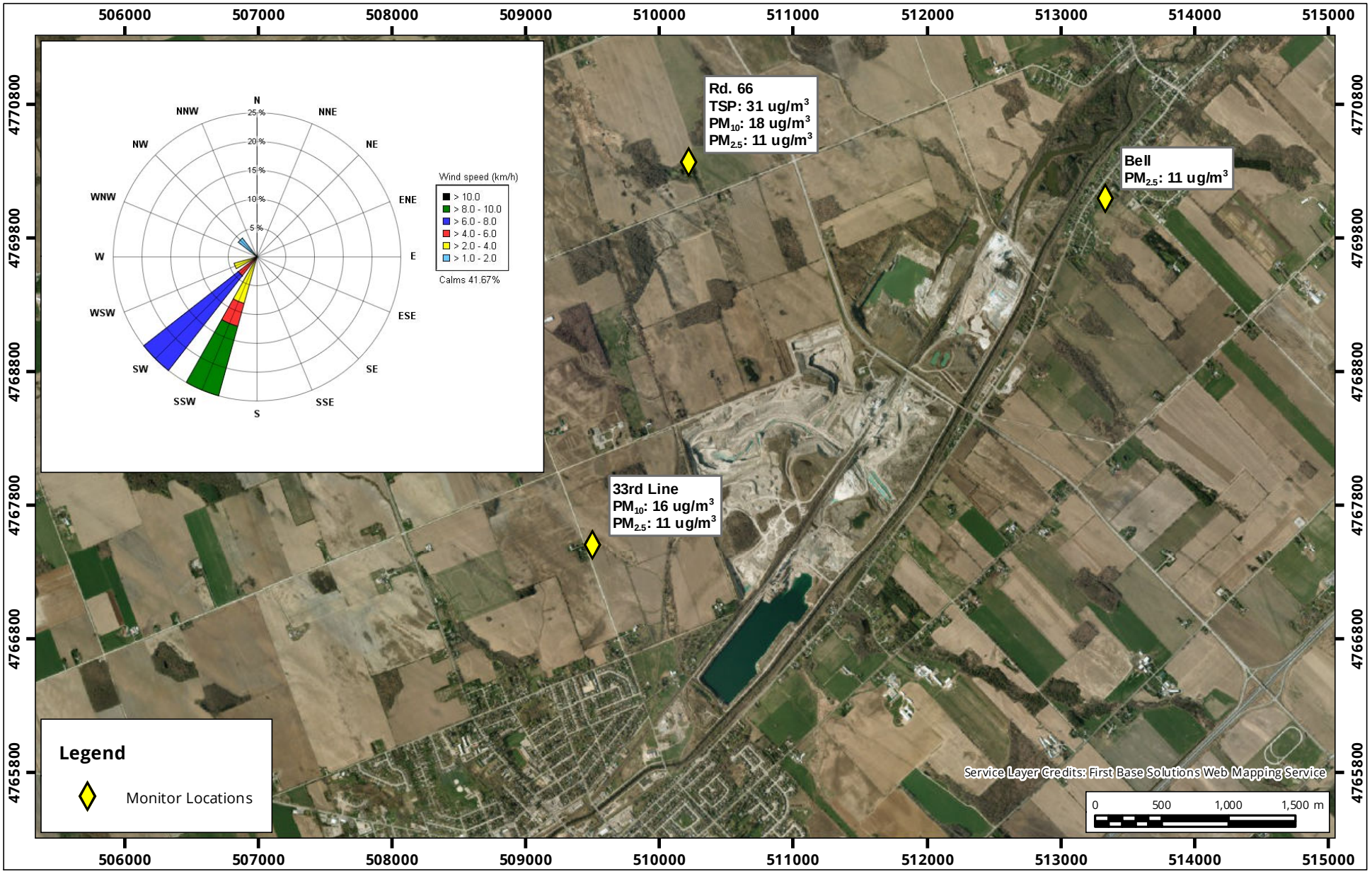
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 11
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: September 5, 2018

Map Projection: NAD 1983 UTM Zone 17N

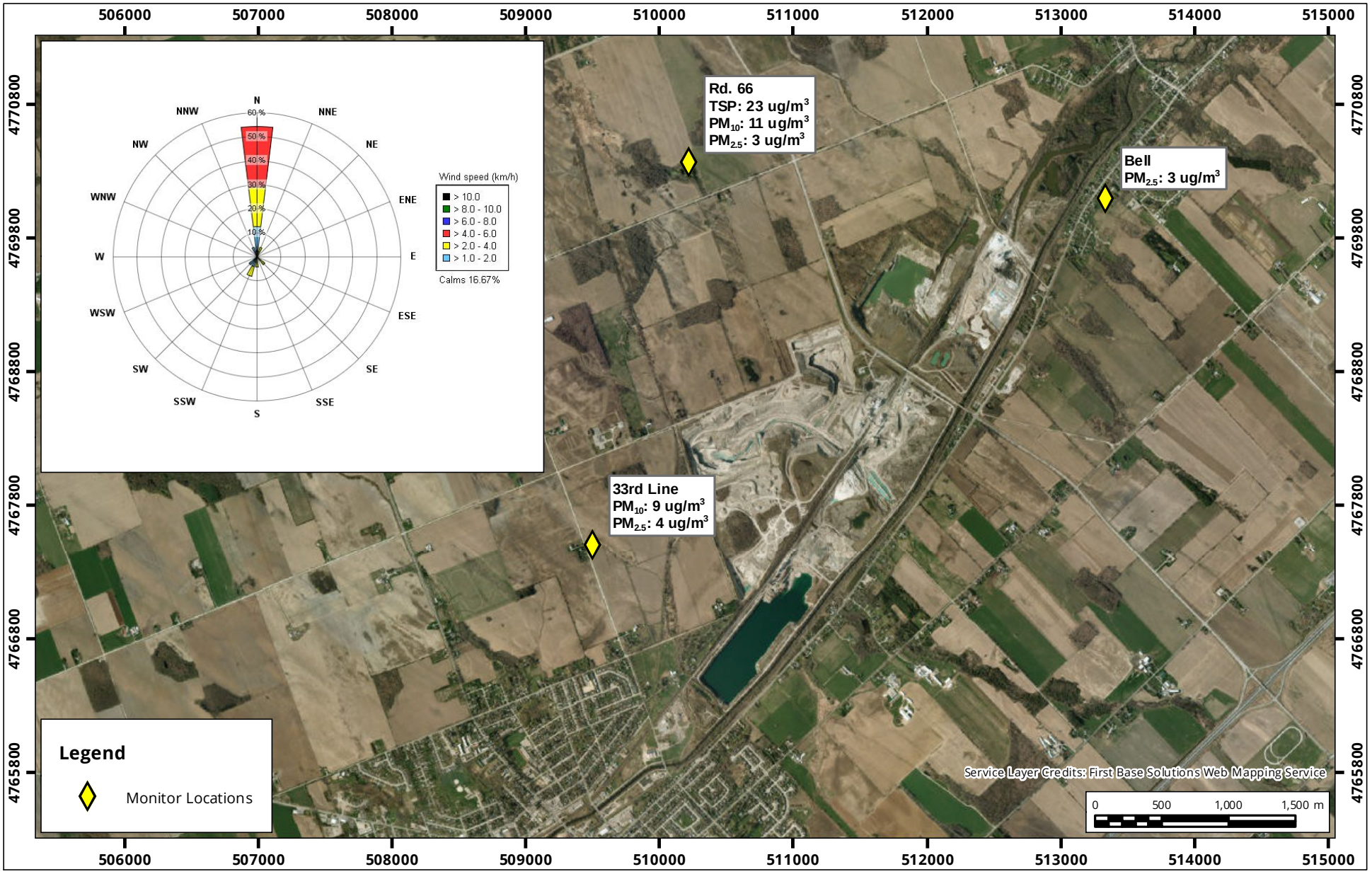
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 12
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: September 11, 2018

Map Projection: NAD 1983 UTM Zone 17N

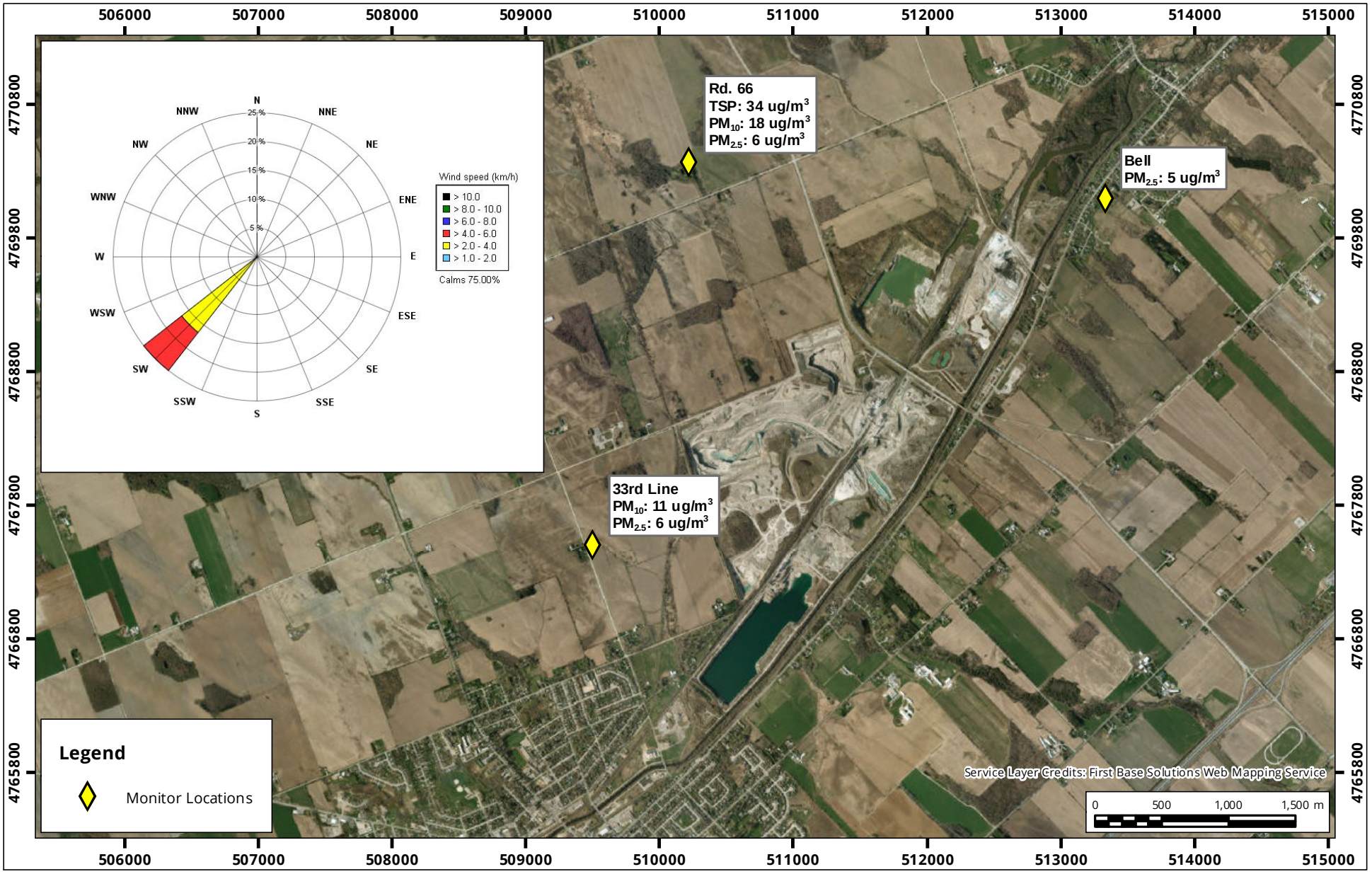
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 13
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: September 17, 2018

Map Projection: NAD 1983 UTM Zone 17N

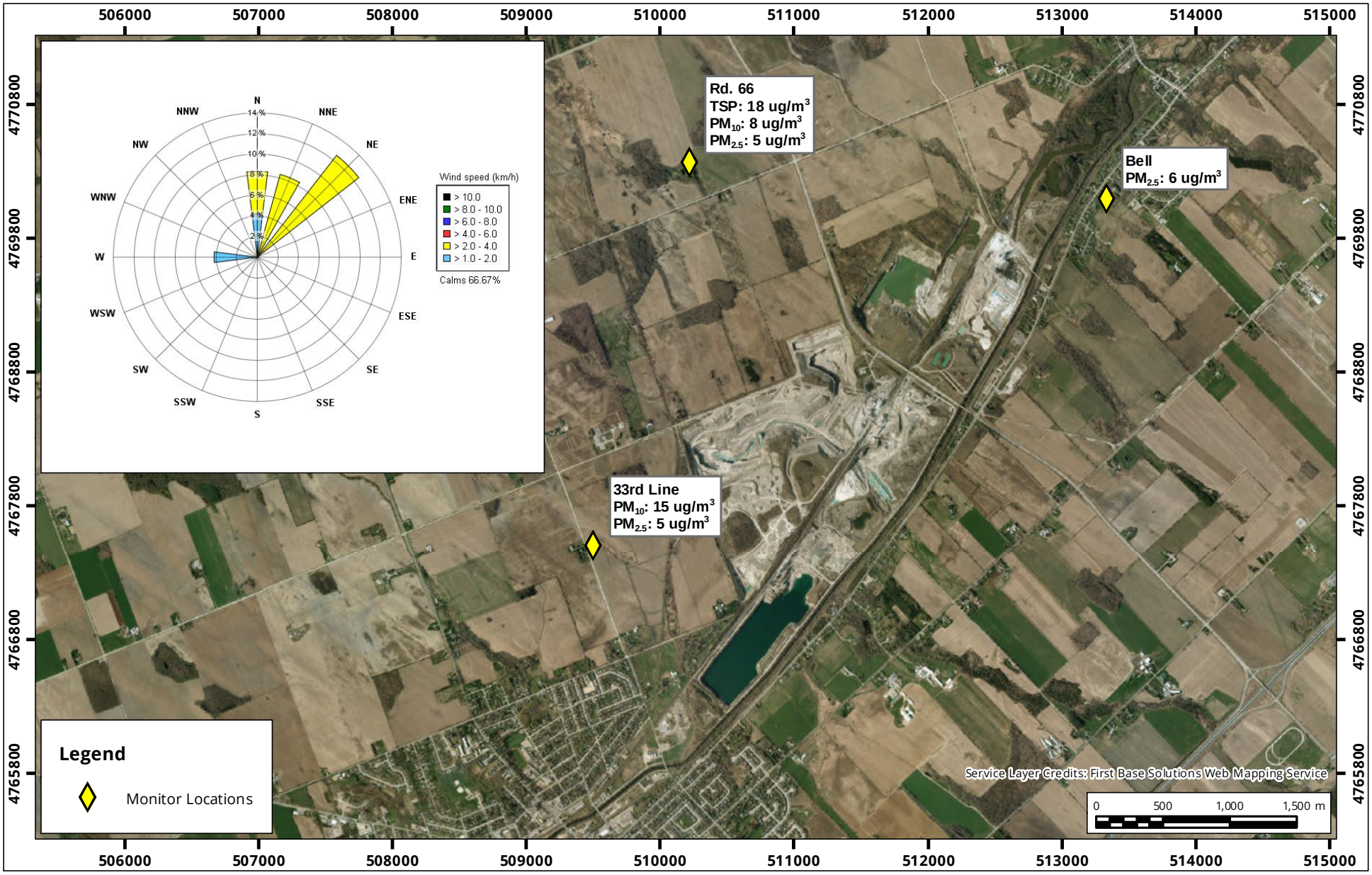
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 14
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose

Sampling Period: September 23, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 15
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Date Revised: Nov 19, 2018	

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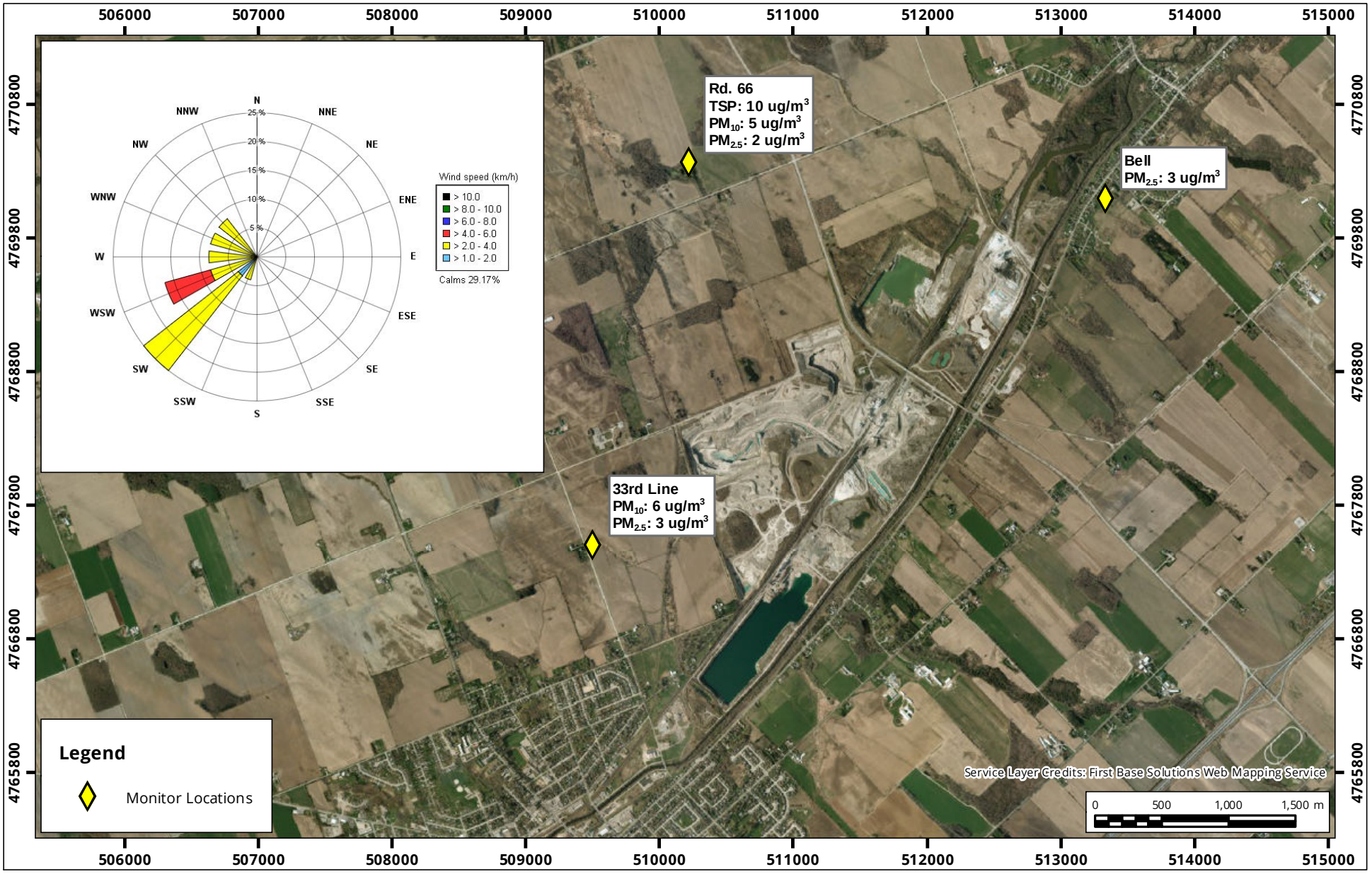


Site Plan Showing Sampling Locations and Windrose

Sampling Period: September 29, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: VML	Figure: 16
Approx. Scale:	1:40,000
Date Revised: Nov 19, 2018	

Map Document: C:\Users\vmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd

APPENDIX A

HiVols

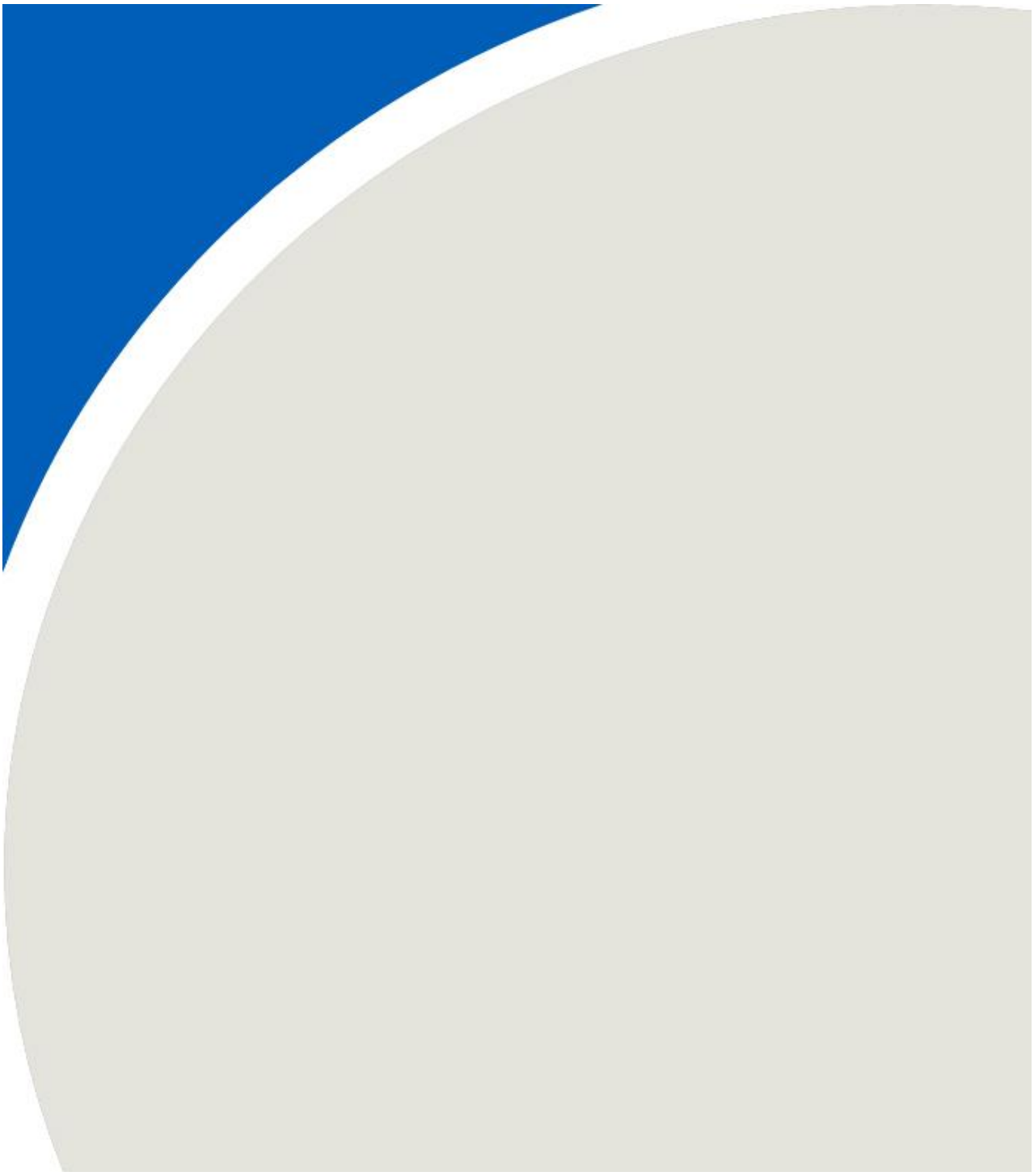


Table A1: Summary of Sample Flow Rate and Sample Duration for Rd 66 Station

Sample Date	Rd 66 Station - TSP			Rd 66 Station - PM_{10}			Rd 66 Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)	No.	(min)	(m^3)
July 1, 2018	737633	1407	1520	737632	1406	1516	737631	1411	1528
July 7, 2018	Invalid Sample			Invalid Sample			Invalid Sample		
July 13, 2018	737765	1408	1536	737764	1409	1537	737763	1411	1541
July 19, 2018	737771	1408	1525	737770	1405	1512	737769	1411	1537
July 25, 2018	737777	1411	1536	737776	1405	1538	737775	1413	1537
July 31, 2018	737640	1411	1537	737639	1404	1523	737781	1407	1527
August 6, 2018	738054	1411	1551	738053	1406	1527	738052	1409	1516
August 12, 2018	738059	1406	1535	738058	1408	1513	738057	1411	1524
August 18, 2018	738065	1405	1529	738064	1408	1514	738063	1410	1528
August 24, 2018	738066	1407	1533	738075	1408	1525	738074	1409	1530
August 30, 2018	738232	1405	1524	738231	1403	1507	738230	1412	1528
September 5, 2018	738238	1407	1527	738237	1403	1544	738236	1412	1536
September 11, 2018	738244	1409	1574	738243	1403	1534	738242	1413	1558
September 17, 2018	738251	1405	1550	738250	1406	1571	738249	1409	1569
September 23, 2018	738435	1405	1581	738434	1408	1610	738433	1409	1584
September 29, 2018	738443	1405	1593	738442	1409	1605	738441	1406	1591

Table A2: Summary of Sample Flow Rate and Sample Duration for 33rd Line Station

Sample Date	33rd Line Station - PM_{10}			33rd Line Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
July 1, 2018	Invalid Sample			737634	1401	1534
July 7, 2018	737783	1411	1527	737782	1406	1544
July 13, 2018	737767	1412	1545	737766	1408	1555
July 19, 2018	737773	1418	1540	737772	1405	1534
July 25, 2018	737779	1416	1548	737778	1403	1546
July 31, 2018	737638	1414	1545	737641	1402	1531
August 6, 2018	738056	1407	1534	738055	1408	1551
August 12, 2018	738061	1410	1507	Invalid Sample		
August 18, 2018	738072	1410	1562	738071	1408	1545
August 24, 2018	738068	1412	1543	738067	1403	1542
August 30, 2018	738234	1417	1527	738233	1406	1534
September 5, 2018	738240	1414	1606	738239	1406	1545
September 11, 2018	738246	1404	1544	738245	1401	1551
September 17, 2018	738253	1413	1567	738252	1406	1550
September 23, 2018	738437	1409	1586	738436	1403	1592
September 29, 2018	738445	1412	1591	738444	1398	1596

Table A3: Summary of Sample Flow Rate and Sample Duration for Bell Station

Sample Date	Bell Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)
July 1, 2018	737630	1400	1550
July 7, 2018	737636	1397	1529
July 13, 2018	737762	1398	1540
July 19, 2018	737768	1400	1541
July 25, 2018	737774	1401	1550
July 31, 2018	737780	1403	1526
August 6, 2018	738051	1342	1508
August 12, 2018	738070	1462	1684
August 18, 2018	738062	1400	1540
August 24, 2018	738073	1402	1555
August 30, 2018	738229	1402	1527
September 5, 2018	738235	1403	1548
September 11, 2018	738241	1410	1609
September 17, 2018	738248	1402	1566
September 23, 2018	738432	1399	1583
September 29, 2018	738440	1399	1596

Table B1: 2018 Rd 66 Station Q3 Monitoring Results for TSP, PM_{10} and $PM_{2.5}$

Walkers AAQM (1800160)			
Rd 66 Station Monitoring Results for TSP, PM_{10} and $PM_{2.5}$			
(results expressed in µg/m^3)			
	TSP	**PM_{10}**	**$PM_{2.5}$**
Air Quality Standard or POI Limit	***120*** [1]	***50*** [1]	***28*** [2]
July 1, 2018	28	22	17
July 7, 2018	Invalid Sample	Invalid Sample	Invalid Sample
July 13, 2018	41	25	13
July 19, 2018	34	17	8
July 25, 2018	59	29	15
July 31, 2018	31	20	13
August 6, 2018	24	18	13
August 12, 2018	27	16	11
August 18, 2018	20	15	13
August 24, 2018	34	23	16
August 30, 2018	17	8	4
September 5, 2018	31	18	11
September 11, 2018	23	11	3
September 17, 2018	34	18	6
September 23, 2018	18	8	5
September 29, 2018	10	5	2

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*120*	*50*	*28*
No. > Standard/POI	0	0	0
Arithmetic Mean	29	17	10
Max. Concentration	59	29	17
Min. Concentration	10	5	2
% Valid data	94	94	94

Table B2: 2018 33rd Line Station Q3 Monitoring Results for PM_{10} and $PM_{2.5}$

Walkers AAQM (1800160)		
33rd Line Station Monitoring Results for PM_{10} and $PM_{2.5}$		
(results expressed in µg/m^3)		
	PM_{10}	**$PM_{2.5}$**
Air Quality Standard or POI Limit	***50*** [1]	***28*** [2]
July 1, 2018	Invalid Sample	18
July 7, 2018	11	7
July 13, 2018	22	12
July 19, 2018	22	9
July 25, 2018	16	12
July 31, 2018	20	14
August 6, 2018	17	12
August 12, 2018	14	Invalid Sample
August 18, 2018	14	9
August 24, 2018	20	15
August 30, 2018	8	3
September 5, 2018	16	11
September 11, 2018	9	4
September 17, 2018	11	6
September 23, 2018	15	5
September 29, 2018	6	3

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*50*	*28*
No. > Standard/POI	0	0
Arithmetic Mean	15	9
Max. Concentration	22	18
Min. Concentration	6	3
% Valid data	94	94

Table B3: 2018 Bell Station Q3 Monitoring Results for $PM_{2.5}$

Walkers AAQM (1800160)	
Bell Station Monitoring Results for $PM_{2.5}$	
(results expressed in µg/m^3)	
	$PM_{2.5}$
Air Quality Standard or POI Limit	***28*** [2]
July 1, 2018	16
July 7, 2018	7
July 13, 2018	11
July 19, 2018	7
July 25, 2018	13
July 31, 2018	13
August 6, 2018	15
August 12, 2018	10
August 18, 2018	10
August 24, 2018	14
August 30, 2018	4
September 5, 2018	11
September 11, 2018	3
September 17, 2018	5
September 23, 2018	6
September 29, 2018	3

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*28*
No. > Standard/POI	0
Arithmetic Mean	9
Max. Concentration	16
Min. Concentration	3
% Valid data	100

