REPORT

543 MAIN STREET EAST & LANDS GENERALLY SOUTH OF KILALY ROAD EAST & 896 KILALY ROAD EAST

PORT COLBORNE, ONTARIO

AIR QUALITY STUDY
RWDI # 2105514
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SUBMITTED TO

Rachita Gupta
Project Manager
r.gupta@elitegroup.com

Elite Developments
102-3410 S. Service Road
Burlington, ON. L7N 3T2

SUBMITTED BY

Dan Bacon
Manager, Project Delivery
dan.bacon@rwdi.com

Tara Bailey
Senior Engineer, Air Quality
tara.bailey@rwdi.com

RWDI AIR Inc.
Consulting Engineers & Scientists
600 Southgate Drive
Guelph, ON N1G 4P6
T: 519.823.1311
F: 519.823.1316

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1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by *Elite Group* to undertake an air quality study for a proposed residential development at consisting of 3 blocks of properties within the Kilaly Masterplan located in Port Colborne, Ontario. The lands in the Kilaly Masterplan are bounded by Elizabeth Street on the west, Main Street East on the north, Lorraine Street on the east and Kilaly Street East on the south side. These lands are shown on **Figure 1A**. The subject lands are located within this masterplan and consist of 3 non-contiguous parcels identified as 1) 543 Main Street East 2) Lands generally south of Kilaly Street East and 3) 896 Kilaly Street East. Their locations are shown in **Figure 1B.** The proposed development at the subject lands will consist of a mixed-use subdivision mainly composed of detached homes and townhouses. The subject lands are currently designated residential development and environmental conservation land uses. These land use designations are presented in **Figure 2a**.

2 LAND USE COMPATIBILITY POLICIES AND GUIDELINES

2.1 City of Port Colborne Official Plan

Schedule A of The City of Colborne's Official Plan[1] provides a City-wide land use map. This land-use map is presented in **Figure 2B** and indicates that the subject lands are designated as Urban Residential. Section 3.2 of Official Plan defines Urban-Residential which is defined as:

" ..lands that are primarily used for residential purposes and represent the existing and planned built-up areas within the Urban Area Boundary. The predominant uses for lands designated Urban Residential shall include, but not be limited to; residential uses; neighbourhood commercial uses such as a convenience store, beauty salon, post office, and doctor's office all of limited size; cemeteries, parks, schools, community facilities and institutional uses normally located in residential areas."

The official plan also requires buffering between industrial/employment areas and sensitive land uses as per Section 3.10.1 of the Corporation of the City of Port Colborne Official Plan which states the following:

"Buffering is required between industrial/employment area uses and sensitive land uses, such as residential, including but not limited to, increased setbacks, berming, a high degree of landscaping, screening and fencing. "

2.2 Provincial Policy Statement

Section 1.2.6 of Part V of the Provincial Policy Statement 2014 (https://www.ontario.ca/document/provincial-policy-statement-2014/part-v-policies-10#section-0) states the following:

[1] City of Port Colborne Official Plan. available online at: https://www.portcolborne.ca/en/business-and-development/resources/Documents/Planning/2020-Updated-Official-Plan-COMPLETE.pdf

"*Major facilities* and *sensitive land uses* should be planned to ensure they are appropriately designed, buffered and/or separated from each other to prevent or mitigate *adverse effects* from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term viability of *major facilities*."

Section 1.6.8.3 of Part V of the Provincial Policy Statement 2014 further states that "New *development* proposed on *adjacent lands* to existing or *planned corridors* and transportation facilities should be compatible with, and supportive of, the long-term purposes of the corridor and should be designed to avoid, mitigate or minimize negative impacts on and from the corridor and transportation facilities."

2.3 Provincial Compatibility Guidelines

The MECP's D-series guidelines deal with land use compatibility in Ontario. The most relevant guideline in the present case is D-6 (Compatibility between Industrial Facilities, https://www.ontario.ca/page/d-6-compatibility-between-industrial-facilities). It provides a classification scheme for industries based their potential for emissions that could cause adverse effects. The classification scheme is summarized in **Table 1**.

