BCX ENVIRONMENTAL CONSULTING

Air Quality Study

Dig-Con International Limited
Proposed Hot Mix Asphalt Plant

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1.0 INTRODUCTION

BCX Environmental Consulting (BCX) was retained by Dig-Con International Limited (Dig-Con) to prepare the following Air Quality Study in support of a Zoning By-Law Amendment and Site Plan Application for a proposed hot mix asphalt (HMA) plant to be located at 12415 Coleraine Drive in Bolton, Ontario.

1.1 Background

Dig-Con is proposing to construct a new state-of-the-art HMA plant on the western boundary of a large established industrial area at 12415 Coleraine Drive in Bolton, Ontario. As a part of Dig-Con's pre-consultation with the Town of Caledon and the Region of Peel, the Town/Region identified that an air quality study is required to support Dig-Con's applications.

1.1.1 Purpose and Scope

The purpose of this air quality study is to:

- Confirm that the proposed new use conforms with the Ministry of the Environment and Climate Change's (MOECC's) land use compatibility guidelines (MOECC *Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses)* from an air quality perspective; and
- Provide an assessment of the potential for air quality impacts, both health impacts and nuisance impacts (dust and odour) from Dig-Con's proposed HMA operations at existing sensitive receptors (i.e. houses in the vicinity of the site).

This study addresses the Region's specific requirements that the study (a) use facility specific air dispersion modelling and wind rose plots to evaluate potential air quality impacts and (b) identify mitigation measures (already proposed and in addition to those already proposed) to manage air quality impacts to an insignificant level at sensitive receptors. It also addresses the Town's requirement that the study compare the proposed operations to an existing similar facility.

In preparing this air quality study BCX has considered:

a) The *MOECC Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses*;
b) Dig-Con's facility specific air emissions inventory and air dispersion modelling prepared by BCX in support of Dig-Con's pending Environmental Compliance Approval application to the MOECC;
c) Dig-Con's site specific Best Management Practices Plan for the Control of Fugitive Dust Emissions and Dig-Con's site-specific Odour Management Plan;
d) Seasonal wind roses in relation to neighbouring sensitive receptors;
e) Mitigating effects of the proposed equipment selection and site design including landscaping and any noise abatement measures set out in the Noise Study prepared by Aercoustics; and

f) Dig-Con's proposed operation in the context of the HMA industry in Ontario and compared to a similar existing operation.

1.2 Site and Plant Description

As shown in Figure 1 in Appendix A, the site is located between the east side of Coleraine Drive and the west side of Simpson Road, approximately 100 metres south of George Bolton Parkway. The site is bounded by a variety of large industrial uses to the north, east and south. There is a stone supply operation (directly south), a Hydro-One operation centre and yard (directly east) and an insulated panel manufacturing facility and a concrete forming facility (to the north). There are three existing residences between George Bolton Parkway and these industries to the north[1]. The land to the west of the site is currently agricultural and includes two existing residences.

Dig-Con will be purchasing a new state-of-the-art natural gas fired Gencor HMA plant (see Appendix B). Above and beyond many older existing plants, this plant will be fitted with a scavenger fan to actively manage fugitive air emissions (including odour), a low nitrogen oxides (NOx) burner to minimize NOx emissions and warm mix asphalt (WMA) capability. Since WMA is produced at lower temperature, all air emissions from the plant will be lower when operating in this mode.

A detailed process flow diagram and a site layout showing the location and layout of the proposed HMA plant and associated aggregate storage area is presented in Figures 2 and 3, respectively, in Appendix A.

Aggregate materials (i.e. washed limestone, gravel and sand) will be delivered to the site and deposited into three-sided stockpile enclosures. A front-end loader will transfer aggregate from these stockpiles into the aboveground cold feed hoppers, which in turn will feed the aggregate to a screen via a conveyor. Aggregate from the screen will then be transferred into the rotary drum dryer which will remove moisture from the aggregate prior to combining it with heated asphalt cement and reclaimed asphalt pavement (RAP).

Preprocessed[2] RAP material will also be delivered to the plant and deposited onto designated stockpiles. A front-end loader will transfer RAP into the aboveground RAP hopper which in turn will feed the RAP into the RAP lump breaker/screen. RAP from the lump breaker/screen will then be conveyed into the mixer section of the rotary drum/mixer.

Liquid asphalt cement (AC) will be delivered by tanker truck and stored in AC storage tanks. The AC tanks will be heated by a natural gas-fired hot-oil heater. Heated asphalt cement will be pumped into the rotary drum/mixer where it will be combined with aggregate materials.

Particulate emissions from the rotary drum dryer/mixer will be controlled by a baghouse.

[1] The property directly north of the site is owned by Dig-Con. The house on this property is vacant and is planned to be demolished.
[2] Although common at many other existing sites, this site will not process (i.e. crush) RAP or aggregates on site.

The HMA product will be transferred from the rotary drum dryer/mixer into the HMA silos via a slat conveyor controlled by a scavenger fan. Finally, the HMA product will be loaded into trucks for shipment off-site.

The plant is expected to primarily operate during daytime hours (i.e. 7 am to 7 pm), but it may on occasion operate 24 hours per day.

As shown in Figure 3, the plant layout has been specifically designed to minimize the potential for off-site air quality (and noise) impacts. The HMA plant will be located on east end of the site, with the primary air emission sources (i.e. baghouse, HMA silos and HMA load out) placed furthest from sensitive receptors. The aggregate storage area operations will face away from sensitive receptors. Dig-Con's office building and the site's proposed fencing/landscaping will provide fugitive dust barriers and, very importantly visual screening for the sensitive receptors to the west/northwest of the HMA operations. Heavy truck traffic will be routed through entrances and exits along Simpson Road, thereby avoiding all nearby sensitive receptors.

2.0 MOECC GUIDELINE D-6 – COMPATIBILITY BETWEEN INDUSTRIAL FACILITIES & SENSITIVE LAND USES

Section 1.7.1 of the *Provincial Policy Statement* asserts that major facilities (including industries) and sensitive land uses (including residences), should be appropriately designed, buffered and/or separated from each other to prevent adverse effects from dust, odour, noise and other contaminants, and to minimize the risk to public health and safety.

Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses (Guideline D-6) supplements the *Environmental Protection Act* to meet the requirements of Section 1.7.1 of the Provincial Policy Statement. Guideline D-6 was developed to address potential incompatibility of industrial land uses and sensitive land uses in relation to land use approvals under the *Planning Act*. Guideline D-6 recommends separation distances between proposed industrial facilities and existing residential developments, including a minimum separation distance, as well as a potential area of influence. The recommended minimum separation distance and potential area of influence are defined based on the Guideline D-6 classification of the industry as provided in Appendix A of Guideline D-6 (shown in Table 1 of this report).

Guideline D-6 requires consideration of the potential for impacts on sensitive land uses from point source and/or fugitive emissions including noise, vibration, odour, dust and others from normal operations, including maintenance and storage activities, and from associated traffic/ transportation.

Sensitive land uses are defined, for the purposes of Guideline D-6, as recreational uses (deemed by the municipality or province to be sensitive); and/or any building or associated amenity area which is not directly associated with the industrial use, where humans or the natural environment may be adversely affected by emissions generated by the proposed industrial use (e.g. residences, senior citizen homes, schools, day care facilities, hospitals, churches and other similar institutional uses, and campgrounds).

Table 1: Industrial Class Definitions and Separation Distances

A *Class I Industrial Facility* is defined as a place of business for a small scale, self-contained plant or building which produces/stores a product which is contained in a package and has low probability of fugitive emissions. Outputs are infrequent, and could be a point source or fugitive emissions of odour and/or dust. There are daytime operations only, with infrequent movement of products and/or heavy trucks, and no outside storage. Typically, odour and dust emissions are infrequent and not intense. ***Recommended Minimum Separation Distance: 20 m*** ***Potential Area of Influence: 70 m***
A *Class II Industrial Facility* is defined as a place of business for medium scale processing and manufacturing with outdoor storage of wastes or materials, and results in periodic outputs of minor annoyance. There are occasional outputs of either point source or fugitive emissions of odour and/or dust. Shift operations are permitted and there is frequent movement of products and/or heavy trucks during daytime hours. Typically, odour and dust emissions are frequent and occasionally intense. ***Recommended Minimum Separation Distance: 70 m*** ***Potential Area of Influence: 300 m***
A *Class III Industrial Facility* is a place of business for large scale manufacturing or processing, characterized by large physical size, outside storage of raw and finished productions, large production volumes, and continuous movement of products and employees during daily shift operations. It has frequent outputs of major annoyance and there is a high probability of point source and fugitive emissions of odour and/or dust. Typically, odour and dust emissions are persistent and intense. ***Recommended Minimum Separation Distance: 300 m*** ***Potential Area of Influence: 1000 m***

In the event that a potential area of influence separation distance is not met, Guideline D-6 recommends that studies be conducted to investigate the feasibility of providing sufficient mitigation, if required, when new industrial uses are proposed within the potential area of influence of existing sensitive receptors.

Infilling, Urban Re-Development and/or Transition to Mixed-Use

Section 4.10 of Guideline D-6 specifically acknowledges that it may not be possible to achieve the recommended minimum separation distances set out in Table 1 in areas where infilling, urban re-development and/or a transition to mixed-use is taking place. In such cases Guideline D-6 requires that supporting studies provide a higher level of detail including facility-specific quantitative assessments of potential off-site impacts and the provision of specific mitigation measures to lessen any potential off-site impacts predicted by these assessments.

2.1 Analysis of Industry Classification and Separation Distance Using Guideline D-6

Using Table 1 of this report and specific examples in Appendix A of Guideline D-6, Dig-Con's proposed industrial operations are a combination of Class II and Class III activities under Guideline D-6. As presented in Table 2, the HMA plant itself is best described as Class III, while the aggregate material storage area is best described as Class II.

The minimum recommended separation distance for the HMA plant is 300 m with a potential influence area of 1000 m; and the minimum recommended separation distance for the aggregate material storage area is 70 m with a potential area of influence of 300 m.