VOCs

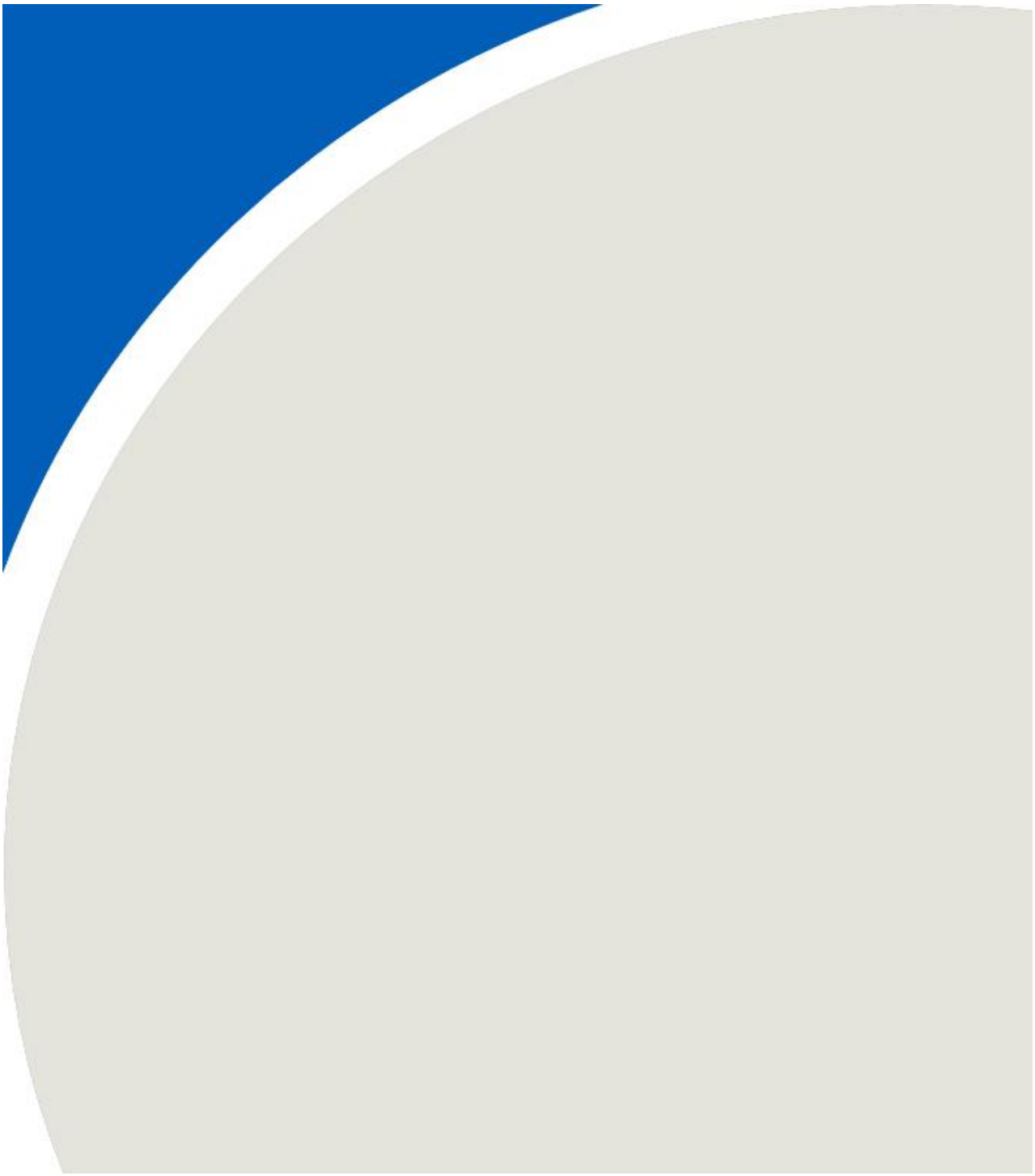


Table C1: Q3 Summary of Sample Canister Pressures and Durations for VOCs/Total Reduced Sulfurs at Bell, Road 66 and 33rd Line Sampling Stations

Sample Date	Road 66 Sampling Station			33rd Line Sampling Station			Bell Sampling Station		
	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure
	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)
July 1, 2018	1438	-30.5	-10	1438	-28	-9	1438	-31	-8
July 7, 2018	Invalid Sample			1438	-28	-8	1438	-31	-8
July 13, 2018	1438	-30	-7	1438	-30	-9	1438	-30	-10
July 19, 2018	1438	-30	-9	1438	-30	-8	1438	-28	-6
July 25, 2018	1438	-30	-5	1438	-30	-7	1438	-29.5	-7
July 31, 2018	1438	-29	-6	1438	-30	-6	1438	-28.5	-2
August 6, 2018	1438	-31	-5	1438	-27.5	-9	1438	-30	-9
August 12, 2018	1438	-30	-4	Invalid Sample			1438	-30	-4
August 18, 2018	1438	-28.5	-2	1438	-28.5	-7	1438	-29.5	-5
August 24, 2018	1438	-30	-8	1438	-30	-8	1438	-30	-5
August 30, 2018	1438	-28.5	-5	1438	-30.5	-7	1438	-31	-6
September 5, 2018	1438	-30	-8	Invalid Sample			1438	-30	-5
September 11, 2018	1438	-28	-8	1438	-30	-4	1438	-30	-4
September 17, 2018	1438	-29	-8	1438	-30	-8	1438	-31	-6
September 23, 2018	1438	-31	-8	1438	-30	-7	1438	-31	-7
September 29, 2018	1438	-29	-3	1438	-29	-6	1438	-28	-6

Note: Final Canister Pressures recorded from ALS Lab reports

Table D1: Rd 66 Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
July 1, 2018	2.0	2.6	1.4	2.0	2.8	22.9	0.239	0.34	3.1	4.8	2.5	0.43	0.46	0.82	0.27	0.364	1.29	5.5	1.5	0.039	0.63
July 7, 2018																					
July 13, 2018	2.0	2.6	3.3	2.0	2.8	8.6	0.369	0.34	3.1	4.8	0.8	0.46	0.46	0.36	0.27	0.299	1.22	5.5	1.5	0.039	0.42
July 19, 2018	2.0	2.6	1.4	2.0	2.8	9.4	0.243	0.34	3.1	4.8	0.8	0.46	0.46	0.36	0.27	0.165	0.98	5.5	1.5	0.039	0.16
July 25, 2018	2.0	2.6	1.4	2.0	2.8	15.1	0.279	0.34	3.1	4.8	0.8	0.47	0.46	0.72	0.27	0.151	1.05	5.5	1.5	0.039	0.15
July 31, 2018	2.0	2.6	1.4	2.0	2.8	12.7	0.336	0.34	3.1	4.8	0.8	0.46	0.46	0.36	0.27	0.157	0.87	5.5	1.5	0.039	0.13
August 6, 2018	2.0	2.6	1.4	2.0	2.8	18.1	0.635	0.34	3.1	4.8	0.8	0.42	0.46	0.36	0.27	0.102	1.04	5.5	1.5	0.039	0.14
August 12, 2018	2.0	2.6	1.4	2.0	2.8	8.6	0.548	0.34	3.1	4.8	0.8	0.43	0.46	0.36	0.27	0.120	0.91	5.5	1.5	0.039	0.06
August 18, 2018	2.0	2.6	1.4	2.0	2.8	9.4	0.233	0.34	3.1	4.8	0.8	0.49	0.46	0.80	0.27	0.098	0.97	5.5	1.5	0.039	0.16
August 24, 2018	2.0	2.6	1.4	2.0	2.8	8.6	0.416	0.34	3.1	4.8	0.8	0.43	0.46	0.80	0.27	0.111	0.87	5.5	1.5	0.039	0.06
August 30, 2018	2.0	2.6	1.4	2.0	2.8	7.6	0.270	0.34	3.1	4.8	7.9	0.43	0.46	0.90	0.27	0.100	0.87	5.5	1.5	0.039	0.06
September 5, 2018	2.0	2.6	13.7	2.0	13.7	25.9	0.257	0.34	3.1	4.8	2.1	0.43	0.46	0.87	0.27	0.049	1.03	5.5	1.5	0.039	0.20
September 11, 2018	2.0	2.6	3.5	2.0	2.8	14.6	0.563	0.34	3.1	4.8	2.8	0.40	0.46	1.08	0.27	0.161	0.98	5.5	1.5	0.039	0.33
September 17, 2018	2.0	2.6	1.4	2.0	2.8	11.7	0.240	0.34	3.1	4.8	1.8	0.45	0.46	0.82	0.27	0.049	1.12	5.5	1.5	0.039	0.06
September 23, 2018	2.0	2.6	1.4	2.0	2.8	5.0	0.339	0.34	3.1	4.8	0.8	0.52	0.46	0.94	0.27	0.049	0.96	5.5	1.5	0.039	0.06
September 29, 2018	2.0	2.6	1.4	2.0	2.8	5.3	0.210	0.34	3.1	4.8	0.8	0.52	0.46	0.36	0.27	0.049	0.86	5.5	1.5	0.039	0.06

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Geometric Mean	1.950	2.550	1.835	1.950	3.113	10.965	0.324	0.335	3.050	4.750	1.179	0.452	0.460	0.602	0.265	0.112	0.994	5.500	1.450	0.039	0.131
Arithmetic Mean	2.0	2.6	2.5	2.0	3.5	12.2	0.3	0.3	3.1	4.8	1.6	0.5	0.5	0.7	0.3	0.1	1.0	5.5	1.5	0.0	0.2
Max. Concentration	2.0	2.6	13.7	2.0	13.7	25.9	0.6	0.3	3.1	4.8	7.9	0.5	0.5	1.1	0.3	0.4	1.3	5.5	1.5	0.0	0.6
Min. Concentration	2.0	2.6	1.4	2.0	2.8	5.0	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.9	5.5	1.5	0.0	0.1
No. of valid samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
% Valid data	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94

Table D1: Rd 66 Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
July 1, 2018	1.93	0.041	0.067	0.040	0.040	0.040	0.77	4.2	18.7	0.36	0.44	0.49	1.0	0.41	0.35	5.9	5.5	1.51	2.34	4.1	0.41
July 7, 2018	Invalid Sample																				
July 13, 2018	1.92	0.041	0.068	0.040	0.040	0.040	0.35	4.2	6.3	0.36	0.44	0.49	1.0	0.41	0.35	3.1	5.5	0.90	1.45	4.1	0.41
July 19, 2018	2.03	0.041	0.052	0.040	0.040	0.040	0.35	4.2	3.8	0.36	0.44	0.49	1.0	0.41	0.35	2.6	5.5	0.90	0.71	4.1	0.41
July 25, 2018	1.94	0.041	0.020	0.040	0.040	0.040	0.35	4.2	3.6	0.36	0.44	0.49	1.0	0.41	1.95	5.4	5.5	0.73	0.76	4.1	0.41
July 31, 2018	2.05	0.041	0.058	0.040	0.040	0.040	0.35	4.2	2.6	0.36	0.44	0.49	1.0	0.41	0.35	4.9	5.5	1.12	0.83	4.1	0.41
August 6, 2018	1.82	0.041	0.045	0.040	0.040	0.040	0.35	4.2	4.8	0.36	0.44	0.49	1.0	0.41	0.35	9.4	5.5	1.17	1.39	4.1	0.41
August 12, 2018	1.91	0.041	0.020	0.040	0.040	0.040	0.35	4.2	4.4	0.36	0.44	0.49	1.0	0.41	0.35	3.7	5.5	0.30	0.69	4.1	0.41
August 18, 2018	2.01	0.041	0.054	0.040	0.040	0.040	0.35	4.2	2.6	0.36	0.44	0.49	1.0	0.41	0.35	4.1	5.5	0.30	0.78	4.1	0.41
August 24, 2018	2.01	0.041	0.046	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	2.5	5.5	0.93	0.71	4.1	0.41
August 30, 2018	1.96	0.041	0.042	0.040	0.040	0.040	0.35	4.2	1.9	0.36	0.44	0.49	1.0	0.41	1.03	1.3	5.5	0.30	0.30	4.1	0.41
September 5, 2018	2.14	0.041	0.020	0.040	0.040	0.040	1.46	4.2	5.4	0.36	0.44	0.49	1.0	0.41	0.35	19.0	5.5	0.89	1.69	4.1	0.41
September 11, 2018	2.03	0.041	0.020	0.040	0.286	0.085	0.35	4.2	14.5	1.21	0.44	0.49	1.0	1.41	0.91	1.3	5.5	3.28	1.38	4.1	1.04
September 17, 2018	2.05	0.041	0.020	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	8.7	5.5	0.30	0.66	4.1	0.41
September 23, 2018	2.13	0.041	0.020	0.040	0.040	0.040	0.35	4.2	4.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
September 29, 2018	1.96	0.041	0.048	0.040	0.040	0.040	0.35	4.2	3.0	0.36	0.44	0.49	1.0	0.41	0.35	2.5	5.5	0.30	0.30	4.1	0.41

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	1.991	0.041	0.036	0.040	0.045	0.042	0.401	4.200	4.349	0.390	0.435	0.490	1.000	0.445	0.449	3.720	5.500	0.663	0.795	4.100	0.436
Arithmetic Mean	2.0	0.0	0.0	0.0	0.1	0.0	0.4	4.2	5.4	0.4	0.4	0.5	1.0	0.5	0.5	5.0	5.5	0.9	1.0	4.1	0.5
Max. Concentration	2.1	0.0	0.1	0.0	0.3	0.1	1.5	4.2	18.7	1.2	0.4	0.5	1.0	1.4	2.0	19.0	5.5	3.3	2.3	4.1	1.0
Min. Concentration	1.8	0.0	0.0	0.0	0.0	0.0	0.3	4.2	1.9	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
No. of valid samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
% Valid data	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94

Table D1: Rd 66 Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
July 1, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.07	11.50	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
July 7, 2018																					
July 13, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	1.03	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
July 19, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
July 25, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
July 31, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 6, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 12, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 18, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 24, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
August 30, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.61	0.49	0.43	0.035	0.23	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
September 5, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
September 11, 2018	0.41	0.74	0.35	0.40	0.7	0.5	0.47	1.54	0.49	0.43	0.035	0.69	1.92	0.8	0.6	0.028	0.110	1.10	0.49	0.49	0.49
September 17, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
September 23, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
September 29, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	0.410	0.368	0.350	0.400	0.650	0.500	0.465	0.372	0.490	0.425	0.035	0.088	0.562	0.750	0.550	0.028	0.058	0.787	0.490	0.490	0.490
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.4	0.5	0.4	0.0	0.1	1.3	0.8	0.6	0.0	0.1	0.8	0.5	0.5	0.5
Max. Concentration	0.4	0.7	0.4	0.4	0.7	0.5	0.5	1.5	0.5	0.4	0.0	0.7	11.5	0.8	0.6	0.0	0.1	1.3	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
No. of valid samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
% Valid data	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94

Table D1: Rd 66 Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
July 1, 2018	0.026	0.44	0.9	220.0
July 7, 2018				
July 13, 2018	0.026	0.44	0.9	130.0
July 19, 2018	0.026	0.44	0.9	160.0
July 25, 2018	0.026	0.44	0.9	120.0
July 31, 2018	0.026	0.44	0.9	140.0
August 6, 2018	0.026	0.44	0.9	120.0
August 12, 2018	0.026	0.44	0.9	50.0
August 18, 2018	0.026	0.44	0.9	110.0
August 24, 2018	0.026	0.44	0.9	140.0
August 30, 2018	0.026	0.44	0.9	50.0
September 5, 2018	0.026	0.44	0.9	150.0
September 11, 2018	0.026	0.44	0.9	140.0
September 17, 2018	0.026	0.44	0.9	100.0
September 23, 2018	0.026	0.44	0.9	100.0
September 29, 2018	0.026	0.44	0.9	50.0

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Geometric Mean	0.026	0.435	0.850	109.171
Arithmetic Mean	0.0	0.4	0.85	118.7
Max. Concentration	0.0	0.4	0.85	220.0
Min. Concentration	0.0	0.4	0.85	50.0
No. of valid samples	15	15	15	15
% Valid data	94	94	94	94

Table D2: 33rd Line Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																					
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
July 1, 2018	2.0	2.6	1.4	2.0	2.8	25.2	0.376	0.34	3.1	4.8	0.8	0.44	0.46	1.00	0.27	0.359	1.26	5.5	1.5	0.039	0.35	2.10	0.041
July 7, 2018	2.0	2.6	1.4	2.0	2.8	7.0	0.219	0.34	3.1	4.8	0.8	0.46	0.46	0.36	0.27	0.223	1.31	5.5	1.5	0.039	0.17	1.77	0.041
July 13, 2018	2.0	2.6	3.0	2.0	2.8	23.4	0.336	0.34	3.1	4.8	0.8	0.50	0.46	0.36	0.27	0.150	1.42	5.5	1.5	0.039	0.16	2.15	0.041
July 19, 2018	2.0	2.6	1.4	2.0	2.8	9.3	0.313	0.34	3.1	4.8	0.8	0.51	0.46	0.36	0.27	0.196	1.14	5.5	7.6	0.098	0.19	1.92	0.097
July 25, 2018	2.0	2.6	1.4	2.0	2.8	25.6	0.496	0.34	3.1	4.8	0.8	0.46	0.46	0.85	0.27	0.157	1.10	5.5	1.5	0.039	0.06	1.98	0.041
July 31, 2018	2.0	2.6	1.4	2.0	2.8	13.7	0.533	0.34	3.1	4.8	0.8	0.43	0.46	0.85	0.27	0.128	0.83	5.5	0.0	0.039	0.06	1.84	0.041
August 6, 2018	2.0	2.6	1.4	2.0	2.8	13.7	0.245	0.34	3.1	4.8	0.8	0.43	0.46	0.36	0.27	0.049	1.10	5.5	1.5	0.039	0.06	2.06	0.041
August 12, 2018																							
August 18, 2018	2.0	2.6	1.4	2.0	2.8	9.9	0.222	0.34	3.1	4.8	0.8	0.52	0.46	0.36	0.27	0.049	1.15	5.5	1.5	0.039	0.06	2.16	0.041
August 24, 2018	2.0	2.6	1.4	2.0	2.8	8.5	0.422	0.34	3.1	4.8	3.9	0.41	0.46	0.91	0.27	0.101	0.81	5.5	1.5	0.039	0.06	2.03	0.041
August 30, 2018	2.0	2.6	1.4	2.0	2.8	7.8	0.257	0.34	3.1	4.8	0.8	0.41	0.46	0.36	0.27	0.049	0.82	5.5	1.5	0.039	0.06	1.92	0.041
September 5, 2018																							
September 11, 2018	2.0	2.6	1.4	2.0	2.8	14.4	0.587	0.34	3.1	4.8	3.7	0.40	0.46	0.98	0.27	0.148	0.81	5.5	1.5	0.039	0.32	2.01	0.041
September 17, 2018	2.0	2.6	1.4	2.0	2.8	13.0	0.436	0.34	3.1	4.8	1.6	0.46	0.46	0.74	0.27	0.049	1.25	5.5	1.5	0.039	0.37	2.07	0.041
September 23, 2018	2.0	2.6	1.4	2.0	2.8	7.2	0.425	0.34	3.1	4.8	0.8	0.52	0.46	0.82	0.27	0.101	0.88	5.5	1.5	0.039	0.06	2.09	0.041
September 29, 2018	2.0	2.6	1.4	2.0	2.8	6.9	0.234	0.34	3.1	4.8	0.8	0.52	0.46	0.81	0.27	0.049	0.84	5.5	1.5	0.039	0.06	2.10	0.041

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.0	2.6	1.5	2.0	2.8	13.3	0.4	0.3	3.1	4.8	1.2	0.5	0.5	0.6	0.3	0.1	1.1	5.5	1.8	0.0	0.1	2.0	0.0
Max. Concentration	2.0	2.6	3.0	2.0	2.8	25.6	0.6	0.3	3.1	4.8	3.9	0.5	0.5	1.0	0.3	0.4	1.4	5.5	7.6	0.1	0.4	2.2	0.1
Min. Concentration	2.0	2.6	1.4	2.0	2.8	6.9	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.8	5.5	0.0	0.0	0.1	1.8	0.0
% Valid data	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88

Table D2: 33rd Line Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																					
	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane
Air Quality Standard or POI Limit [1]	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
July 1, 2018	0.061	0.040	0.040	0.040	0.79	4.2	7.1	0.36	0.44	0.49	1.0	0.41	0.35	2.6	5.5	1.04	1.63	4.1	0.41	0.41	0.35	0.35	0.40
July 7, 2018	0.071	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40
July 13, 2018	0.138	0.040	0.040	0.040	0.35	4.2	6.6	0.36	0.44	0.49	1.0	0.41	0.35	7.6	5.5	0.30	1.18	4.1	0.41	0.41	0.35	0.35	0.40
July 19, 2018	0.156	0.040	0.081	0.094	0.35	4.2	4.1	0.36	0.44	0.49	1.0	0.41	1.68	5.0	5.5	0.71	0.71	4.1	0.41	0.41	0.35	0.35	0.40
July 25, 2018	0.020	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	1.11	2.7	5.5	1.01	1.21	4.1	0.41	0.41	0.35	0.35	0.40
July 31, 2018	0.059	0.040	0.040	0.040	0.35	4.2	2.8	0.93	0.44	0.49	1.0	0.41	0.00	8.2	5.5	1.14	1.08	4.1	0.41	0.41	0.35	0.35	0.40
August 6, 2018	0.052	0.040	0.040	0.040	0.35	4.2	3.5	0.36	0.44	0.49	1.0	0.41	0.35	3.7	5.5	1.19	1.37	4.1	0.41	0.41	0.35	0.35	0.40
August 12, 2018	Invalid Sample																						
August 18, 2018	0.045	0.040	0.040	0.040	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	3.2	5.5	0.82	0.72	4.1	0.41	0.41	0.35	0.35	0.40
August 24, 2018	0.046	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.39	0.66	4.1	0.41	0.41	0.35	0.35	0.40
August 30, 2018	0.044	0.040	0.040	0.040	0.35	4.2	2.2	0.36	0.44	0.49	1.0	1.11	0.35	1.3	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40
September 5, 2018	Invalid Sample																						
September 11, 2018	0.044	0.040	0.537	0.040	0.35	4.2	13.6	1.12	0.44	0.49	1.0	0.92	1.49	1.3	5.5	3.43	1.84	4.1	1.10	0.41	0.90	0.79	0.40
September 17, 2018	0.020	0.040	0.040	0.040	0.35	4.2	4.0	0.36	0.44	0.49	1.0	0.41	0.35	3.9	5.5	2.08	1.12	4.1	0.41	0.41	0.35	0.35	0.40
September 23, 2018	0.020	0.040	0.040	0.040	0.35	4.2	3.5	0.36	0.44	0.49	1.0	0.41	0.35	2.8	5.5	0.30	0.30	4.1	0.41	0.41	0.35	0.35	0.40
September 29, 2018	0.052	0.040	0.040	0.040	0.35	4.2	2.9	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.82	0.30	4.1	0.41	0.41	0.35	0.35	0.40

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.1	0.0	0.1	0.0	0.4	4.2	4.4	0.5	0.4	0.5	1.0	0.5	0.6	3.3	5.5	1.1	0.9	4.1	0.5	0.4	0.4	0.4	0.4
Max. Concentration	0.2	0.0	0.5	0.1	0.8	4.2	13.6	1.1	0.4	0.5	1.0	1.1	1.7	8.2	5.5	3.4	1.8	4.1	1.1	0.4	0.9	0.8	0.4
Min. Concentration	0.0	0.0	0.0	0.0	0.3	4.2	2.2	0.4	0.4	0.5	1.0	0.4	0.0	1.3	5.5	0.3	0.3	4.1	0.4	0.4	0.4	0.4	0.4
% Valid data	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88

Table D2: 33rd Line Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
July 1, 2018	0.7	0.5	0.47	0.86	0.49	0.43	0.035	0.07	1.77	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	210.0
July 7, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49	0.026	0.44	0.9	120.0
July 13, 2018	0.7	0.5	0.47	0.71	0.49	0.43	0.035	0.07	0.93	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	150.0
July 19, 2018	0.7	0.5	1.52	0.30	0.49	0.43	0.102	0.07	2.10	0.8	0.6	0.093	0.055	0.55	0.49	1.27	0.49	0.026	0.44	0.9	180.0
July 25, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	130.0
July 31, 2018	0.7	0.5	0.00	0.30	0.49	0.43	0.035	0.16	0.00	0.8	0.6	0.028	0.055	0.55	0.49	0.00	0.49	0.026	0.44	0.9	0.0
August 6, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	170.0
August 12, 2018																					
August 18, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	130.0
August 24, 2018	0.7	0.5	0.47	0.82	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	110.0
August 30, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
September 5, 2018																					
September 11, 2018	0.7	0.5	0.47	1.65	0.49	0.43	0.035	1.39	2.24	0.8	0.6	0.028	0.220	1.20	0.49	0.49	0.49	0.026	0.44	0.9	120.0
September 17, 2018	0.7	0.5	0.47	0.96	0.49	0.43	0.035	0.07	1.34	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	130.0
September 23, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
September 29, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	50.0

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.2	0.8	0.8	0.6	0.0	0.1	0.9	0.5	0.5	0.5	0.0	0.4	0.85	114.3
Max. Concentration	0.7	0.5	1.5	1.7	0.5	0.4	0.1	1.4	2.2	0.8	0.6	0.1	0.2	1.3	0.5	1.3	0.5	0.0	0.4	0.85	210.0
Min. Concentration	0.7	0.5	0.0	0.3	0.5	0.4	0.0	0.1	0.0	0.8	0.6	0.0	0.1	0.6	0.5	0.0	0.5	0.0	0.4	0.85	0.0
% Valid data	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88

Table D3: Bell Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
July 1, 2018	2.0	2.6	2.9	2.0	2.8	26.2	0.315	0.34	3.1	4.8	3.3	0.44	0.46	0.86	0.27	0.472	1.21	5.5	1.5	0.039	0.44
July 7, 2018	2.0	2.6	1.4	2.0	2.8	4.0	0.180	0.34	3.1	4.8	1.6	0.22	0.46	0.36	0.27	0.049	0.78	5.5	1.5	0.039	0.06
July 13, 2018	2.0	2.6	4.5	2.0	2.8	7.6	0.272	0.34	3.1	4.8	0.8	0.44	0.46	0.36	0.27	0.122	1.15	5.5	1.5	0.039	0.06
July 19, 2018	2.0	2.6	1.4	2.0	2.8	9.7	0.323	0.34	3.1	4.8	0.8	0.39	0.46	0.36	0.27	0.102	0.99	5.5	1.5	0.039	0.06
July 25, 2018	2.0	2.6	3.5	2.0	2.8	15.6	0.210	0.34	3.1	4.8	0.8	0.42	0.46	0.36	0.27	0.049	1.03	5.5	1.5	0.039	0.18
July 31, 2018	2.0	2.6	3.4	2.0	2.8	14.2	0.427	0.34	3.1	4.8	0.8	0.46	0.46	0.74	0.27	0.176	1.00	5.5	1.5	0.039	0.17
August 6, 2018	2.0	2.6	4.0	2.0	2.8	17.7	0.413	0.34	3.1	4.8	1.5	0.44	0.46	0.36	0.27	0.235	1.22	5.5	1.5	0.039	0.32
August 12, 2018	2.0	2.6	1.4	2.0	2.8	7.9	0.521	0.34	3.1	4.8	0.8	0.43	0.46	0.36	0.27	0.228	0.86	5.5	1.5	0.039	0.26
August 18, 2018	2.0	2.6	1.4	2.0	2.8	9.4	0.377	0.34	3.1	4.8	0.8	0.52	0.46	0.72	0.27	0.207	1.10	5.5	1.5	0.039	0.17
August 24, 2018	2.0	2.6	1.4	2.0	2.8	12.2	0.533	0.34	3.1	4.8	0.8	0.43	0.46	0.90	0.27	0.117	0.88	5.5	1.5	0.039	0.06
August 30, 2018	2.0	2.6	1.4	2.0	2.8	6.3	0.412	0.34	3.1	4.8	0.8	0.43	0.46	0.36	0.27	0.135	0.76	5.5	1.5	0.039	0.06
September 5, 2018	2.0	2.6	16.8	2.0	16.8	28.8	0.508	0.34	3.1	4.8	2.1	0.41	0.46	0.75	0.27	0.195	0.90	5.5	1.5	0.039	0.50
September 11, 2018	2.0	2.6	3.4	2.0	2.8	9.2	0.259	0.34	3.1	4.8	0.8	0.41	0.46	0.36	0.27	0.108	0.80	5.5	1.5	0.039	0.13
September 17, 2018	2.0	2.6	1.4	2.0	2.8	13.3	0.506	0.34	3.1	4.8	2.1	0.44	0.46	1.08	0.27	0.248	1.03	5.5	1.5	0.039	0.19
September 23, 2018	2.0	2.6	1.4	2.0	2.8	7.3	0.695	0.34	3.1	4.8	0.8	0.56	0.46	0.74	0.27	0.170	1.00	5.5	1.5	0.039	0.06
September 29, 2018	2.0	2.6	1.4	2.0	2.8	8.4	0.362	0.34	3.1	4.8	1.7	0.51	0.46	1.21	0.27	0.121	0.98	5.5	3.8	0.039	0.35

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.0	2.6	3.2	2.0	3.7	12.4	0.4	0.3	3.1	4.8	1.2	0.4	0.5	0.6	0.3	0.2	1.0	5.5	1.6	0.0	0.2
Max. Concentration	2.0	2.6	16.8	2.0	16.8	28.8	0.7	0.3	3.1	4.8	3.3	0.6	0.5	1.2	0.3	0.5	1.2	5.5	3.8	0.0	0.5
Min. Concentration	2.0	2.6	1.4	2.0	2.8	4.0	0.2	0.3	3.1	4.8	0.8	0.2	0.5	0.4	0.3	0.0	0.8	5.5	1.5	0.0	0.1
% Valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table D3: Bell Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
July 1, 2018	1.86	0.041	0.068	0.040	0.040	0.040	2.01	4.2	60.9	0.36	0.44	0.49	1.0	0.41	0.35	7.5	5.5	1.76	2.05	4.1	0.41
July 7, 2018	1.24	0.041	0.046	0.040	0.040	0.040	1.39	4.2	2.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.99	0.30	4.1	0.41
July 13, 2018	1.89	0.041	0.071	0.040	0.040	0.040	0.35	4.2	5.2	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	0.82	1.00	4.1	0.41
July 19, 2018	1.94	0.041	0.053	0.040	0.040	0.040	0.35	4.2	3.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	2.00	0.66	4.1	0.41
July 25, 2018	1.82	0.041	0.020	0.040	0.040	0.040	0.35	4.2	2.4	0.36	0.44	0.49	1.0	0.41	2.07	1.3	5.5	0.99	0.86	4.1	0.41
July 31, 2018	1.99	0.041	0.062	0.040	0.040	0.040	0.35	4.2	3.2	0.36	0.44	0.49	1.0	0.41	0.35	4.7	5.5	1.78	1.13	4.1	0.41
August 6, 2018	1.94	0.041	0.068	0.040	0.040	0.040	0.35	4.2	5.2	0.36	0.44	0.49	1.0	0.41	0.89	2.6	5.5	2.43	1.31	4.1	0.41
August 12, 2018	1.77	0.041	0.044	0.040	0.040	0.040	0.35	4.2	5.3	0.36	0.44	0.49	1.0	0.41	0.77	3.5	5.5	1.98	0.77	4.1	0.41
August 18, 2018	2.06	0.041	0.049	0.040	0.040	0.040	0.35	4.2	4.1	0.36	0.44	0.49	1.0	0.41	0.74	1.3	5.5	1.45	1.11	4.1	0.41
August 24, 2018	2.05	0.041	0.048	0.040	0.040	0.040	0.35	4.2	3.2	0.36	0.44	0.49	1.0	0.41	1.96	2.6	5.5	3.08	0.95	4.1	0.41
August 30, 2018	1.97	0.041	0.047	0.040	0.040	0.040	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	1.07	1.3	5.5	0.91	0.60	4.1	0.41
September 5, 2018	1.95	0.041	0.020	0.040	0.040	0.040	0.35	4.2	4.7	0.36	0.44	0.49	1.0	0.41	0.71	16.0	5.5	3.14	2.01	4.1	0.41
September 11, 2018	2.08	0.041	0.020	0.040	0.040	0.040	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	0.35	4.2	5.5	0.75	0.78	4.1	0.41
September 17, 2018	2.06	0.041	0.020	0.040	0.040	0.040	0.35	4.2	5.4	0.36	0.44	0.49	1.0	0.41	0.72	4.2	5.5	2.96	1.02	4.1	0.41
September 23, 2018	2.36	0.041	0.045	0.040	0.040	0.040	0.35	4.2	3.2	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.32	0.30	4.1	0.41
September 29, 2018	1.94	0.041	0.047	0.040	0.040	0.040	0.90	4.2	5.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	6.79	0.70	4.1	0.41

