



UPPER CANADA CONSULTANTS

NIAGARA FALLS, ONTARIO

LAND USE COMPATIBILITY ASSESSMENT: 9304 MCLEOD ROAD

RWDI # 2100125 October 22, 2020

SUBMITTED TO

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1 INTRODUCTION

RWDI was retained by Upper Canada Consultants to conduct a land use compatibility assessment for the lands located at 9304 McLeod Road in Niagara Falls, Ontario. The purpose of the assessment was to evaluate any compatibility issues caused by the proposed rezoning of the subject lands from Light Industrial to Residential.

The scope of this study was to assess the potential for impact from adjacent and nearby properties that may be a source of nuisance pollutants such as dust, odour, noise and/or vibration, on the proposed development. It should be noted that the Ministry of the Environment and Climate Change (MOECC) is now the Ministry the Environment, Conservation and Parks (MECP). To investigate this potential, the following tasks were undertaken:

- Site visit to identify types and nature of existing land uses in the area;
- Review of zoning by-law information;
- Review of the Ministry of the Environment, Conservation and Parks' (MECP) Guideline D-6;
- Review of MECP's Environmental Compliance Approvals (ECA) for existing industries within 1 km of the subject lands;
- Review of Environment and Climate Change Canada's National Pollutant Release Inventory (NPRI) data for industries within 1000 m of the subject land;
- Review of meteorological data; and
- Interpretation of the above information based on our experience with air quality, dust, odour, noise and vibration effects.

This study investigated the compatibility of the proposed residential land-use with existing industrial zoned land uses up to 1000 m from the subject land. The subject land is currently zoned light industrial (LI).

2 INDUSTRIAL AIR EMISSIONS AND NOISE

2.1 Applicable Guidelines

The following guidelines that relate to assessing the potential for adverse air quality and noise impacts from industry:

- Ontario Environmental Protection Act and Ontario Regulation 419/05;
- Environmental Noise Guideline Stationary and Transportation Sources Approval and Planning (NPC-300), (MOE, 2013); and,
- D-6 Compatibility between Industrial Facilities (MOE, 1995).

The applicability of each of these guidelines is discussed below.



2.2 Ontario Environmental Protection Act

Industrial air and noise emissions in Ontario are governed by the Environmental Protection Act (EPA) and its regulations. **Table 1** summarizes key sections of the EPA and the relevant MECP regulations.

Ontario Statute	Section	Summary
EPA	9	Prohibits the use, operation, construction, alteration, expansion or replacement of anything that may discharge a contaminant into the atmosphere, unless in accordance with an Environmental Compliance Approval (ECA), issued by MOECP. There are exceptions to this requirement for certain minor types of emission sources.
Reg. 419/05	Various Sections	Sets out requirements for air quality modelling and reporting that must be completed when applying for an ECA.
	14	Prohibits anyone from discharging a contaminant (including noise and odour) into the environment if it causes or may cause an adverse effect.
EPA		Adverse effect: impairment of the quality of the natural environment for any use; injury or damage to property or to plant or animal life; harm or material discomfort to any person; an adverse effect on the health of any person; rendering any property or plant or animal life unfit for human use; loss of enjoyment of normal use of property; and/or interference with the normal conduct of business.
419/05	45	Prohibits anyone from causing or permitting the emission of any air contaminant to a degree that may cause discomfort to persons, loss of enjoyment of normal use of property, interference with normal conduct of business or damage to property.
419/05	46	Prohibits anyone from causing or permitting visible emissions if they obstruct the passage of light by more than 20% for at least 6 minutes.
419/05	Schedules 2 and 3	Sets out standards for air contaminant concentrations.
419/05	19 and 20	Prohibits anyone from causing or permitting the standards to be exceeded at points of impingement.

Table 1: Summary of Ontario Regulations

2.3 Environmental Noise Guideline NPC-300

The MOECC Environmental Noise Guideline NPC-300, Stationary and Transportation Sources – Approval and Planning (MOECC, 2013) sets out requirements for noise and vibration modelling, monitoring, and reporting that must be completed when applying for an ECA. The guideline also supports land use applications made under the Planning Act. Guidance from NPC-300 was used to assess environmental sound from industrial sources. NPC-300 also specifies that industry and road traffic noise are to be assessed separately.

NPC-300 noise criteria applicable to an industry vary depending on the character of ambient noise in the surrounding area. Class 1 is an urban area with an acoustic environment that is continuously dominated by the sounds of human activity, as would be found in a major urban centre. Class 2 areas are suburban or semi-rural areas where sounds of human activity drop off earlier in the evening. Class 3 areas are rural where the acoustic environment is dominated by natural sounds. The acoustic environment surrounding the study area would be classified as a Class 2 area.



Industrial sources are required to meet daytime, evening and nighttime 1-hour L_{EQ} sound level limits as summarized in **Table 2**.

Table 2 provides both outdoor point of reception criteria and plane of the window criteria at the receptor. Outdoor points of reception are assessed when associated with dwellings or noise sensitive zoned lots. For dwellings, the outdoor point of reception is on the land use within 30 m of a façade of the building, at a height of 1.5 m above ground, in backyards, front yards, terraces or patios. Points of reception at the façade of a building include windows or openings in the façade leading to noise sensitive spaces such as bedrooms, living rooms, eat in kitchens, classrooms, therapy or treatment rooms, and assembly spaces for worship.