As shown of Figure 4 (Appendix A of this report), Dig-Con's proposed operations meet the minimum separation distances from existing sensitive receptors. A small number of sensitive receptors, however, are within the areas of potential influence of both the HMA plant and aggregate storage area.

Since sensitive receptors are within the potential area of influence of the HMA plant and aggregate storage area, Guideline D-6 requires further study to: a) determine the potential for and significance of potential contaminants from the facility operations at sensitive receptors; and b) determine if additional mitigation is required.

This additional assessment is presented in Section 3 of this report.

Table 2: Determination of Dig-Con's Industry Classification for their Proposed Facility using Appendix A of Guideline D-6

Operation	Potential Air Contaminants	Rationale for Guideline D-6 Classification and Corresponding Guideline D-6 Classification	Overall Guideline D-6 Classification
HMA Plant	• Particulate • Nitrogen Oxides • Polyaromatic Hydrocarbons • Volatile Organic Compounds • Metals	• Odour from the use of heated asphalt cement in the plant (**Class II/III**). • Although operations will normally occur during daytime hours, the plant has the potential to operate continuously (**Class III**).	Class III
Aggregate Storage Area	• Particulate	• Dust is infrequent and not intense (per MOECC BMP Plan requirements) (**Class I/II**). • Aggregate materials (sand and stone) will be stored outside in three-sided concrete block enclosures (**Class II**). • Aggregate material is washed and RAP has been pre-processed and is considered low silt (**Class II**). • Material delivery will occur during daytime hours only **(Class II)**.	Class II

3.0 ASSESSMENT OF POTENTIAL AIR QUALITY IMPACTS

There are two types of air quality impacts: health and nuisance. The potential for health impacts can be assessed quantitively, by determining compliance with Ministry of the Environment and Climate Change's (MOECC's) Regulation 419/05 (i.e. the regulation that governs air emissions in Ontario). The potential for nuisance impacts (i.e. fugitive dust and odours) is most appropriately assessed qualitatively using several tools, including reviewing Dig-Con's site specific Best Management Practices Plan for the Control of Fugitive Dust Emissions and Dig-Con's site-specific Odour Management Plan; analyzing seasonal wind roses in relation to neighbouring sensitive receptors; and reviewing the proposed equipment selection and site design including the effect of mitigation measures identified from other supporting studies such as noise.

3.1 Quantitative Analysis of Potential Health Impacts

3.1.1 Ontario Regulation 419/05 – Air Quality

Ontario Regulation 419: Air Pollution – Local Air Quality made under the *Environmental Protection Act* (EPA) is the regulation that is intended to protect communities against adverse effects from local sources of air emissions. The Regulation places limits on the concentration of contaminants in the natural environment that are caused by emissions from a facility. The concentrations in the natural environment are calculated at a location referred to as a "point-of-impingement" (POI). The regulation requires that where a facility discharges a contaminant into the air from one or more sources, the concentration at any POI resulting from that combined discharge must be less than the standard prescribed in the regulation.

Demonstration of compliance with the regulation requires the preparation of an Emission Summary and Dispersion Modelling (ESDM) report. Using approved MOECC assessment methodologies, this report must show to the MOECC's full satisfaction that, under maximum operating conditions, the site complies with the MOECC POI limits. The MOECC will then issue an Environmental Compliance Approval (ECA) for the site.

Dig-Con is required to obtain an Environmental Compliance Approval (ECA) from the MOECC. Section 3.1.2 of this report summarizes the results of the ESDM report prepared by BCX[3]. The full application and ESDM report will be submitted to the MOECC shortly for their detailed review.

It should be noted that as new research becomes available on the potential health impacts from air emissions the MOECC undertakes a thorough review of the research and may determine if the existing POI limits require revision. All Ontario facilities are required to meet the new POI limits when they come into force.

[3] BCX has prepared and submitted numerous ECA applications for HMA plants. BCX is very familiar with the MOECC assessment requirements for these facilities.

3.1.2 Modelling Results and Analysis

Table 3 shows the results of the emission inventory and air dispersion modelling assessment for the site when the plant is operating at its maximum emission rate (maximum scenario). All significant air contaminants and all significant sources of these air contaminants at this site[4] are identified in Appendix C. This appendix also describes how emissions of these contaminants are calculated, how the sources of these contaminants modelled and how the results of the modelling (maximum concentration at any off-site location [i.e. point-of-impingements]) are assessed.

The maximum concentration of each contaminant at its maximum POI is presented in in Table 3. As shown in this table, the maximum POI concentrations of all air contaminants from the proposed operations will be below their respective MOECC air quality standards. The maximum POI concentrations, for this operation, will occur on the site property line.

The POI concentrations of all contaminants at nearby sensitive receptors are summarized in Table 4. As shown in this table, the concentrations at sensitive receptors are all below 7% of the MOECC limits. Further, these results demonstrate that the POI concentrations will reduce quickly with distance from the site property line. Air quality health related impacts are, therefore, not expected from Dig-Con's operations at nearby sensitive receptors.

Fine Particulate (PM2.5)

As identified in Table 3, the MOECC has a POI limit for Particulate Matter (PM). This standard is based on visibility. The MOECC, however, does not have a POI limit for fine particulate matter ($PM_{2.5}$). Since studies over the past few years have indicated that fine particulate matter can have health impacts, an assessment of $PM_{2.5}$ is necessary.

The $PM_{2.5}$ emissions at an HMA plant is primarily organic particulate (i.e. polyaromatic hydrocarbons) generated from the handling of heated asphalt cement. For the purposes of this assessment potential health-based impacts of fine particulate (i.e. polyaromatic hydrocarbons) have been considered by assessing benzo(a)pyrene, which is a surrogate for all polyaromatic hydrocarbons. Since the maximum benzo(a)pyrene concentration is below its applicable POI limit, no health impacts are expected from fine particulate.

[4] The MOECC considers emissions from travel along roads and wind erosion of open areas and stockpiles to be insignificant provided the site prepares and implements a Best Management Practices Plan for the Control of Fugitive Dust Emissions. See Section 3.2.1 of this report.

Table 3: Emission Summary Table – Receptor Grid

Contaminant	CAS No	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration * ($\mu g/m^3$)	Averaging Period Emission Rate (hr)	Averaging Period POI Concentration (hr)	MOECC POI Limit ($\mu g/m^3$)	Limiting Effect	Regulation Schedule #	Percentage of MOECC POI Limit (%)
Particulate Matter	-	1.61E+00	AERMOD	1.02E+02	24	24	120	Visibility	3	85.2%
Nitrogen Oxides	10102-44-0	1.47E+00	AERMOD	2.85E+02	1	1	400	Health	3	71.2%
		7.03E-01	AERMOD	6.65E+01	24	24	200	Health	3	33.3%
Benzo(a)Pyrene **	50-32-8	8.69E-08	AERMOD	7.95E-06	Annual	Annual	0.00001	Health	3	79.5%
Benzene	71-43-2	1.88E-03	AERMOD	2.21E-02	Annual	Annual	0.45	Health	3	4.9%
Naphthalene	91-20-3	2.82E-03	AERMOD	2.17E-01	24	24	22.5	Health	Guideline	1.0%
		2.82E-03	AERMOD	3.19E-01	24	10 min	50	Odour	Guideline	0.6%
Arsenic	7440-38-2	1.46E-05	AERMOD	1.17E-03	24	24	0.3	Health	Guideline	0.4%
Lead	7439-92-1	1.62E-05	AERMOD	1.30E-03	24	24	0.5	Health	3	0.3%
		1.62E-05	AERMOD	5.02E-04	24	30 day	0.2	Health	3	0.3%
Nickel	7440-02-0	3.00E-04	AERMOD	3.25E-03	Annual	Annual	0.04	Health	3	8.1%

* The maximum POI concentrations occur on the property line directly to the north and south of the HMA plant.
** Benzo(a)Pyrene is also a surrogate for fine particulate matter ($PM_{2.5}$).

Table 4: Emission Summary Table – Sensitive Receptors

Receptor Number							1		2		3		4		5	
UTM Coordinates (m)					Easting		602935		603000		603043		603127		603159	
					Northing		4855940		4855886		4855841		4855637		4855606	
Approximate Distance to HMA Loadout*							445		395		374		453		464	
Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Averaging Period Emission Rate (hr)	Averaging Period POI Concentration (hr)	MOECC POI Limit (µg/m^3)	POI Concentration (µg/m^3)	Percentage of MOECC POI Limit (%)	POI Concentration (µg/m^3)	Percentage of MOECC POI Limit (%)	POI Concentration (µg/m^3)	Percentage of MOECC POI Limit (%)	POI Concentration (µg/m^3)	Percentage of MOECC POI Limit (%)	POI Concentration (µg/m^3)	Percentage of MOECC POI Limit (%)
Particulate Matter	-	1.61E+00	AERMOD	24	24	120	4.50E+00	3.8%	5.74E+00	4.8%	6.72E+00	5.6%	3.89E+00	3.2%	3.65E+00	3.0%
Nitrogen Oxides	10102-44-0	1.47E+00	AERMOD	1	1	400	1.57E+01	3.9%	2.03E+01	5.1%	2.56E+01	6.4%	1.44E+01	3.6%	1.26E+01	3.2%
		7.03E-01	AERMOD	24	24	200	3.02E+00	1.5%	4.00E+00	2.0%	5.38E+00	2.7%	2.60E+00	1.3%	2.58E+00	1.3%
Benzo(a)Pyrene **	50-32-8	8.69E-08	AERMOD	Annual	Annual	0.00001	1.31E-07	1.3%	1.55E-07	1.5%	1.67E-07	1.7%	1.21E-07	1.2%	1.21E-07	1.2%
Benzene	71-43-2	1.88E-03	AERMOD	Annual	Annual	0.45	6.80E-04	0.2%	7.40E-04	0.2%	7.50E-04	0.2%	5.90E-04	0.1%	6.30E-04	0.1%
Naphthalene	91-20-3	2.82E-03	AERMOD	24	24	22.5	1.25E-02	0.06%	1.55E-02	0.1%	1.79E-02	0.1%	9.91E-03	0.04%	9.61E-03	0.04%
		2.82E-03	AERMOD	24	10 min	50	1.84E-02	0.04%	2.28E-02	0.05%	2.64E-02	0.05%	1.46E-02	0.03%	1.42E-02	0.03%
Arsenic	7440-38-2	1.46E-05	AERMOD	24	24	0.3	6.00E-05	0.02%	9.00E-05	0.03%	1.00E-04	0.03%	5.00E-05	0.02%	5.00E-05	0.02%
Lead	7439-92-1	1.62E-05	AERMOD	24	24	0.5	7.00E-05	0.01%	9.00E-05	0.02%	1.10E-04	0.02%	6.00E-05	0.01%	6.00E-05	0.01%
	7439-92-1	1.62E-05	AERMOD	24	30 day	0.2	2.70E-05	0.01%	3.47E-05	0.02%	4.24E-05	0.02%	2.32E-05	0.01%	2.32E-05	0.01%
Nickel	7440-02-0	3.00E-04	AERMOD	Annual	Annual	0.04	1.00E-04	0.3%	1.10E-04	0.3%	1.10E-04	0.3%	9.00E-05	0.2%	1.00E-04	0.3%

* Distance is measured from approximate centre of HMA silo loadout at UTM coordinate points 603372.71 m E, 4856017.59 m N.
** Benzo(a)Pyrene is also a surrogate for fine particulate matter ($PM_{2.5}$).
*** This table has been prepared for the air quality study. It will not form part of the ECA application as the sensitive receptors are not located at the maximum POI (i.e. property line).