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	1.9	0.0	0.0	0.0	0.0	0.0	0.5	4.2	7.4	0.4	0.4	0.5	1.0	0.4	0.7	3.5	5.5	2.1	1.0	4.1	0.4
Max. Concentration	2.4	0.0	0.1	0.0	0.0	0.0	2.0	4.2	60.9	0.4	0.4	0.5	1.0	0.4	2.1	16.0	5.5	6.8	2.1	4.1	0.4
Min. Concentration	1.2	0.0	0.0	0.0	0.0	0.0	0.3	4.2	2.4	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.8	0.3	4.1	0.4
% Valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table D3: Bell Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
July 1, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.07	1.58	0.8	0.6	0.028	0.055	1.30	0.49	0.49	0.49
July 7, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.64	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
July 13, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.83	0.49	0.43	0.035	0.07	0.92	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
July 19, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	1.22	0.49	0.43	0.035	0.07	1.34	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
July 25, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
July 31, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	1.09	0.49	0.43	0.035	0.07	1.08	0.8	0.6	0.028	0.130	1.10	0.49	0.49	0.49
August 6, 2018	0.41	0.77	0.35	0.40	1.8	0.5	0.47	1.32	0.49	0.43	0.035	0.07	1.55	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 12, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	1.27	0.49	0.43	0.035	0.07	1.46	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 18, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.69	0.49	0.43	0.035	0.07	0.97	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
August 24, 2018	0.41	0.79	0.92	0.40	0.7	0.5	0.47	1.32	0.49	0.43	0.035	0.54	1.63	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
August 30, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.76	0.49	0.43	0.035	0.28	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
September 5, 2018	0.41	0.71	0.35	0.40	0.7	0.5	0.47	1.39	0.49	0.43	0.035	0.07	1.97	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
September 11, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
September 17, 2018	0.41	0.90	0.35	0.40	0.7	0.5	0.47	1.59	0.49	0.43	0.035	0.07	2.25	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
September 23, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.07	1.03	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
September 29, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	1.95	0.49	0.43	0.035	0.07	1.81	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.4	0.5	0.4	0.4	0.7	0.5	0.5	1.0	0.5	0.4	0.0	0.1	1.2	0.8	0.6	0.0	0.1	0.8	0.5	0.5	0.5
Max. Concentration	0.4	0.9	0.9	0.4	1.8	0.5	0.5	2.0	0.5	0.4	0.0	0.5	2.3	0.8	0.6	0.0	0.1	1.3	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
% Valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table D3: Bell Q3 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
July 1, 2018	0.026	0.44	0.9	230.0
July 7, 2018	0.026	0.44	0.9	110.0
July 13, 2018	0.026	0.44	0.9	130.0
July 19, 2018	0.026	0.44	0.9	170.0
July 25, 2018	0.026	0.44	0.9	110.0
July 31, 2018	0.026	0.44	0.9	120.0
August 6, 2018	0.026	0.44	0.9	160.0
August 12, 2018	0.026	0.44	0.9	120.0
August 18, 2018	0.026	0.44	0.9	130.0
August 24, 2018	0.026	0.44	0.9	130.0
August 30, 2018	0.026	0.44	0.9	50.0
September 5, 2018	0.026	0.44	0.9	140.0
September 11, 2018	0.026	0.44	0.9	100.0
September 17, 2018	0.026	0.44	0.9	110.0
September 23, 2018	0.026	0.44	0.9	50.0
September 29, 2018	0.026	0.44	0.9	150.0

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

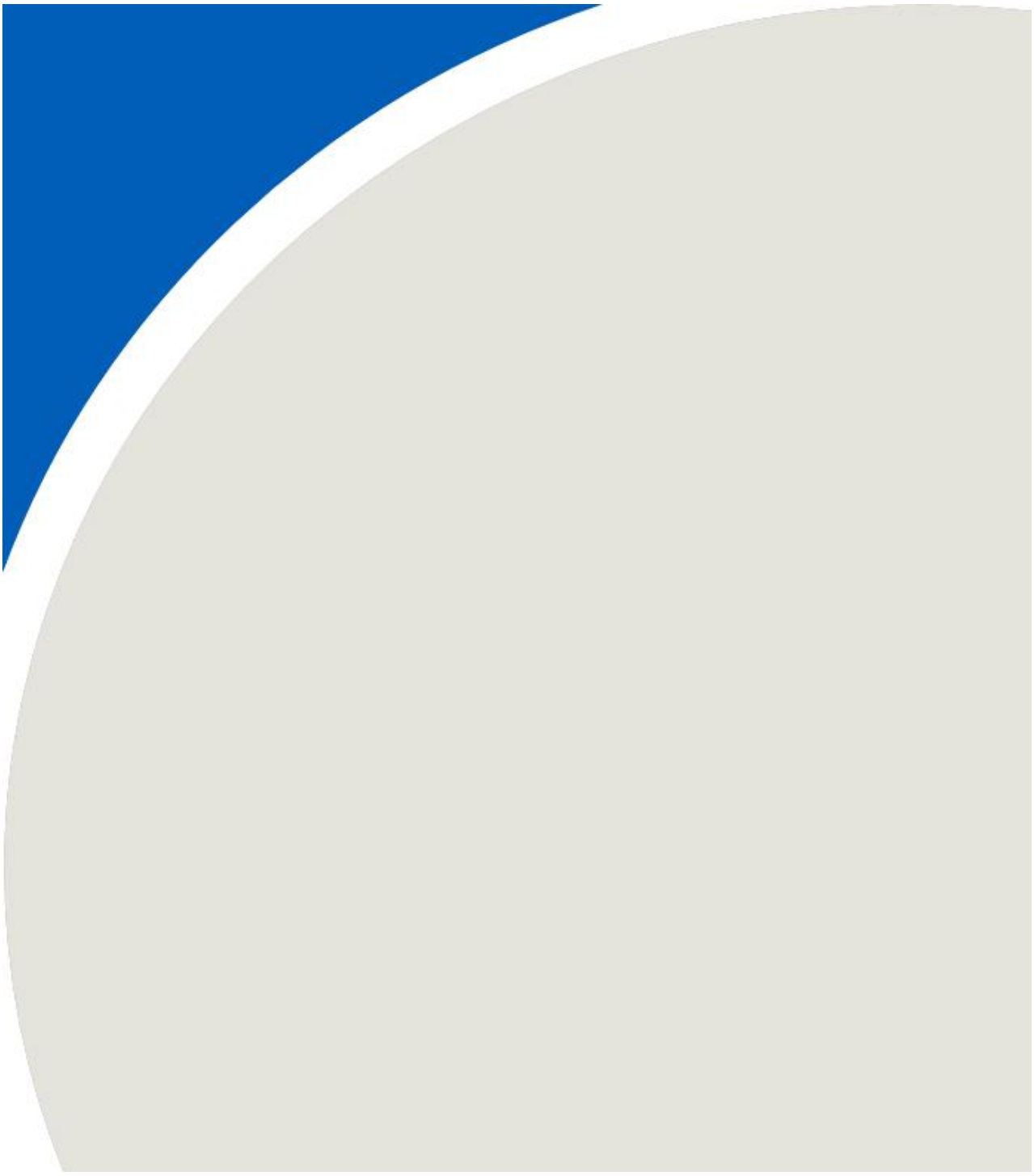
All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Arithmetic Mean	0.0	0.4	0.85	125.6
Max. Concentration	0.0	0.4	0.85	230.0
Min. Concentration	0.0	0.4	0.85	50.0
% Valid data	100	100	100	100

APPENDIX B

HiVols



Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2124442-COFC

COC Number: 17 - 666534

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519 - 823 1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	600 Southgate Dr	Email 1 or Fax	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph, ON	Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker - Ingersoll	AFE/Cost Center:	PO#:
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160 - 1000 - 101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2124442-COFC	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	737630 - Bell PM 2.5	01/07/18	24Hr	AA	X			
2	737631 - Rd 66 PM 2.5	" "	"	"	X			
3	737632 - Rd 66 PM 10	"	"	"	X			
4	737633 - Rd 66 TSP	"	"	"	X			
5	737634 - 33rd Line PM 2.5	"	"	"	X			
6	737635 - 33rd Line PM 10	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐		
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	07/05/18	9:55				CG	5-Jul-18	953

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

whitney.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com
Canada Toll Free: 1 800 668 9878

L2127267-COFC

COC Number: 17 - 666535

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	

Report Format / Distribution	
Select Report Format:	[x] PDF [x] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	brad.bergeron@rwdi.com
Email 2	steve.sanderson@rwdi.com
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	[x] Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] [ ]	EMERGENCY	1 Business day [E-100%] [ ]
	3 day [P3-25%] [ ]		Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	2 day [P2-50%] [ ]		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To		
	Same as Report To	[x] YES [ ] NO
	Copy of Invoice with Report	[ ] YES [ ] NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	[x] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	737636 - Roll PM2.5 - July 7	7-7-18	24hr	AA	X			
2	737637 - Rd 66 PM2.5 - July 7	"	"	"	X			
3	737785 - Rd 66 PM10 - July 7	"	"	"	X			
4	737784 - Rd 66 TSP - July 7	"	"	"	X			
5	737782 - 33rd Line PM2.5 - July 7	"	"	"	X			
6	737783 - 33rd Line PM10 - July 7	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated [ ]					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
25.8°C							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: AARON BURTON	Date: 11-July-2018	Time: 12:55	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468681

L2131511-COFC

Page ____ of ____

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☐ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Number of Containers
1	737762 - Bell PM2.5 - July 13	13-07-18	24 hr	AA	X	
2	737763 - Rd 66 PM2.5 - July 13	↓	↓	↓	X	
3	737764 - Rd 66 PM10 - July 13				X	
4	737765 - Rd 66 TSP - July 13				X	
5	737766 - 33rd line PM2.5 - July 13				X	
6	737767 - 33rd line PM10 - July 13				X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes	☐	No	☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes	☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C			
25.4°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: July 18	Time: 14:10	Received by: AARON BURTON	Date: 18-July-2013	Time: 14:10	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v09 Front 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 468596

L2135341-COFC

Page ____ of ____

Canada Toll Free: 1 800 668 9878

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Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R	☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P	☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E	☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2	☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:	
		Email 2	steve.sanderson@rwdi.com		

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Number of Containers
1	737768 - Bell PM2.5 - July 19	19-07-18	24 hr	AA	X	
2	737769 - Rd 66 PM2.5 - July 19	"	"	"	X	
3	737770 - Rd 66 PM10 - July 19	"	"	"	X	
4	737771 - Rd 66 TSP - July 19	"	"	"	X	
5	737772 - [redacted] 33rd line PM2.5 - July 19	"	"	"	X	
6	737773 - 33rd line PM10 - July 19	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No	☒
Ice packs	Yes ☐	No	☒	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
25.6					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	July 25	12:24	C Kocharakkal	25-Jul-18	12:24			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2137543-COFC

COC Number: 14 - 468597

Page ___ of ___

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad.bergeron@rwdi.com	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	See below	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:		GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)	L2137543	ALS Contact: Whitney	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Number of Containers
1	737774 - Bell PM2.5 - July 25	25/07/18	24 hr.	AA	X	
2	737775 - Rd 66 PM2.5 - July 25	"	"	"	X	
3	737776 - Rd 66 PM10 - July 25	"	"	"	X	
4	737777 - Rd 66 TSP - July 25	"	"	"	X	
5	737778 - 33rd Line PM2.5 - July 25	"	"	"	X	
6	737779 - 33rd Line PM10 - July 25	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	report distribution brad.bergeron@rwdi.com steve.sanderson@rwdi.com victoria.latam@rwdi.com
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: July 27	Time: 15:41	Received by:	Date:	Time:	Received by: MR	Date: July 27/18	Time: 15:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS-FM-0326e v09 Front04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2140725-COFC

COC Number: 14 - 468599

Page ____ of ____

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☐ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	See below	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	ALS Contact:	Sampler:
L2140725	WD.	

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Number of Containers
1	Bell PM2.5 - July 31 - 737780	31/07/18	24 hr	AA	X	
2	Rd 66 PM2.5 - July 31 - 737781	"	"	"	X	
3	Rd 66 PM10 - July 31 - 737639	"	"	"	X	
4	Rd 66 TSP - July 31 - 737640	"	"	"	X	
5	33rd line PM2.5 - July 31 - 737641	"	"	"	X	
6.	33rd line PM10 - July 31 - 737638	"	"	"	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	Email to: brad.bergeron@rwdi.com steve.sanderson@rwdi.com victoria.latam@rwdi.com
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Aug 2	16:18					02-Aug-18	16:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0328a v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

L2145571-COFC

COC Number: 14 - 468598

Page ____ of ____

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Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	PWD /	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	BRAD BERGERON / STEVE.S	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 SOUTHGATE DR.	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	(519) 823-1311	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax		Specify Date Required for E2,E or P:
		Email 2		

Invoice To	Same as Report To ☐ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	WALKER - INGERSOLL	Approver ID:	Cost Center:
Job #:	1800168	GL Account:	Routing Code:
PO / AFE:	18G0160 - 1000 - 101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

PARTICULATE ON PM2.5 HEAD

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
1	738051 - BECC PM2.5 - AUG 6	06 AUG 18	24HR	AA	X
2	738052 - RD.66 PM2.5 - AUG6				X
3	739053 - RD.66 PM10 - AUG6				X
4	738054 - RD.66 TSP - AUG 6				X
5	738055 - 33RD LINE PM2.5 - AUG6				X
6	739056 - 33RD LINE PM10 - AUG6				X

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes ☐	No ☒
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
22.6°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	AUG 7/18	4:00PM	AARON BURTON	13-Aug-2018	13:40			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0326e v09 Front/04 January 2014

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2147833-COFC

COC Number: 17 - 626877

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	Date and Time Required for all E&P TATs:
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For tests that can not be performed according to the service level selected, you will be contacted.
Street:	600 Southgate Dr.	Email 1 or Fax brad.bergeron@rwdi.com	
City/Province:	Guelph	Email 2 steve.sanderson@rwdi.com	
Postal Code:		Email 3 Victoria.Lafam@rwdi.com	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		For Lab Use Only Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	800160-	Major/Minor Code:	Routing Code:
PO / AFE:	800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate on filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738070 - Bell PM 2.5 - Aug 12	12-08-18	24 hr	AA	X			
2	738057 - Rd66 PM2.5 - Aug 12	"	"	"	X			
3	738058 - Rd 66 PM10 - Aug 12	"	"	"	X			
4	738059 - Rd 66 TSP - Aug 12	"	"	"	X			
	~~738060 - 33rd line PM2.5 - Aug 12~~	"	"	"	X	Invalid		
5	738061 - 33rd line PM10 - Aug 12	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐		SIF Observations	Yes ☐	No ☐	
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
25.0°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Aug 16 '18	10:58	ARRON PORTER	16-Aug-2018	10:58			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

L2150378-COFC

COC Number: 17 - 619493

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [✓] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax brad.bergeron@rwdi.com

Email 2 steve.sanderson@rwdi.com

Email 3 Victoria.latan@rwdi.com

Invoice Distribution

Select Invoice Distribution: [✓] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax

Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll

Job #: 1800160

PO / AFE: 1800160-1000-101

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	particulate on filter	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738062 - Bel4 PM2.5 - Aug 18	18-08-18	24 hr	AA	X			
2	738063 - Rd66 PM2.5 - Aug 18	"	"	"	X			
3	738064 - Rd66 PM10 - Aug 18	"	"	"	X			
4	738065 - Rd66 TSP - Aug 18	"	"	"	X			
5	738071 - 33rd line PM2.5 - Aug 18	"	"	"	X			
6	738072 - 33rd line PM10 - Aug 18	"	"	"	X			
7	738069 - Blank - Aug 20	20-08-18	N/A	N/A	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
23.8°C					

SHIPMENT RELEASE (client use)

Released by: | Date: Aug 21 '18 | Time: 12:55

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: AARON BURTON | Date: 21-Aug-2018 | Time: 12:55

FINAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: | Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2155666-COFC

COC Number: 17 - 619494

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	600 Southgate Drive
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	brad.bergeron@rwdi.com
Email 2	steve.sandersonerwdi.com
Email 3	victoria.lafrance@rwdi.com
Invoice Distribution	
Select Invoice Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	[✓] Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] [ ]	EMERGENCY	1 Business day [E-100%] [ ]
	3 day [P3-25%] [ ]		Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	2 day [P2-50%] [ ]		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1006-101
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738073 - Bell PM2.5 - Aug 24	24-08-18	24 hr	AA	X			
2	738074 - Rd 66 PM2.5 - Aug 24	"	"	"	X			
3	738075 - Rd 66 PM10 - Aug 24	"	"	"	X			
4	738066 - R66 TSP - Aug 24	"	"	"	X			
5	738067 - 33rd Line PM2.5 - Aug 24	"	"	"	X			
6	738068 - 33rd Line PM10 - Aug 24	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ]	SIF Observations	Yes [ ]	No [ ]		
Ice Packs [ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]	
Cooling Initiated [ ]					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
27.8°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Aug 29	Time: 16:30	Received by: AARON BURTON	Date: 29-Aug-2018	Time: 16:30	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com
Canada Toll Free: 1 800 668 9878

L2158386-COFC

COC Number: 17 - 619497

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sunderson
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax: brad.bergeron@rwdi.com
Email 2: steve.sunderson@rwdi.com
Email 3: victoria.lafontaine@rwdi.com

Invoice Distribution

Select Invoice Distribution: [✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]
EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply) [ ]

Date and Time Required for all E&P TATs:
For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll
Job #: 800160
PO / AFE: 800160-1008-101
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#:
Major/Minor Code: | Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):
ALS Contact:
Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738229 - Bell PM2.5 - Aug 30	Aug 30 '18	24 hr	AA	X			
2	738230 - Rd 66 PM2.5 - Aug 30	"	"	"	X			
3	738231 - Rd 66 PM10 - Aug 30	"	"	"	X			
4	738232 - Rd 66 TSP - Aug 30	"	"	"	X			
5	738233 - 33rd line PM2.5 Aug 30	"	"	"	X			
6	738234 - 33rd line PM10 - Aug 30	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO
Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Custody seal intact: Yes [ ] No [ ]
Cooling Initiated [ ]
INITIAL COOLER TEMPERATURES °C: 21.5°C
FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)

Released by: Date: Sept. 5 '18 Time: 12:14

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: 5-Sept-2018 Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2161851-COFC

COC Number: 17 - 619498

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)	Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	519-823-1311	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 Southgate Dr.	Email 1 or Fax brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Guelph, ON	Email 2 steve.sanderson@rwdi.com	
Postal Code:		Email 3 Victoria.Latcun@rwdi.com	
Invoice To	Same as Report To [✓] YES [ ] NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000_101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2161851	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Perfluorate	SAMPLES ON HOLD	Sample Is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738235 - Bell PM2.5 - Sept. 5	09-05-18	24 hr	AA	X			
2	738236 - Rd 66 PM2.5 - Sept. 5	"	"	"	X			
3	738237 - Rd 66 PM10 - Sept. 5	"	"	"	X			
4	738238 - Rd 66 TSP - Sept. 5	"	"	"	X			
5	738239 - 33rd line PM2.5 - Sept. 5	"	"	"	X			
6	738240 - 33rd line PM10 - Sept. 5	"	"	"	X			
7	738247 - Blank - Sept. 10	09-10-18	N/A	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [ ] Ice Cubes [ ]		Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated [ ]					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.4			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Sept. 10 '18	Time: 16:30	Received by:	Date:	Time:	Received by:	Date: Sept 10	Time: 16:35

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2164622-COFC

COC Number: 17 - 619499

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL | EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL | ☐ MAIL ☐ FAX	
Street:	600 Southgate Dr.	Email 1 or Fax steve.sanderson@rwdi.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph	Email 2 brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 Victoria.Petcam@rwdi.com	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2164622 (R1)	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738241 - Bell PM2.5 - Sept. 11	11-09-18	24hr	AA	X			
2	738242 - Rd 66 PM2.5 - Sept. 11	"	"	"	X			
3	738243 - Rd 66 PM10 - Sept. 11	"	"	"	X			
4	738244 - Rd 66 TSP - Sept. 11	"	"	"	X			
5	738245 - 33rd line PM25 - Sept. 11	"	"	"	X			
6.	738246 - 33rd line PM10 - Sept. 11	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐		
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Sept. 14'18	Time: 14:40	Received by:	Date:	Time:	Received by: YS	Date: Sept. 14/18	Time: 14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 - 667176

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Affix ALS barcode label here (lab use only)

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL | | EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [ ] EMAIL | | MAIL [ ] FAX

Email 1 or Fax brad.bergeron@rwdi.com

Email 2 Steve.Sanderson@rwdi.com

Email 3 Victoria.latam@rwdi.com

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax

Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll

Job #: 1800160

PO / AFE: 1800160-1000-101

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only): L2168607 — 8

ALS Contact: Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Pesticides

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type		SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738248 - Rell PM2.5 - Sept. 17	17-9-18	24hr	AA	X			
2	738249 - Rd66 PM2.5 - Sept. 17	↓	↓	↓	X			
3	738250 - Rd66 PM10 - Sept. 17				X			
4	738251 - Rd 66 TSP - Sept. 17				X			
5	738252 - 33rd line PM2.5 - Sept. 17				X			
6.	738253 - 33rd line PM10 Sept. 17				X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? | | YES | | NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Sept. 21 '18	17:11

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	Sept. 21/18	12:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2171355-COFC

COC Number: 17 - 667247

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD. B / STEVE. S	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1811	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Street:		Email 1 or Fax	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:		Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2171355	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE on FILTER (F/P)	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738432 - BELL PM2.5 - SEPT 23	09/23/18	24 HR	AA	F			
2	738433 - RD.66 PM2.5 - SEPT 23	↓	↓	↓	X			
3	738434 - RD.66 PM10 - SEPT 23				X			
4	738435 - RD.66 TSP - SEPT 23				X			
5	738436 - 3RD LINE PM2.5 - SEPT 23				X			
6	738437 - 3RD LINE PM10 - SEPT 23				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐
Ice Packs ☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated ☐			

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	09/26/18	4:00 PM					Sept 26/18	4:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

[1] If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2175094-COFC

COC Number: 17 - 667177

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	BRAD B / STEVE. S	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519 823 1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		For ALS use only (client use)	
ALS Account # / Quote #:	WACKER INGELSO LLC	AFE/Cost Center:	PO#
Job #:	1500160	Major/Minor Code:	Routing Code:
PO / AFE:	1500160 - 1000 - 101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

PARTICULATE ON FILTER

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738440 - BELL PM2.5 - 09/29/18	09/29/18	24 HRS	AA	X		
2	738442 - RD.66 PM10 - 09/29/18				X		
3	738441 - RD66 PM2.5 - 09/29/18				X		
4	738443 - RD.66 TSP - 09/29/18				X		
5	738444 - 33RD LINE PM2.5 - 09/29/18				X		
6	738445 - 33RD LINE PM10 - 09/29/18				X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
22.0°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	10/02/18	5:50 PM	AARon BURTON	3-oct-2018	13:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

VOCs & TRS

60 NORTHLAND
WATERLOO, ON
Phone: (519) 886
Fax: (519) 886-90
Toll Free: 1-800-6

L2124429-COFC

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: all TAT Quoted material is in business days which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

Specify date required

Service Requested

- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%)- Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	
QUOTATION #	
PO #	1800160-1000-107

CRITERIA

Reg 419/05 ☐ Soil Vapor Intrusion ☐

OTHER ☐ Please List _____

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com

SUBMISSION #: L2124429
ENTERED BY: ESmith
DATE/TIME ENTERED: 05-Jul-18
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXX SVI)	Regulator Serial # CS1200-XXXX or GXXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	Rwdi-Inderoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
02/07/18	24Hr			NA	Bell July 1 - VOC		X	X	X	X	X	X					1
01/07/18	"			"	Rd 66 July 1 - VOC		X	X	X	X	X	X					2
01/07/18	"			"	33rd line July 1 - VOC		X	X	X	X	X	Y					3.

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type

Soil Gas Vapour = SG — Indoor Air = IA

Ambient Air = AA — Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP

SAMPLED BY: K. Bondar	DATE & TIME 07/01/18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME 9:53 07/05/18	RECEIVED AT LAB BY: CCH	DATE & TIME 5-Jul-18 9:53

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV4-2012

whitney.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 - 469129

L2127259-COFC

Page ___ of ___

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)	
Company:	RWDI	Select Report Format:	☐ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑	Regular (Standard TAT if received by 3pm)
Contact:	brad. bergeron / steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐	Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr.	☐ Criteria on Report - provide details below if box checked		E ☐	Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1311	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:	
		Email 2	steve.sanderson@rwdi.com		

Invoice To		Invoice Distribution	
	Same as Report To ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	800160	GL Account:	Routing Code:
PO / AFE:	800160-1000-101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below — RWDI-Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	Number of Containers
1	Bell-July 7-VOC-2766	7-7-18	24 hr	AA	X	X	X	X	X	X	
2	33rd line-July 7-VOC-2748	"	"	"	X	X	X	X	X	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes	☐	No	☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes	☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
25.8°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: July 11 '18	Time: 12:02	Received by: AARON BURTON	Date: 11-July-2018	Time: 13:02	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

L2131508-COFC

COC Number: 14 - 468682

Page ____ of ____

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	RWDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Brad Bergeron / Steve Sanderson	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	600 Southgate Dr., Guelph	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	519-823-1811	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	brad.bergeron@rwdi.com	Specify Date Required for E2,E or P:
		Email 2	steve.sanderson@rwdi.com	

Invoice To	Same as Report To ☑ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Walker Ingersoll	Approver ID:	Cost Center:
Job #:	1800160	GL Account:	Routing Code:
PO / AFE:	1800160-1000-101	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	RWDI-Ingersoll-AA WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	Number of Containers
1	Bell July 13-VOC-20161	July 13'16	24 hr	AA	X	X	X	X	X	X	
2	Rd 66 July 13-VOC-3505	"	↓	↓	X	X	X	X	X	X	
3	33rd line July 13-VOC	"	↓	↓	X	X	X	X	X	X	
4	Nitrogen Blank-July 17-20698	July 17'16			X	X	X	X	X	X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
25.4°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	July 18 '16	14:10	AARON BURTON	18-July-2016	14:10			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

L2135291-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.ratan@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

	Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
1	19/07/18	24hr	1557	0185	AA	Bell - July 19 - VOC		X	X	X	X	X	X					
2	"	"	4546	0181	"	Rd 66 - July 19 - VOC		X	X	X	X	X	X					
3	"	"	4556	0140	"	33rd line - July 19 - VOC		X	X	X	X	X	X					

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Ambient Air = AA; Indoor Air = IA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☒

MEAN TEMP: 25.6

SAMPLED BY:	Steve Sanderson	DATE & TIME: July 25 '18	
RELINQUISHED BY:		DATE & TIME: 12:17	
RECEIVED BY:	C Kocharakkal	DATE & TIME: July 25/18 12:20	
RECEIVED AT LAB BY:		DATE & TIME	

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.tatam@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2137527
ENTERED BY: ESmith CS
DATE/TIME ENTERED: 27-Jul-18
BIN #: ___

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-A4-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
25/07/18	24hr	12901	0094	AA	Bell July 25 - VOC		X	X	X	X	X	X					1
"	"	17933	0134	"	Rd 66 July 25 - VOC		X	X	X	X	X	X					2
"	"	1536	0148	"	33rd line - July 25 - VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP: /

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY: S. Sanderson	DATE & TIME July 27 '18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME 15:41	RECEIVED AT LAB BY:	DATE & TIME July 27/18 15:41

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

whitney.

L2140731-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

IN OF CUSTODY FORM - Canister/Tube/Gas Bag

business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1: brad.bergeron@rwdi.com
EMAIL 2: steve.sanderson@rwdi.com
victoria.lafam@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2140731
ENTERED BY: FSmith LB
DATE/TIME ENTERED: 02-Aug-18
BIN #: 9

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
07/31/18	24hr	20165	~~0~~5200	AA	Bell July 31 - VOC		X	X	X	X	X	X					1
"	"	15811	0134	"	Rd 66 July 31 - VOC		X	X	X	X	X	X					2
"	"	12228	0119	"	33rd line July 31 - VOC		X	X	X	X	X	X					3.