Time of Day	Time Period	Exclusion Limit for Outdoor Points of Reception Class 2, L _{EQ-1hr}	Exclusion Limit for Plane of Window of Noise Sensitive Spaces Class 2, L _{EQ-1hr}			
Daytime	07:00-19:00h	50 dBA	50 dBA			
Evening	19:00-23:00h	45 dBA	50 dBA			
Nighttime	23:00-7:00h	45 dBA	45 dBA			

Another important piece of legislation is the Ontario Environmental Bill of Rights (EBR). Section 22 of the EBR requires the MECP to give public notice of certain classes of proposals, including a proposal to issue an ECA. Section 38 of the EBR grants any resident of Ontario the right to seek leave to appeal an MECP decision to issue and ECA.

2.4 D-Series Guidelines

In addition to the regulations cited in the preceding sections, land use considerations are another means to reduce the risk of adverse air quality and noise effects from industrial facilities. For example, this can be achieved by creating a land use buffer between industry and a sensitive land use, such as residences, schools, seniors' facilities, daycares, hospitals, churches and campgrounds. The MECP has a guideline (D-6: Compatibility between Industrial Facilities) to assist planners in establishing adequate buffers.

The D-series guidelines, and specifically Guideline D-6, are intended to minimize encroachment of sensitive land uses on industrial facilities and vice versa. It addresses potential incompatibilities due to emissions such as noise, odour and dust. Guideline D-6 provides a classification scheme for industries, based their potential for fugitive emissions that could cause adverse effects. For each class, the guideline provides an estimate of potential influence area and a recommended minimum separation distance between each class of industry and sensitive land uses (see **Table 3**).

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Table	3:	Summary	of	Guideline	D-6
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Industry Class	Definition	Potential Influence Area	Recommended Minimum Separation Distance (property line to property line)		
I	Small scale, self-contained, daytime only, infrequent heavy vehicle movements, no outside storage.	70m	20m		
II	Medium scale, outdoor storage of wastes or materials, shift operations and frequent heavy equipment movement during the daytime.	300m	70m		
111	Large scale, outdoor storage of raw and finished products, large production volume, continuous movement of products and employees during daily shift operations.	1000m	300m		

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule and intensity of operations. **Table 4** provides the classification criteria. A comparison with anticipated operations at each of the businesses nearby the proposed development is provided in **Appendix B**.

Often an industry will fall between two classes and judgment is required to apply the most appropriate classification given the balance of the criteria. Guideline D-6 states that no incompatible development should occur within the recommended minimum separation distance as noted in **Table 3**. Section 4.10 of D-6 however identifies exceptional circumstances with respect to redevelopment, infill and mixed-use areas. In these cases, the guideline suggests that separation distances less than the recommended minimum values may be acceptable if a justifying impact assessment is provided.

able 4: Guideline D-6 Industrial Categorization Criteria
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Criteria	Class I	Class II	Class III
Outputs	 Sound is not audible off property Infrequent dust and/ or odour emissions and not intense 	 Sound occasionally audible off property Frequent dust and/ or odour emissions and occasionally intense 	 Sound frequently audible off property Persistent and intense dust and/ or odour emissions
Scale	 No outside storage Small scale plant or scale is irrelevant in relation to all other criteria 	Outside storage permittedMedium level of production	Outside storage of raw and finished productsLarge production levels
Process	 Self-contained plant or building which produces / stores a packaged product Low probability of fugitive emissions 	 Open process Periodic outputs of minor annoyance Low probability of fugitive emissions 	 Open process Frequent outputs of major annoyances High probability of fugitive emissions
Operation / Intensity	 Daytime operations only Infrequent movement of products and/or heavy trucks 	 Shift operations permitted Frequent movements of products and/or heavy trucks with the majority of movements during daytime hours 	 Continuous movement of products and employees Daily shift operations permitted

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3 POTENTIAL FOR INCOMPATIBILITY

3.1 **Potential for Industrial Air and Noise Emissions**

A search for existing ECA and NPRI information for industries within 1000 m of the subject lands was completed in combination with a preliminary review of industries using Google Streetview. This helped identify any industries that may have a potential to impact air quality and or noise at the subject land. No sources of vibration were identified in the vicinity of the proposed development area.

Using the gathered information, industries were classified based on their potential to influence the proposed development, as per the D-6 classifications (Class I, II or III). A site visit was completed on September 24, 2020 to verify the existing industrial areas within the 1000 m zone around the study area. The identified industries are shown in **Figure 2** with the industrial sites colour coded according to their D-6 classification (Class I, II, or III).

The zoning within 1000 m of the subject land was consulted, to consider not only lands where Class I, II or III industries currently exist, but also lands where such industries are permitted as future uses under the current zoning. The zoning within 1000 m of the subject land includes residential, light industrial, heavy industrial, and conservation/natural area, as shown in the zoning map provided in **Appendix A-1**.