Table 1: Guideline D-6 Industry Classification Scheme

Class	Descriptors
I	• Small scale • Self-contained • Packaged product • Low probability of fugitive emissions • Daytime operations only • Infrequent and/or low intensity outputs of noise, odour, dust, vibration
II	• Medium scale • Outdoor storage of wastes or materials • Periodic outputs of minor annoyance • Low probability of fugitive emissions • Shift operations • Frequent movement of products and/or heavy trucks during daytime
III	• Large scale • Outside storage of raw and finished products • Large production volumes • Continuous movement of products and employees during shift operations • Frequent outputs of major annoyance • High probability of fugitive emissions

For each class of industry, the guideline provides an estimate of potential influence area and a minimum recommended separation distance, which are set out in **Table 2**.

Table 2: Guideline D-6 Separation Distances

Industry Class	Potential Influence Area (m)	Minimum Separation Distance (m)
I	70	20
II	300	70
III	1000	300

Guideline D-6 recommends the following:

1. "…no sensitive land uses shall be permitted within the actual or potential influence areas of Class I, II or III industrial land uses, without evidence to substantiate the absence of a problem." (Sec. 4.5.1 of Guideline D-6)
2. "No incompatible development other than that identified in Section 4.10, *Redevelopment, Infilling and Mixed-Use Areas* should occur [within the recommended minimum separation distances]" (Sec. 4.3 of Guideline D-6)
3. "When a change in land use is proposed [in an area of urban redevelopment, infilling or transition to mixed use] for either industrial or sensitive land use, less than the minimum separation distance … may be acceptable subject to either the municipality or the proponent providing a justifying impact assessment (i.e., a use specific evaluation of the industrial processes and the potential for off-site impacts on existing and proposed sensitive land uses). Mitigation is the key to dealing with less than the minimum to the greatest extent possible." (Sec. 4.10.3)

With respect to how separation distance should be measured, the guideline states that "measurement shall normally be from the closest existing, committed and proposed property/lot line of the industrial land use to the property/lot line of the closest existing, committed or proposed sensitive land use." However, it does allow the measurement to include areas within the lot lines (on-site buffers) where site-specific zoning or site plan control precludes the use of the area for a sensitive use in the case of the sensitive land use, and for an activity that could create an adverse effect in the case of the industrial land use.

When dealing with vacant industrial lands, the guideline states that "determination of the potential influence area shall be based upon a hypothetical worst-case scenario for which the zone area is committed".

3 METHODOLOGY

The tasks consisted of reviewing the following items:

- The official plan and zoning by-laws for the surrounding area;
- Published satellite imagery and street-based photography;
- In-person site visit by RWDI personnel on September 14th, 2021 to confirm existing uses and operations;
- MECP Environmental Compliance Approval (ECA) and Environmental Sector and Activity Registry (EASR) permits for existing industries within 1000 m of the subject lands;
- Pending applications for amendment to ECA's of any major facilities, posted on the Environmental Registry;

- Environment and Climate Change Canada's (ECCC) National Pollutant Release Inventory (NPRI) data for industries within 1000 m of the subject lands;
- Guidelines D-1 (Land Use Compatibility) and D-6 (Compatibility between Industrial Uses) from the Ministry of the Environment, Conservation and Parks (MECP);
- Meteorological data for the study area;
- Reviewing Air Quality Impact Assessment Report for Port Colborne Quarries Inc.
- Any recent complaint history available from the applicable MECP District Office to determine if there are any air quality within the area.