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP: N/A

SAMPLED BY: S. Sanderson	DATE & TIME 16:18	RECEIVED BY:	DATE & TIME	OBSERVATIONS Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY:	DATE & TIME Aug 2 '18	RECEIVED AT LAB BY:	DATE & TIME 02-Aug-18 16:20	INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2145533-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com
victoria.lotan@rwdi.com

SUBMISSION #: L2145533
ENTERED BY: YW
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - PreSampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
~~2006~~ 06/08/18	~~23:58~~	12905	0045		BELL - AUG 6		✓	✓	✓	✓	✓	✓	-30	-7			
		20171	0197		RD66 - AUG 6		✓	✓	✓	✓	✓	✓	-30	-2.5			
		12221	0140		33 REDLINE - AUG 6		✓	✓	✓	✓	✓	✓	-29.5	-6			

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY:	JDF / SRS	DATE & TIME	RECEIVED BY:	DATE & TIME 12:30
RELINQUISHED BY:		DATE & TIME	RECEIVED AT LAB BY: YW	DATE & TIME Aug 13/18

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2147798

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED — SERVICE REQUESTED

- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION: | CRITERIA: | OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
Victoria.lafave@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
12-08-18	24hr	12911	0014	AA	Bell - Aug 12 - VOC		X	X	X	X	X	X					
"	"	20173	0192	AA	Rd 66 - Aug 12 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLER CONDITION AS RECEIVED

FROZEN ☐ | COOL ☐ | COOLING INITIATED ☐ | AMBIENT ☒ | MEAN TEMP 25.0°C

OBSERVATIONS Yes ☐ No ☒ | If Yes, add SIF

SAMPLED BY:	JDF	DATE & TIME	Aug 16	RECEIVED BY:	AARON BURTON
RELINQUISHED BY:		DATE & TIME	10:58	RECEIVED AT LAB BY:	
				DATE & TIME	16-Aug-18 10:58

INIT: AB

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2150375

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lorain@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-A4-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
18-08-18	24hr	12903	0183	AA	Rell - July 18 - VOC		X	X	X	X	X	X					
"	"	15833	0200	"	Rd 66 - July 18 - VOC		X	X	X	X	X	X					
"	"	15804	C146	"	33rd line July 18 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ COOL ☐ GOOD INTACT ☐ AMBIENT ☑

SAMPLED BY:	S. Sanderson	DATE & TIME	12:55	
RELINQUISHED BY:		DATE & TIME	Aug 21 '18	
RECEIVED BY:	Aaron Burton	DATE & TIME	21-Aug-2018 12:55	
RECEIVED AT LAB BY:		DATE & TIME		

OBSERVATIONS Yes ☐ No ☑ If Yes, please specify

Notes
1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

L2155663

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED		Rush 3 day (100%)	☐
	10 day (regular)	☑	Rush 2 day (200%)	☐
	Rush 5 day (50%)	☐	Rush 1 day (300%) - Enquire	☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX__ BOTH__
SELECT: PDF ✓ DIGITAL ✓ BOTH __
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com victoria.tatam@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
08/24/18	24hr	20686	0073	AA	Bell - Aug24 - VOC		X	X	X	X	X	X					
"	"	15784	0002	"	Rd 66 - Aug24 - VOC		X	X	X	X	X	X					
"	"	15107	0154	"	33rd line - Aug24 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☒ MEAN TEMP

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

SAMPLED BY:	S. Sanderson	DATE & TIME	Aug 29	RECEIVED BY: Aaron Burton	DATE & TIME 29-Aug-2018 16:30
RELINQUISHED BY:	[signature]	DATE & TIME	16:30	RECEIVED AT LAB BY:	DATE & TIME

Notes
1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2158346

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular) ☑		Rush 3 day (100%) ☐	
	Rush 5 day (50%) ☐		Rush 2 day (200%) ☐	
			Rush 1 day (300%) - Enquire ☐	

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX___ BOTH___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
Victoria.lafam@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Aug 30 '18	24hr	15074	0164	AA	Bell Aug 30 - VOC		X	X	X	X	X	X					
"	"	15792	0141	"	Ref 66 Aug 30 - VOC		X	X	X	X	X	X					
"	"	20675	0095	"	33rd line Aug 30 - VOC		X	X	X	X	X	X					
"	"	21753		"	Nitrogen Blank Aug 30		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☑
MEAN TEMP 31.2°C

SAMPLED BY: SS	DATE & TIME Sept. 5 18	RECEIVED BY: AARON BURTON	DATE & TIME 5-Sept-2018 12:00	OBSERVATIONS Yes ☐ No ☒	INIT MB
RELINQUISHED BY: [signature]	DATE & TIME 12:06	RECEIVED AT LAB BY:	DATE & TIME		

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLA
WATERLOO, C
Phone: (519) 8
Fax: (519) 886
Toll Free: 1-800-668-9878

L2161841-COFC

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.tatan@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2161841
ENTERED BY: ESmith
DATE/TIME ENTERED: 11-Sep-18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-A4-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
05-09-18	24hr	3505	0068	AA	Bell - Sept 5 - Vac		X	X	X	X	X	X					1
11	11	illegible	0070	11	Rd 66 - Sept 5 - Vac		X	X	X	X	X	X					2

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP: 15.4

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY: S. Sanderson	DATE & TIME: Sept 10/18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:	DATE & TIME: 16:30	RECEIVED AT LAB BY: PK	DATE & TIME: Sept 10 @ 16:30

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2164605-COFC

60 NORTHLANI
WATERLOO, ON
Phone: (519) 886-
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

R QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION

CRITERIA

OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
Victoria.Tatam@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #: L2164605

ENTERED BY: ESmith

DATE/TIME ENTERED: 14-Sep-18

BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
11-9-18	24hr	2766	0200	AA	Bell Sept. 11 - VOC		X	X	X	X	X	X					1
11	11	20700	0058	11	Rd 66 Sept. 11 - VOC		X	X	X	X	X	X					2
11	11	20170	0088	11	33rd line Sept 11 - VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type

Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

FROZEN	☐	MEAN TEMP
COLD	☐	
COOLING INITIATED	☐	1
AMBIENT	☐	

OBSERVATIONS Yes ☑ No ☐ If yes add SIF

INIT

SAMPLED BY:	S. Sanderson	DATE & TIME: Sept. 14 '18	RECEIVED BY:	DATE & TIME: 14/11/40
RELINQUISHED BY:		DATE & TIME: 14:40	RECEIVED AT LAB BY:	DATE & TIME: Sept 14/18

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lafrain@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #: L2168497
ENTERED BY: ESmith CS
DATE/TIME ENTERED: 21-Sep-18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
17-09-15	24hr	20698	0165	AA	Bell Sept. 17-VOC		X	X	X	X	X	X					1
"	"	17933	0176	"	Rd 66 Sept. 17-VOC		X	X	X	X	X	X					2
"	"	4546	0105	"	33rd line Sept. 17-VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐
- MEAN TEMP

SAMPLED BY:	S. Sanderson	DATE & TIME	Sept. 21	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:		DATE & TIME	12:05	RECEIVED AT LAB BY:	DATE & TIME: Sept. 21/18 12:00

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

No Bu codes
24-Sept-2018 dt

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

L2171308-COFC

ORM - Canister/Tube/Gas Bag

Page ___ of ___

Statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED	
	10 day (regular)	☑
	Rush 5 day (50%)	☐
	Rush 3 day (100%)	☐
	Rush 2 day (200%)	☐
	Rush 1 day (300%) - Enquire	☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lafain@rwdi.com

SUBMISSION #: L2171308
ENTERED BY: ESmith
DATE/TIME ENTERED: 26-Sep-18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - PreSampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
09/23/18	24hr	20161	095	AA	BELL SEPT 23 - VOC		X	X	X	X	X	X					1
"	"	1557	0181	"	RD.66 SEPT 23 - VOC		X	X	X	X	X	X					2
"	"	15804	0162	"	33RD LINE SEPT 23 - VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP

SAMPLED BY: SRS	DATE & TIME 09/26/18 4:00	RECEIVED BY:		DATE & TIME	OBSERVATIONS Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY: JOE	DATE & TIME	RECEIVED AT LAB BY:	4:10 pm	DATE & TIME 26Sep18	INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2175066

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RND1
OFFICE	GUELPH
PROJECT MANAGER	BRAD BERGERON
PROJECT #	150C 166
PHONE	(519)823-1511
FAX	
ACCOUNT #	
QUOTATION #	
PO #	

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ____ BOTH ____
SELECT: PDF ____ DIGITAL ____ BOTH ____
EMAIL 1 BRAD.BERGERON@RNDI.COM
EMAIL 2 STEVE.SANDERSON@RNDI.COM

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME L ☐ or m³ ☐	ANALYSIS REQUEST: RND1-INGERSOLL-AA-INT	H2S	METHYL MERCAPTAN	DIMETHYL SULPHIDE	DIMETHYL DISULPHIDE	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
29/09/18	24hr	17927		AA	RCCL-09/29/18-VOC		X	X	X	X	X	X					
↓	↓	17873		↓	R266-09/29/18-VOC		X	X	X	X	X	X					
↓	↓	20699		↓	SRD LINE-09/29/18-VOC		X	X	X	X	X	X					

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☒
MEAN TEMP 22.0°C

OBSERVATIONS Yes ☐ No ☒ If yes add SIF

INIT MB

SAMPLED BY: JOE FEOST	DATE & TIME 10/03/18	RECEIVED BY:	DATE & TIME	
RELINQUISHED BY:	DATE & TIME	RECEIVED AT LAB BY: AARON BURTON	DATE & TIME 3-OCT-2018 13:00	

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

REPORT

WALKER ENVIRONMENTAL GROUP

INGERSOLL, ONTARIO

SOUTHWESTERN LANDFILL ENVIRONMENTAL ASSESSMENT 2018 Q4 AIR QUALITY MONITORING REPORT

RWDI #1800160

February 13, 2019

SUBMITTED TO

Joe Tomaino
EA Process Manager
jtomaino@Walkerind.com

Walker Environmental Group
160 Carnegie Street
Ingersoll, Ontario N5C 4A8

T: 855.392.5537

SUBMITTED BY

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal
Brad.Bergeron@rwdi.com

RWDI AIR Inc.
Consulting Engineers & Scientists
600 Southgate Drive
Guelph, Ontario N1G 4P6

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F: 519.823.1316

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LIST OF APPENDICES

1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by Walker Environmental Group (WEG) to conduct discrete monitoring for Volatile Organic Compounds (VOCs), Total Reduced Sulfurs (TRS) and particulate matter of the following size fractions: total, PM_{10}, and $PM_{2.5}$. Additional monitoring was completed for particulate matter by the Ministry of Environment, Conservation and Parks (MECP). This report only covers the samples collected by RWDI. This monitoring was requested by WEG as a part of their Environmental Assessment (EA) studies for the provision of the proposed future waste landfill capacity at the Carmeuse Lime (Canada) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario. The Carmeuse site has numerous operations including quarry and crushing processes, earth-moving and material transport, blasting, etc. In addition, the area is surrounded by agricultural and aggregate processing facilities. This ambient air quality monitoring program will help assess the background/current levels of particulate matter, VOC's and TRS emissions existing in the area surrounding the Carmeuse site.

Air quality monitoring took place at three (3) separate locations surrounding the Carmeuse site; two (2) of which were co-located with existing MECP monitoring stations. These two co-located stations were: 1) the Bell building located at 584454 Beachville Road West (Bell), and 2) a private property at 334652 33rd Line (33rd Line). The third station setup by RWDI was located on a private property at 663951 Rd.66 (Rd. 66). This third station location (Rd. 66) was reviewed by the MECP to ensure compliance with the MECP siting criteria. The monitoring station locations can be seen in the **Figures Section** of this report.

This ambient monitoring program commenced at all three (3) locations on March 9, 2018 for TSP, PM_{10} and $PM_{2.5}$ and is ongoing. Due to troubleshooting difficulties experienced over March with the VOC and TRS collection, this part of the program officially commenced on April 2, 2018 at all three (3) locations for these parameters and is ongoing.

2 SAMPLING METHODOLOGY

The three (3) monitoring stations are all equipped with the following discrete monitors: High Volume (Hi-Vol) Air Sampler outfitted with a TSP inlet head, Hi-Vol Air Sampler outfitted with a PM_{10} inlet head, Hi-Vol Air Sampler outfitted with a $PM_{2.5}$ inlet head and an evacuated 6L Summa Canister with programmable timer for VOC and TRS sampling. As the Bell and 33rd Line stations are co-located with existing MECP discrete monitors, sampling of the MECP monitored parameters were not duplicated and the MECP results are not presented in this report. **Table 1** below outlines the equipment operated and results reported by RWDI for each of the stations.

Table 1: Summary of RWDI Operated Equipment at each WEG Monitoring Location

Station	TSP Hi-Vol	PM_{10} Hi-Vol	$PM_{2.5}$ Hi-Vol	Evacuated Canister (VOC's & TRS)
Bell			✓	✓
33rd Line		✓	✓	✓
Rd. 66	✓	✓	✓	✓

2.1 High Volume Air Samplers (Hi-Vols)

The particulate samples were collected using General Metal Works standard High-Volumetric air samplers outfitted with size-selective inlet heads capable of collecting TSP, PM_{10}, and $PM_{2.5}$ particulate size fractions. Each Hi-Vol is equipped with a mass flow controller, which ensures a flow rate of 40 cubic feet per minute (CFM) and a timer for starting and stopping each sample. All stations operate on a six-day cycle with a 24-hour (midnight to midnight) sampling schedule, concurrent with the National Air Pollution Surveillance (NAPS) U.S. EPA schedule. Each Hi-Vol was calibrated once per quarter to ensure accuracy and validity of the data. Pre-tared glass fibre filters were used, which were pre and post weighed by ALS Laboratory (ALS) located in Waterloo, ON.

2.2 Evacuated Canisters (VOCs and TRS)

The ambient VOC and TRS samples were collected in the same conditioned silica-lined evacuated canisters, as specified in EPA Compendium Method TO-14/15. The evacuated canisters were supplied, proofed and analyzed by ALS in Waterloo, ON. Critical orifice flow controllers approved for use by the MECP were used to maintain a constant flow rate of approximately 3.5 milliliters per minute over a sampling period of 24 hours. The controllers were supplied and conditioned by ALS, and were only used once, and then were returned to the ALS for cleaning/reconditioning. The controllers were constructed of inert materials including stainless steel, charcoal ferrules and Teflon coating, and were equipped with pressure gauges. Each controller was fitted every time with a RWDI supplied Neutech 2701 programmable automated sampling timer which both opens and closes the canister over a programmed time period. All three (3) stations operated on a six-day cycle, each consisting of 24-hour (midnight to midnight) sample, concurrent with the National Air Pollution Surveillance (NAPS) schedule.

3 AIR QUALITY CRITERIA AND STANDARDS

The monitored contaminant concentrations were compared to air quality criteria and standards set by the Ontario Ministry of the Environment and Climate Change (MECP) and by Environment Canada. The MECP has Ambient Air Quality Criteria (AAQCs) for select VOC's, Hydrogen Sulfide (H_2S), TRS, TSP and PM_{10}. These AAQCs are the maximum desirable concentrations in the outdoor air, based on effects to the environment and health (MECP, 2012). Environment Canada has established a Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ (Environment Canada, 2013). CAAQS are health-based air quality objectives for the outdoor air. It should be noted that the AAQC for PM_{10} is an interim value of 50 $\mu g/m^3$ for an averaging period of 24 hours, and the current CAAQS' for $PM_{2.5}$ is 28 $\mu g/m^3$ for the 3-year average of annual 98th percentile 24-hour concentration, and 10 $\mu g/m^3$ for the 3-year average of annual concentrations (in effect as of 2015). Since this program has been in place for less than a year, the CAAQS of 28 $\mu g/m^3$ will be used on a comparison basis only for 24-hour $PM_{2.5}$ measurements. Listed air quality criteria and standards can be found for each contaminant in **Appendix A**.

4 SUMMARY OF DISCRETE MONITORING DATA

All monitoring results from the periodic measurements for Q4 of 2018 are provided in **Appendix A.**

4.1 TSP Results

The TSP sampler operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 120 µg/m^3 were observed at Rd. 66.

4.2 PM_{10} Results

The PM_{10} samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily AAQC of 50 µg/m^3 were observed at 33rd Line or Rd. 66.

4.3 $PM_{2.5}$ Results

The $PM_{2.5}$ samplers operated periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. No exceedances over the daily CAAQS of 28 µg/m^3 were observed at Bell, 33rd Line or Rd. 66.

4.4 VOC Results

VOC samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. Over Q4 there were no exceedances over the daily VOC standards or criteria at Bell, 33rd Line or Rd. 66. Please see Tables D1, D2 and D3 for additional statistics and details.

4.5 TRS Results

TRS samplers operate periodically on a six-day sampling schedule consistent with the National Air Pollutant Surveillance (NAPS) sampling schedule as outlined by the U.S. EPA. At Rd. 66 Station in Q4, there were two (2) exceedances on one (1) day, December 16, 2018 for H_2S and TRS with values of 19.1 µg/m^3 and 19.1 µg/m^3 respectively. At Bell Station in Q4, there were three (3) exceedances on two (2) days, November 4, 2018 for TRS with a value of 9.5 µg/m^3, and December 16, 2018 for H_2S and TRS with values of 15.7 µg/m^3 and 15.7 µg/m^3 respectively. Over Q4 there were no exceedances over the daily TRS standards or criteria at 33rd Line. Please see Tables D1, D2 and D3 for additional statistics and details.

5 DATA REQUESTS

5.1 VOCs and TRS

There were a few failures that occurred during Q4 due to VOC/TRS sampling equipment issues. The issues are outlined below:

- The Bell October 11, 2018 sample maintained negative pressure when removed from the field, however, was noted as being positive pressure when tested by the lab. During transport there was likely a small leak in the canister valve.
- The Rd 66 and 33rd Line October 11, 2018 samples did not meet the hold time for sulfur compounds due to laboratory instrument delays. The results are provided for comparison purposes only.
- The Rd 66 October 23, 2018 sample did not meet the hold time for sulfur compounds due to laboratory instrument delays, therefore it was only submitted for VOC analysis.
- The Rd 66 November 4, 2018 sample was invalid due to flow controller did not initial sample, controller was checked and seem to be responded correctly.
- The Rd 66 November 10, 2018 sample was invalid due to flow controller not initiating sample. Controller was removed and replaced.
- The Bell November 22, 2018 sample maintained negative pressure when removed from the field, however, was noted as being positive pressure when tested by the lab. During transport there was likely a small leak in the canister valve.
- The 33rd Line December 4, 2018 through December 28, 2018 samples were invalid due to a suspected leak that resulted in the final canister pressure reaching 0 “Hg in the field. In discussions with the laboratory, this sometimes occurs due to the change in temperature (especially when colder temperature occurs during the sampling period). RWDI is working with the laboratory to remediate this issue.

5.2 Hi-Vol's

There were a few failures that occurred during Q4 due to Hi-Vol sampling equipment issues. The issues are outlined below:

- The Bell $PM_{2.5}$ November 4, 2018 sample was invalid due to improper run time and missing 6 hours of the sample. A clock malfunction was suspected and tested to ensure it was functioning normally.
- The Bell $PM_{2.5}$ November 28, 2018 sample was invalid as the motor brushes failed. A new motor was installed for the next sample date.
- The Rd 66 PM10 October 23, 2018 was invalid as it exceeded the acceptable range for sample volume due to a high motor off pressure. An inspection of the unit identified a loose retaining ring. Once the retaining ring was tightened the sampler went back to the approximate set point.
- The 33rd Line $PM_{2.5}$ November 22, 2018 sample was invalid as the motor brushes failed. A new motor was installed by the next sampling date.
- The 33rd Line PM_{10} October 5, 2018 sample was invalid as a mouse had a nest in the mass flow controller and the wires had been chewed. The mass flow controller was replaced on October 10, 2018.
- The 33rd Line PM_{10} November 22, 2018 sample was invalid as the timer wheel was not moved forward.
- The 33rd Line PM_{10} November 28, 2018 sample was invalid as the motor brushes failed. A new motor was installed by the next sampling date.

6 CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission. I can be reached at (519) 823-1311 ext. 2428.

Yours very truly,

RWDI

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal

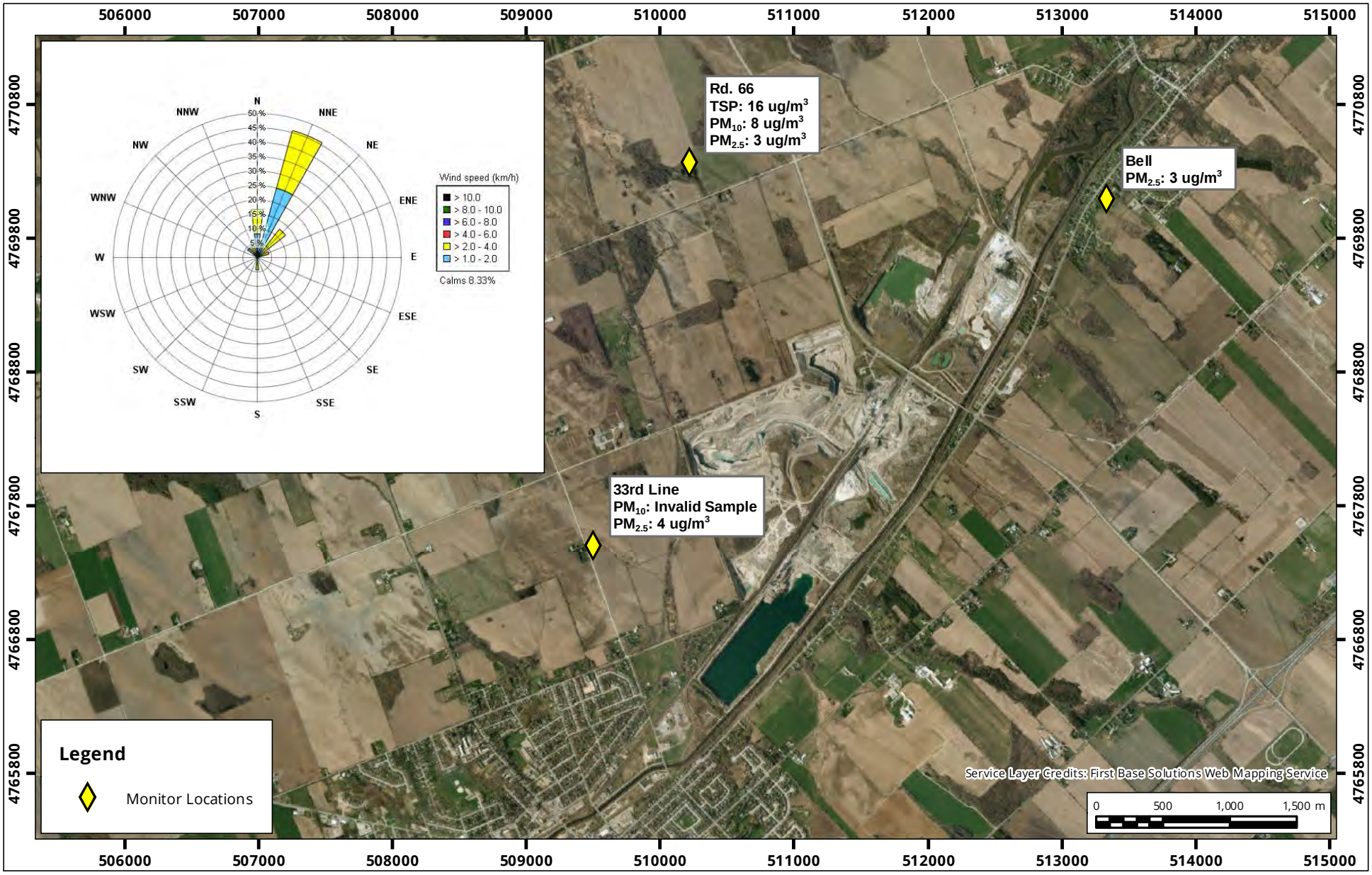
BCB/jo
Attach.

7 REFERENCES

Canadian Council of Ministers of the Environment, 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF

Environment Canada, 2013. Canadian Ambient Air Quality Standards. [Online]

FIGURES



Site Plan Showing Sampling Locations and Windrose

Sampling Period: October 5, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
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Date Revised: Jan 31, 2018	

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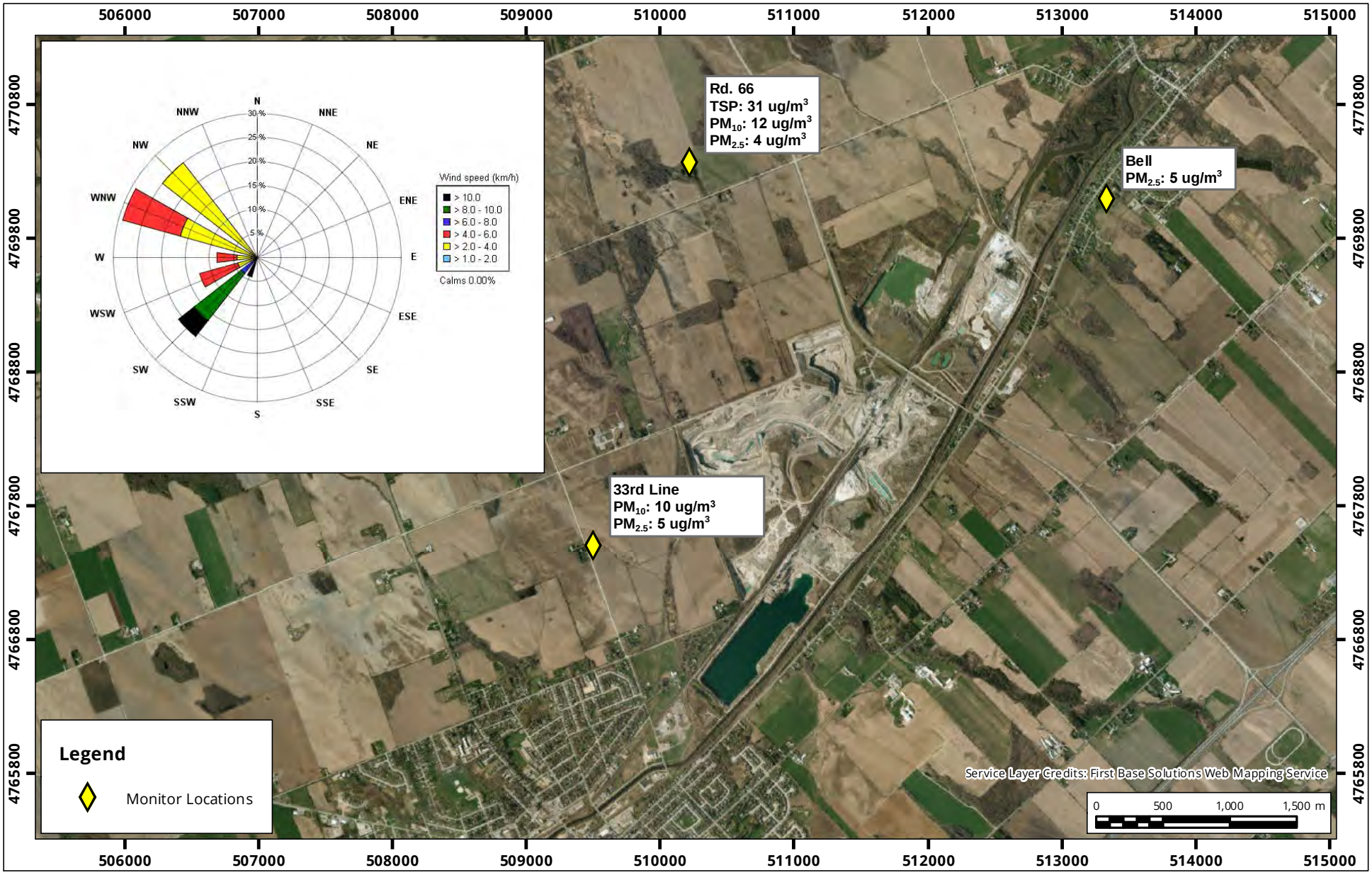

Site Plan Showing Sampling Locations and Windrose Sampling Period: October 11, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

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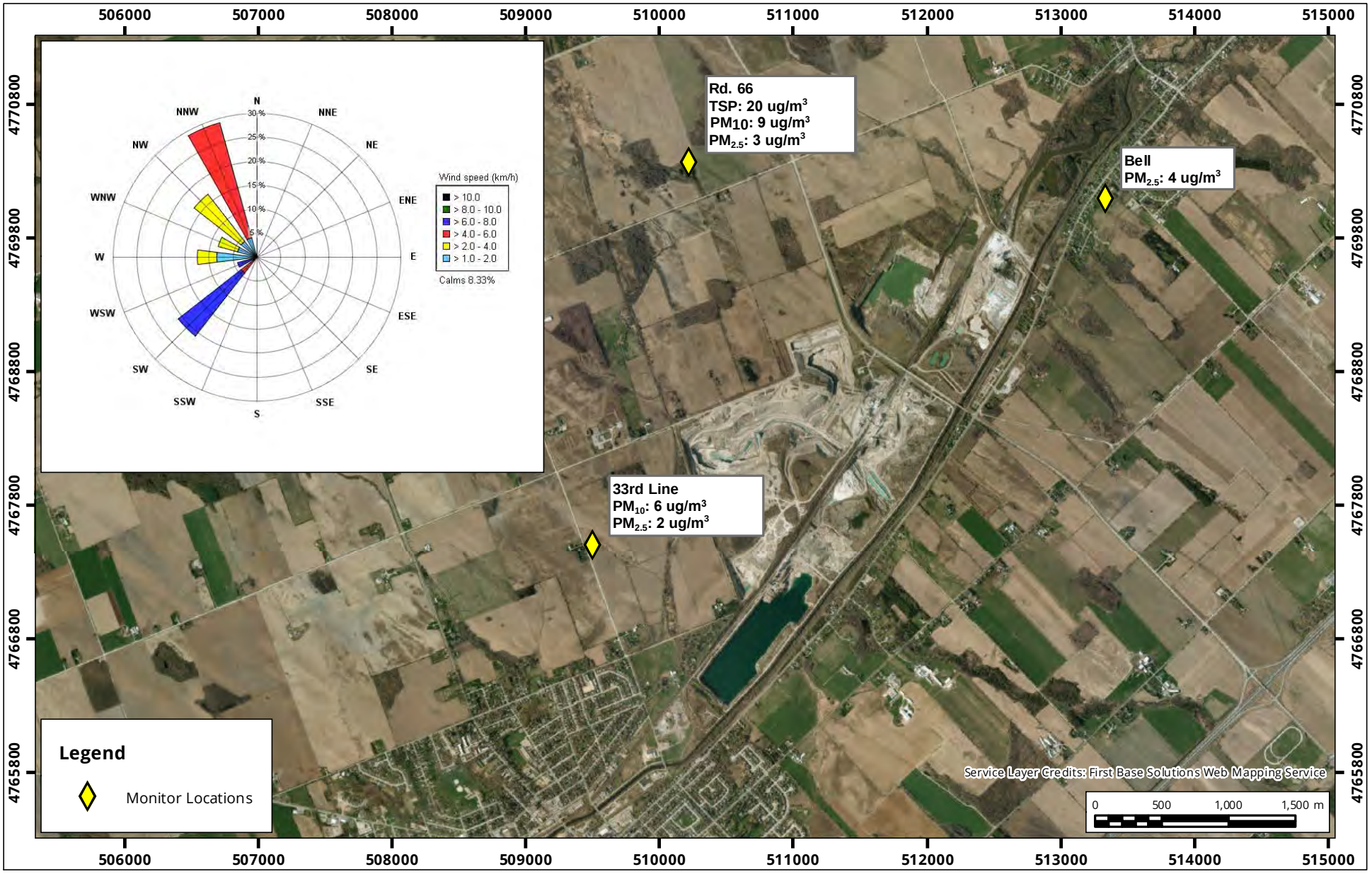

Site Plan Showing Sampling Locations and Windrose Sampling Period: October 17, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

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Date Revised: Jan 31, 2018	

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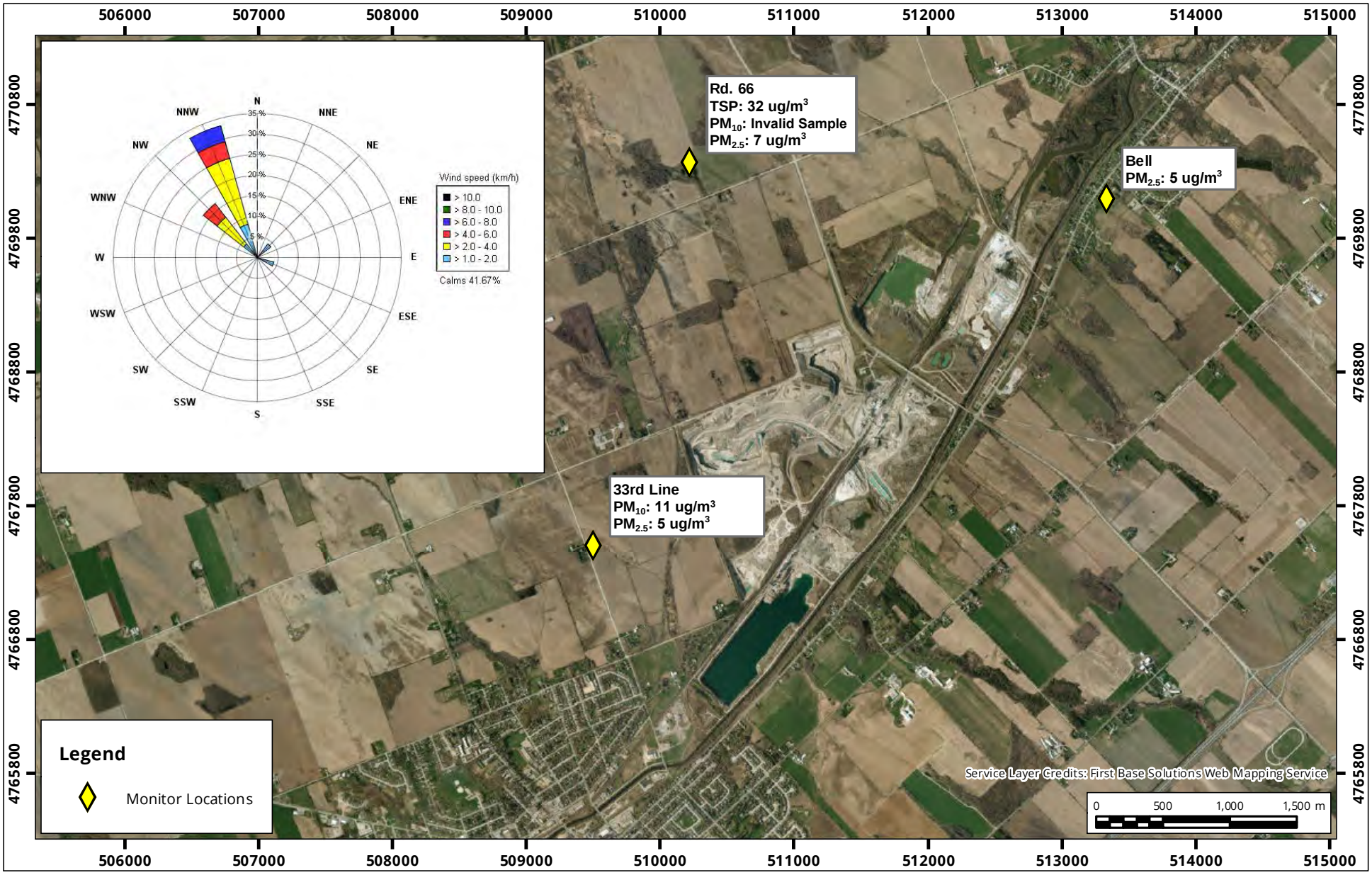