The proposed future land use plan was also reviewed, as seen in **Appendix A-2**. AS part of the future planning, the areas west and south of the subject property remain predominantly industrial with a small area south of the subject land zoned Environmental Protection. The east side the subject property is part of the Garner South Secondary Plan. Under this plan, the east portion of the subject property will be zoned Residential Low. During the site visit it was observed that construction of a residential subdivision has already commenced on the lands to the east (8990 and 9098 McLeod Road). The area south east of the subject lands (bounded by Brown Road to the south and both sides of Garner Road) will have their zoning changed from Light Industrial to Employment. The future Land use plan does not appear to increase any impact industry might have on the development.

If rezoning of the subject land is approved, the development of residential land uses may impinge on the ability of future industrial development to the west and the south of the subject property. The lands to the west are zoned light industrial and allowable uses are expected to fall under the category of Class I and Class II industries. The lands to south and southwest are zoned heavy industrial and allowable uses include Class III industries.

Rezoning the subject land is not expected to significantly impact land uses in light industrial zones, however the lands to the southwest zoned heavy industrial may require noise and air quality mitigation in order to comply with applicable criteria at existing and proposed noise and air quality sensitive land uses. In addition, any future industrial development will be required to demonstrate compliance to MECP standards and guidelines as part of their permitting process.

Any development will be required to consider existing residential uses such as the dwellings on Garner Road and Brown Road and the residential subdivision (8990 and 9098 McLeod Road) currently under construction. Depending on the location of future Class II and Class III industrial developments, quantitative analysis should be conducted to ensure future compatibility.

Existing facilities within the respective zone of influence areas and their potential impact on the proposed development are discussed below.

3.1.1 Class I

The zoning within the potential influence area of 70 m of the site is predominantly Agricultural (A) and Light Industrial (LI), as shown in the zoning figure provided in Figure 1. Permitted Class I uses within Zone LI include, but aren't limited to, light industrial, heavy equipment sales and service, motor vehicle repair shops, and transportation depots.

Only one existing Class I industry falls within the potential influence area, Dan's Produce, which is a fresh produce supplier (See Figure 2 and Table B-1 for details). This facility is a small storage and distribution facility for a grocery retailer with minimal potential for emissions or significant outdoor sources that could contribute to potential dust or odours.

Although the potential area of influence from this facility reaches the subject land, it is located beyond the recommended minimum setback distance of 20 m. In addition, there are existing points of reception that are in closer proximity, therefore no compatibility issues are expected from a noise and air quality perspective.

3.1.2 Class II

The Light Industrial zoning designation also permits Class II industries within a potential influence area of 300 m of the proposed development.

As shown on Figure 2, there are no existing facilities within the Class II potential area that can impact the subject lands.

3.1.3 Class III

The Heavy Industrial zoning permits Class III facilities through the permitted use for industry, heavy. As shown on **Figure 2**, there is one existing Class III facility, Cytec Canada Inc., identified within the potential influence area of 1000 m from the proposed development. The facility is discussed further in the section below.

3.1.3.1 Cytec Canada Inc.

The Cytec Canada Inc. facility is a large phosphine and phosphine derivatives manufacturing facility located at 9061 Garner Road. Air and noise sources associated with the site include production machinery, emergency equipment, process exhausts and emissions, and transport trucks for shipping. Operation can occur 24 hours per day, 7 days per week and 52 weeks per year. Therefore, the facility was classified as a Class III.

Cytec operates under ECA #1282-AQRMJB and is required to comply with applicable noise criteria at nearby noise receptors. There are residential uses located in closer proximity to the Cytec lands than the proposed development. As per Cytec's existing regulatory requirements to comply at the existing residential lands, a detailed assessment is not required from a noise perspective.



A review of publicly available records indicated that Cytec reports to the Federal National Pollutant Release Inventory (NPRI) for volatile organic compounds, ammonia and products of combustion and as previously noted, the facility operates under ECA #1282-AQRMJB. A review of wind data from the Saint Catharines Niagara District Airport was completed. As presented in Figure 3, the winds in the area are predominantly blowing from the southwest toward the northeast. The subject lands lie north west of the Cytec facility however, winds blowing to the north west with the potential to transport fugitive emissions and odours from Cytec occur infrequently(less than 4% of the time). In addition, the potential impact for fugitive dust or odour emissions from Cytec are expected to be negligible since the facility does not appear to have outdoor storage of materials that may result in dust emissions, the facility ECA has no requirements or conditions for odour, and it is located beyond the minimum setback distance of 300 m from the facility. Since Cytec meets the minimum setback distance and there is existing residential at locations closer to the facility, it is not expected that Cytec will have an impact on the subject land. It should be noted, however, that the Cytec facility does have some taller stacks that have the potential to disperse emissions further afield and could be problematic if high rise development were to occur on the subject land. However, at present since the development is expected to be low-rise residential/houses, therefore, emissions from Cytec are not expected to impact the subject lands.

4 CONCLUSIONS

RWDI was retained by Upper Canada Consultants to conduct a land use compatibility assessment for the lands located at 9304 McLeod Road in Niagara Falls, Ontario. The purpose of the assessment was to evaluate any compatibility issues caused by the proposed rezoning of the subject lands from Light Industrial to Residential.