3.2 Qualitative Analysis of Potential Nuisance Impacts

This subsection of the report analyses the potential for nuisance impacts (fugitive dust and odours) at nearby sensitive receptors by taking into consideration MOECC requirements for controlling fugitive emissions; the relationship between wind direction and the relative location of sensitive receptors to the proposed facility; and equipment selection and site design.

3.2.1 Overview of How the MOECC Addresses Nuisance Impacts: Best Practices Plans

Fugitive dust and odours are considered to be nuisance impacts by the MOECC. Fugitive dust is typically defined as dust generated from on-site traffic movement; wind erosion of roads, outdoor working areas and open stockpiles; and material handling activities. With respect to odour, since the MOECC does not specifically regulate odours using a POI standard,[5] all potential sources of odour are considered fugitive emissions.

For aggregate facilities such as HMA plants, the MOECC requires, through conditions included in the ECA, that all HMA plants prepare and implement Best Management Practices Plans for the Control of Fugitive Dust Emissions. ECAs may also, depending on site specific factors, require Odour Management Plans. When implemented, the MOECC expects that these procedures/plans will control and limit off-site fugitive nuisance impacts.

BCX has pro-actively prepared both a Best Management Practices Plan for the Control of Fugitive Dust Emissions and an Odour Management Plan for Dig-Con's proposed operations[6]. These plans, which are included in Appendix D, have been prepared in accordance with the MOECC's standard requirements for such plans. In addition to meeting MOECC standard requirements, these plans further draw on and include best practices outlined in the Ontario Asphalt Paving Council's (OAPC's) [formerly Ontario Hot Mix Producers Association's] Environmental Best Practices Guide. Dig-Con will submit both plans with their ECA application to the MOECC for detailed review and approval.

Provided that Dig-Con implements and follows these plans, air quality nuisance related impacts are not expected from Dig-Con's operations at nearby sensitive receptors.

3.2.2 Review of Seasonal Wind Roses

For the purpose of this study, representative wind climate data for the locale was obtained from Environment Canada's Toronto Pearson International Airport meteorological station for 2013-2017. Seasonal wind roses were prepared using this data and are provided in Appendix E. Table 5 below further summarises the wind rose data. It should be noted that a seasonal wind rose for

[5] If the MOECC has serious concerns regarding odour from a facility they may impose an odour limit (typically, but not invariably, 1 odour unit (OU)) in the facility's ECA.

[6] BCX has prepared and submitted numerous Best Management Practices Plans and Odour Management Plans for HMA plants. BCX is very familiar with the MOECC requirements for these plans.

the winter months (January to March) is not included because HMA plants do not operate in the winter.

The wind roses show that all nearby sensitive receptors (with the exception of R1) are infrequently down wind of the proposed HMA operations during the HMA plant's operating season (April to December). R1 cusps the larger east wind component during the plant's operating season, which may increase this receptor's potential to be down wind of Dig-Con's site from infrequently to occasionally. This receptor is, however, located farthest from the proposed facility.

Based on the wind rose review, air quality nuisance related impacts (if there were to be any significant fugitive dust or odours generated by the plant/site) would be expected to be infrequent at nearby sensitive receptors.

Table 5: Wind Rose Data Summary for Sensitive Receptors

Receptor	Wind Direction (Blowing From)	Approximate Percentage of Time Spent Downwind		
		Spring	Summer	Autumn
R1	East	< 11%	< 5%	< 8%
R2	East-Northeast	< 3%	< 2%	< 3%
R3	East-Northeast	< 3%	< 2%	< 3%
R4	North-Northeast	< 3%	< 3%	< 3%
R5	North-Northeast	< 3%	< 3%	< 3%

* See Figure 1 for sensitive receptor locations.

3.2.3 Review of Equipment Selection and Site Design

Section 1.2 of this report provides details on the equipment selection and site design. As summarized in this section, careful planning and thought has been applied to equipment selection and the layout of the HMA plant to ensure that the HMA operations will have minimal impact on the surrounding community. Measures include:

- Potential sources of fugitive dust and odour will be located as far away as possible from sensitive receptors;
- All heavy traffic will enter and exit the site from Simpson Street;
- All aggregate stockpiles will be contained in three-sided enclosures;[7]
- Where possible shielding of operations from sensitive receptors will be maximized (e.g. location of stockpile enclosures and stockpiles, location of the office building); and
- While not required to meet the MOECC POI limits, Dig-Con will use a taller baghouse stack height than originally contemplated to promote dispersion of potential odours from this source.

[7] Not including RAP stockpiles which by nature are "sticky" and, therefore, have a low potential for fugitive emissions.

Further to these measures, the facility has elected to use state-of-the-art manufacturing equipment which allows for the production of WMA. As such, the facility has the potential to become less impactful over time as the Province and municipality move towards a greener economy that includes a higher proportion of WMA.

Additional fugitive dust mitigation for low fugitive dust emission sources such as roads and working areas is expected from the landscaping features incorporated into the design and from the significant noise mitigation barriers proposed in the Noise Study accompanying this application

The potential for off-site nuisance fugitive dust and odour impacts from the plant is expected to minimal based on the proposed equipment selection and site design.

4.0 COMPARISON TO OTHER EXISTING HMA PLANTS

There are approximately 130 permanently sited hot mix asphalt (HMA) plants in Ontario. Since HMA plants need to be located within 30 to 60 minutes of the paving site, the vast majority of these plants are located in urban areas, often in close proximity to sensitive receptors such as houses. HMA plant suppliers and operators are, therefore, keenly aware of the need for strong environmental practices that protect neighbouring communities from both health and nuisance impacts such as dust and odour.

Most HMA plant owners in Ontario are members of OAPC. This association has provided technical and environmental resources to its members for more than 40 years. One of OAPC's eight objectives is to *Promote environmental responsibility and educate our members on environmental regulations.* Dig-Con is committed to becoming a member of OAPC once their applications to the city are approved.

Appendix F shows a selection of plant designs along with each plant's proximity to sensitive receptors. As noted above, these plants all operate in close proximity to sensitive receptors. A specific comparison of Dig-Con's proposed HMA plant to a similar HMA plant is provided below.

4.1.1 Cox Construction – Guelph HMA Plant

Cox Construction owns and operates a Gencor HMA plant having a very similar design to Dig-Con's proposed plant, but with a smaller capacity. Although the plant capacities are different, Cox Construction is permitted by their ECA to operate at higher daily and annual rates than is being requested by Dig-Con. Cox Construction's plant was commissioned in 2010 and has operated without any complaints from their neighbours. Cox Construction's neighbours would be considered to be similar to the sensitive receptors in the vicinity of the proposed Dig-Con facility (i.e. rural community). Cox Construction's closest sensitive receptors are approximately 200 m and 450 m from the HMA loadout, while Dig-Con's are 375 m to 475 m. Cox Construction's neighbour located at 450 m from their plant is more frequently downwind of the HMA plant compared to Dig-Con's closest neighbours.

It should be noted that the Cox Construction facility also operates a pit and a RAP processing plant (i.e. RAP crusher) on site. These are significant operations that Dig-Con is not contemplating at their site in Bolton.

Similar to Cox Construction's plant (and to many of Ontario's HMA plants), provided that the Dig-Con facility is operated in compliance with their ECA and the conditions of their ECA, no significant community impacts are expected.

5.0 CONCLUSIONS

Dig-Con is proposing to operate a state-of-the-art HMA plant at the edge of an established industrial area. The proposed HMA plant and aggregate storage operations meet the minimum separation distances set out in the Ministry's Land Use Compatibility Guideline (Guideline D-6). However, since Dig-Con's operations will be within the area of potential influence set out in Guideline D-6, further study of potential air quality impacts (health and nuisance) is required. As requested by the Region of Peel, this further study has included a quantitative assessment of potential air quality health impacts as well as an assessment of the relationship between wind direction and the relative location of sensitive receptors to the proposed facility.

The quantitative analysis of potential health impacts was prepared according to the requirements of Ontario Regulation 419 (the regulation that is intended to protect communities against adverse effects from local sources of emissions). Assuming maximum operating conditions, the analysis demonstrated that air contaminant concentrations at sensitive receptors will be below 7% of the MOECC's air quality limits. Based on this analysis, no health-based air quality impacts are expected at any existing sensitive receptors.