Site Plan Showing Sampling Locations and Windrose Sampling Period: October 23, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
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Date Revised: Jan 31, 2018	

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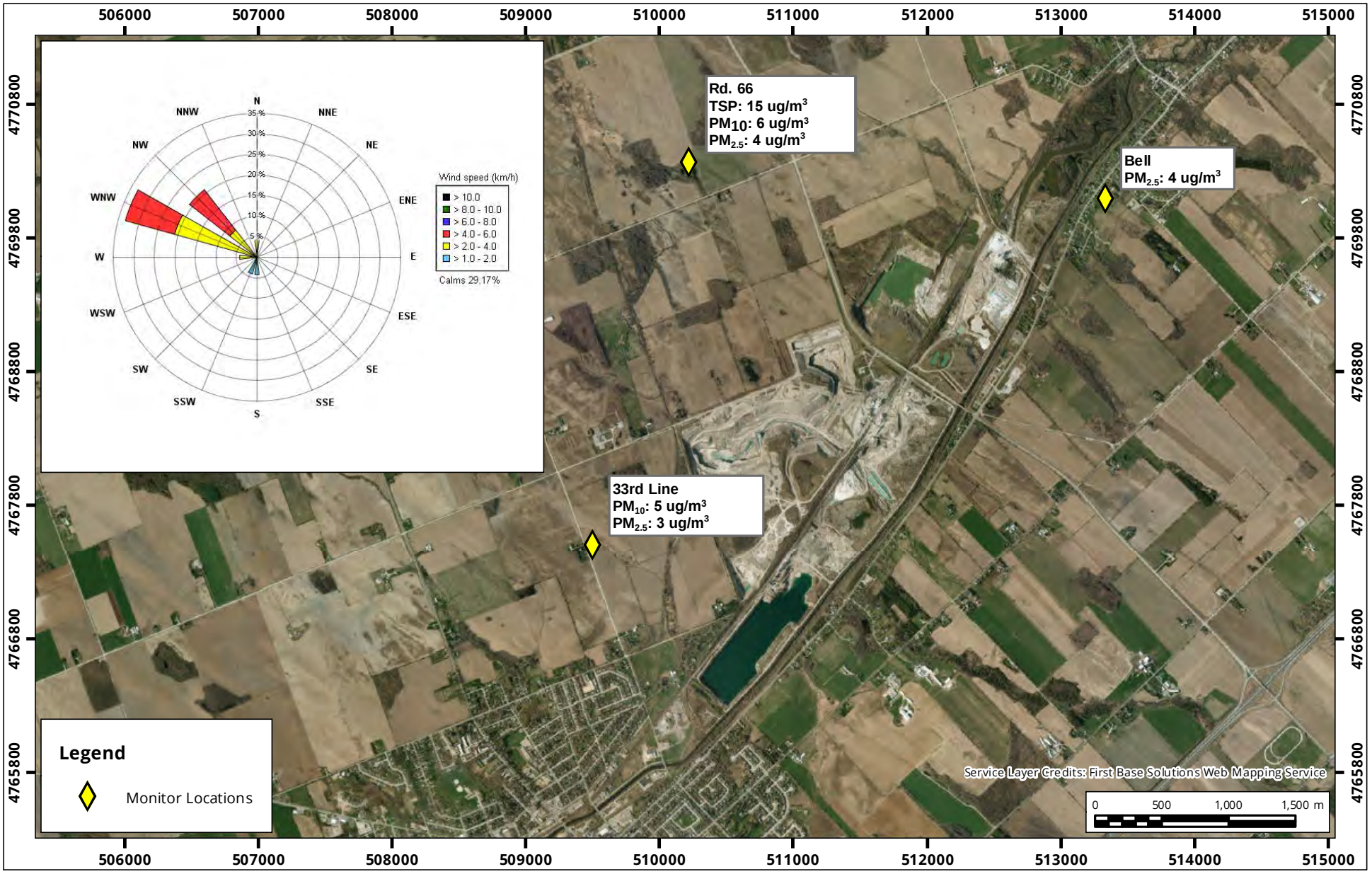

Site Plan Showing Sampling Locations and Windrose Sampling Period: October 29, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

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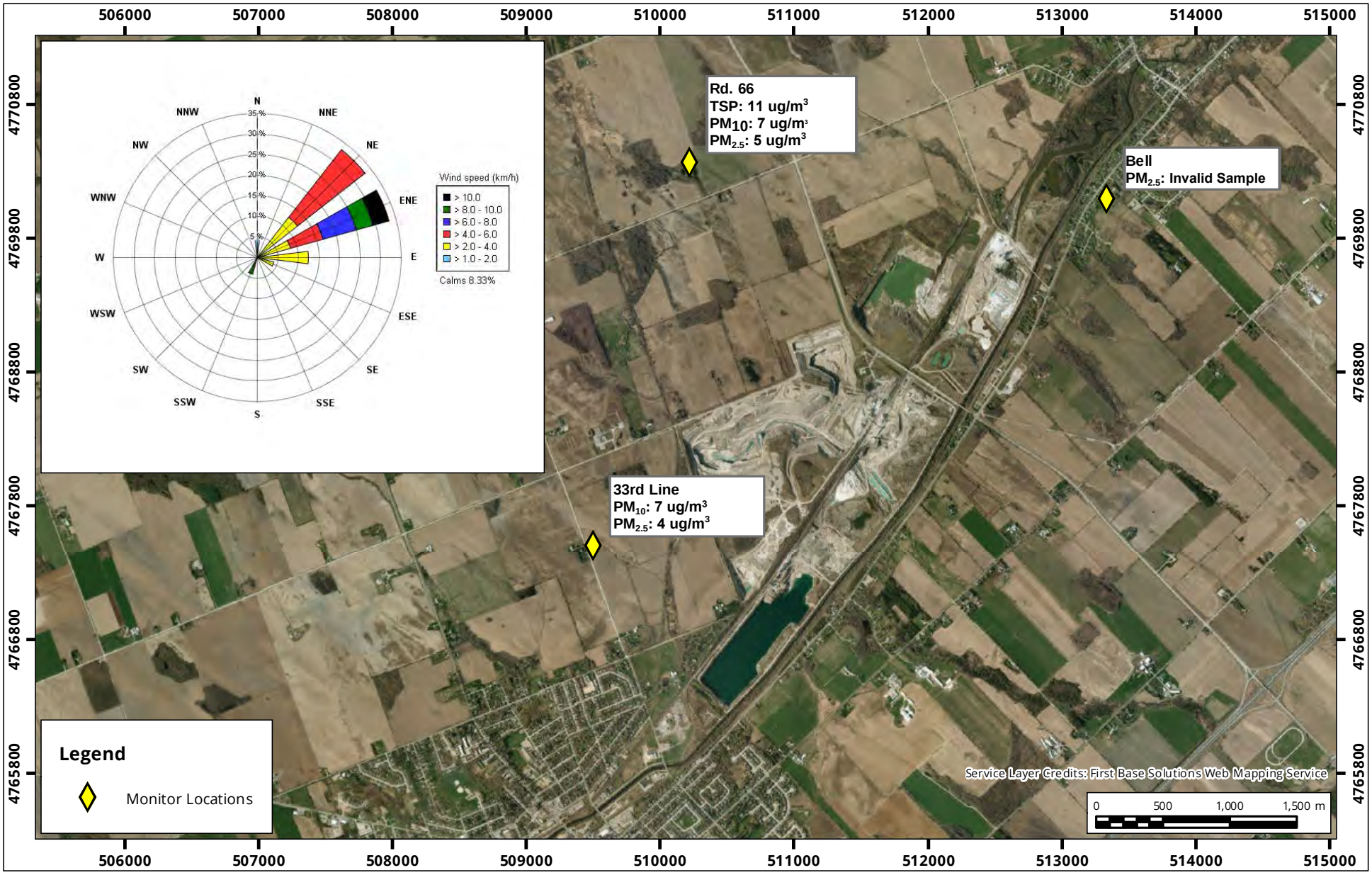

Site Plan Showing Sampling Locations and Windrose Sampling Period: November 4, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

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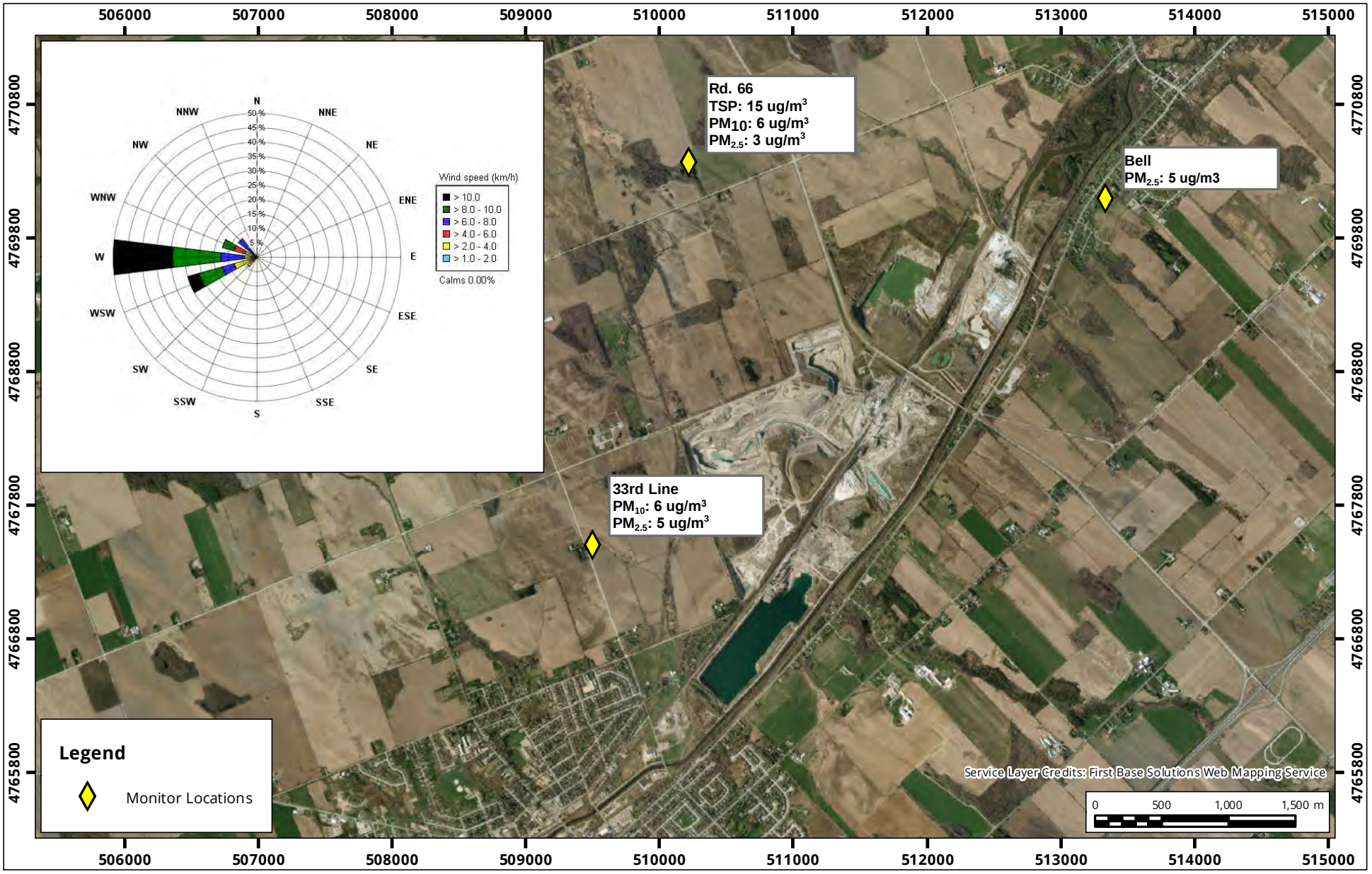

Site Plan Showing Sampling Locations and Windrose Sampling Period: November 10, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

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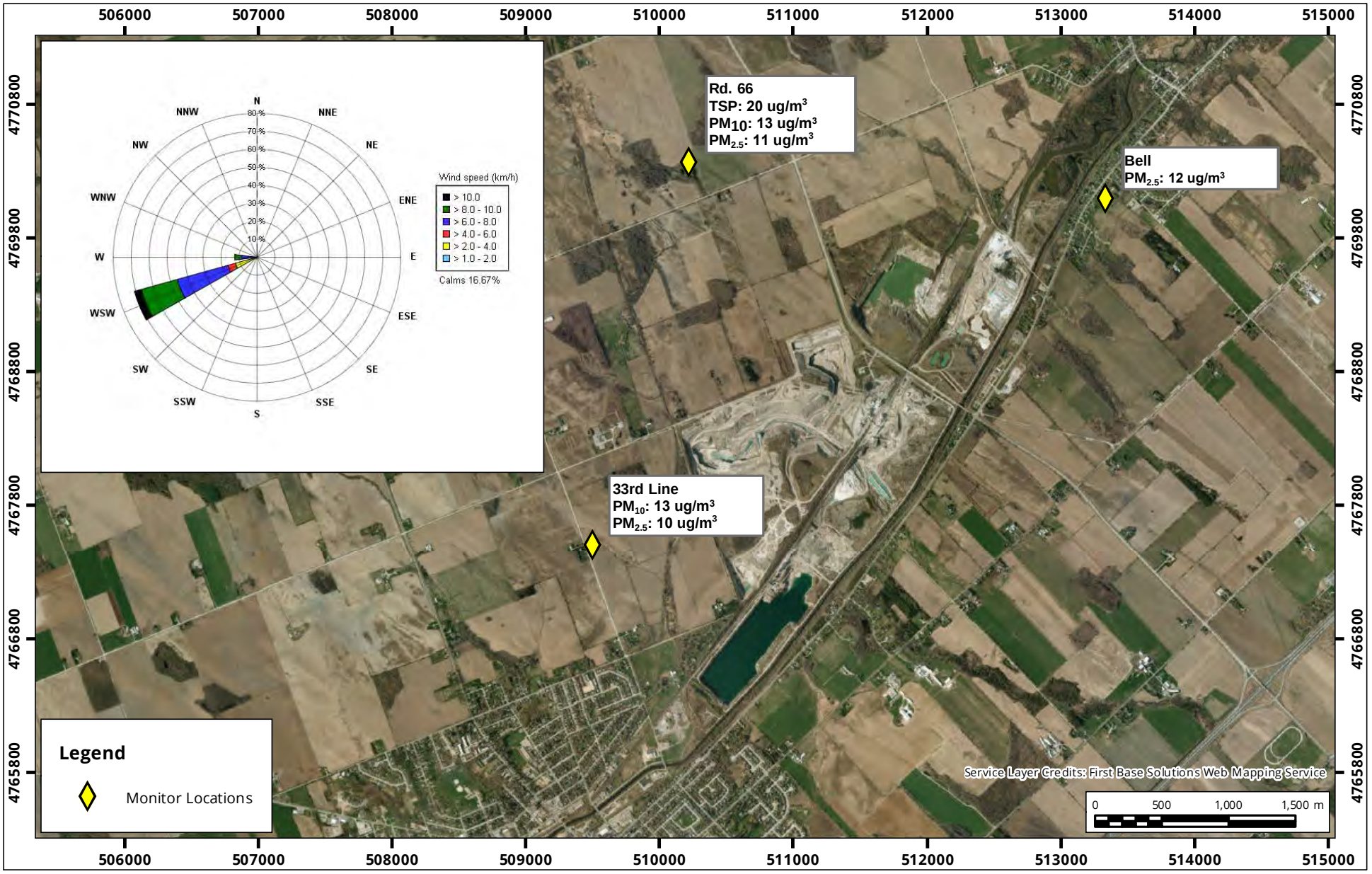


Site Plan Showing Sampling Locations and Windrose Sampling Period: November 16, 2018

Map Projection: NAD 1983 UTM Zone 17N

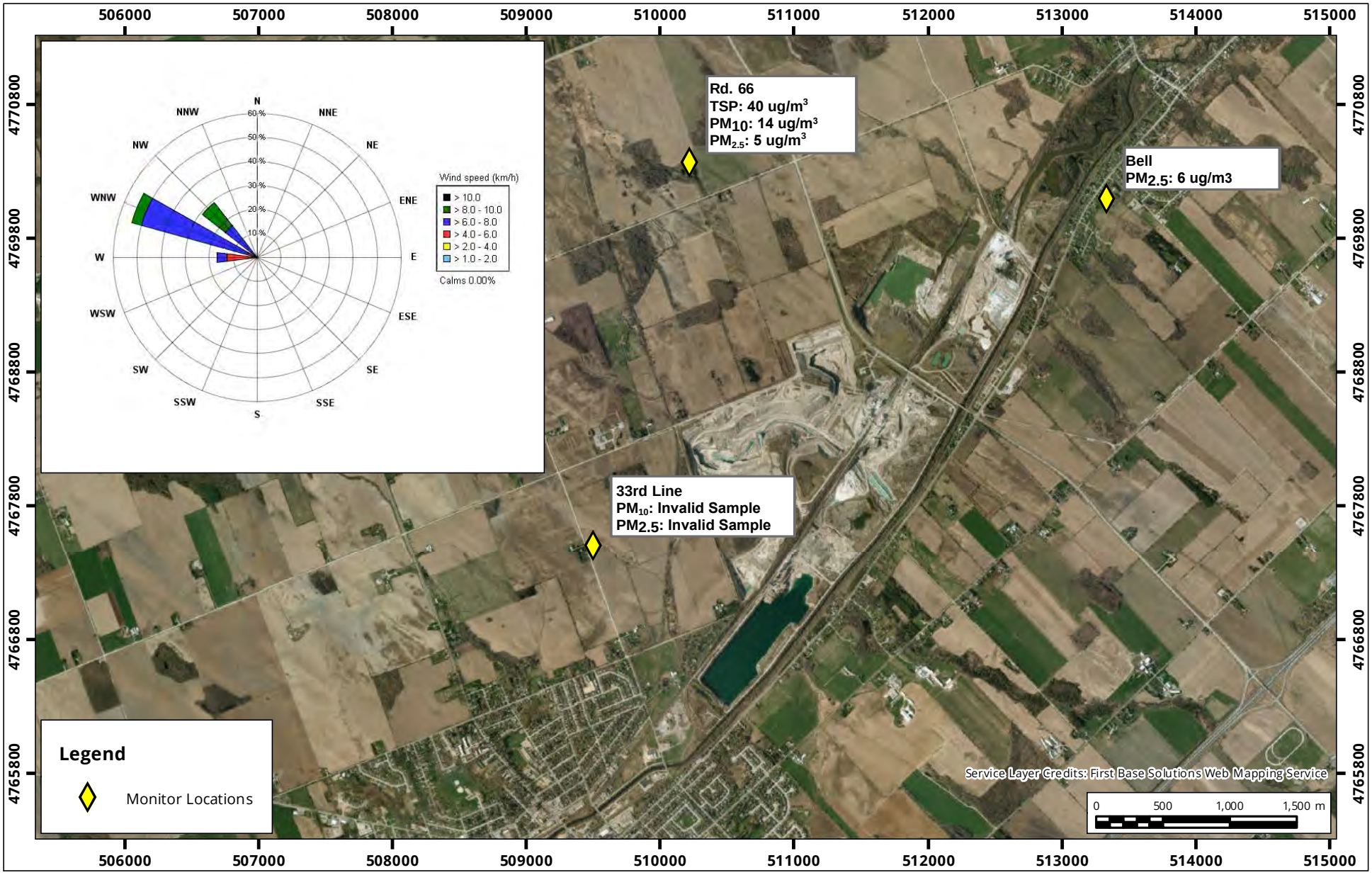
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: November 22, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
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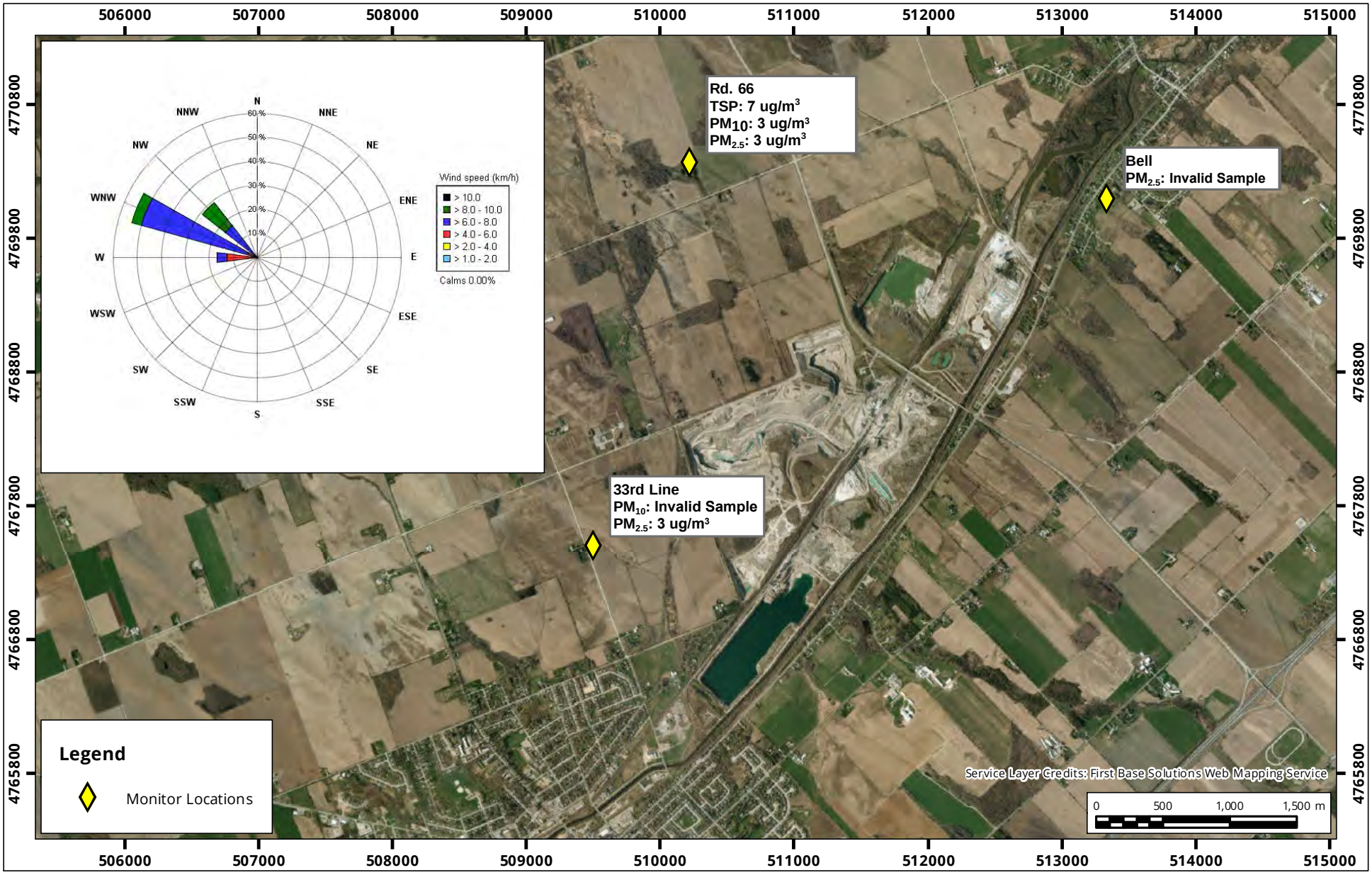


Site Plan Showing Sampling Locations and Windrose

Sampling Period: November 28, 2018

True North

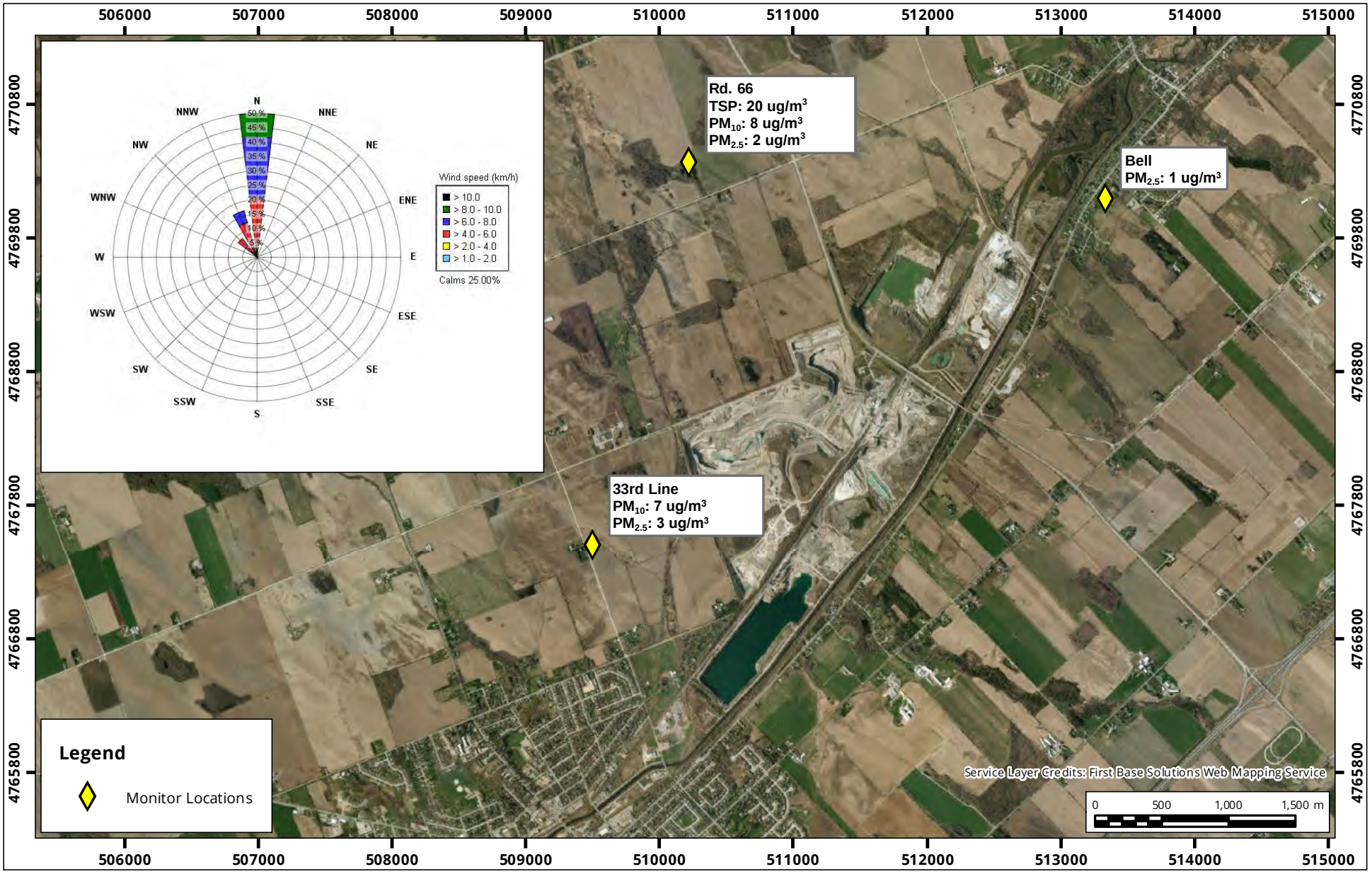
Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

Project #: 1800160

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: December 4, 2018

Map Projection: NAD 1983 UTM Zone 17N

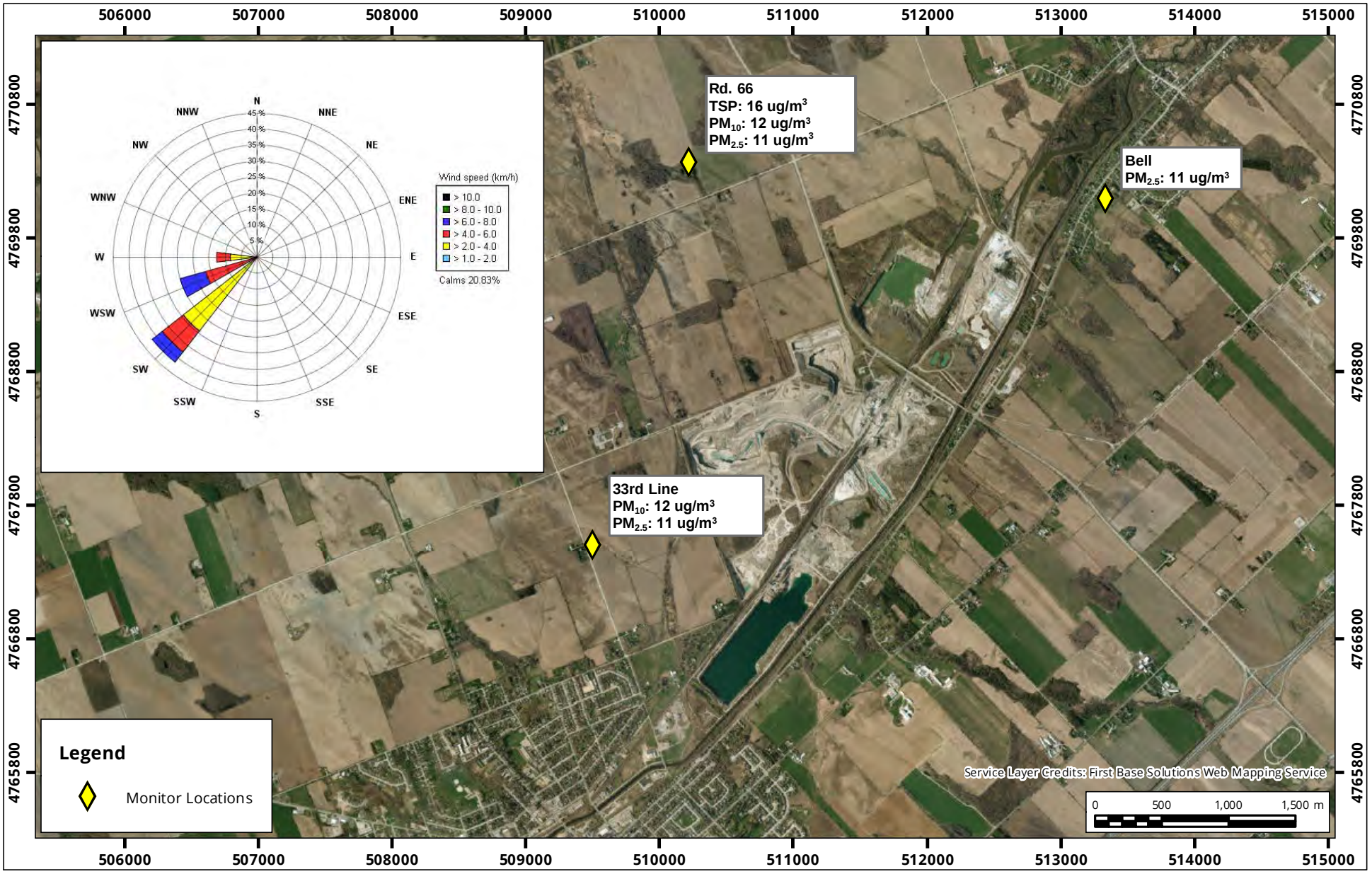
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: December 10, 2018