The study investigated the compatibility of the proposed residential development with existing industrial land uses up to 1000 m from the subject lands. The study found that there were no current land uses that will result in significant noise or air quality impacts on the proposed residential development.

Rezoning the subject lands is not expected to significantly impact land uses in light industrial zones, however the lands to the southwest zoned heavy industrial may require noise mitigation in order to comply with applicable criteria at existing and proposed noise sensitive land uses. Depending on the location of future Class II and Class III industrial developments, quantitative analysis should be conducted to ensure future compatibility.



5 REFERENCES

Ontario Ministry of the Environment (MOE), July 1995, Guideline D-6, *Compatibility Between Industrial Facilities and Sensitive Land Uses.*

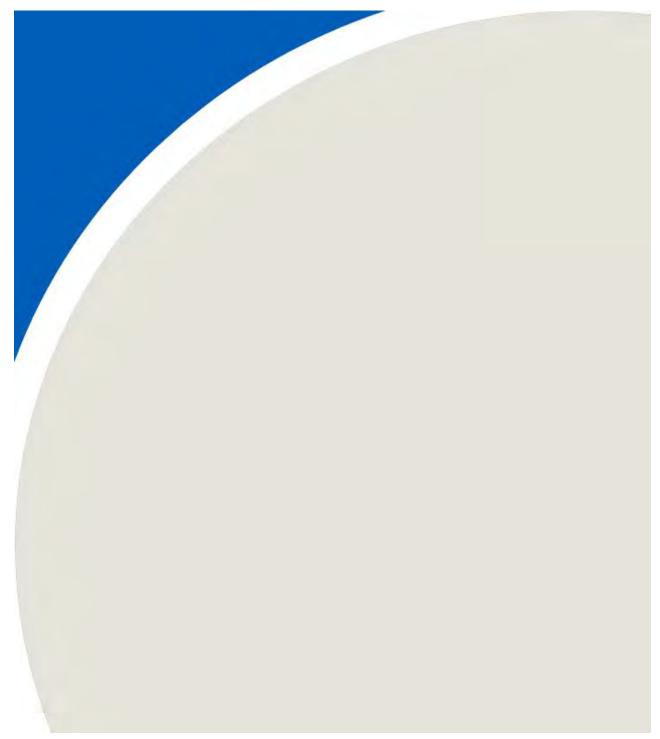
Ontario Ministry of the Environment (MOE), August 2013, Publication NPC-300, *Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning*.

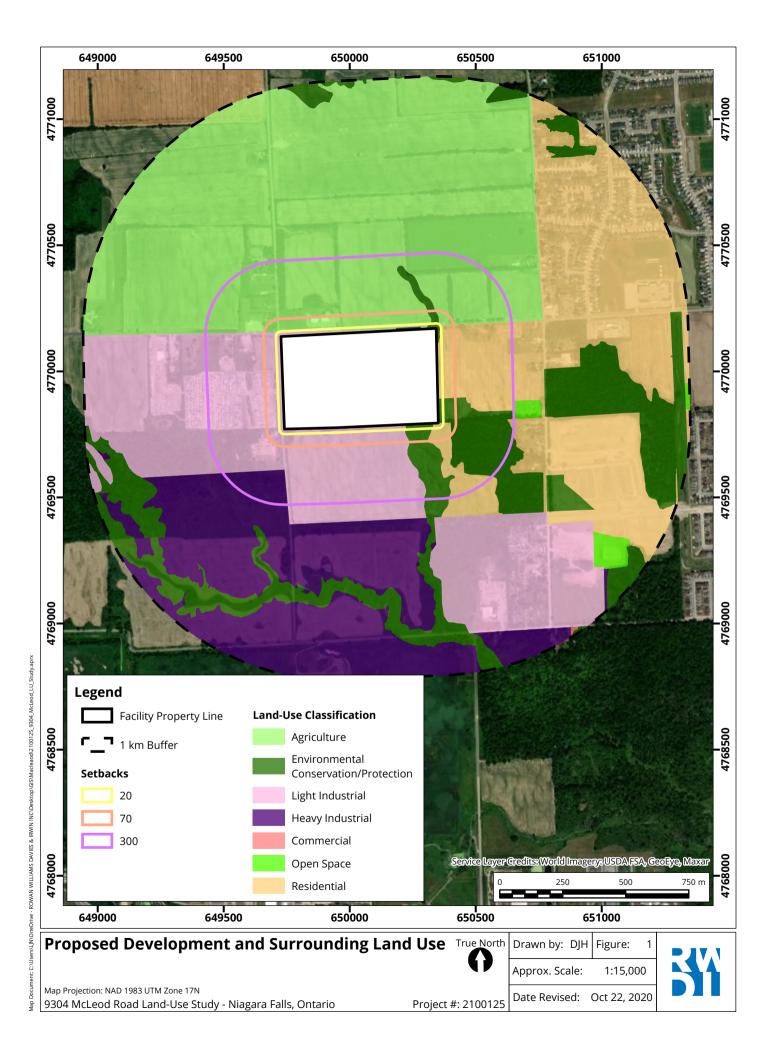
Ontario Ministry of the Environment and Climate Change (MOECC), March 2018, Guideline A10: Procedure for Preparing an Emission Summary and Dispersion Modelling (ESDM) Report, version 4.1.