RWDI reviewed wind data from Niagara Central Dorothy Rungeling Airport, which is the nearest meteorological station to the subject site that has the most recent climate records for the area. A summary of the frequency distribution of winds over a period from 2006-2020 is shown in **Figure 3**. The wind directions in the figure refer to the direction from which the wind blows, while the annual frequency of a given wind direction is shown as a distance radially from the centre. The most frequent winds originate from the west-north-west (WNW) through south (S) and east-northeast directions. Winds from the east-south-east (ESE) through south-east (SE) and north-east through north-west directions are less frequent approximately 4% of the time.

Historically RWDI have contacted local MECP district offices regarding concerns and/or complaints related to air quality and were advised that the MECP is unable to provide this information directly with such inquiries to be directed via the Ministry's Freedom of Information (FOI) office. While complaint history for the area is a helpful tool in the initial screening of industries, due to the length of time to complete the process, we did not consider this task to be essential in completing the assessment for this site.

4 RESULTS

Six (6) industrial facilities within 1000 m of the subject lands were identified through the review of satellite imagery, completion of the site visit, and the MECP ECA and EASR document search. Table A-1 in **Appendix A** lists all the Class I, II, and III industries within 300 m and Class II and III industries within 1000 m of the subject lands. These facilities are shown in **Figure 4**. Class I industries beyond 300 m away were not documented as their potential influence areas fall far short of the subject lands.

There is one (1) Class II and two (2) Class 3 facilities within the study area whose respective D-6 assigned potential influence areas of 70m and 1000m respectively overlap with the subject lands. These facilities are discussed in detail below.

J.T.L. Machine Limited – 857 Reuter Road

The site is a medium scale industrial operation engaged in metal fabrication, welding, sand blasting and painting. The facility yard is paved and has minimal outdoor storage; there are no indications of any outdoor operations that could result in fugitive dust or fugitive odour emissions. The facility has an environmental approval, ECA #0205-9P7R4M, which requires emissions from the facility to be in compliance with MECP air quality benchmarks at its property line and beyond. Emissions from the facility appear to be directed to the atmosphere via low lying point source exhausts. The approval for the facility indicates there is a painting operation utilizing 3.6 L per hour of paint. This activity could generate odour emissions. The site is located within 150m of existing residential which suggests that its actual influence area is less than 200m and any impacts of odour emissions are unlikely to extend to the subject lands which

are located at least 250m away. On this basis J.T.L Machine Limited is not expected to adversely impact air quality at the subject lands and is considered compatible with them.

Vale Canada Limited – 187 Davis Street

The facility is a large metal refinery with significant industrial operations. An online review of news media revealed that the site has had numerous legal battles with concerned residents which have centered around contamination related to the site's operations[2]. A visit to the area surrounding the facility was conducted on September 14th, 2021. During this visit no odour was observed in relation to the site, nor was any fugitive dust observed. A desktop review of satellite imagery indicates the presence of a tall stack. The facility's ECA indicates the presence of scrubber exhausts serving numerous process tanks. Emissions from the facility's equipment are required to meet MECP air quality criteria at the property line and beyond. The facility also appears to have an approved industrial non-hazardous waste disposal operation (landfill) located in the northern section of its property. Based on its scale and equipment the facility meets the criteria for a D-6 Class III facility. However, except for the landfill area, all industrial operations and related emission points at this facility are located beyond the Class III potential influence area of 1000m from the subject lands, with the tall stack located approximately 1600 m away. The proposed residential at the subject lands are houses and as such there are no elevated receptors on site that would be impacted by emissions from such a tall stack. Therefore, significant air quality impacts from the operations are not expected at the subject lands.

The northern portion of Vale's property contains the active landfill site complete with unpaved onsite roadways. Operations of vehicles on these unpaved roads and operations at the landfill have the potential to generate fugitive dust and odours however, the landfill area is located within 60m of existing residential on Colborne Street This suggests that the actual influence area of the landfill is approximately 60m and as such is not expected to extend to the closest section of the subject lands designated as "Lands Generally South of Kilaly Street East" which is located approximately 480 m away Based on the above, Vale's current industrial operations and landfill operations are not likely to impact air quality at the subject lands; this site is considered to be compatible with them It should be noted that the other two parcels that make up the subject lands: 543 Main Street East and 896 Kilaly Street East are located more than 1000 m away from the Vale property which is well outside of the D-6 Class III potential influence area.