Map Projection: NAD 1983 UTM Zone 17N

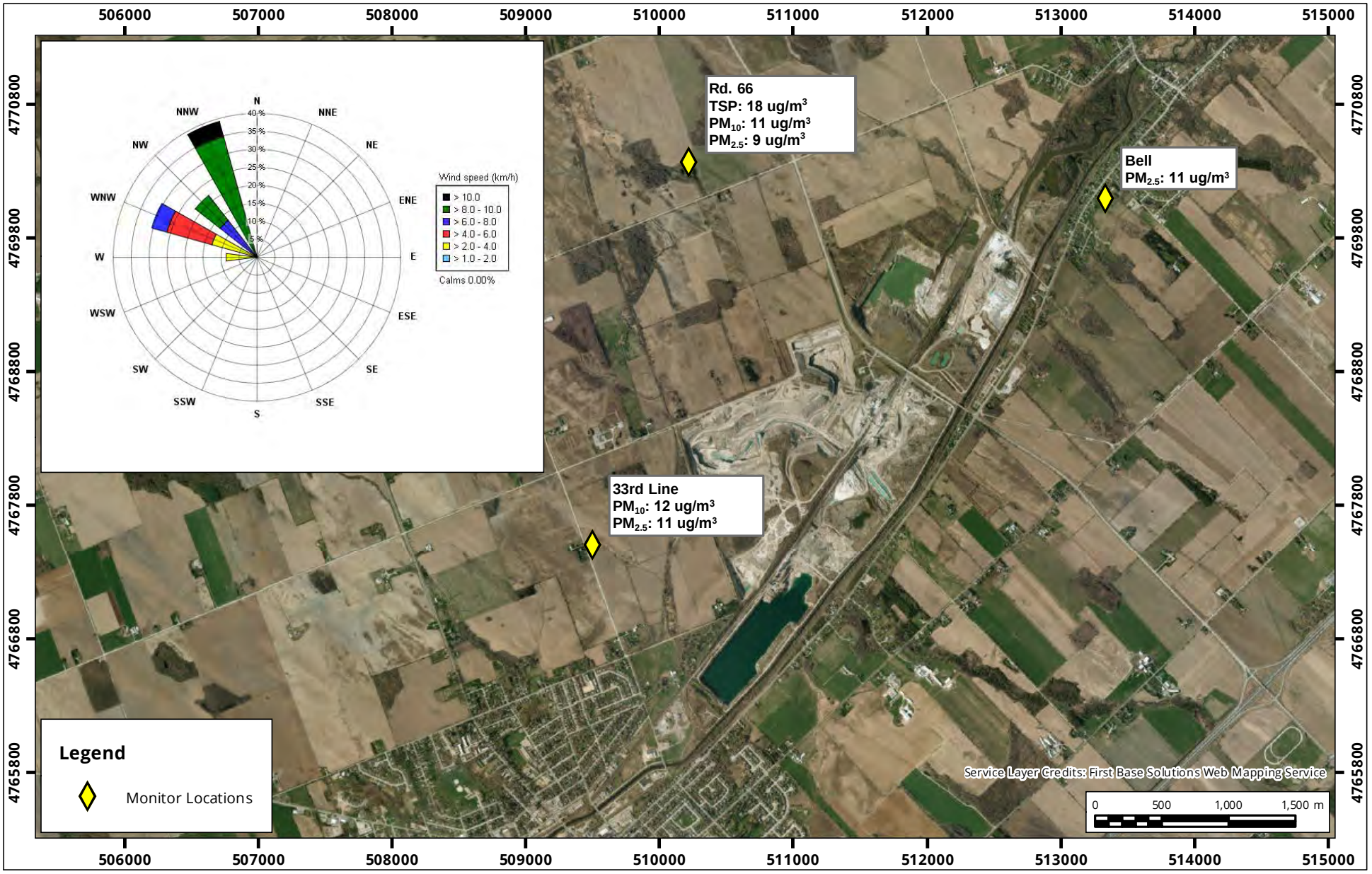
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: December 16, 2018

Map Projection: NAD 1983 UTM Zone 17N

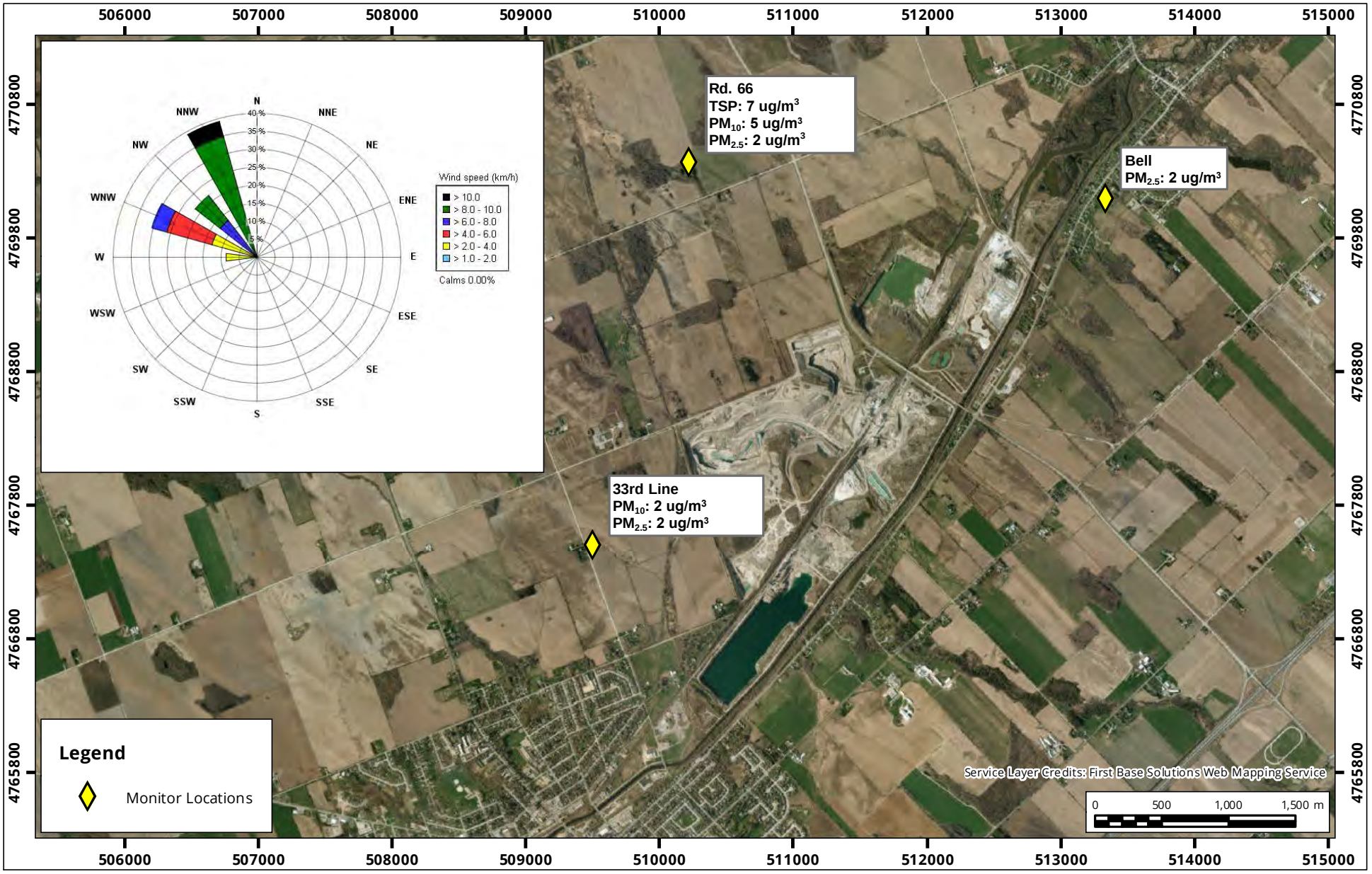
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: December 22, 2018

Map Projection: NAD 1983 UTM Zone 17N

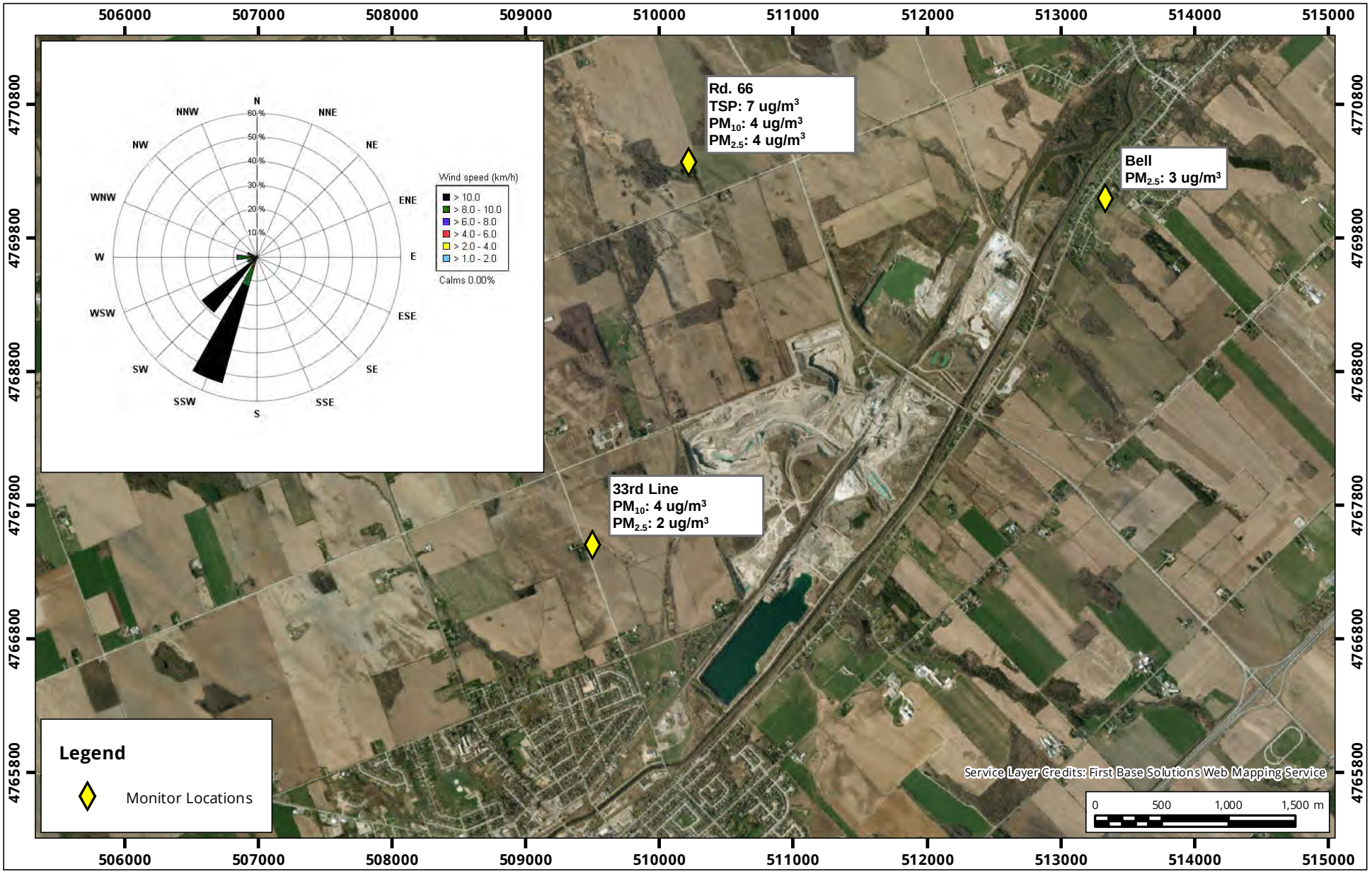
Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd



Site Plan Showing Sampling Locations and Windrose Sampling Period: December 28, 2018

Map Projection: NAD 1983 UTM Zone 17N

Walker Environmental Group - Ingersoll, Ontario

True North

Project #: 1800160

Drawn by: NJM	Figure: 1
Approx. Scale:	1:40,000
Date Revised: Jan 31, 2018	

Map Document: C:\Users\wmy\Desktop\Walker\1800160_WEG_PM_Monitoring_Template.mxd

APPENDIX A

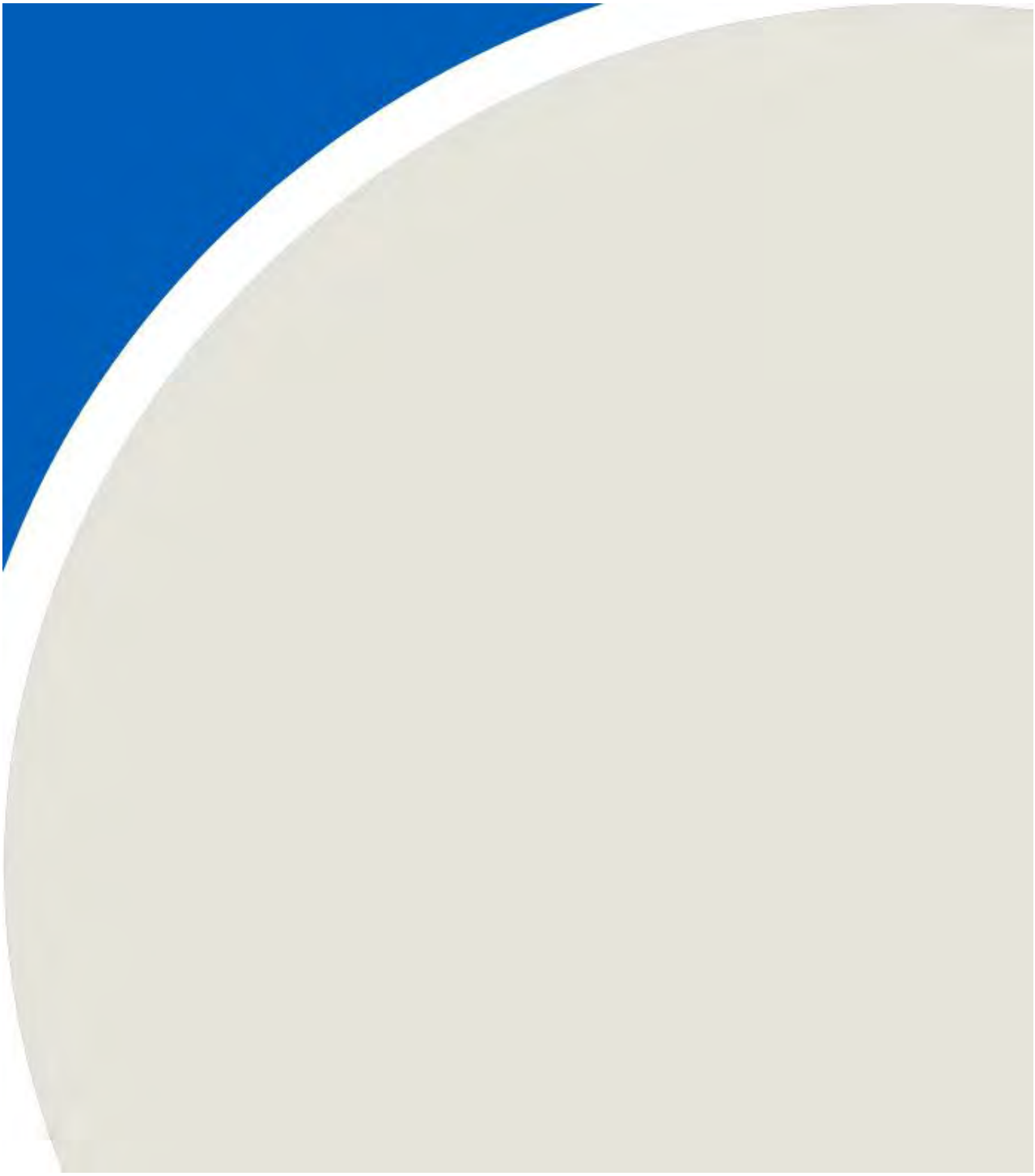


Table A1: Summary of Sample Flow Rate and Sample Duration for Rd 66 Station

Sample Date	Rd 66 Station - TSP			Rd 66 Station - PM_{10}			Rd 66 Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)	No.	(min)	(m^3)
October 5, 2018	738454	1404	1582	738453	1405	1566	738452	1408	1569
October 11, 2018	738449	1405	1580	738448	1402	1640	738447	1413	1593
October 17, 2018	738573	1406	1599	738572	1402	1616	738571	1415	1613
October 23, 2018	738579	1406	1604	Invalid Sample			738577	1413	1615
October 29, 2018	738585	1403	1597	738584	1402	1588	738583	1410	1603
November 4, 2018	738591	1397	1583	738590	1406	1589	738589	1411	1606
November 10, 2018	738688	1397	1605	738687	1407	1627	738686	1409	1646
November 16, 2018	738694	1401	1635	738693	1406	1658	738692	1409	1657
November 22, 2018	738700	1399	1649	738699	1403	1630	738698	1412	1658
November 28, 2018	738706	1404	1641	738705	1401	1643	738704	1414	1663
December 4, 2018	738777	1404	1641	738776	1399	1640	738775	1411	1651
December 10, 2018	738783	1400	1646	738782	1400	1630	738781	1413	1652
December 16, 2018	738789	1400	1637	738788	1405	1632	738787	1413	1660
December 22, 2018	738794	1418	1655	738795	1405	1647	738793	1409	1676
December 28, 2018	738859	1400	1637	738858	1405	1638	738857	1412	1655

Table A2: Summary of Sample Flow Rate and Sample Duration for 33rd Line Station

Sample Date	33rd Line Station - PM_{10}			33rd Line Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
October 5, 2018	Invalid Sample			738455	1412	1597
October 11, 2018	738569	1417	1611	738439	1410	1596
October 17, 2018	738575	1416	1593	738574	1408	1620
October 23, 2018	738581	1414	1622	738580	1405	1623
October 29, 2018	738587	1415	1624	738586	1406	1629
November 4, 2018	738683	1414	1606	738592	1408	1602
November 10, 2018	738690	1412	1620	738689	1406	1623
November 16, 2018	738696	1413	1641	738695	1409	1652
November 22, 2018	Invalid Sample			Invalid Sample		
November 28, 2018	Invalid Sample			738707	1403	1677
December 4, 2018	738779	1415	1764	738778	1398	1693
December 10, 2018	738785	1415	1732	738784	1406	1699
December 16, 2018	738791	1412	1752	738790	1405	1560
December 22, 2018	738855	1406	1760	738796	1405	1578
December 28, 2018	738860	1414	1702	738861	1409	1578

Table A3: Summary of Sample Flow Rate and Sample Duration for Bell Station

Sample Date	Bell Station - $PM_{2.5}$		
	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)
October 5, 2018	738451	1399	1575
October 11, 2018	738446	1403	1569
October 17, 2018	738570	1404	1596
October 23, 2018	738576	1404	1607
October 29, 2018	738582	1403	1578
November 4, 2018	Invalid Sample		
November 10, 2018	738685	1403	1619
November 16, 2018	738691	1405	1635
November 22, 2018	738697	1403	1661
November 28, 2018	Invalid Sample		
December 4, 2018	738774	1402	1748
December 10, 2018	738780	1403	1751
December 16, 2018	738786	1401	1553
December 22, 2018	738792	1402	1565
December 28, 2018	738856	1408	1574

Table B1: 2018 Rd 66 Station Q4 Monitoring Results for TSP, PM10 and PM2.5

Walkers AAQM (1800160)			
Rd 66 Station Monitoring Results for TSP, PM_{10} and $PM_{2.5}$			
(results expressed in $\mu g/m^3$)			
	TSP	PM_{10}	$PM_{2.5}$
Air Quality Standard or POI Limit	*120* [1]	*50* [1]	*28* [2]
October 5, 2018	16	8	3
October 11, 2018	31	12	4
October 17, 2018	20	9	3
October 23, 2018	32	Invalid Sample	7
October 29, 2018	15	6	4
November 4, 2018	11	7	5
November 10, 2018	15	6	3
November 16, 2018	20	13	11
November 22, 2018	40	14	5
November 28, 2018	7	3	3
December 4, 2018	20	8	2
December 10, 2018	16	12	11
December 16, 2018	18	11	9
December 22, 2018	7	5	2
December 28, 2018	7	4	4

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*120*	*50*	*28*
No. > Standard/POI	0	0	0
Arithmetic Mean	18	8	5
Max. Concentration	40	14	11
Min. Concentration	7	3	2
% Valid data	100	93	100

Table B2: 2018 33rd Line Station Q4 Monitoring Results for PM10 and PM2.5

Walkers AAQM (1800160)		
33rd Line Station Monitoring Results for PM_{10} and $PM_{2.5}$		
(results expressed in $\mu g/m^3$)		
	PM_{10}	$PM_{2.5}$
Air Quality Standard or POI Limit	***50*** [1]	***28*** [2]
October 5, 2018	Invalid Sample	4
October 11, 2018	10	5
October 17, 2018	6	2
October 23, 2018	11	5
October 29, 2018	5	3
November 4, 2018	7	4
November 10, 2018	6	5
November 16, 2018	13	10
November 22, 2018	Invalid Sample	Invalid Sample
November 28, 2018	Invalid Sample	3
December 4, 2018	7	3
December 10, 2018	12	11
December 16, 2018	12	11
December 22, 2018	2	2
December 28, 2018	4	2

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*50*	*28*
No. > Standard/POI	0	0
Arithmetic Mean	8	5
Max. Concentration	13	11
Min. Concentration	2	2
% Valid data	80	93

Table B3: 2018 Bell Station Q4 Monitoring Results for PM2.5

Walkers AAQM (1800160)	
Bell Station Monitoring Results for $PM_{2.5}$	
(results expressed in $\mu g/m^3$)	
	$PM_{2.5}$
Air Quality Standard or POI Limit	***28*** [2]
October 5, 2018	3
October 11, 2018	5
October 17, 2018	4
October 23, 2018	5
October 29, 2018	4
November 4, 2018	Invalid Sample
November 10, 2018	5
November 16, 2018	12
November 22, 2018	6
November 28, 2018	Invalid Sample
December 4, 2018	1
December 10, 2018	11
December 16, 2018	11
December 22, 2018	2
December 28, 2018	3

Notes:

[1] MOECC AAQC's

[2] CAAQS: The 24-hour $PM_{2.5}$ criterion applies to the 98th percentile over 3 consecutive years.

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (mg/m^3)	*28*
No. > Standard/POI	0
Arithmetic Mean	6
Max. Concentration	12
Min. Concentration	1
% Valid data	87

Table C1: Q4 Summary of Sample Canister Pressures and Durations for VOCs/Total Reduced Sulfurs at Bell, Road 66 and 33rd Line Sampling Stations

Sample Date	Road 66 Sampling Station			33rd Line Sampling Station			Bell Sampling Station		
	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure	Sample Duration	Initial Canister Pressure	Final Canister Pressure
	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)	(min)	("Hg)	("Hg)
October 5, 2018	1438	-28	-4	1438	-29	-4	1438	-27	-0.8
October 11, 2018	1438	-30	-7	1438	-30	-7	Invalid Sample		
October 17, 2018	1438	-29	-1	1438	-30	-5	1438	-29	-8
October 23, 2018	1438	-29	-7	1438	-29	-7	1438	-29	-9
October 29, 2018	1438	-30	-7	1438	-30	-8	1438	-28.5	-7
November 4, 2018	Invalid Sample			1438	-28.5	-4	1438	-29	-2
November 10, 2018	Invalid Sample			1438	-28	-4	1438	-28	-6
November 16, 2018	1438	-31	-3	1438	-30	-1	1438	-28	-4
November 22, 2018	1438	-28	-0.4	1438	-29.5	-4	Invalid Sample		
November 28, 2018	1438	-29	-7	1438	-31	-5	1438	-29	-4
December 4, 2018	1438	-29	-1	Invalid Sample			1438	-30	-2
December 10, 2018	1438	-28	-4	Invalid Sample			1438	-30	-4
December 16, 2018	1438	-29.5	-5	Invalid Sample			1438	-30	-6
December 22, 2018	1438	-28	-6	Invalid Sample			1438	-29.5	-3
December 28, 2018	1438	-29.5	-3	Invalid Sample			1438	-27	-4

Note: Final Canister Pressures recorded from ALS Lab reports

Table D1: Rd 66 Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
October 5, 2018	2.0	2.6	1.4	2.0	2.8	5.6	0.138	0.34	3.1	4.8	0.8	0.53	0.46	0.77	0.27	0.106	0.93	5.5	1.5	0.039	0.06
October 11, 2018	2.0	2.6	1.4	2.0	2.8	7.0	0.180	0.34	3.1	4.8	1.9	0.53	0.46	0.90	0.27	0.049	1.20	5.5	1.5	0.039	0.06
October 17, 2018	2.0	2.6	1.4	2.0	2.8	7.5	0.177	0.34	3.1	4.8	2.2	0.43	0.46	0.73	0.27	0.049	0.92	5.5	1.5	0.039	0.06
October 23, 2018	n/a	n/a	n/a	n/a	n/a	6.6	0.288	0.34	3.1	4.8	5.0	0.42	0.46	0.36	0.27	0.049	1.09	5.5	1.5	0.039	0.06
October 29, 2018	3.8	5.0	2.1	3.9	2.1	14.2	0.200	0.34	3.1	4.8	0.8	0.45	0.46	1.01	0.27	0.049	1.27	5.5	1.5	0.039	0.06
November 4, 2018																					
November 10, 2018																					
November 16, 2018	3.9	5.0	2.8	4.0	5.0	9.0	0.508	0.34	3.1	4.8	0.8	0.45	0.46	0.86	0.27	0.049	1.26	5.5	1.5	0.039	0.06
November 22, 2018	2.0	2.6	1.4	2.0	2.8	6.5	0.288	0.34	3.1	4.8	0.8	0.45	0.46	0.83	0.27	0.049	1.14	5.5	1.5	0.039	0.06
November 28, 2018	2.0	2.6	1.4	2.0	2.8	7.1	0.322	0.34	3.1	4.8	0.8	0.48	0.46	0.90	0.27	0.049	1.17	5.5	1.5	0.039	0.06
December 4, 2018	2.0	2.6	3.3	2.0	2.8	9.9	0.254	0.34	3.1	4.8	0.8	0.49	0.46	0.75	0.27	0.049	1.16	5.5	1.5	0.039	0.06
December 10, 2018	2.0	2.6	1.4	2.0	2.8	13.4	0.475	0.34	3.1	4.8	0.8	0.43	0.46	0.72	0.27	0.049	1.24	5.5	1.5	0.039	0.06
December 16, 2018	2.0	2.6	19.1	2.0	19.1	7.1	0.454	0.34	3.1	4.8	0.8	0.43	0.46	0.83	0.27	0.049	1.03	5.5	1.5	0.039	0.06
December 22, 2018	2.0	2.6	1.4	2.0	2.8	10.0	0.280	0.34	3.1	4.8	0.8	0.43	0.46	0.84	0.27	0.049	1.12	5.5	1.5	0.039	0.06
December 28, 2018	2.0	2.6	1.4	2.0	2.8	8.2	0.374	0.34	3.1	4.8	0.8	0.42	0.46	0.90	0.27	0.049	1.21	5.5	1.5	0.039	0.06

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

n/a - indicates that sample did not meet the hold time for the specific analysis and was therefore no results exist

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	2.182	2.853	2.045	2.189	3.367	8.298	0.281	0.335	3.050	4.750	1.013	0.455	0.460	0.780	0.265	0.052	1.128	5.500	1.450	0.039	0.060
Arithmetic Mean	2.3	3.0	3.2	2.3	4.3	8.6	0.3	0.3	3.1	4.8	1.3	0.5	0.5	0.8	0.3	0.1	1.1	5.5	1.5	0.0	0.1
Max. Concentration	3.9	5.0	19.1	4.0	19.1	14.2	0.5	0.3	3.1	4.8	5.0	0.5	0.5	1.0	0.3	0.1	1.3	5.5	1.5	0.0	0.1
Min. Concentration	2.0	2.6	1.4	2.0	2.1	5.6	0.1	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.9	5.5	1.5	0.0	0.1
No. of valid samples	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
% Valid data	80	80	80	80	80	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D1: Rd 66 Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
October 5, 2018	2.03	0.041	0.065	0.040	0.040	0.040	0.35	4.2	5.9	0.36	0.44	0.49	1.0	0.41	0.35	2.9	5.5	0.74	0.30	4.1	0.41
October 11, 2018	2.31	0.041	0.067	0.040	0.040	0.040	0.35	4.2	3.6	0.36	0.44	0.49	1.0	0.41	0.35	2.6	5.5	0.74	0.30	4.1	0.41
October 17, 2018	1.90	0.041	0.048	0.040	0.040	0.040	0.35	4.2	3.1	0.36	0.44	0.49	1.0	0.41	0.35	3.3	5.5	0.30	0.30	4.1	0.41
October 23, 2018	1.98	0.041	0.044	0.040	0.040	0.040	0.35	4.2	3.2	0.36	0.44	0.49	1.0	0.41	1.13	1.3	5.5	1.00	0.30	4.1	0.41
October 29, 2018	2.16	0.041	0.055	0.040	0.040	0.040	0.35	4.2	3.5	0.36	0.44	0.49	1.0	0.41	0.35	5.7	5.5	0.30	0.30	4.1	0.41
November 4, 2018	Invalid Sample																				
November 10, 2018	Invalid Sample																				
November 16, 2018	2.15	0.041	0.050	0.040	0.040	0.040	0.35	4.2	6.5	0.36	0.44	0.49	1.0	0.41	0.35	3.9	5.5	1.37	0.62	4.1	0.41
November 22, 2018	1.99	0.041	0.020	0.040	0.040	0.040	0.35	4.2	5.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.30	0.30	4.1	0.41
November 28, 2018	2.26	0.041	0.044	0.040	0.040	0.040	0.35	4.2	2.3	0.36	0.44	0.49	1.0	0.41	0.35	4.4	5.5	0.77	0.30	4.1	0.41
December 4, 2018	2.03	0.041	0.049	0.040	0.040	0.040	0.35	4.2	4.4	0.36	0.44	0.49	1.0	0.41	0.35	7.7	5.5	0.30	0.30	4.1	0.41
December 10, 2018	2.26	0.041	0.042	0.040	0.040	0.040	0.35	4.2	6.1	0.36	0.44	0.49	1.0	0.41	0.35	2.6	5.5	1.28	0.30	4.1	0.41
December 16, 2018	2.24	0.041	0.020	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	1.03	0.30	4.1	0.41
December 22, 2018	2.42	0.041	0.041	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.89	0.30	4.1	0.41
December 28, 2018	2.25	0.041	0.020	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.09	0.30	4.1	0.41