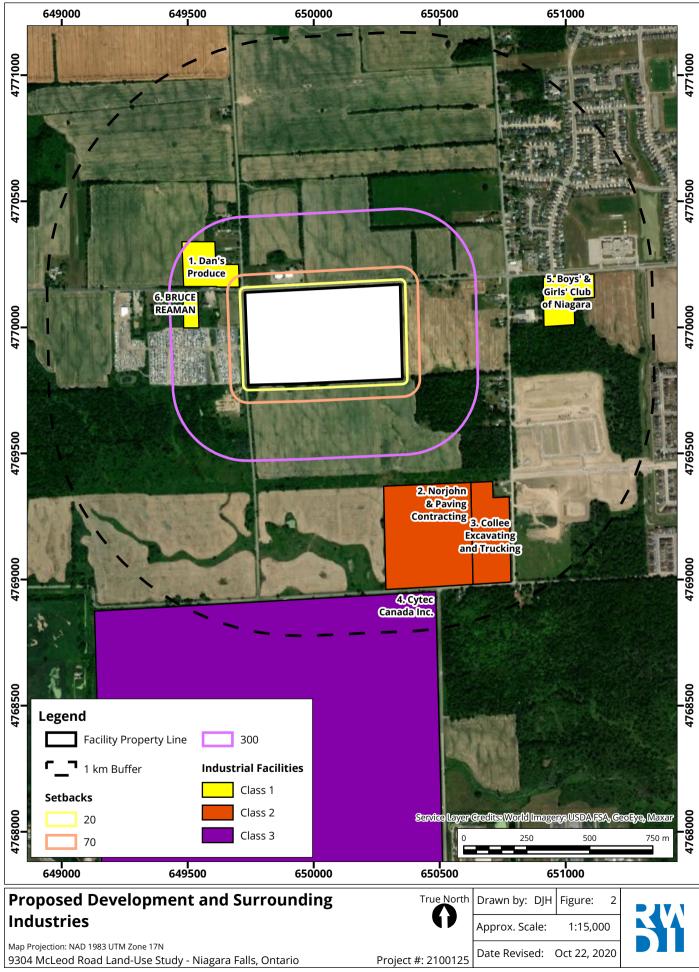
Ontario Ministry of the Environment and Climate Change (MOECC), February 2017, MOECC Guideline A11: Air Dispersion Modelling Guideline for Ontario, version 3.0.