Port Colborne Quarries Inc - Hwy 140 & Concession 2

The facility is a large quarry operation which, as described in a recent Air Quality Impact Assessment[3] completed in support of a Category 2 Class "A" Quarry Below Water license application, engages in rock drilling and blasting, aggregate recovery, transfer and processing using rock crushers, screens, conveyors, a wash plant and other equipment. The site can process up to 4500 tonnes of material per day and typically engages blasting rock at a frequency of 1 to 3 blasts per week. The site has unpaved onsite roadways with frequent vehicle traffic that transports aggregate from blasting areas to its onsite processing plant. The size and considerable outputs from this facility indicate it is a D-6 Class III facility with the potential to emit considerable dust emissions. Odour is not considered a concern from the operations.

The quarry site is generally bounded by Highway 140 to the west, Second Concession Road to the north, Main Street East to the South. The eastern portion of the site extends approximately 400 to 790m east of Carl Road. As per the

[2] Port Colborne Class Action Lawsuit Against Vale, Canada. Available online at: https://ejatlas.org/conflict/port-colborne-class-action-lawsuit-against-vale

[3] Golder Associates Ltd. 2020. Air Quality Impact Assessment Port Colborne Quarries Inc., Pit 3 Extension. Report #1771656.

above-mentioned impact assessment (presented in **Appendix B),** the quarry has 3 extraction pits, Pit 1, Pit 2 and Pit 3, and has proposed extending its operation to lands east of Pit #3. The Pit 3 extension lands are bounded by Second Concession Rd to the north and Highway 3 to the south. The extension's eastern boundary is proposed to extend approximately 400 to 790m east of Carl Road. At present, blasting and extraction occurs at the rock faces in Pit 3 and proceeds in a west to east direction. Blasted rock is loaded onto trucks and taken to the permanent processing plant in Pit 1.

One section of subject lands, the Lands Generally South of Kilaly Street East are located more than 1000m away from the quarry and is not expected to be impacted by the quarry since its separation distance is beyond the typical Class III D-6 Potential Influence Area. The sections of the subject lands designated as 534 Main Street East and 896 Kilaly Street East are in much closer proximity to the quarry. However, the proposed residential areas in these sections of the subject lands are located more than 300 m from potential emission generating activities. In addition, the residential areas on the subject lands are buffered by woodlots and large fields. These buffer areas are essential in helping mitigate the impacts of any dusts generated at the quarry. There are also existing residential areas located in closer proximity to the quarry that are located on Snider Road and on Berkley Avenue. These sites are approximately 150m southeast and approximately 250m southwest respectively, of the emission generating activities at the quarry. These separation distances indicate that the actual influence area of the quarry is likely to be much less than a typical Class III D-6 potential influence area of 1000m.

The quarry has been the subject of an Air Quality Impact Assessment, related to a proposed expansion. The report is presented in Appendix B. RWDI conducted a high level review of the methodology and assumptions of the report and found it to be consistent with general practice, with no significant issues or concerns identified. The assessment considered impacts of Total Suspended Particulate Matter (SPM), PM-10, PM-2.5 and Crystalline Silica at receptors along the quarry property boundary and at off site receptors. Contour plots of predicted maximum contaminant concentrations were presented. The plots included the subject property.

This assessment indicates that particulate emissions exceed MECP benchmarks but that the exceedances occur in the immediate vicinity of the quarry's property line and not any where near the proposed residential areas at the subject lands.