A qualitative analysis of potential nuisance impacts (fugitive dust and odour) was completed using several tools, including a review of Dig-Con's site-specific Best Management Practices Plan for the Control of Fugitive Dust Emissions and Dig-Con's site-specific Odour Management Plan; a review of seasonal wind roses in relation to neighbouring sensitive receptors; and a review of the proposed equipment selection and site design including the effect of mitigation measures identified from other supporting studies such as noise. This qualitative analysis demonstrates:

- Provided that Dig-Con implements and follows their Best Management Practices Plan for the Control of Fugitive Dust Emissions and their Odour Management Plan, air quality related nuisance impacts are not expected;
- With the exception of one sensitive receptor, all sensitive receptors in the vicinity of the site are infrequently downwind of the proposed HMA facility (less than 3% in each season). The most impacted receptor from the perspective of wind direction may be occasionally downwind of the HMA operations, however it is also furthest from the HMA operations;
- Careful planning and thought has been applied to equipment selection and the layout of the HMA plant to ensure that the HMA operations will have minimal impact on the surrounding community;
- No community impacts are expected based on a review of a similar existing HMA plant (Cox Construction, Guelph Plant).

BCX, therefore, concludes that the proposed HMA plant meets the requirements of Guideline D-6 with respect to land use compatibility from an air quality perspective. Further quantitative and qualitative air quality assessments demonstrate that no adverse air quality impacts (health and nuisance) are expected at neighbouring sensitive receptors to the west and northwest of Dig-Con's site.

BCX has reviewed the operations of neighbouring industrial facilities. These facilities are construction industry-related businesses. As such, BCX also does not anticipate that the proposed HMA plant will impact the operations of these businesses from an air quality perspective.

Finally, BCX notes that the facility has elected to use state-of-the-art manufacturing equipment which allows for the production of warm-mix asphalt (WMA). As the province and municipality move toward a greener economy that includes a higher proportion of WMA, the potential impacts from this facility will be even less.

6.0 RECOMMENDATIONS

1. Dig-Con should submit an application to the Ministry of the Environment and Climate Change for an Environmental Compliance Approval (Air and Noise).

2. Upon start-up of operations, Dig-Con should implement their Best Management Practices Plan for the Control of Fugitive Dust and their Odour Management Plan.

LIMITATIONS

The assessment and conclusions in this report were based on the information provided by Dig-Con, Gencor Industries, Inc. (Gencor) and their representatives, BCX's professional opinion and our past experience preparing similar air quality assessment reports.

BCX accepts no responsibility for any deficiencies, misstatements, or inaccuracies contained in this report as a result of omissions, or misinterpretations by Dig-Con, Gencor or its representatives.

This report was prepared for the exclusive use of Dig-Con and its representatives for the 12415 Coleraine Drive, Bolton, Ontario proposed HMA plant.

Appendix A

Figures

SITE LOCATION

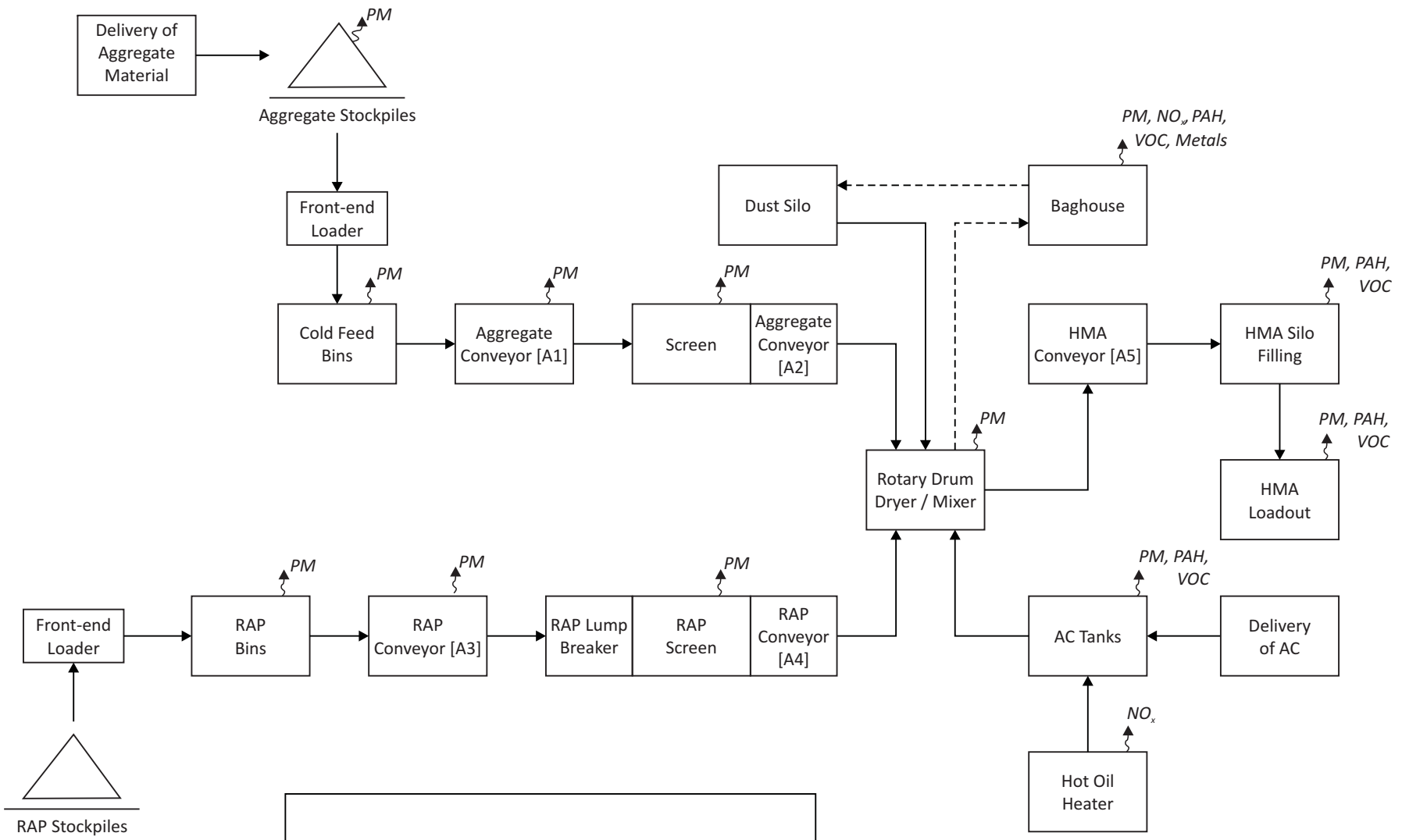
DIG-CON INTERNATIONAL LIMITED
12415 Coleraine Drive, Bolton, Ontario, L7E 3A9

BCX

AIR QUALITY STUDY

File No.: 1259-01.01
Date: May 2018
Dwg.: 1259-01.01_1
Drawn By: MO

FIGURE
1



PROCESS FLOW DIAGRAM

DIG-CON INTERNATIONAL LIMITED
12415 Coleraine Drive, Bolton, Ontario, L7E 3A9

BCX

AIR QUALITY STUDY

File No.: 1259-01.01
Date: May 2018
Dwg.: 1259-01.01_2
Drawn By: MO
FIGURE **2**

COLERAINE DRIVE

GEORGE BOLTON PARKWAY

Proposed Office Building

Office Entrance (641145 m E, 4854471 m N)

Snow Storage

Snow Storage

RAP Stockpile

RAP Stockpile

Sand and Coarse Aggregate Stockpiles

Baghouse

HMA Queue Area

Snow Storage

AC Tanks

Hot Oil Heater

Dust Silo

Aggregate Screen

Plant Entrance

HMA Silos

Cold Feed Bins

RAP Bin

Rotary Drum Dryer/Mixer

Weigh Scale

RAP Screen

Control Room

Plant Exit

SIMPSONS ROAD

LEGEND

- Property Line
- Roads
- Traffic - All Trucks
- Traffic - HMA Trucks
- Traffic - AC Delivery Trucks
- Traffic - Aggregate Delivery Trucks

0 m 50 m 100 m

SITE LAYOUT

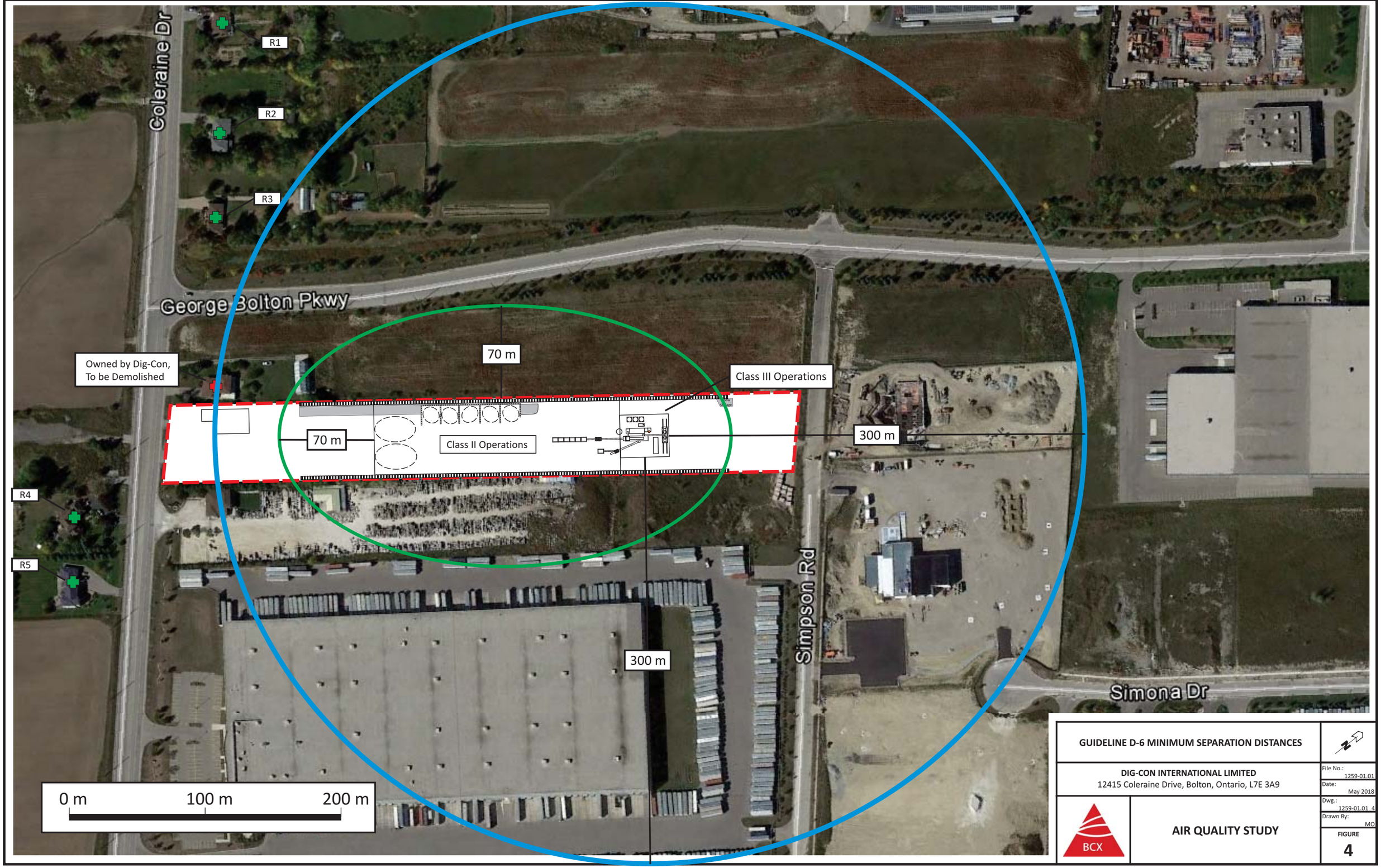
DIG-CON INTERNATIONAL LIMITED
12415 Coleraine Drive, Bolton, Ontario, L7E 3A9