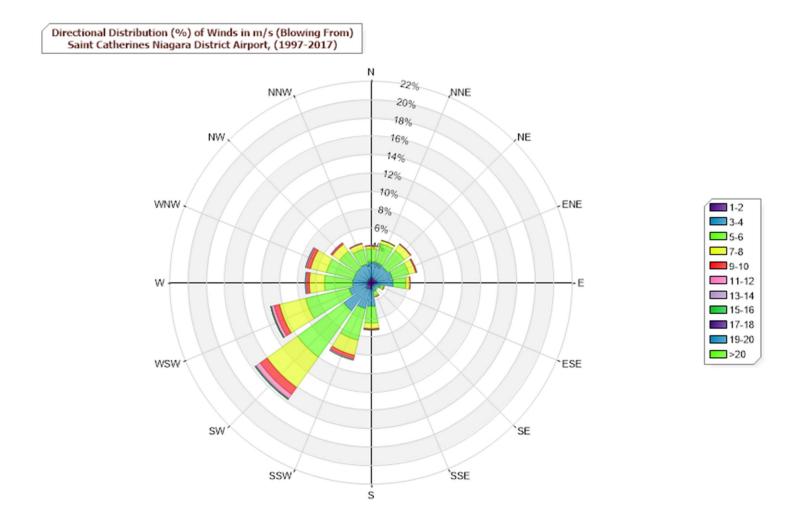


FIGURES





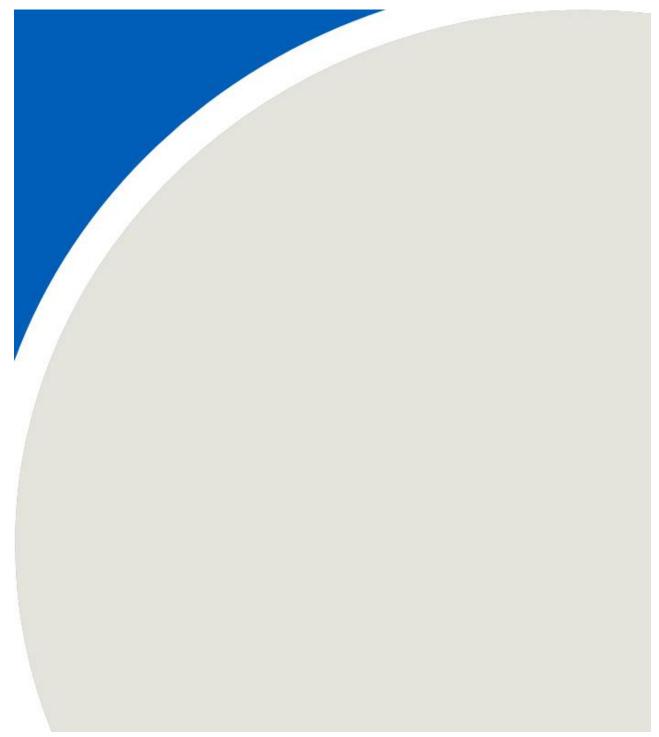


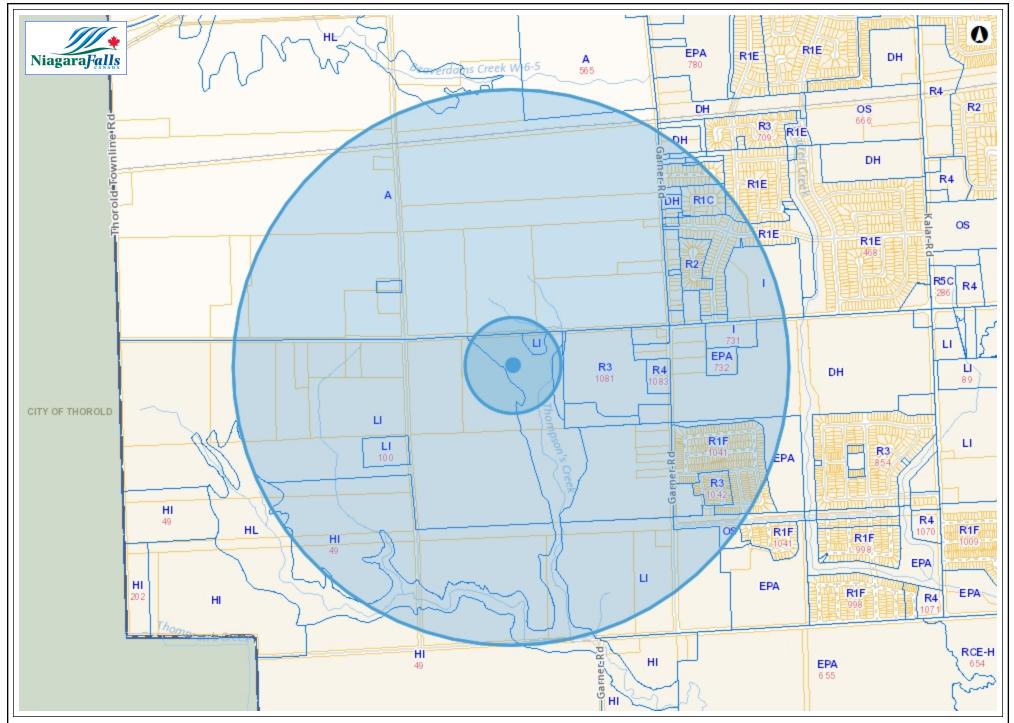


Direction Distribution of Winds Blowing from Catharines Niagara District Airport	Figure: 3	SN	
9304 McLeod Avenue, Niagara Falls, ON.	Project #2100125	Date: 10, 13, 2020	