Therefore, the quarry is not expected to adversely impact air quality emissions at the subject lands given the following:

1) the subject lands are located further away compared to existing residential
2) the subject lands are separated from the emissions generating area at the quarry by land buffers that are at least 300m deep; and,
3) the results of the facility's modelling assessment did not indicate adverse particulate impacts extending to the subject lands.

5 CONCLUSIONS

From an air quality perspective, the subject lands are compatible with surrounding industrial uses and no significant air quality impacts from adjacent and nearby industrial properties on the proposed development are expected.

FIGURES

APPENDIX A

Appendix A1 - List of Relevant Industrial Sites

543 Main Street East & 896 Kilaly Street East and Lands Generally South of Kilaly Street East Air Quality Study

RWDI # 2105514

September 26th 2021

Table A1 - Relevant Sites Within 1km of the Subject Lands (Site 1)

Map Icon Number	BUSINESS NAME	ADDRESS	TYPE OF FACILITY/EQUIPMENT/Approval	APPROVAL / REGISTRATION NUMBER	Comment on Operations	Tall Stacks Present	Approximate Distance to Site (m)	D-6 Classification
1	CORPORATION OF THE CITY OF PORT COLBORNE	550 ELIZABETH STREET	Community Recreation Centre with an EASR-Standby Power System/EASR-Heating System	R-002-8548316798 R-003-3133415468	The site is a well contained, medium scale non-industrial facility used for community recreation with no industrial ouput. For this reason the facility was designated Class 1 with respect to guideline D-6. The site has two EASRs, one for a standby generator and another for a heating system. The emissions from the equipment covered under these approvals are required to meet MECP air quality benchmarks at the property line and beyond. The generator itself appears to be located on the south side of the building approximately 350m away from the subject lands. The activities at the facility are unlikely to generate any fugitive dust or fugitive odour emissions. I.e. potential for fugitive dust is very low since almost all outdoor areas are paved/ have ground cover and the acitivities at the site are not likely to result in odour emissions. This site is not expected to impact air quality at the subject lands given that 1) no fugitive dust or odour impacts are are expected from activities at the facility and 2) the standby generator and heating system are required to meet MECP air quality benchmarks at the property line and beyond.	No	224	Class I
2	J. T. L. Machine Limited	857 Reuter Rd	Heavy industrial metal fabrication Shop with an ECA-AIR.	0205-9P7R4M	The site is a medium scale industrial operation engaged in metal fabrication, welding, sand blasting and painting. The facility yard is paved and has minimal outdoor storage; there are no indication of any outdoor operations that could result in fugitive dust or fugitive odour emissions. Emissions from the facility appear to be directed to the atmosphere via low lying point source exhausts. The approval for the facility indicates there is a painting operations utilizing 3.6 L per hour of paint. This activity could generate odour emissions. As per the facility ECA, emissions from the facility need to be in compliance with MECP air quality benchmarks at its property line and beyond. The site is located within 150m of existing residential which suggest that its influence area is less than 200m and is unlikely to extend to the subject lands which are located much further away.	No	250	Class II
3	IMT Partnership / R & G Holdings Corp.	837 Reuter Rd	Commercial Forging Facility with an ECA-AIR.	2346-7NGMG8	Facility is a medium scale industrial site with gas fired billet heating furnaces, dust collection equipment, a cooling tower, forge hammer and other associated equipment. The facility has an unpaved yard with some outdoor storage which gives indication of onsite vehicle traffic and the potential for nuisance dust emissoins. The facility approval requires the implementation of a fugitive dust management plan which is likley to minimize these dust impacts. The facility's approval requires compliance with MECP air quality benchmarks at the property line and beyond. This environmental approval does not have any conditions related to odour which gives indication that the MECP is not concerned with odour. The facility is located approximately 230 m from existing residential which suggest that its area of influence is much less than the 300m influence area for a D-6 Class II facility. The subject lands are located further away.	No	304	Class II
4	Vale Canada Limited/INCO/CVRD/INCO	187 Davis St	Nickel refining facility with mutiple ECAs for air and One ECA for a landfill site.	0672-7RYGTX 3890-6Y9KKL 7110-8T9NNR 9133-7RSH5T A120310 (Landfill)	The facility is a large metal refinery whose ECAs indicate the presence of scrubber exhausts serving various process tanks. The facility also appears to have an approved waste disposal operation (landfill) on site. Emissions from the facility's equipment are required to meet MECP air quality criteria at the property line and beyond. All industrial operations and related emission points at this facility are located beyond 1000m of the subject lands. These operations are far enough away to not be of any concern with respect to the subject lands since they are well outside of Guideline D-6's potential influence area for a Class III facility. The assumed northern edge of the landfill however is approximately 480 m from the subject lands however there is existing residential located much closer, approximately 60 m away which suggests that the influence of the landfill is likely much less than 300m and as such is not expected to extend to the subject lands. The landfill is for solid non-hazardous industrial waste and not used for putrescibles.	Yes	474	Class III
5	Algoma Central Corporation	1 Chestnut St	Ship Repair and Maintenance facility with an ECA-AIR.	2956-8QZPUV	Site is medium scale industrial facility that engages in metal fabrication, welding cutting, machining, solvent cleaning abrasive blasting. The site consists of several building with low lying point sources. It has a yard with significant outdoor storage as well as unpaved roadways. Vehicle traffic on these roadways will generate fugitive dust emissions. The facility's approval does not require any specific measures related to odour control which indicates that the MECP is not concerned with odour emissions from the site. A desktop review of the site did not find any evidence of operations that could result in odour emissions. The facility's approval requires emissions compliance with MECP air quality benchmarks at the property line and beyond. The facility is located approximately 36m to existing residential which suggests its influence area is well below that of the suggested D-6 Class II potential influence area. The subject lands are located much further away and the facility's influence area is not expected to extend to it.	No	960	Class II