BCX

AIR QUALITY STUDY

File No.: 1259-01.01
Date: May 2018
Dwg.: 1259-01.01_3
Drawn By: MO

FIGURE 3



GUIDELINE D-6 MINIMUM SEPARATION DISTANCES

DIG-CON INTERNATIONAL LIMITED
12415 Coleraine Drive, Bolton, Ontario, L7E 3A9

BCX

AIR QUALITY STUDY

File No.: 1259-01.01
Date: May 2018
Dwg.: 1259-01.01_4
Drawn By: MO

FIGURE
4

Appendix B

Gencor Plant Design

THE ULTRAPLANT

SKIDDED AND STATIONARY

GENCOR®

THE GENCOR ULTRAPLANT

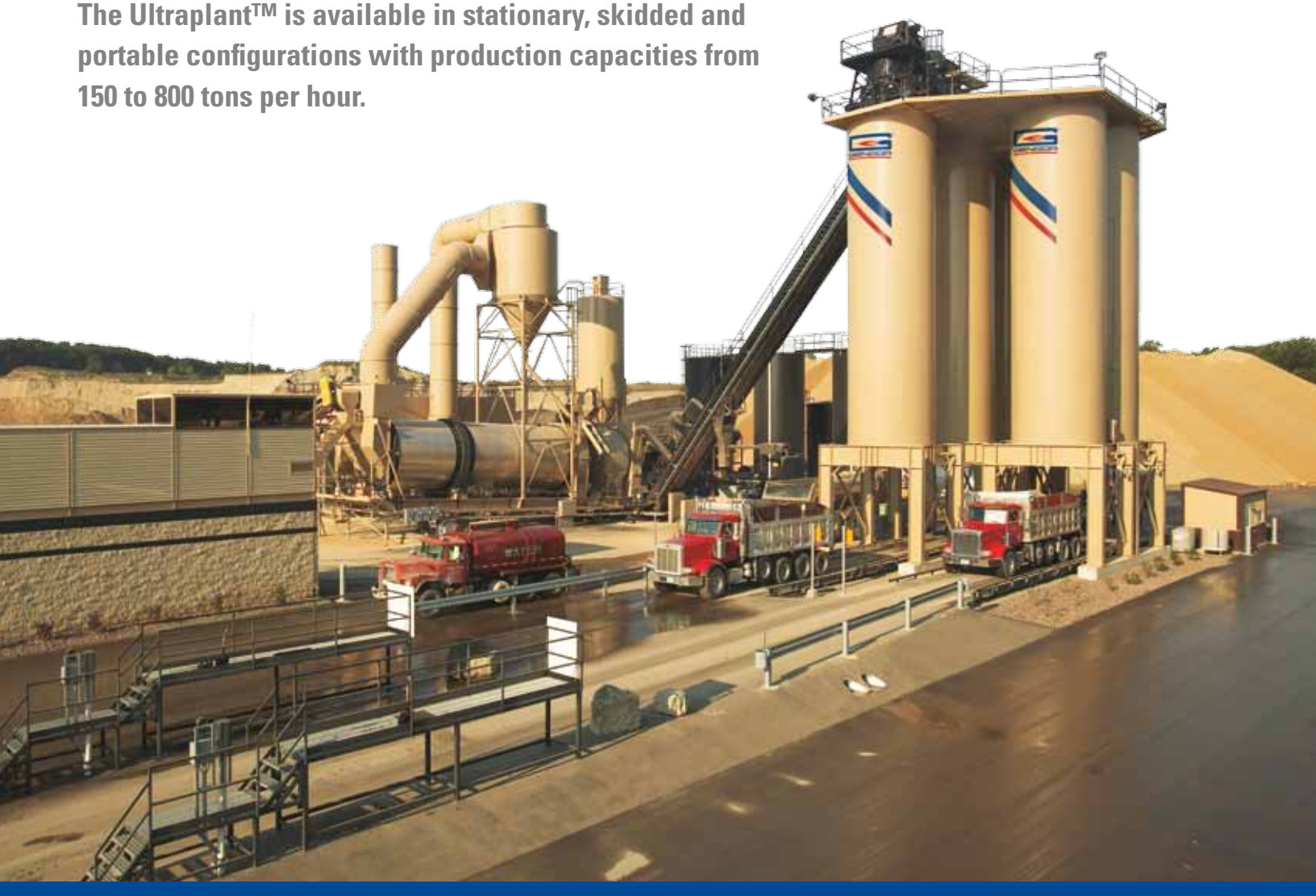
Gencor's Ultraplant™ concept is the most fuel efficient, environmentally clean and lowest maintenance design available to the hot mix industry. A totally integrated drum concept that allows high production continuous mix with high-volume, high moisture recycle and the optional flexibility of feeding a batch tower, all in a unitized drum design.

Gencor's Ultraplant™ has taken top honors year after year for being the only hot mix plant with a positive volatile capture and recovery system that totally eliminates blue smoke, and asphalt odors from the process and feeds them to the combustion process as fuel.

As a result, Gencor plants have been accepted in the most stringent and environmentally sensitive areas of the country, producing high quality polymer and superpave mixes.

The Gencor Ultraplant™ combines simple design with the most advanced control technology and massive heavy construction unmatched in the industry. Backed by world class product support and training, Gencor Ultraplants provide contractors years of dependable long life with low cost, low maintenance operation for the highest profitability.

The Ultraplant™ is available in stationary, skidded and portable configurations with production capacities from 150 to 800 tons per hour.



COLD FEED SYSTEM

Gencor's cold feed systems are ruggedly built for years of use under the harshest conditions. The unique bin design provides steep sided tapered bin walls and a self-relieving throat to virtually eliminate bridging and material flow problems. A rugged rack and pinion gate design provides easy material height adjustment to suit a variety of material gradations. All feeders are available with either eddy current or variable frequency drive to assure accurate flow at varying production rates and include two material flow indicators.

Gencor feeders are driven by an eddy current motor drive system which assures precise speed control at varying production rates using a standard motor coupled with a variable speed torque converter. (optional Variable Frequency Drives are available) Standard features include tail shaft tachometer.

All Gencor feeders are equipped standard with an easily adjustable rack and pinion gate and two no flow indicator switches to indicate material flow.

Gencor's optional "skirtless" feeder design incorporates troughing idlers which contain the flow of material to the feeder belt without the need of additional skirting. All feeders include adjustment for height and belt tension to accommodate any material size.

SKIDDED FEATURES

- Massive Heavy-Duty Trestle Skid supports
- Large 10' x 14' bin openings
- Full sidewall wing and front bulkheads

STATIONARY FEATURES

- Dual no-flow indicators
- Rack and pinion gate design allows easy material height adjustment
- Variable speed eddy current drive system
- Tail shaft tachometers
- Bin extensions (optional)
- Skirtless Feeders (optional)

SCREENS & CONVEYORS

Gencor's aggregate screening systems are designed and built to withstand long hours of operation. Heavy-duty construction resists the effects of heavy screening loads and vibration. The extra strong truss-frame of the stationary aggregate scale conveyor provides rigid weigh bridge support where it's needed the most. Screen configurations are available in single, double and triple deck with remote selective bypass options.

*Gencor's **heavy-duty lattice frame** conveyors provide superior support to typical channel frame conveyors. The added strength provides superior support against vibration and wind.*

*Gencor's precision **weigh bridge system** is a gravity type belt tensioner with self-cleaning rolls for constant tensioning of the conveyor belt. The weigh bridge load cell incorporates a unique moisture resistant protective coating with balanced temperature compensation for accurate weighing of material.*

SCALE CONVEYOR FEATURES

- 2-ply vulcanized rubber belting
- Lifetime lubricated idlers
- Rubber lagged head pulley
- Torque arm, shaft mounted reducer
- TEFC electric motor
- Telescopic leg supports

WEIGH BRIDGE FEATURES

- Gravity belt tensioner
- A test weight holder and two 50 lb. test weights
- Heavy-duty wind screen for accurate weighing