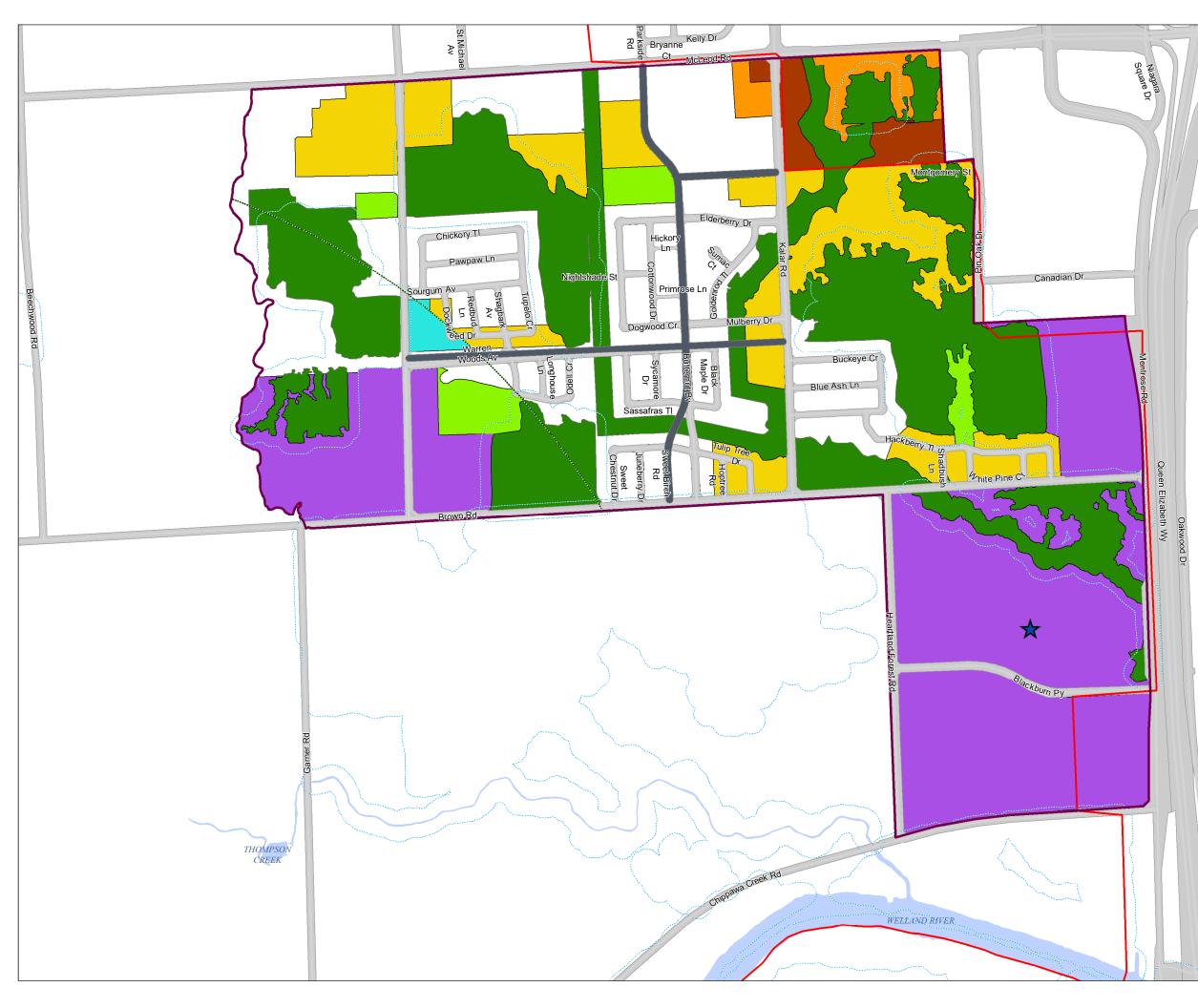


APPENDIX A



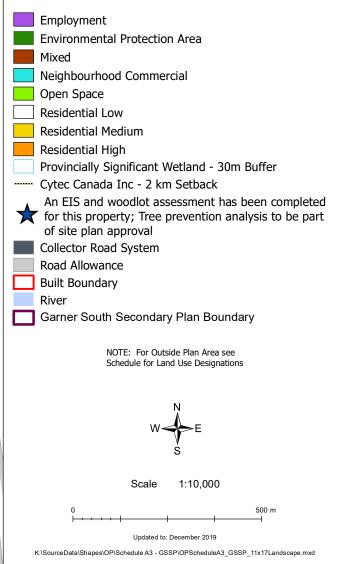


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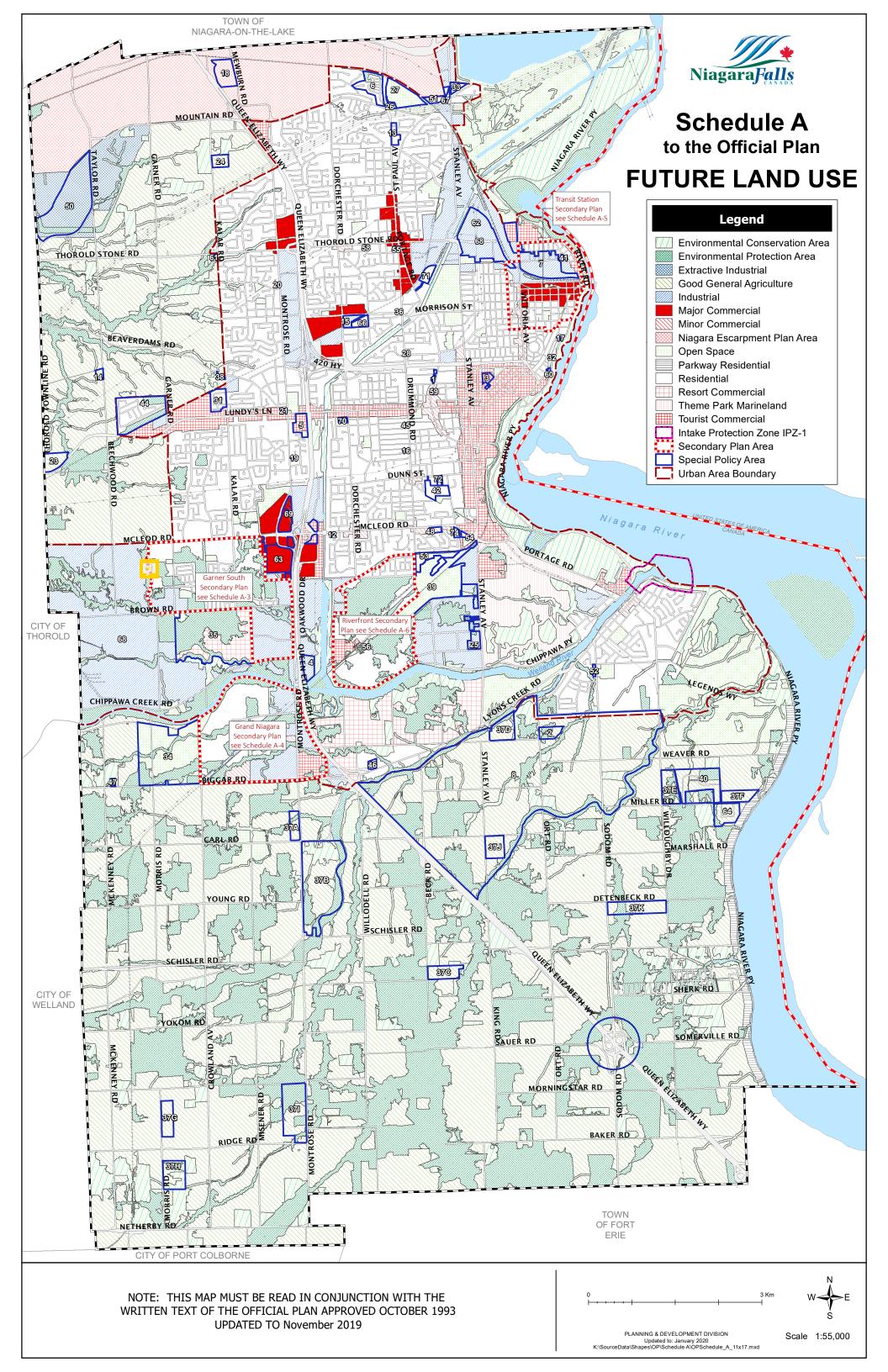