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Map Icon Number	BUSINESS NAME	ADDRESS	TYPE OF FACILITY/EQUIPMENT/Approval	APPROVAL / REGISTRATION NUMBER	Comment on Operations	Tall Stacks Present	Approximate Distance to Site (m)	D-6 Classification
6	Port Colborne Quarries	Hwy 140 & Concession 2, Port Colborne, ON L3K 5V5	Quarry	None Available	The facility is a large quarry operation that engages in rock drilling and blasting, aggregate recovery, transfer and processing using rock crushers, screens, conveyors, a wash plant and other equipment. The site can process upto 4500 tonnes of material per day and typically engages blasting rock 1 to 3 blasts per week. The site has 3 pits, Pit 1, Pit 2 and Pit 3 and has proposed extending its operation to lands east of Pit #3. The Pit 3 extension lands are bounded by Second Concession Rd to the north, Highway 3 to the south, and approximately 400 to 790m east of Carl road on the eastern end. The site has a permanent processing plant in Pit 1. At present blasting and extraction occurs at the rock faces in Pit 3 and proceeds in a west to east direction. Blasted rocks are loaded onto trucks and taken to the processing plant in Pit 1. The site has unpaved onsite roadways with frequent vehicle traffic that transports aggregate from blasting areas to the processing plant. Operations at the site: blasting, driling activities, frequent truck traffic on unpaved roads aggregate handling, processing and storage results in significant emisisons. Residential areas in the subject lands have buffer areas between them and the quarry's operations that results in a separation distances of at least 300m or more. This buffer is essential in helping mitigate the impacts of dust generated at the quarry. The quarry has assessed the impacts of total suspended particulate (Total PM, <44 um in diameter), PM-10, PM-2.5 and Silica emissions at receptors along the property line as well as some sensitive offsite receptors. This assessment revealed that particulate emisisons exceeded MECP benchmarks but these exceedances were in the immediate vicinity of the property line and not near proposed residential areas at the subject lands.	No	31	Class III

APPENDIX B