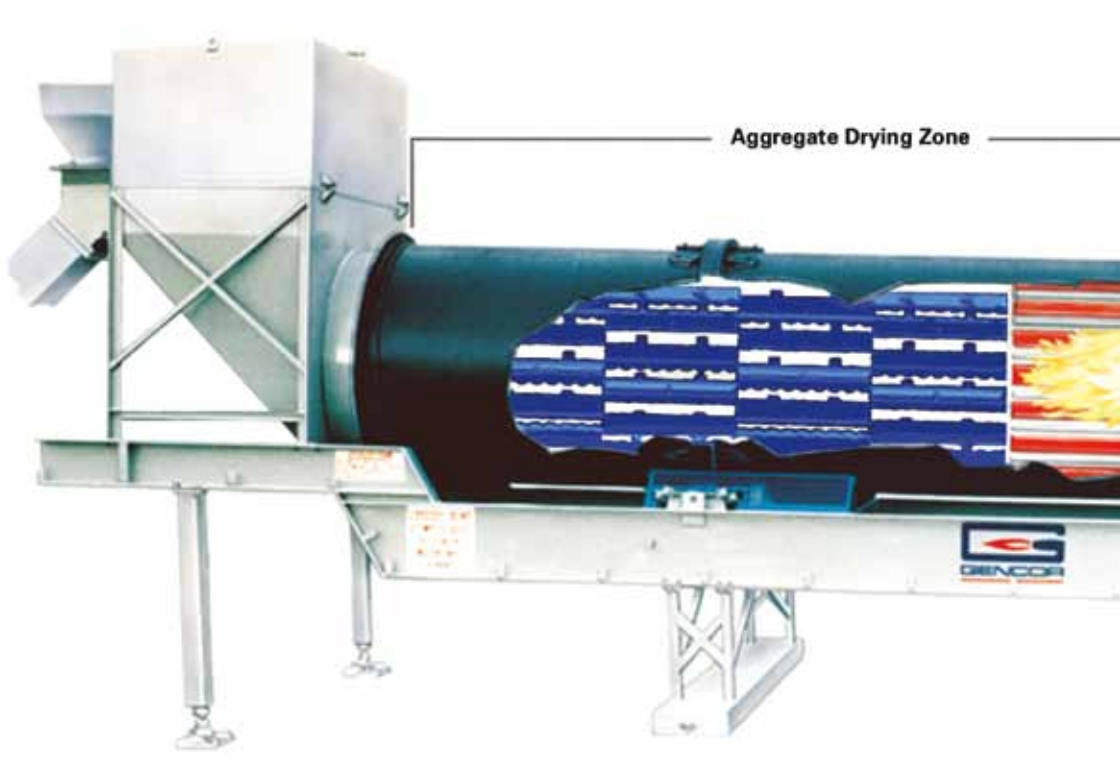
SCREEN DECK FEATURES

- H beam design with double spring heavy duty pivoted motor base
- TEFC electric motor
- V belt, motor sheave, and belt guard
- Oil bath with internal and external labyrinth seals
- Coil spring tension assembly and tension plates
- Reject pan at the rear of the screen deck

ULTRADRUM

The heart of the Ultraplant™ is built around the unique patented counterflow Ultradrum™ technology. The innovative Ultradrum™ has been proven in hundreds of applications around the globe for producing high quality hot mix without degradation, cleanly and efficiently. Designed with all the heavy-duty features you've come to expect from Gencor, the Ultraplant™ is without question the heaviest built and most rugged drum mix plant in the industry.

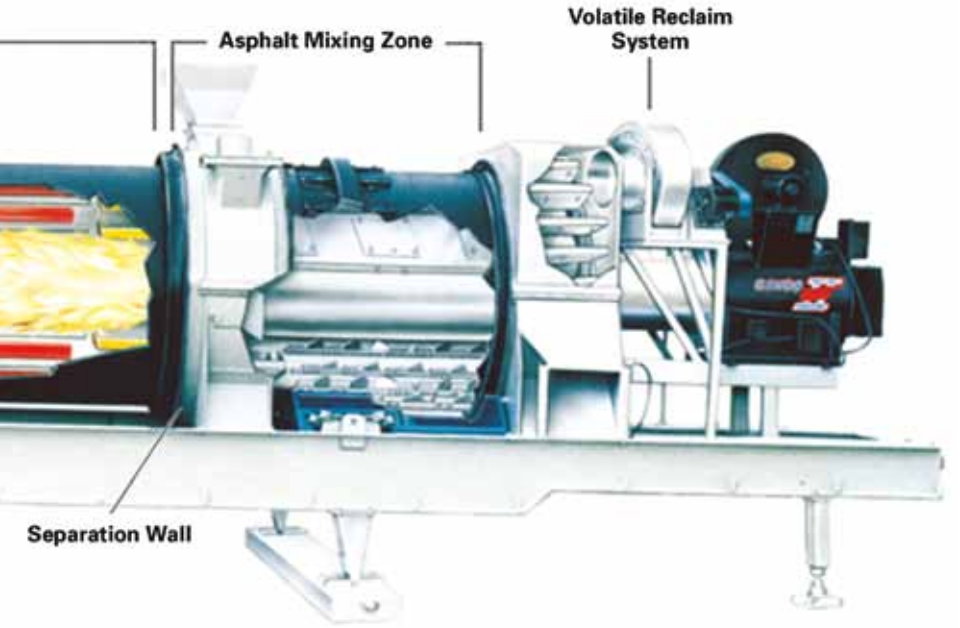
*The Gencor **Ultra II™ burner** is extended well inside the dryer for maximum efficiency and contact with the wet aggregates. There are no refractory chambers or high maintenance combustion ports. The Ultra II utilizes compressed air to atomize each droplet of fuel for optimum fuel efficiency.*



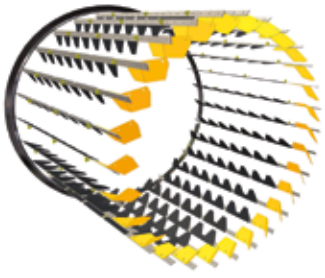
The isolated mixing section is located behind the burner so there is no chance of liquid asphalt coming in contact with the burner flame. This means there is no oxidation of the asphalt, no degradation of the mix, and no asphalt vapors entering the exhaust gas stream. Vapors generated in the mixing section are pulled through the burner by a patented volatile reclaim system and consumed as fuel. There are no odors or blue smoke emissions to pollute the environment.

*Gencor's **patented combustion T-flights** reduce energy costs by allowing conductive and convective heat transfer to the aggregates while creating an isolated combustion zone free from flame impingement.*

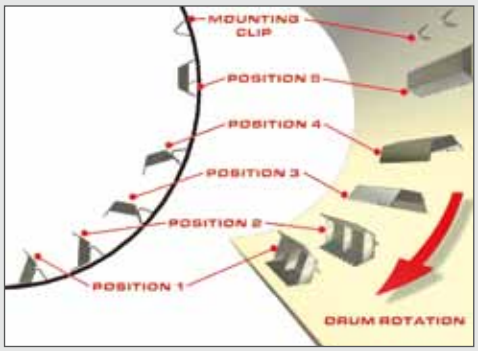
*All Gencor **Ultradrums** have oversized drum diameters, in fact the largest in the industry, which provides lower exhaust gas velocities reducing dust carryout and wear on the drum, ductwork and the entire plant exhaust system.*



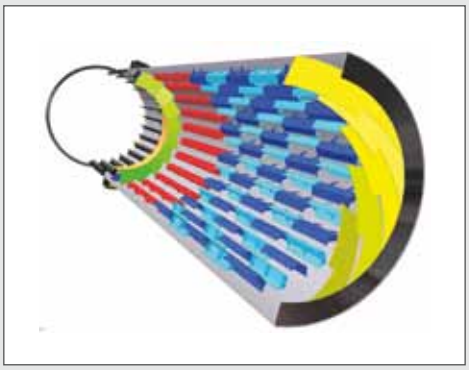
*Gencor's **isolated mixing zone** provides for both dry and wet mixing of the materials. The patented flights pull through the mix for thorough homogeneous coating of the aggregates. The kneading action reduces energy demand on the drum drive system and once coated with material virtually eliminates wear associated with typical mixing paddles.*



*The Gencor **discharge wheel** is made of abrasion resistant steel paddles that are adjustable and replaceable. The wheel design reduces energy demand on the drum drive system and eliminates segregation of the mix.*



Gencor's patented 5-way adjustable veiling flights provide easy adjustment of material veil in the drying section for highly efficient energy utilization and precise control over exhaust gas temperatures especially with RAP and Warm Mixes. Flight position 5 protects the drum shell against friction and blind wear spots totally eliminating the need to remove flights.



The Ultradrum flight design concept provides for the highest efficiency heat exchange between the aggregates and the combustion system making it the most efficient drum mixer in the industry. Each flight section is designed for maximum wear life, low maintenance and results in even drum loading. From the inlet sweeps to the discharge paddles, the low energy gravity movement of the material minimizes dust generation and virtually eliminates segregation through the process. The Ultradrum concept provides thorough drying of the aggregates and allows dry mixing of recycle, fines and aggregates prior to the point of asphalt injection.

ULTRADRUM

Recycle is added to the isolated mixing zone through a wide collar behind the burner flame. The wide opening design assures free flow of RAP material even at high RAP capacities of 50% due to a unique self-cleaning design. The collar opening is wear lined and has easy access inspection hatches. The Ultradrum recycle collar and isolated mixer provides dry mixing of the aggregates with the RAP and fines prior to the point of injection eliminating balling or clumping associated with other types of mixers.

Baghouse Fines Return

The primary collector is an effective means of reducing fines loading on the baghouse by capturing and returning -100 and larger fines and returning them directly to the isolated mixer. The gravity feed design provides a low cost, low maintenance alternative to dust conveyors. Gencor's primary collector is mounted to the drum frame eliminating the need for additional foundation support.

*The Gencor **Ultradrum** is driven by a heavy duty friction drive system that evenly distributes positive energy to each tire. Gencor provides four (4) independent drive units to ensure positive traction under any type of climate condition. Friction drive has been proven as more efficient with lower maintenance and lower noise than chain drive systems.*

The oversized feed breechings allow for smooth uninterrupted flow of material while also providing a large knock-out area to minimize dust carry-out. The breeching is equipped with replaceable Nihard wear liners, vibrator and pneumatically operated calibration divert chute.