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

n/a - indicates that sample did not meet the h

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	2.147	0.041	0.040	0.040	0.040	0.040	0.345	4.200	3.280	0.360	0.435	0.490	1.000	0.410	0.383	2.652	5.500	0.671	0.312	4.100	0.410
Arithmetic Mean	2.2	0.0	0.0	0.0	0.0	0.0	0.3	4.2	3.8	0.4	0.4	0.5	1.0	0.4	0.4	3.1	5.5	0.8	0.3	4.1	0.4
Max. Concentration	2.4	0.0	0.1	0.0	0.0	0.0	0.3	4.2	6.5	0.4	0.4	0.5	1.0	0.4	1.1	7.7	5.5	1.4	0.6	4.1	0.4
Min. Concentration	1.9	0.0	0.0	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
No. of valid samples	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
% Valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D1: Rd 66 Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
October 5, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
October 11, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
October 17, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
October 23, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.61	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
October 29, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.60	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
November 4, 2018																					
November 10, 2018																					
November 16, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.86	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
November 22, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.63	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
November 28, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 4, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
December 10, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.86	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 16, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 22, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 28, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.77	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

n/a - indicates that sample did not meet the h

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Mean	0.410	0.350	0.350	0.400	0.650	0.500	0.465	0.443	0.490	0.425	0.035	0.070	0.375	0.750	0.550	0.028	0.055	0.931	0.490	0.490	0.490
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.0	0.5	0.5	0.5
Max. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.9	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
No. of valid samples	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
% Valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D1: Rd 66 Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
October 5, 2018	0.026	0.44	0.9	50.0
October 11, 2018	0.026	0.44	0.9	50.0
October 17, 2018	0.026	0.44	0.9	50.0
October 23, 2018	0.026	0.44	0.9	50.0
October 29, 2018	0.026	0.44	0.9	50.0
November 4, 2018				
November 10, 2018				
November 16, 2018	0.026	0.44	0.9	50.0
November 22, 2018	0.026	0.44	0.9	50.0
November 28, 2018	0.026	0.44	0.9	50.0
December 4, 2018	0.026	0.44	0.9	50.0
December 10, 2018	0.026	0.44	0.9	50.0
December 16, 2018	0.026	0.44	0.9	50.0
December 22, 2018	0.026	0.44	0.9	50.0
December 28, 2018	0.026	0.44	0.9	50.0

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

n/a - indicates that sample did not meet the h

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Geometric Mean	0.026	0.435	0.850	50.000
Arithmetic Mean	0.0	0.4	0.85	50.0
Max. Concentration	0.0	0.4	0.85	50.0
Min. Concentration	0.0	0.4	0.85	50.0
No. of valid samples	13	13	13	13
% Valid data	87	87	87	87

Table D2: 33rd Line Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	TRS																					
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
October 5, 2018	2.0	2.6	1.4	2.0	2.8	5.8	0.127	0.34	3.1	4.8	0.8	0.54	0.46	0.75	0.27	0.108	0.93	5.5	1.5	0.039	0.06	2.02	0.041
October 11, 2018	2.0	2.6	1.4	2.0	2.8	8.7	0.198	0.34	3.1	4.8	0.8	0.52	0.46	0.73	0.27	0.049	1.24	5.5	1.5	0.039	0.06	2.30	0.041
October 17, 2018	2.0	2.6	1.4	2.0	2.8	8.8	0.178	0.34	3.1	4.8	0.8	0.43	0.46	0.71	0.27	0.049	0.98	5.5	1.5	0.039	0.06	1.97	0.041
October 23, 2018	2.0	2.6	1.4	2.0	2.8	8.0	0.358	0.34	3.1	4.8	0.8	0.49	0.46	0.75	0.27	0.107	1.08	5.5	1.5	0.039	0.06	2.03	0.041
October 29, 2018	3.9	5.0	2.1	3.9	2.1	6.9	0.337	0.34	3.1	4.8	0.8	0.44	0.46	0.36	0.27	0.049	1.04	5.5	1.5	0.039	0.06	2.19	0.041
November 4, 2018	2.4	3.1	1.3	2.4	1.3	7.1	0.329	0.34	3.1	4.8	0.8	0.48	0.46	0.95	0.27	0.049	1.02	5.5	1.5	0.039	0.06	2.13	0.041
November 10, 2018	2.3	3.1	1.3	2.4	1.3	8.0	0.329	0.34	3.1	4.8	0.8	0.47	0.46	1.05	0.27	0.049	1.06	5.5	1.5	0.039	0.06	2.04	0.041
November 16, 2018	3.9	5.0	2.8	4.0	5.0	6.3	0.482	0.34	3.1	4.8	0.8	0.47	0.46	0.95	0.27	0.049	1.21	5.5	1.5	0.039	0.06	2.07	0.041
November 22, 2018	2.0	2.6	1.4	2.0	2.8	9.2	0.298	0.34	3.1	4.8	0.8	0.46	0.46	0.82	0.27	0.049	1.15	5.5	1.5	0.039	0.06	2.07	0.041
November 28, 2018	2.0	2.6	1.4	2.0	2.8	5.7	0.287	0.34	3.1	4.8	0.8	0.48	0.46	0.83	0.27	0.049	1.13	5.5	1.5	0.039	0.06	2.10	0.041
December 4, 2018																							
December 10, 2018																							
December 16, 2018																							
December 22, 2018																							
December 28, 2018																							

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*	*500000*	*165*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.4	3.1	1.6	2.4	2.6	7.5	0.3	0.3	3.1	4.8	0.8	0.5	0.5	0.8	0.3	0.1	1.1	5.5	1.5	0.0	0.1	2.1	0.0
Max. Concentration	3.9	5.0	2.8	4.0	5.0	9.2	0.5	0.3	3.1	4.8	0.8	0.5	0.5	1.1	0.3	0.1	1.2	5.5	1.5	0.0	0.1	2.3	0.0
Min. Concentration	2.0	2.6	1.3	2.0	1.3	5.7	0.1	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.9	5.5	1.5	0.0	0.1	2.0	0.0
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D2: 33rd Line Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	VOCs																					
	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane
Air Quality Standard or POI Limit [1]	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
October 5, 2018	0.063	0.040	0.040	0.040	0.35	4.2	5.5	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	0.92	0.30	4.1	0.41	0.41	0.35	0.35	0.40
October 11, 2018	0.069	0.040	0.040	0.040	0.35	4.2	3.9	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.79	0.30	4.1	0.41	0.41	0.35	0.35	0.40
October 17, 2018	0.046	0.040	0.040	0.040	0.35	4.2	3.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.70	0.30	4.1	0.41	0.41	0.35	0.35	0.40
October 23, 2018	0.072	0.040	0.040	0.040	0.35	4.2	2.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.12	0.30	4.1	0.41	0.41	0.35	0.35	0.40
October 29, 2018	0.056	0.040	0.040	0.040	0.35	4.2	4.1	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	0.70	0.30	4.1	0.41	0.41	0.35	0.35	0.40
November 4, 2018	0.056	0.040	0.040	0.040	0.35	4.2	3.4	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	0.65	0.30	4.1	0.41	0.41	0.35	0.35	0.40
November 10, 2018	0.020	0.040	0.040	0.040	0.35	4.2	3.2	0.36	0.44	0.49	1.0	0.41	0.35	3.1	5.5	1.14	0.30	4.1	0.41	0.41	0.35	0.35	0.40
November 16, 2018	0.053	0.040	0.040	0.040	0.35	4.2	4.5	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.26	0.66	4.1	0.41	0.41	0.35	0.35	0.40
November 22, 2018	0.041	0.040	0.040	0.040	0.35	4.2	7.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.67	0.30	4.1	0.41	0.41	0.35	0.35	0.40
November 28, 2018	0.044	0.040	0.040	0.040	0.35	4.2	2.1	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.61	0.30	4.1	0.41	0.41	0.35	0.35	0.40
December 4, 2018	Invalid Sample																						
December 10, 2018	Invalid Sample																						
December 16, 2018	Invalid Sample																						
December 22, 2018	Invalid Sample																						
December 28, 2018	Invalid Sample																						

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

Samples exceded the laboratory hold time

AAQC (µg/m^3)	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*	*1200*	*4200*	*1400*	*6440*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.1	0.0	0.0	0.0	0.3	4.2	4.0	0.4	0.4	0.5	1.0	0.4	0.4	1.9	5.5	0.9	0.3	4.1	0.4	0.4	0.4	0.4	0.4
Max. Concentration	0.1	0.0	0.0	0.0	0.3	4.2	7.6	0.4	0.4	0.5	1.0	0.4	0.4	3.1	5.5	1.3	0.7	4.1	0.4	0.4	0.4	0.4	0.4
Min. Concentration	0.0	0.0	0.0	0.0	0.3	4.2	2.1	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.6	0.3	4.1	0.4	0.4	0.4	0.4	0.4
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D2: 33rd Line Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)

(results expressed in µg/m^3)

	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
October 5, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
October 11, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
October 17, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
October 23, 2018	0.7	0.5	0.47	0.67	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
October 29, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49	0.026	0.44	0.9	50.0
November 4, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	50.0
November 10, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
November 16, 2018	0.7	0.5	0.47	0.84	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
November 22, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49	0.026	0.44	0.9	50.0
November 28, 2018	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49	0.026	0.44	0.9	50.0
December 4, 2018																					
December 10, 2018																					
December 16, 2018																					
December 22, 2018																					
December 28, 2018																					

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

Samples exceeded the laboratory hold time

AAQC (µg/m^3)	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.7	0.5	0.5	0.4	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.8	0.5	0.5	0.5	0.0	0.4	0.85	50.0
Max. Concentration	0.7	0.5	0.5	0.8	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5	0.0	0.4	0.85	50.0
Min. Concentration	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5	0.0	0.4	0.85	50.0
% Valid data	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67

Table D3: Bell Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	TRS																			
	Dimethyl disulfide	Dimethyl sulfide	Hydrogen Sulfide	Methyl mercaptan	Total Reduced Sulfur (Ont-4) as H2S	Acetone	Benzene	Bromodichloromethane	2-Butanol	Butyl Acetate	n-Butanol	Carbon Tetrachloride	Chlorobenzene	Chlorodifluoromethane	Chloroethane	Chloroform	Chloromethane	m-Cymene	Decane	1,2-Dibromoethane	1,4-Dichlorobenzene
Air Quality Standard or POI Limit [1]	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*920*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
October 5, 2018	2.0	2.6	1.4	2.0	2.8	5.0	0.174	0.34	3.1	4.8	0.8	0.51	0.46	0.82	0.27	0.112	1.01	5.5	1.5	0.039	0.06
October 11, 2018																					
October 17, 2018	2.0	2.6	1.4	2.0	2.8	9.2	0.217	0.34	3.1	4.8	0.8	0.44	0.46	0.88	0.27	0.049	1.06	5.5	1.5	0.039	0.06
October 23, 2018	2.0	2.6	1.4	2.0	2.8	9.7	0.414	0.34	3.1	4.8	0.8	0.47	0.46	0.75	0.27	0.121	0.90	5.5	1.5	0.039	0.06
October 29, 2018	3.8	5.0	2.1	3.9	2.1	8.4	0.208	0.34	3.1	4.8	0.8	0.45	0.46	0.94	0.27	0.049	1.00	5.5	1.5	0.039	0.06
November 4, 2018	2.2	2.9	1.2	2.3	9.5	7.6	0.514	0.34	3.1	4.8	0.8	0.43	0.46	0.73	0.27	0.049	0.99	5.5	1.5	0.039	0.06
November 10, 2018	2.5	3.3	1.4	2.5	1.4	8.2	0.290	0.34	3.1	4.8	0.8	0.48	0.46	0.83	0.27	0.049	1.13	5.5	1.5	0.039	0.06
November 16, 2018	3.9	5.0	2.8	4.0	5.0	5.2	0.494	0.34	3.1	4.8	0.8	0.48	0.46	0.80	0.27	0.049	1.26	5.5	1.5	0.039	0.06
November 22, 2018																					
November 28, 2018	2.0	2.6	1.4	2.0	2.8	7.0	0.309	0.34	3.1	4.8	0.8	0.45	0.46	0.36	0.27	0.049	1.19	5.5	1.5	0.039	0.06
December 4, 2018	2.0	2.6	3.5	2.0	2.8	9.5	0.295	0.34	3.1	4.8	0.8	0.47	0.46	0.91	0.27	0.049	1.24	5.5	1.5	0.039	0.06
December 10, 2018	2.0	2.6	1.4	2.0	2.8	8.5	0.495	0.34	3.1	4.8	0.8	0.42	0.46	0.86	0.27	0.049	1.37	5.5	1.5	0.039	0.06
December 16, 2018	2.0	2.6	15.7	2.0	15.7	6.4	0.585	0.34	3.1	4.8	0.8	0.44	0.46	0.72	0.27	0.049	1.08	5.5	1.5	0.039	0.06
December 22, 2018	2.0	2.6	3.4	2.0	2.8	5.8	0.267	0.34	3.1	4.8	0.8	0.42	0.46	0.80	0.27	0.049	1.07	5.5	1.5	0.039	0.06
December 28, 2018	2.0	2.6	1.4	2.0	2.8	13.3	0.322	0.34	3.1	4.8	2.3	0.42	0.46	0.89	0.27	0.049	1.17	5.5	1.5	0.039	0.06

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*N/A*	*N/A*	*7*	*N/A*	*7*	*11880*	*2.3*	*N/A*	*496*	*N/A*	*5.6*	*2.4*	*N/A*	*350000*	*5600*	*1*	*320*	*N/A*	*N/A*	*3*	*95*
No. > Standard/POI	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.3	3.0	3.0	2.3	4.3	8.0	0.4	0.3	3.1	4.8	0.9	0.5	0.5	0.8	0.3	0.1	1.1	5.5	1.5	0.0	0.1
Max. Concentration	3.9	5.0	15.7	4.0	15.7	13.3	0.6	0.3	3.1	4.8	2.3	0.5	0.5	0.9	0.3	0.1	1.4	5.5	1.5	0.0	0.1
Min. Concentration	2.0	2.6	1.2	2.0	1.4	5.0	0.2	0.3	3.1	4.8	0.8	0.4	0.5	0.4	0.3	0.0	0.9	5.5	1.5	0.0	0.1
% Valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D3: Bell Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	VOCs																			
	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene chloride	Dichlorofluoromethane	Ethanol	Ethyl acetate	Ethylbenzene	2-Ethyltoluene	m/p-Ethyl Toluene	n-Heptane	n-Hexane	Isopropyl alcohol	Limonene	2-Methyl Butane	Methyl ethyl ketone	2-Methyl Hexane	3-Methyl Hexane
Air Quality Standard or POI Limit [1]	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
October 5, 2018	1.95	0.041	0.063	0.040	0.040	0.040	0.35	4.2	5.4	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.90	0.30	4.1	0.41
October 11, 2018	Invalid Sample																				
October 17, 2018	1.96	0.041	0.045	0.040	0.040	0.040	0.35	4.2	4.6	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.68	0.30	4.1	0.41
October 23, 2018	2.10	0.041	0.076	0.040	0.040	0.040	0.35	4.2	2.9	0.36	0.44	0.49	1.0	0.41	0.97	1.3	5.5	1.65	0.30	4.1	0.41
October 29, 2018	2.07	0.041	0.054	0.040	0.040	0.040	0.35	4.2	3.0	0.36	0.44	0.49	1.0	0.41	0.35	13.0	5.5	1.23	0.30	4.1	0.41
November 4, 2018	1.89	0.041	0.054	0.040	0.040	0.040	0.35	4.2	5.8	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.02	0.30	4.1	0.41
November 10, 2018	2.26	0.041	0.043	0.040	0.040	0.040	0.35	4.2	2.9	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.91	0.30	4.1	0.41
November 16, 2018	2.10	0.041	0.055	0.040	0.040	0.040	0.35	4.2	4.2	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.40	0.30	4.1	0.41
November 22, 2018	Invalid Sample																				
November 28, 2018	2.08	0.041	0.043	0.040	0.040	0.040	0.35	4.2	2.7	0.36	0.44	0.49	1.0	0.41	0.35	9.0	5.5	0.30	0.30	4.1	0.41
December 4, 2018	2.18	0.041	0.058	0.040	0.040	0.040	0.35	4.2	4.3	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.73	0.30	4.1	0.41
December 10, 2018	2.28	0.041	0.020	0.040	0.040	0.040	0.35	4.2	6.5	0.36	0.44	0.49	1.0	0.41	0.35	2.7	5.5	1.09	0.30	4.1	0.41
December 16, 2018	2.19	0.041	0.020	0.040	0.040	0.040	0.35	4.2	2.8	0.36	0.44	0.49	1.0	0.41	0.35	3.9	5.5	1.16	0.30	4.1	0.41
December 22, 2018	2.39	0.041	0.020	0.040	0.040	0.040	0.35	4.2	2.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	0.72	0.30	4.1	0.41
December 28, 2018	2.25	0.041	0.020	0.040	0.040	0.040	0.35	4.2	1.0	0.36	0.44	0.49	1.0	0.41	0.35	1.3	5.5	1.26	0.30	4.1	0.41

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*500000*	*165*	*2*	*10*	*105*	*105*	*220*	*N/A*	*N/A*	*N/A*	*1000*	*500*	*500*	*11000*	*2500*	*7300*	*625*	*7080*	*1000*	*1228*	*2600*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	2.1	0.0	0.0	0.0	0.0	0.0	0.3	4.2	3.7	0.4	0.4	0.5	1.0	0.4	0.4	3.1	5.5	1.0	0.3	4.1	0.4
Max. Concentration	2.4	0.0	0.1	0.0	0.0	0.0	0.3	4.2	6.5	0.4	0.4	0.5	1.0	0.4	1.0	13.0	5.5	1.7	0.3	4.1	0.4
Min. Concentration	1.9	0.0	0.0	0.0	0.0	0.0	0.3	4.2	1.0	0.4	0.4	0.5	1.0	0.4	0.4	1.3	5.5	0.3	0.3	4.1	0.4
% Valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D3: Bell Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Methyl isobutyl ketone	2-Methyl Pentane	3-Methyl Pentane	Methylcyclohexane	Naphthalene	Nonane	Octane	n-Pentane	Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	Freon 113	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Air Quality Standard or POI Limit [1]	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
October 5, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
October 11, 2018																					
October 17, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
October 23, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.87	0.49	0.43	0.035	0.14	1.28	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
October 29, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
November 4, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.61	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	0.55	0.49	0.49	0.49
November 10, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
November 16, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.96	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
November 22, 2018																					
November 28, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
December 4, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
December 10, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.80	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 16, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.72	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.10	0.49	0.49	0.49
December 22, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.30	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49
December 28, 2018	0.41	0.35	0.35	0.40	0.7	0.5	0.47	0.80	0.49	0.43	0.035	0.07	0.38	0.8	0.6	0.028	0.055	1.20	0.49	0.49	0.49

Notes:

[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1200*	*4200*	*1400*	*6440*	*22.5*	*4200*	*N/A*	*4200*	*20*	*400*	*N/A*	*360*	*2000*	*800000*	*115000*	*0.31*	*12*	*6000*	*220*	*220*	*220*
No. > Standard/POI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithmetic Mean	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.9	0.5	0.5	0.5
Max. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	1.0	0.5	0.4	0.0	0.1	1.3	0.8	0.6	0.0	0.1	1.2	0.5	0.5	0.5
Min. Concentration	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.3	0.5	0.4	0.0	0.1	0.4	0.8	0.6	0.0	0.1	0.6	0.5	0.5	0.5
% Valid data	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

Table D3: Bell Q4 Monitoring Results for VOCs and Total Reduced Sulphurs

Walker Environmental Group (1800160)
(results expressed in µg/m^3)

	Vinyl chloride	o-Xylene	m&p-Xylene	Total Volatile Organic Compounds
Air Quality Standard or POI Limit [1]	*1*	*100*	*100*	*N/A*
October 5, 2018	0.026	0.44	0.9	50.0
October 11, 2018				
October 17, 2018	0.026	0.44	0.9	50.0
October 23, 2018	0.026	0.44	0.9	50.0
October 29, 2018	0.026	0.44	0.9	50.0
November 4, 2018	0.026	0.44	0.9	50.0
November 10, 2018	0.026	0.44	0.9	50.0
November 16, 2018	0.026	0.44	0.9	50.0
November 22, 2018				
November 28, 2018	0.026	0.44	0.9	50.0
December 4, 2018	0.026	0.44	0.9	50.0
December 10, 2018	0.026	0.44	0.9	50.0
December 16, 2018	0.026	0.44	0.9	50.0
December 22, 2018	0.026	0.44	0.9	50.0
December 28, 2018	0.026	0.44	0.9	50.0

Notes:

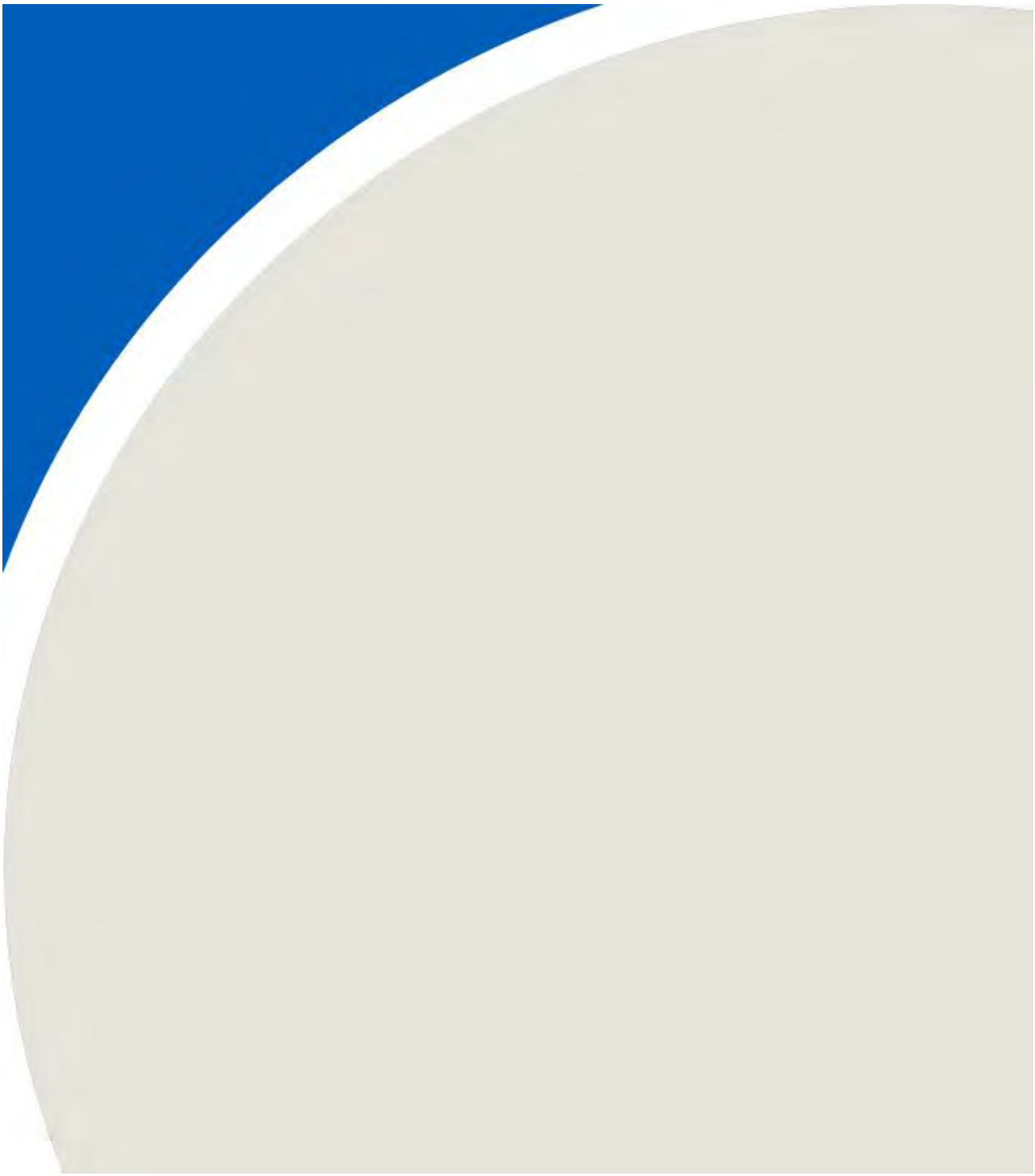
[1] O. Reg 419 and/or MOECC AAQC's

All non-detectable results were reported as 1/2 the detection limit

Cells in RED indicate an exceedance

AAQC (µg/m^3)	*1*	*100*	*100*	*N/A*
No. > Standard/POI	0	0	0	0
Arithmetic Mean	0.0	0.4	0.85	50.0
Max. Concentration	0.0	0.4	0.85	50.0
Min. Concentration	0.0	0.4	0.85	50.0
% Valid data	87	87	87	87

APPENDIX B



Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2178586-COFC

COC Number: 17 - 667179

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax brad.bergeron@rwdi.com
Email 2 steve.sanderson@rwdi.com
Email 3 victoria.latam@rwdi.com

Invoice Distribution

Select Invoice Distribution: [✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll
Job #: 1800160
PO / AFE: 1800160-1005-101
LSD:

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):
ALS Contact: Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738451 - Bell PM2.5 - Oct. 5	5-10-18	24hr	AA	X			
2	738452 - Rd 66 PM2.5 - Oct. 5	↓	↓	↓	X			
3	738453 - Rd 66 PM10 - Oct. 5				X			
4	738454 - Rd 66 TSP - Oct. 5				X			
5	738455 - 33rd line PM2.5 - Oct. 5				X			
6	738456 - 33rd line PM10 - Oct. 5				X			

Drinking Water (DW) Samples' (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO

Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
22.8°C					

SHIPMENT RELEASE (client use)

Released by: Date: Oct. 10 Time: 13:40

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: 10-Oct-2018 Time: 13:40

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 - 639352

L2181481-COFC

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron/Steve Sanderson
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate dr
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [Y] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [Y] PDF [ ] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [Y] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax brad.bergeron@rwdi.com

Email 2 steve.sanderson@rwdi.com

Email 3 victoria.latam@rwdi.com

Invoice Distribution

Select Invoice Distribution: [Y] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax

Email 2

Project Information

ALS Account # / Quote #: Walter Ingersoll

Job #: 800160

PO / AFE: 800160-1000-401

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#:

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [Y] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738446 - Bell PM2.5 - Oct 11	10-11-18	24hr	AA	X			
2	738447 - Rd 66 PM2.5 - Oct 11	"	"	"	X			
3	738448 - Rd 66 PM10 - Oct 11	"	"	"	X			
4	738449 - Rd 66 TSP - Oct 11	"	"	"	X			
5	738439 - 33rd line PM2.5 - Oct 11	"	"	"	X			
6	738569 - 33rd line PM10 - Oct 11	"	"	"	X			
7	738593 - Blank - Oct 15							

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [X]

Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
23.2							

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Oct. 16 '18	2:17

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
A. Chaharatta	16-Oct-2018	12:12

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1 If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2185130-COFC

COC Number: 17 - 667178

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson / Brad Bergeron	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	600 Southgate Dr.	Email 1 or Fax	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph	Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2185130 AP	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	738570 - Bell PM2.5 - Oct. 17	17-10-18	24 hr	AA	X			
	738571 - Rd 66 PM2.5 - Oct. 17	↓	↓	↓	X			
	738572 - Rd 66 PM10 - Oct. 17				X			
	738573 - Rd 66 TSP - Oct. 17				X			
	738574 - 33rd line PM2.5 - Oct. 17				X			
	738575 - 33rd line PM10 - Oct. 17				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Oct 22 '18	Time: 16:45	Received by:	Date:	Time:	Received by: AP	Date: 22-10-18	Time: 16:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 - 667180

L2188412-COFC

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [✓] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: steve.sanderson@rwdi.com

Email 2: victoria.lotan@rwdi.com

Email 3: brad.bergeron@rwdi.com

Invoice Distribution

Select Invoice Distribution: [✓] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: brad.bergeron@rwdi.com

Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll

Job #: 1800160

PO / AFE: 1800160-1000-101

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738576 - Rd 11 PM2.5 - Oct. 23	23-10-18	24 hr	AA	X			
2	738577 - Rd 66 PM2.5 - Oct. 23	"	"	"	X			
3	738578 - Rd 66 PM10 - Oct. 23	"	"	"	X			
4	738579 - Rd 66 TSP - Oct. 23	"	"	"	X			
5	738580 - 33rd line PM2.5 - Oct. 23	"	"	"	X			
6	738581 - 33rd line PM10 - Oct. 23	"	"	"	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [✓] NO

Are samples for human consumption/ use? [ ] YES [✓] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
13.2°C							

SHIPMENT RELEASE (client use)

Released by: | Date: Oct. 29 | Time: 11:40

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Aaron Burton | Date: 29-Oct-2018 | Time: 11:40

FINAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: | Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2190872-COFC

COC Number: 17 - 667181

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson / Brad Bergeron	Quality Control (QC) Report with Report YES NO	Priority (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	519-823-1311	Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	
Street:	600 Southgate Dr.	Email 1 or Fax steve.sanderson@rwdi.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph	Email 2 brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 victoria.latam@rwdi.com	

Invoice To		Invoice Distribution
	Same as Report To YES NO	Select Invoice Distribution: EMAIL MAIL FAX
	Copy of Invoice with Report YES NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2190872	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Particulate

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738582 - Bell PM2.5 - Oct.29	30-10-18	00:00	AA	X			
2	738583 - Rd 66 PM2.5 - Oct.29				XX			
3	738584 - Rd 66 PM10 - Oct.29				XX			
4	738585 - Rd 66 TSP - Oct.29				XX			
5	738586 - 33rd line PM2.5 - Oct.29				XX			
6	738587 - 33rd line PM10 - Oct.29				XX			
7	738664 - Blank - Nov. 2	02-11-18	N/A		X			

Drinking Water (DW) Samples' (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No	
Ice Packs	Ice Cubes	Custody seal intact	Yes		No	
Cooling Initiated						

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: NOV. 2 '18	Time: 16:59	Received by:	Date:	Time:	Received by: SB	Date: 11/02/18	Time: 17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY

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1. If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

Number: 17 - 667187

L2192790-COFC

Page of

ALS Environmental

~~Canada Toll Free: 1 800 668 9878~~

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	steve.sanderson@rwdi.com
Email 2	brad.bergeron@rwdi.com
Email 3	victoria.latam@rwdi.com

Invoice Distribution	
Select Invoice Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	[✓] Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] [ ]	EMERGENCY	1 Business day [E-100%] [ ]
	3 day [P3-25%] [ ]		Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	2 day [P2-50%] [ ]		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160 - 1000 - 101
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	[redacted] 738589 - Rd 66 PM2.5 - Nov. 4	Nov. 5	00:00	AA	X			
2	738590 - Rd 66 PM10 - Nov. 4	↓	↓	↓	X			
3	738591 - Rd 66 TSP - Nov. 4				X			
4	738592 - 33rd line PM2.5 - Nov. 4				X			
5	738683 - 33rd line PM10 - Nov. 4				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ]	SIF Observations	Yes [ ]	No [ ]
Ice Packs [ ] Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]
Cooling Initiated [ ]			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
16.6°C					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Nov. 6 '18	Time: 14:26	Received by:	Date: 6-Nov-2018	Time: 14:26	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com
Canada Toll Free: 1 800 668 9878

L2195856-COFC

COC Number: 17 - 667182

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	600 Southgate Dr.
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax: Steve.sanderson@rwdi.com
Email 2: victoria.lefan@rwdi.com
Email 3: brad.bergeron@rwdi.com

Invoice Distribution

Select Invoice Distribution: [✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax:
Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]
EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll
Job #: 1800160
PO / AFE: 1800160 - 1000 - 100
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center:
PO#:
Major/Minor Code:
Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):
ALS Contact:
Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738685 - Bell PM2.5 - Nov. 10	11-11-18	00:00	AA	X			
2	738686 - Rd66 PM2.5 - Nov. 18	11-11-18			X			
3	738687 - Rd66 PM10 - Nov. 10	"			X			
4	738688 - Rd66 TSP - Nov. 10	"			X			
5	738689 - 33rd line PM2.5 - NOV. 10	"			X			
6	738690 - 33rd line PM10 - Nov. 10	"			X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO
Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations: Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
19.2°C							

SHIPMENT RELEASE (client use)

Released by: Date: Nov. 12 '18 Time: 19:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: 13 Nov 2018 Time: 15:00

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 - 667188

L2199604-COFC

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brent Bergsdr
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	Steve.Sanderson@rwdi.com
Email 2	victoria.latam@rwdi.com
Email 3	brent.bergsdr@rwdi.com
Invoice Distribution	
Select Invoice Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160 - 1000-101
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738691 - Bell PM2.5 - Nov.17	18-11-18	00:00	AA	X			
2	738692 - Rd 66 PM2.5 - Nov.17				X			
3	738693 - Rd 66 PM10 - Nov. 17				X			
4	738694 - Rd 66 TSP - Nov.17				X			
5	738695 - 33rd line PM2.5 - Nov.17				X			
6	738696 - 33rd line PM10 - Nov 17				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
3.8					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Nov. 21 18	Time: 12:30	Received by: I. Nrona	Date: 21-Nov-18	Time: 12:30	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2201163-COFC

COC Number: 17 - 667184

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: PDF ☑ EXCEL EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson / Brad Bergeron	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	600 Southgate Dr.	Email 1 or Fax steve.sanderson@rwdi.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph, ON	Email 2 brad.bergeron@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 nathan.mcfadden@rwdi.com	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160 - 1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2201163	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Perf. Cyfute	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738697 - Bell PM2.5 - Nov 22	23-11-18	00:00	AA	X			
2	738698 - Rd 66 PM2.5 - Nov. 22	↓	↓	↓	X			
3	738699 - Rd 66 PM10 - Nov 22				X			
4	738700 - Rd 66 TSP - Nov. 22				X			
~~738701~~	~~738701 - 3rd line PM2.5 Nov 22~~				~~X~~	sample invalid		
~~738702~~	~~738702 - 3rd line PM10 - Nov. 22~~				~~X~~	sample invalid		
5	738773 - Blank - Nov. 23	Nov. 23	N/A		X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs ☐ Ice Cubes ☐		Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Nov. 23'18	Time: 16:05	Received by:	Date:	Time:	Received by:	Date: NOV. 23/18	Time: 16:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2205179-COFC

COC Number: 14 - 469265

Page ____ of ____

Report To	
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Address:	600 Southgate Dr., Guelph
Phone:	519 - 823 - 1311

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ Yes ☐ No

☐ Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: steve.sanderson@rwdi.com

Email 2: nathan.mcfadden@rwdi.com

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)

- R ☑ Regular (Standard TAT if received by 3pm)
- P ☐ Priority (2-4 business days if received by 3pm)
- E ☐ Emergency (1-2 business days if received by 3pm)
- E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.