Schedule A3 to the Official Plan GARNER SOUTH SECONDARY PLAN



NOTE: The Natural Heritage areas located outside of the Garner South Secondary Plan Area have not been included for illustration purposes only and should not be interpreted as a land use designation





APPENDIX B

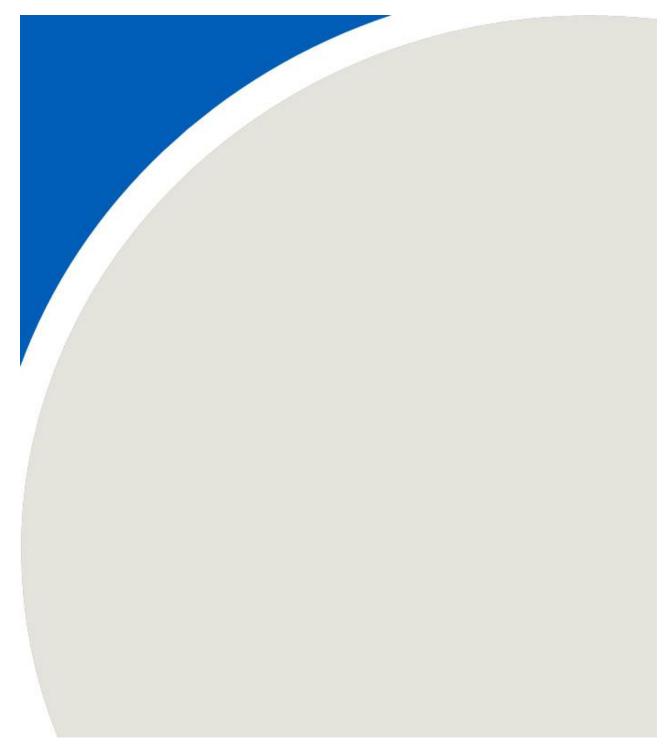


Table B.1: List of MECP Approvals, Registrations and Industrial Sites Around 9304 McLeod Property

Site Number	Map Icon Number	APPROVAL NUMBER	BUSINESS NAME	ADDRESS	MUNICIPALITY	POSTAL CODE	APPROVAL TYPE	STATUS	In Study Area	Type of Plant	NOISE/VIB/ AAR	Comment on ECA Conditions	Tall Stack in ECA Approval	NPRI	Class	Class Comments
1	1	n/a		7201 Beechwood	Niagara Falls	L2E 6S5	n/a	n/a	Yes	Grocery retailer	n/a	n/a	n/a	No	1	Fresh produce supplier
2	2	n/a		9101 Brown Road	Niagara Falls	L2E 6S5	n/a	n/a	Yes	Fleet Maintenance - class II	n/a	n/a	n/a	No	2	Fleet Maintenance
3	3	n/a	Collee Excavating and Trucking	7863 Garner Road	Niagara Falls	L2E 6S5	n/a	n/a	Yes	Has a large yard with equipment storage, some parts of yard are unpaved; potential for fugitive dust.	n/a	n/a	n/a	No	2	Has a large yard with equipment storage, some parts of yard are unpaved; potential for fugitive dust.
4	4	1282-AQRMJB	Cytec Canada Inc.	9061 Garner Road	Niagara Falls	L2H 3A4	ECA-AIR	Approved	Yes	Chemical Manufacturer	Yes	Must comply with NPC- 300 and 207 limits.	No mention	Yes	3	Large facility manufacturing chemicals. 24 hour/day operation. Has emergency flaring equipment.
5	5	8357-8L8Q8B	Boys' & Girls' Club of Niagara	8800 McLeod Rd	Niagara Falls	L2H 0Y8	ECA-AIR	Approved	Yes	n/a - Institution	No	No	No	No	1	Charity/Social Organization
6	6	R-004-4423838228	BRUCE REAMAN	9788 McLeod Road	Niagara Falls	L2E 6S5	EASR-Waste Management System	REGISTERED	Yes	Waste Management	No	No	No	No	1	Site is a yard for vehicle fleet. No waste stored onsite as per EASR.