*Gencor's **Skid Package** provides solid drum support eliminating the need for concrete foundations.*

STANDARD FEATURES

- Patented adjustable 5-way veiling flights for higher efficiency
- Patented combustion T-flights reduce energy costs
- Sweeping material inlet flights for even drum loading
- Self-cleaning RAP inlet allows up to 50% RAP
- Larger drum diameter reduces air velocity and dust carry-out
- Friction driven trunnion rolls for lower noise, maintenance, and energy
- Positive volatile reclaim system captures and destroys hydrocarbons

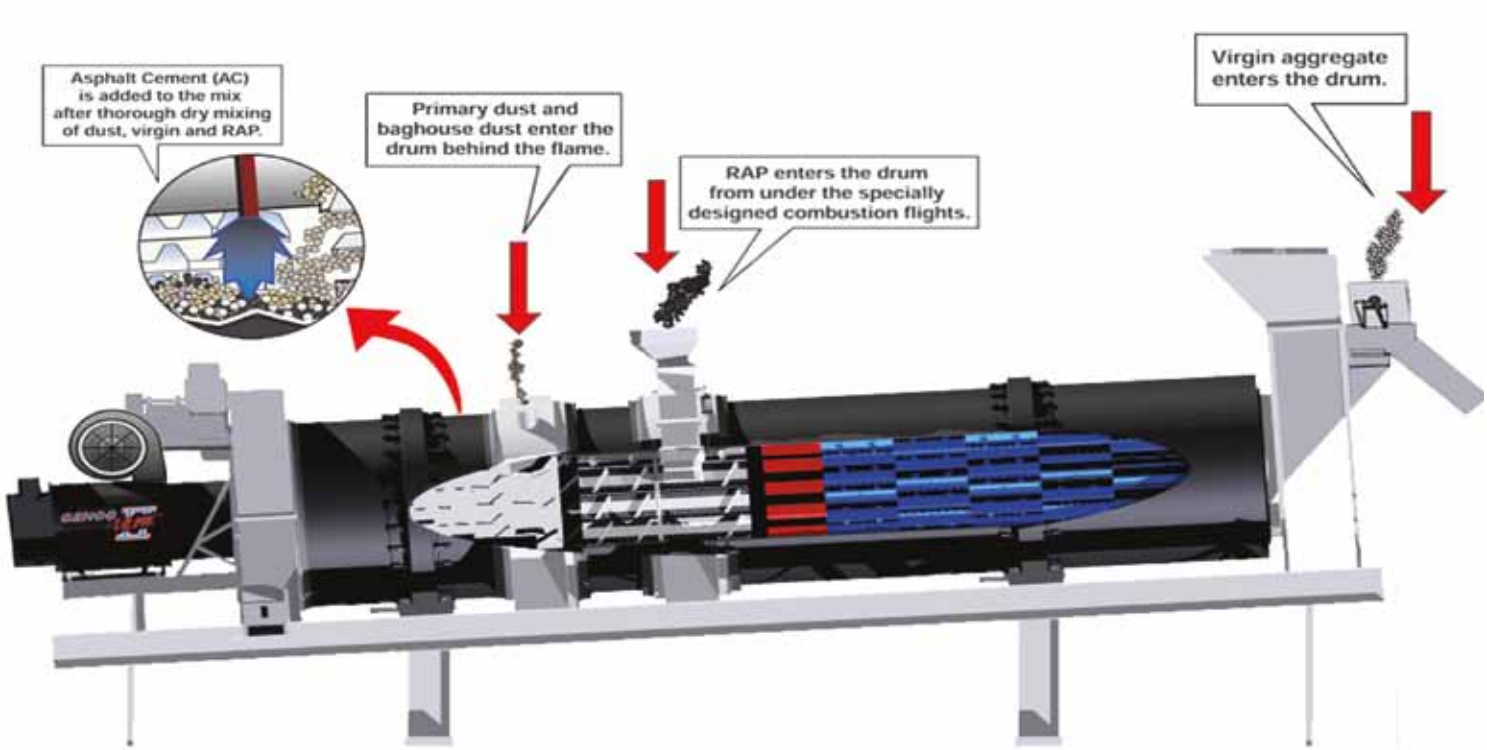
SKIDDED ULTRAPLANT FEATURES

- Drum erection skids – no foundation required
- Screw jack legs
- Mounted Primary collector with gravity dust return

ULTRADRUM

The patented Ultradrum which leads the asphalt industry, now takes the next leap forward with the introduction of the Advanced Rap Entry (A.R.E.). The A.R.E. concept utilizes the gases and convective heat of the combustion zone to preheat and advance the release of internal moisture in the recycle pavement. This advanced release of moisture results in higher production due to a more even and staged release of water vapor in the drying process.

The material process flow starts at the virgin aggregate feed end of the Ultradrum where aggregates are quickly heated to temperature as they approach the burner. While the aggregates approach the combustion zone, the recycled asphalt (having previously been reduced in size) is introduced into the combustion zone, behind the specially designed combustion flighting.



This special flighting allows the RAP material to cascade around the combustion zone absorbing conductive and convective energy. The heat from this action releases internal moisture before it enters the mixer. RAP, virgin aggregate and baghouse dust combine in the mixing zone, away from the direct radiant zone. Asphalt cement (AC) is then added into a thoroughly dried mixture of primary dust, virgin aggregate and RAP to form a fully coated and homogenous mix before exiting the drum.

Any hydrocarbons or steam vapors generated from the mixing process are captured by Gencor's patented Volatile Reclaim System and returned to the burner as fuel.

ULTRADRUM A.R.E.
ADVANCE RAP ENTRY

Gencor has demonstrated the effectiveness of the new A.R.E. option with some of the largest asphalt producers in the United States. These plants run applications in excess of 600 tons per hour with as much as 50% recycle (300 tons per hour) of recycled asphalt.

STANDARD A.R.E. FEATURES

- Patented adjustable 5-way veiling flights for higher efficiency
- Patented A.R.E. combustion flights pre-heat recycle reducing temperature and energy consumption
- Sweeping material inlet flights for even drum loading
- Self-cleaning RAP inlet allows up to 50% RAP
- Larger drum diameter reduces air velocity and dust carry-out
- Friction driven trunnion rolls for lower noise, maintenance, and energy
- Positive volatile reclaim system captures and destroys hydrocarbons

SKIDDED ULTRAPLANT FEATURES

- Drum erection skids – no foundation required
- Screw jack legs
- Mounted primary collector with gravity dust return

GENCOR SILOS

Bituma™ first began making hot mix storage silos in the early 1970's as Bituma-Stor™, formerly Boeing Construction Company, building a reputation for quality products, which has carried forth and expanded as Gencor Industries.

STATIONARY SILO

Innovative design and quality construction have maintained the reputation of Gencor hot mix storage systems around the world. The continuous-weld silo body provides enormous strength and maximum structural integrity to tolerate heat and vibration. The unique cone support design eliminates the risk of bottoming out. Gencor unique design features such as, the dual-flow batcher and dual safety gates, make Gencor the most dependable and safest silo storage system in the industry.

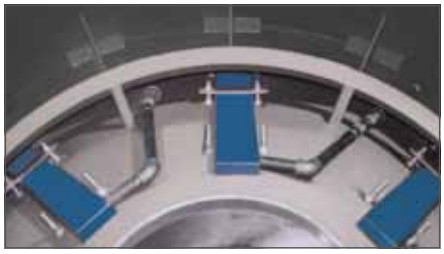
The safety gate system is independently driven and wired to prevent accidental overloading and provides a second lock against air intrusion while reducing truck and scale clean-up. A totally enclosed cone provides a protective skirt for maximum heat retention.

The massive seismic frame construction is unmatched in the industry, typically 20–30% heavier to withstand vibration and movement.

Gencor's high thermal retention design is certified to store mix for 4 days with the optional long-term storage package. Several gate configurations and long-term storage options are available to meet your individual requirements.

* polymer grade asphalt binders and open-graded mixes excluded

Floating Electric Heat



Hot Oil Heat

Blue Smoke Tunnel Available

Dual Safety Gates

Quick Draw Gates (optional)

Dual-Flow Batcher

Industrial Insulation

Galvanized Skin

1/4" Double-Welded Sidewalls

Material Level Indicators

Gusseted Cone Support

Dual Safety Gates

Seismic I-beam Support Legs

FEATURES

Heavy Duty I-beam support legs

- ¼" double welded body
- Dual-flow anti-segregation batcher for even distribution
- Industrial insulation board eliminates sagging
- Dual safety gates
- Oil or floating electric cone heat
- Material level indicators
- Thermotite seals (optional)
- Patented blue smoke system (optional)
- Reject Silo (optional)

Heavy Industrial Insulation

Anti-Segregation Batcher

DRAG SLAT CONVEYORS

Gencor drag slat conveyors are manufactured from two cold-chambered bridge I-beams making them the strongest conveyors in the world. The massive bridge-beam construction outweighs others by 30% and provides incredible strength and greater mass over long spans; eliminating sagging and additional supports as well as harmonic vibration.

The exclusive Gencor hydraulic chain adjustment is a hand operated pump located at the top of the conveyor for quick and accurate chain tensioning. Heavy-duty yet simple, spring-loaded hold-downs provide consistent and reliable self-adjusting slat height throughout the conveyor span.

Wear guaranteed for 1 million tons, Gencor slat chain design has ¼" AR slats to handle maximum torque. For maximum power and pull, a beefy 5-7/16" head shaft drives the massive head sprocket.

Massive Head Sprocket

Off-Set Roller Chain

*Gencor's exclusive **6" pitch "off-set" roller** chain provides added strength and reduced wear on the rollers and pins, effectively lowering maintenance and replacement costs. For ease and convenience, an exclusive self-contained pressurized clean-out system allows spray cleaning of the slat boot after shutdown.*

Built-In Spray Clean Out

Hydraulic Chain Adjustment

TRANSFER CONVEYORS

Gencor offers the most versatile and comprehensive line of transfer and rotary conveyors in the industry. With hundreds of applications to its credit, Gencor has confronted virtually every silo arrangement imaginable for both batch and continuous hot mix plants.

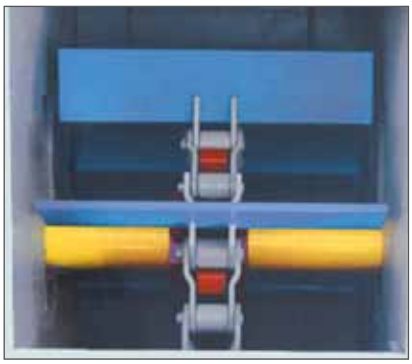
Constructed of the same heavy-duty components of Gencor's large drag slats, each conveyor is constructed of dual backbone heavy-duty beams with replaceable liners for long life and durability under the most demanding conditions. All drive systems are oversized to ensure continuous flow of material with even the most viscous of polymer asphalts and SMA mixes. The ¾" AR slats are chain driven from the center for maximum torque and are wear guaranteed for one million tons. An exclusive 4" pitch roller chain provides maximum strength for reduced wear on the rollers and pins.