Specify Date Required for E2,E or P:

Invoice To Same as Report To ☑ Yes ☐ No

Copy of Invoice with Report ☐ Yes ☐ No

Company:

Contact:

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Project Information

ALS Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	

Oil and Gas Required Fields (client use)

Approver ID:	Cost Center:
GL Account:	Routing Code:
Activity Code:	
Location:	

ALS Lab Work Order # (lab use only)

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Number of Containers
	~~738703~~					
1	Rd 66 PM2.5 - Nov. 28 - 738704	Nov. 28/18	00:00	AA	X	
2	Rd 66 PM10 - Nov. 28 - 738705	↓	↓	↓	X	
3	Rd 66 TSP - Nov. 28 - 738706	↓	↓	↓	X	
4	33rd line PM2.5 - Nov 28 - 738707	↓	↓	↓	X	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ Yes ☐ No

Are samples for human drinking water use? ☐ Yes ☐ No

Special Instructions / Specify Criteria to add on report (client Use)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
19.4°C	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: [signature]	Date: Dec 4 '18	Time: 11:31	Received by: Aaron Burton	Date: 4-Dec-2018	Time: 11:31	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v09 Front/04 January 2014

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1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2207659-COFC

COC Number: 17 - 726286

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson/Brad Bergeron	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:	519-823-1311	Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	
Street:	600 Southgate Dr	Email 1 or Fax steve.sanderson@rwdi.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph, ON	Email 2 nathan.mcfadden@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 brad.bergeron@rwdi.com	Analysis Request
Invoice To	Same as Report To YES NO	Invoice Distribution	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Walker Industries	AFE/Cost Center:	PO#
Job #:	180160	Major/Minor Code:	Routing Code:
PO / AFE:	180160-1000101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2207659	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738774 - Ball PM2.5 - Dec 4	05-12-18	00:00	AA	X			
2	738775 - Rd 66 PM2.5 - Dec 4				X			
3	738776 - Rd 66 PM10 - Dec 4				X			
4	738777 - Rd 66 TSP - Dec. 4				X			
5	738778 - 33rd line PM2.5 - Dec. 4				X			
6.	738779 - 33rd line PM10 - Dec. 4				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen SIF Observations Yes No

Ice Packs Ice Cubes Custody seal intact Yes No

Cooling Initiated

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Dec. 7'18	Time: 15:09	Received by:	Date:	Time:	Received by:	Date: Dec. 7/18	Time: 15:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2210896-COFC

COC Number: 17 - 667185

Page ' of '

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL | EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	STEVE SANDERSON / BRAD BERGERON	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL | MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DR.	Email 1 or Fax STEVE.SANDERSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH, ON	Email 2 NATHAN.MCFARREN@RWDI.COM	
Postal Code:		Email 3 BRAD.BERGERON@RWDI.COM	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-161	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2210896 14 28	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

PARTICULATE

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738786 - BELL PM 2.5 - DEC 10	11-12-18	00:00	AA			
2	738781 - RD 66 PM 2.5 - DEC 10						
3	738782 - RD 66 PM 10 - DEC 10						
4	738783 - RD 66 TSP - DEC 10						
5	738784 - 33RD LINE PM 2.5 - DEC 10						
6	738785 - 33RD LINE PM 10 - DEC 10						

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs ☐ Ice Cubes ☐		Custody seal intact	Yes ☐	No	☐
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Dec. 14 '18	Time: 17:05	Received by:	Date:	Time:	Received by:	Date: Dec 14/18	Time: 17:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2212717-COFC

COC Number: 17 - 726288

Page of

Report To	Contact and company name below will appear on the final report	Report Format
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Contact:	STEVE SANDERSON / BRIAN BERGMAN	Quality Control (QC) Report with Report ☐ YES ☐ NO
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Street:	600 SOUTHGATE DR	Email 1 or Fax: BRIAN.BERGMAN@RWDI.COM
City/Province:	GUELPH	Email 2: STEVE.SANDERSON@RWDI.COM
Postal Code:		Email 3: NATHAN.MCFADDEN@RWDI.COM
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER INGERSOLL	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160 - 1000 - 10L	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2212717	ALS Contact:	Sampler:

Turnaround Time (TAT) Option - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

Emergency: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PHYSICAL ANC	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	738786 - Bell Pm2.5 - Dec 16	19-12-18	24	AA	✓			
	738787 - RO 66 Pm2.5 - Dec 16	"	"	"	✓			
	738788 - RO66 Pm10 - Dec16	"	"	"	✓			
	738789 - RO66 TSP - Dec16	"	"	"	✓			
	738790 - 33rd Line Pm 2.5 - Dec 16	"	"	"	✓			
	738791 - 33RD Line Pm10 - Dec 16	"	"	"	✓			
	738791							

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: DEC 19, 2018	Time:	Received by:	Date:	Time:	Received by:	Date: 19-Dec-18	Time: 1435

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2214303-COFC

COC Number: 17 - 726289

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	STEVE SAMUELSON / BRUNO BELDEMAN	Quality Control (QC) Report with Report ☐ YES ☐ NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	600 SOUTHGATE DRIVE	Email 1 or Fax: STEVE.SAMUELSON@RWDI.COM	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	GUELPH ON	Email 2: NATHAN.WILFAHRER@RWDI.COM	
Postal Code:		Email 3: BRUNO.BELDEMAN@RWDI.COM	
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	WALKER-WOODSIDE	AFE/Cost Center:	PO#
Job #:	1800160	Major/Minor Code:	Routing Code:
PO / AFE:	1800160-1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2214303	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PARTICULATE	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	738792 - BELL PM 2.5 - DEC 22ND	23-12-18	08:00	AM	X			
	738793 - RD 66 PM 2.5 - DEC 22ND	↓	↓	↓	X			
	738795 - RD 66 PM 10 - DEC 22ND				X			
	738794 - RD 66 TSP - DEC 22ND				X			
	738796 - 33RD LIVE PM 2.5 - DEC 22ND				X			
	738855 - 33RD LIVE PM 10 - DEC 22ND				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Dec 24, 2018	Time:	Received by:	Date:	Time:	Received by:	Date: Dec-24/18	Time: 14:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2215279-COFC

COC Number: 17 - 726290

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Brad Bergeron / Steve Sanderson
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	800 Southgate Drive
City/Province:	Guelph
Postal Code:	
Invoice To	Same as Report To [X] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [X] PDF [X] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: Brad.Bergeron@rwdi.com

Email 2: Steve.Sanderson@rwdi.com

Email 3: Nathan.McHoney@rwdi.com

Invoice Distribution

Select Invoice Distribution: [X] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax:

Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] 3 day [P3-25%] [ ] 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Walker Ingersoll

Job #: 1800160

PO / AFE: 1800160-1000-101

LSD:

ALS Lab Work Order # (lab use only): L2215279

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Contact: | Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	Samples on Hold	Sample is hazardous (please provide further details)	Number of Containers
	738856 - Bell - PM2.5 - Dec 28	29-12-18	00:00	AA	X			
	738857 - RD 66 PM2.5 - Dec 28	↓	↓	↓	X			
	738858 - RD 66 PM10 - Dec 28	↓	↓	↓	X			
	738859 - RD 66 TSP - Dec 28	↓	↓	↓	X			
	738861 - 33RD PM2.5 - Dec 28	↓	↓	↓	X			
	738860 - 33RD PM10 - Dec 28	↓	↓	↓	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: [signature]	Date: 12/31/18	Time:	Received by:	Date:	Time:	Received by: WJ	Date: Dec 31/18	Time: 13:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2178586-COFC

COC Number: 17 - 667179

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson / Brad Bergeron
Phone:	519-823-1311
Company address below will appear on the final report	
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	

Report Format / Distribution	
Select Report Format:	[✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	brad.bergeron@rwdi.com
Email 2	steve.sanderson@rwdi.com
Email 3	Victoria.latam@rwdi.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

- Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply
- PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
- EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	
Same as Report To	[✓] YES [ ] NO
Copy of Invoice with Report	[ ] YES [ ] NO
Company:	
Contact:	

Invoice Distribution	
Select Invoice Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	Walker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Particulate	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	738451 - Bell PM2.5 - Oct. 5	5-10-18	24hr	AA	X			
2	738452 - Rd 66 PM2.5 - Oct. 5	↓	↓	↓	X			
3	738453 - Rd 66 PM10 - Oct. 5	↓	↓	↓	X			
4	738454 - Rd 66 TSP - Oct. 5	↓	↓	↓	X			
5	738455 - 33rd line PM2.5 - Oct. 5	↓	↓	↓	X			
6	738456 - 33rd line PM10 - Oct. 5	↓	↓	↓	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C: 22.8°C

FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)		
Released by: [signature]	Date: Oct. 10	Time: 13:40

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by: Aaron Burton	Date: 10-Oct-2018	Time: 13:40

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

L2181491

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	FAX
ACCOUNT #	Walker Ingersoll
QUOTATION #	PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ___ BOTH ___
EMAIL 1 steve.sanderson@rwdi.com
EMAIL 2 victoria.tafani@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI - Ingersoll - AAQ VT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Oct. 11 '18	24hr	17922	0183		Bell - Oct. 11 - VOC		X	X	X	X	X	X					
"	"	4970	0065		Rd 66 - Oct 11 - VOC		X	X	X	X	X	X					
"	"	20682	0054		33rd line - Oct. 11 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Indoor Air = IA
Ambient Air = AA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☒
MEAN TEMP 19.2°C

SAMPLED BY:	SRS	DATE & TIME 12:06	RECEIVED BY: CKocharalkal	DATE & TIME 16-Oct-2018 12:12	OBSERVATIONS Yes ☐ No ☒ If yes add SIF
RELINQUISHED BY:		DATE & TIME Oct. 16 '18	RECEIVED AT LAB BY:	DATE & TIME	INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2185137-COFC

COC Number: 17 - 667406

Page of

Report To	Contact and company name below will appear on the final report
Company:	RWDI
Contact:	Steve Sanderson/Brad Bergeron
Phone:	519-823-1311
	Company address below will appear on the final report
Street:	600 Southgate Dr.
City/Province:	Guelph
Postal Code:	

Report Format / Distribution	
Select Report Format:	[✓] PDF [✓] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	steve.sanderson@rwdi.com
Email 2	victoria.katane@rwdi.com
Email 3	brad.bergeron@rwdi.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓]	Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days): 4 day [P4-20%] [ ]	EMERGENCY: 1 Business day [E-100%] [ ]
3 day [P3-25%] [ ]	Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
2 day [P2-50%] [ ]	
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To		
	Same as Report To	[✓] YES [ ] NO
	Copy of Invoice with Report	[ ] YES [ ] NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	[✓] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	Weyker Ingersoll
Job #:	1800160
PO / AFE:	1800160-1000-101
LSD:	
ALS Lab Work Order # (lab use only):	L2185137

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	RWDI-Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	Bell-Oct 17-VOC-20165	17-10-18	24hr	AA	X	X	X	X	X	X			
	Rd 66-Oct 17-VOC-15074	"	"	"	X	X	X	X	X	X			
	33rd line-Oct 17-VOC-20686	"	"	"	X	X	X	X	X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ]		SIF Observations	Yes [ ]	No [ ]	
Ice Packs [ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]	
Cooling Initiated [ ]					
INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: [signature]	Date: Oct. 22 '18	Time: 16:45	Received by:	Date:	Time:	Received by: AP	Date: 22-10-18	Time: 16:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

L2188408

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or **Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brent Bergeron
PROJECT #	1800160
PHONE 519-823-1311	FAX
ACCOUNT #	Walker IngerSoll
QUOTATION #	PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brent.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com; victoria.lafram@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
10-23-18	24hr	15811	0159	AA	Ball-Oct.23-VOC		X	X	X	X	X	X					
"	"	15742	0124	"	Rd 66-Oct.23-VOC		X	X	X	X	X	X					
"	"	15107	0130	"	33rd line-Oct.23-VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

~~This Chain of Custody Form is only to be used for Air Quality Samples~~

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP 13.2°C

SAMPLED BY: SRS	DATE & TIME Oct-29'18	RECEIVED BY: Aaron Borton	DATE & TIME 29-Oct-2018 11:40	OBSERVATIONS Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY:	DATE & TIME 11:40	RECEIVED AT LAB BY:	DATE & TIME	INIT

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2191603-COFC

60 NORTHLAND ROAD
WATERLOO, ON N2V 2I
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

Environmental

ALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page __ of __

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Trye.Sanderson@rwdi.com
Victoria.Luten@rwdi.com

SUBMISSION #: L2191603
ENTERED BY: ESmith 39
DATE/TIME ENTERED: 02/Nov/2018
BIN #:

ANALYSIS REQUEST

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # C91200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Oct. 30'18	00:00	12892	0072	AA	Bell-Oct.29-VOC		X	X	X	X	X	X					1
"	"	15807	0034	"	Rd 66-Oct.29-VOC		X	X	X	X	X	X					2
"	"	4565	0114	"	33 rd line-Oct.29-VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Ambient Air = AA
Indoor Air = IA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☐
MEAN TEMP

SAMPLED BY:	SRS	DATE & TIME: Nov. 2 '18	RECEIVED BY:	DATE & TIME
RELINQUISHED BY:		DATE & TIME: 16:59	RECEIVED AT LAB BY: SB	DATE & TIME: 11/02/18 17:00

OBSERVATIONS Yes ☐ No ☐ If yes add SIF
INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2192783

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED	
	10 day (regular) ☑	Rush 3 day (100%) ☐
	Rush 5 day (50%) ☐	Rush 2 day (200%) ☐
		Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE 519-823-1311	FAX
ACCOUNT #	Walker IngerSoll
QUOTATION #	PO # 1800160-1000-101

REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com
victoria.lafrain@rwdi.com

ANALYSIS REQUEST

All rush work requires lab approval before sample submission

SUBMISSION #:

ENTERED BY:

DATE/TIME ENTERED:

BIN #:

SAMPLING INFORMATION

Sample Date/Time		Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Date (dd-mmm-yy)	Time (24hr) (hh:mm)																
05-11-18	00:00	12682	0032	AA	Bell - Nov. 4 - VOC												
"	"	4422	0183	"	33rd Line - Nov 4 - VOC												

SPECIAL INSTRUCTIONS/COMMENTS

~~This Chain of Custody Form is only to be used for Air Quality Samples~~

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

FROZEN	☐	MEAN TEMP
COLD	☐	
COOLING INITIATED	☐	16.6°C
AMBIENT	☒	

SAMPLED BY:	SRS	DATE & TIME:	14:26	RECEIVED BY: AARON BURTON	DATE & TIME 6-Nov-2018 14:26
RELINQUISHED BY:		DATE & TIME	NOV 6 '18	RECEIVED AT LAB BY:	DATE & TIME

OBSERVATIONS Yes ☐ No ☒ If yes add SIF — INIT: AB

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2195864-COFC

COC Number: 17 - 667183

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Sanderson/Brad Bergeron	Quality Control (QC) Report with Report ☐ YES ☐ NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-823-1311	☐ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	600 Southgate Dr.	Email 1 or Fax: steve.sanderson@rwdi.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Guelph, ON	Email 2: victoria.lafam@rwdi.com	
Postal Code:		Email 3: brad.bergeron@rwdi.com	
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Additional Fields (applied to all samples)	
ALS Account # / Quote #:	Walker Ingersoll	AFE/Cost Center:	PO#:
Job #:	190460	Major/Minor Code:	Routing Code:
PO / AFE:	180160 - 1000-101	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	RWDI - Ingersoll - 44-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl disulphide	TRS	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	Bell - Nov. 10 - VOC - 21754	11-11-18	00:00	AA	X	X	X	X	X	X			
2	33rd line - Nov. 10 - VOC - 20163	"	00:00	"	X	X	X	X	X	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations: Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact: Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C: 14.2°C / FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Nov. 12 '18	Time: 18:00	Received by:	Date: 13-Nov-2018	Time: 15:00	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

L2199566

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.scheckenberger@rwdi.com victoria.lafrain@rwdi.com

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
16-11-18	00:00	21748	0006	AA	Bell - Nov. 17 - VOC		X	X	X	X	X	X					
"	"	12914	0165	"	Rd 66 - Nov. 17 - VOC		X	X	X	X	X	X					
"	"	20696	0036	"	33rd Line - Nov. 17 - VOC		X	X	X	X	X	X					

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Soil Gas Vapour = SG | Indoor Air = IA
Ambient Air = AA | Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☒

MEAN TEMP: 19.0°C

SAMPLED BY:	SRS	DATE & TIME: Nov 2/18	RECEIVED BY: L. Wrona	DATE & TIME: 21-Nov-18 13:30
RELINQUISHED BY:		DATE & TIME: 12:30	RECEIVED AT LAB BY:	DATE & TIME:

OBSERVATIONS Yes ☐ No ☒ If yes add SIF
INIT: NP

Notes
1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORT
WATERL
Phone: (
Fax: (519
Toll Free

L2201159-COFC

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	
PO #	1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com victoria.turan@rwdi.com

SUBMISSION #: L2201159
ENTERED BY: ESmith
DATE/TIME ENTERED: 23/Nov/2018
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (1HR5)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
23-11-18	00:00	4546	0095	AA	Bell - Nov 22 - VOC		X	X	X	X	X	X					1
"	"	1557	0137	"	RIGG - Nov 22 - VOC		X	X	X	X	X	X					2
"	"	20698	0115	"	33rd line - Nov 22 - VOC		X	X	X	X	X	X					3

SPECIAL INSTRUCTIONS/COMMENTS -

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLED BY: SRS
DATE & TIME: Nov 23 18
RECEIVED BY:
DATE & TIME:

RELINQUISHED BY:
DATE & TIME: 16.10
RECEIVED AT LAB BY:
DATE & TIME: Nov. 23/18 16.10

SAMPLE CONDITION AS RECEIVED
FROZEN ☐
COLD ☐
COOLING INITIATED ☐
AMBIENT ☑
MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If Yes add SIF
INIT

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody - comments section.

REV6-2015

claire.

L2205156

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page ___ of ___

Note: All TAT Quoted is in **business days** which exclude statutory holidays and weekends. TAT of samples received **past 3:00 pm or Saturday / Sunday** begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker IngerSoll
QUOTATION #	PO # 1800160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.saunderson@rwdi.com victoria.tatam@rwdi.com

All rush work requires lab approval before sample submission

SUBMISSION #:
ENTERED BY:
DATE/TIME ENTERED:
BIN #:

SAMPLING INFORMATION

ANALYSIS REQUEST

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Inger Soil-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
Nov. 29 '18	00:00	20161	0032	AA	Roll - Nov. 28 - VOC		X	X	X	X	X	X					
↓	↓	20170	0163	↓	Rd 66 - Nov. 28 - VOC		X	X	X	X	X	X					
↓	↓	20675	0160	↓	33rd line - Nov. 28 - VOC		X	X	X	X	X	X					

~~SPECIAL INSTRUCTIONS/COMMENTS~~

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type
Soil Gas Vapour = SG
Ambient Air = AA
Indoor Air = IA
Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☑

MEAN TEMP: 5.4°C

SAMPLED BY: SRS	DATE & TIME Dec. 4 '18	RECEIVED BY: AARON BURTON	DATE & TIME 4-Dec-2018 11:34
RELINQUISHED BY:	DATE & TIME 11:34	RECEIVED AT LAB BY:	DATE & TIME

OBSERVATIONS Yes ☐ No ☒ If yes add SIF
INIT: NB

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2207652-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular) ☑	Rush 5 day (50%) ☐	Rush 3 day (100%) ☐	Rush 2 day (200%) ☐
			Rush 1 day (300%) - Enquire ☐	

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101
REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com, victoria.lafrain@rwdi.com

All rush work requires lab approval before sample submission
SUBMISSION #: L2207652
ENTERED BY: ESmith 28
DATE/TIME ENTERED: 07/Dec/2018
BIN #:

SAMPLING INFORMATION

Date (dd-mm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXX(SV))	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
05-12-18	00:00	12229	0065	AA	Bell-Dec 4-VOC		X	X	X	X	X	X					1
↓	↓	illegible	0183	↓	Rd 66-Dec 4-VOC		X	X	X	X	X	X					2
↓	↓	~~[illegible]~~	~~[illegible]~~	↓													

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If yes add SIF
INIT

SAMPLED BY: SRS	DATE & TIME: Dec 7/18	RECEIVED BY:	DATE & TIME: 1510
RELINQUISHED BY: [signature]	DATE & TIME: 15:04	RECEIVED AT LAB BY: [signature]	DATE & TIME: Dec 7/18

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

L2210893-COFC

CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

1 is in business days which exclude weekends. TAT of samples received past Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ✓ ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1900160-1000-101

REGULATION
CRITERIA
OTHER INFORMATION

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX BOTH
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.lutan@rwdi.com

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or C0XXXXXXSVI)	Regulator Serial # CSI 200-XXXX or GXX 0053	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
11-12-18	00:00	12911	0899	AA	BELL-DECID-VOC		X	X	X	X	X	X					1
		20692	0050		ROSS-DECID-VOC		X	X	X	X	X	X					2
		2766	0056		33RD LINE-VOC		X	X	X	X	X	X					3

All rush work requires lab approval before sample submission

SUBMISSION #: L2210893
ENTERED BY: ESmith
DATE/TIME ENTERED: 14/Dec/2018
BIN #:

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ — MEAN TEMP

	DATE & TIME	RECEIVED BY:	DATE & TIME
SAMPLED BY:			
RELINQUISHED BY:	Dec 14/18 17:06	RECEIVED AT LAB BY:	Dec 14/18 17:09

OBSERVATIONS Yes ☐ No ☐ If yes add SIF — INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary depending on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page___of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED	SERVICE REQUESTED			
	10 day (regular)	☒	Rush 3 day (100%)	☐
	Rush 5 day (50%)	☐	Rush 2 day (200%)	☐
			Rush 1 day (300%) - Enquire	☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	GUELPH
PROJECT MANAGER	BRAD BERGERON
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	WALKER INGERSOLL
QUOTATION #	
PO #	1800160-1200-101

REGULATION
CRITERIA
OTHER INFORMATION

SUBMISSION #: L2212730
ENTERED BY: AP
DATE/TIME ENTERED: 19-12-18 16:29
BIN #:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ ___FAX_____BOTH _______
SELECT: PDF____DIGITAL____BOTH ___
EMAIL 1 BRAD.BERGERON@RWDI.COM
EMAIL 2 STEVE.SANDERSON@RWDI.COM
NATHAN.MCFADDEN@RWDI.COM

ANALYSIS REQUEST: TUBE AIR VOLUME - L ☐ or m³ ☐ | RWDI INGERSOLL (TILING) | H_2S | METHYL MERCAPTAN | DIMETHYL SULPHIDE | DIMETHYL DISULPHIDE | TRS | STARTING PRESSURE - Pre-Sampling ("Hg) | ENDING PRESSURE - Post Sampling ("Hg) | COLLECTION TIME (HRS)

SAMPLING INFORMATION

Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or C0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME	RWDI INGERSOLL (TILING)	H_2S	METHYL MERCAPTAN	DIMETHYL SULPHIDE	DIMETHYL DISULPHIDE	TRS	STARTING PRESSURE	ENDING PRESSURE	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
~~08~~-17-12-18	00:00	17873	0109	AA	BELL - DEC 16 - VOC		X	X	X	X	X	X					
17-12-18	↓	20162	0118	↓	RD 66 - DEC 16 - VOC		X	X	X	X	X	X					
17-12-18	↓	12911	0159	↓	33RD - DEC 16 - VOC		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	← DO NOT ANALYSE IF VACCUMS LESS THAN ZERO				

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED: FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐ MEAN TEMP
OBSERVATIONS Yes ☐ No ☐ If yes add SIF INIT

SAMPLED BY: NJM	DATE & TIME	RECEIVED BY:		DATE & TIME	
RELINQUISHED BY: Nathan McF[signature]	DATE & TIME	RECEIVED AT LAB BY:	BY	DATE & TIME 19-Dec-18 1435	

Notes:
1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact [illegible] TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2212730-COFC

L2214302-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Page__ of ___

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-101
REGULATION	
CRITERIA	
OTHER INFORMATION	

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ___ DIGITAL ✓ BOTH ___
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 steve.sanderson@rwdi.com
victoria.kuhn@rwdi.com

SUBMISSION #: L2214302
ENTERED BY: ML
DATE/TIME ENTERED: 12/24/18
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - ☐ or m³ ☐	RWDI Ingersoll-AA-WT	H_2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
23-12-18	08:00	12903	0032	AA	BGL - Dec 18 - VOC		X	X	X	X	X	X					
↓	↓	28686	8067	↓	RD66 - Dec 22 - VOC		X	X	X	X	X	X					
↓	↓	18806	0039	↓	33RD LINE - ~~MAR~~ Dec 22 - VOC		X	X	X	X	X	X				DO NOT ANALYZE IS CAN PRESSURE IS AT ZERO (confirm w client AM.)	

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED

SAMPLED BY:		DATE & TIME: 12/24/18	RECEIVED BY:	DATE & TIME: 14:10	FROZEN ☐ COLD ☐ COOLING INITIATED ☐ AMBIENT ☐
RELINQUISHED BY: NATHAN MCFADDEN		DATE & TIME: 12/24/18	RECEIVED AT LAB BY:	DATE & TIME: DEC 24/18	OBSERVATIONS Yes ☐ No ☐ If Yes add SIF

MEAN TEMP: 1

INIT

Notes

1. Quote number must be provided to ensure proper pricing

2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.

3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015

L2215274-COFC

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

AIR QUALITY CHAIN OF CUSTODY FORM - Canister/Tube/Gas Bag

Note: All TAT Quoted is in business days which exclude statutory holidays and weekends. TAT of samples received past 3:00 pm or Saturday / Sunday begin the next day.

DATE REQUIRED

SERVICE REQUESTED
- 10 day (regular) ☑
- Rush 5 day (50%) ☐
- Rush 3 day (100%) ☐
- Rush 2 day (200%) ☐
- Rush 1 day (300%) - Enquire ☐

All rush work requires lab approval before sample submission

COMPANY NAME	RWDI
OFFICE	Guelph
PROJECT MANAGER	Brad Bergeron
PROJECT #	1800160
PHONE	519-823-1311
FAX	
ACCOUNT #	Walker Ingersoll
QUOTATION #	
PO #	1800160-1000-109

REGULATION:
CRITERIA:
OTHER INFORMATION:

REPORT FORMAT/DISTRIBUTION
EMAIL ✓ FAX ___ BOTH ___
SELECT: PDF ✓ DIGITAL ✓ BOTH
EMAIL 1 brad.bergeron@rwdi.com
EMAIL 2 Steve.Sanderson@rwdi.com
Victoria.Lutan@rwdi.com

SUBMISSION #: L2215274
ENTERED BY: AD
DATE/TIME ENTERED: 31-12-18 13:39
BIN #:

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mmm-yy)	Time (24hr) (hh:mm)	Canister or Tube ID# (e.g. 060000-XXXX or G0XXXXXXSVI)	Regulator Serial # CS1200-XXXX or GXX	Matrix Type	SAMPLE DESCRIPTION TO APPEAR ON REPORT	TUBE AIR VOLUME - L or m³ ☐	RWDI Ingersoll-AA-WT	H2S	Methyl Mercaptan	Dimethyl Sulphide	Dimethyl Disulphide	TRS	STARTING PRESSURE - Pre-Sampling ("Hg)	ENDING PRESSURE - Post Sampling ("Hg)	COLLECTION TIME (HRS)	Field Conditions (Rain/Wind/Dust/Odour) Field PID Reading	LAB ID
29/12/18	00:00	15074	0158	AA	BELL-Dec 28 - Voc		X	X	X	X	X	X					
29/12/18	00:00	3505	0155 → 0088	AA	RBC 66-Dec 28 - Voc		X	X	X	X	X	X					
29/12/18	00:00	3490	0084	AA	33RD-Dec 28 - Voc		X	X	X	X	X	X				Do Not Analyse IF Final Pressure IS AT Zero	

SPECIAL INSTRUCTIONS/COMMENTS

This Chain of Custody Form is only to be used for Air Quality Samples

Matrix Type: Soil Gas Vapour = SG; Indoor Air = IA; Ambient Air = AA; Industrial Hygiene = IH

SAMPLE CONDITION AS RECEIVED
- FROZEN ☐
- COLD ☐
- COOLING INITIATED ☐
- AMBIENT ☐

MEAN TEMP

SAMPLED BY:	NJM Nathan McFadden	DATE & TIME	RECEIVED BY:	DATE & TIME	OBSERVATIONS Yes ☐ No ☐ If yes add SIF
RELINQUISHED BY:		DATE & TIME	RECEIVED AT LAB BY:	DATE & TIME: 31/12 13:30	INIT

Notes:
1. Quote number must be provided to ensure proper billing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

REV6-2015