3 Million Ton Ni-hard

FEATURES

The floor and sidewalls are lined with Ni-hard replaceable castings for maximum wear life and are guaranteed for three million tons. Marine plywood covers provide improved insulating value and outlast conventional metal covers against rain and elements. They are easily removed for access to the chain and slats.

1" replaceable Ni-hard wear liners extend 4" up the sidewall for maximum sidewall protection.



3/4" Slats

Rotary Transfer

RECYCLE SYSTEMS

Gencor Recycle systems incorporate the heaviest construction in the industry with innovative design features that accommodate any plant configuration and unlimited process versatility to feed, crush, break, and screen virtually any type of recycled asphalt pavement.

All Gencor Recycle feed bins are designed to eliminate material bridging, with steep sided ¼" tapered walls, self-relieving throat and welded beater plates on the sides of the bins. With the rack and pinion gate design, material height can be easily adjusted to suit any feed rate. Dependable eddy current and variable speed drives assure steady consistent flow at varying production rates. All Gencor Recycle bins feature unitized heavy beam construction and are available in portable, stationary, or skid-mounted configurations.

SKIDDED FEATURES

- 10' x 15' steep sided bin, 36" feeder (series I)
- 8' x 14' steep sided bin (series III)
- Precision weigh bridge ensures accurate material weighing
- Integrated with blending computer controls
- Dual no-flow indicators
- Variable speed eddy current drive system
- Quick disconnect plug wiring

RECYCLE CRUSHER

Gencor's Recycle crusher is a hammermill type design built of welded 3/4" thick plate and is mounted on a skid designed to straddle the base of the conveyor for stationary or portable applications. The crushers have a wide opening and large motor to process and breakdown large sized asphalt chunks with ease. It includes a heavy-duty welded steel plate with removable cover and abrasion resistant steel liners. The crusher also includes replaceable breaker plates made of manganese steel. Each hammermill is equipped with an alloy steel shaft with spherical roller bearings, abrasive resistant steel hammer support discs and sixteen (16) cast carbide hammers.

The crusher top is hinged for easy access to mill interior utilizing the manual hydraulic power unit to actuate the opening of crusher for servicing.

Optional Magnet Feature

RAP BREAKER

The Gencor™ Reclaim Asphalt Pavement (RAP) Breaker is a ruggedly constructed, twin drum RAP processing machine for use in breaking RAP millings down for plant processing or stockpiling. The Gencor™ RAP Breaker can easily reduce RAP material size without crushing the aggregate and is designed with a unique self-relieving tire and air bladder drive system.

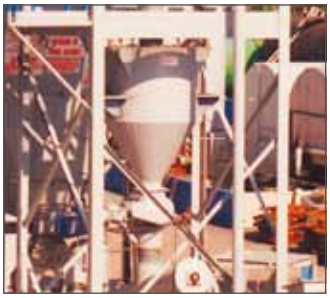
The counter-rotating drums are constructed of rugged mangalloy manganese alloy bars which break down and process the material as it is fed. The spacing between the drums is adjustable by adding or removing shims located between the stationary drum frame and the adjustable drum frame. Breaking pressure between the two drums is adjusted and controlled by the exclusive use of compressed air in air spring units. These units also provide the self relieving feature that comes into action when tramp iron is contained in the feed material.

*The **RAP Breaker** is equipped with a receiving hopper and grizzly. The grizzly directs the flow of material being fed into the lump breaker. The smaller RAP falls through the grizzly directly onto a belt conveyor and the larger RAP is directed down the chute into the RAP lump breaker.*

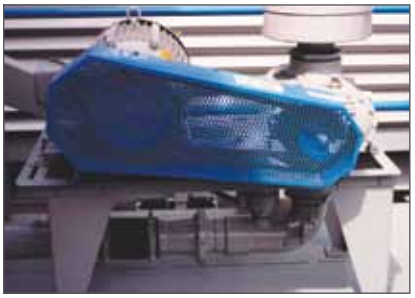
MINERAL ADDITIVE SILOS

Gencor offers a full range of Mineral Additive Silos to accommodate any dust return or metering system. It is the perfect solution for storing and metering lime dust, fly ash, or mineral fillers to the hot mix product. The heavy-duty steel construction of Gencor's filler silos stand up to the rigors of continuous operation.

A specially designed weigh hopper ensures precise measuring of any required additive. Minerals can be augered or pneumatically blown to the isolated mixer of the Ultradrum. For plants requiring a lime additive mixture, Gencor can accommodate an optional pugmill mixer for pre-blending of aggregates.



3-Point Weigh Batcher



Pneumatic Blower

Optional Lime Pugmill

Rotary Airlock

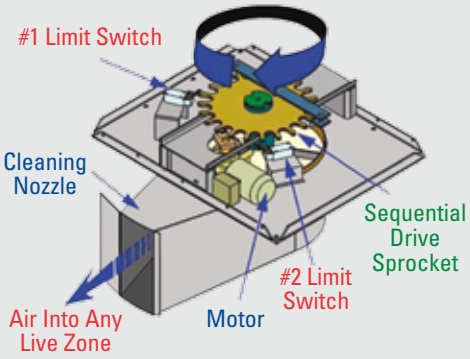
Each additive system is sized per application to assure optimum mix design quality and to meet the tightest state and DOT specifications. Mineral silos are available from 200 to 900 bbl capacity for addition of fly ash, dust, lime, or other mineral additives to the asphalt product.

ULTRAFLO™ BAGHOUSE

The Ultraflo™ Baghouse Filtration System is the ultimate alternative to pulse jet baghouses. Developed primarily to increase efficiency, reduce maintenance and reduce size and weight, the Ultraflo Baghouse cleaning system from Gencor provides many advantages to typical pulse-jet baghouses.

The most obvious feature is the compact, yet rugged modular design of the Ultraflo, which allows greater cleaning efficiency with reduced size and weight for ease of transport and setup. The Ultraflo is provided standard, with full sidewall and top section insulation to maintain a consistent baghouse temperature avoiding condensation dew point levels while increasing the efficiency of the filtration system.

The result is a compact baghouse design which provides more filter area in a much smaller structure along with fewer moving parts and much lower maintenance and operating costs compared with conventional pulse-jet baghouses.

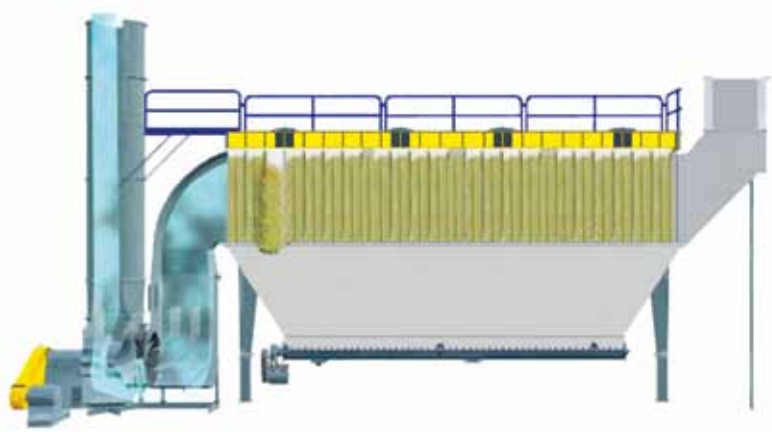


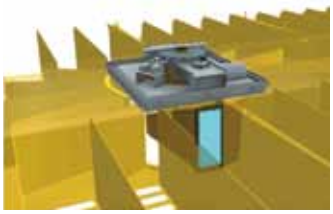
ADVANTAGES

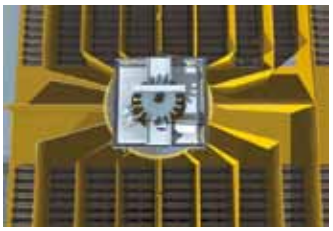
- Smooth cleaning with reduced wear on the bags
- Fewer moving mechanical parts
- No air compressor or solenoid valves
- Smaller compact design; less weight for easy transport
- Elliptical bag and cage design
- More cloth area in a reduced size structure
- High efficiency radial vortex exhaust damper
- Fully insulated for high efficiency
- Corrosion resistant steel construction

SKIDDED ULTRAFLO

Skidded baghouse designs are shipped in two modular sections for easy field installation. All bags and cages are completely pre-fitted from the factory eliminating the need for field bag installation. All skidded baghouses include a steel base support structure eliminating the need for independent concrete footings. Various independent fines metering and waste systems are available to accommodate any state requirement.







DUST METERING SYSTEMS

Gencor provides a variety of dust metering systems and configurations to conform to any specification or state and local requirement. Several basic metering devices are available which can be integrated to accommodate any plant configuration and achieve the desired level of precision for metering of dust or minerals.

Illinois Fines Dust Return System

Indian Fines Dust Return System

Double Dump Valve

Impact Flow Meter

FEATURES

- Two-piece modular design
- Fully insulated sidewalls and top
- Bags and cages installed at factory
- Skid mounted package
- Externally mounting cleaning distributor
- Insulated top and sidewalls
- Single pitch roof
- Bags and cages installed at factory

CONTROL AUTOMATION

Gencor offers a full line of process controls specifically designed for the Ultraplant™ allowing maximum control, dependability, ease of operation and most of all accuracy. The Ultraplant™ automation controls all plant functions including blending, loadout, PLC, and motor controls. In addition, Gencor offers a variety of integrated combustion controls specifically designed for your particular application.

BC-250™ BLENDING CONTROL

The Gencor BC-250™ blending computer is an integrated processor that controls, monitors, and tracks all mix designs function for the plant in a windows based environment. The PC based system uses a high-speed PC compatible computer with large capacity hard drive. The computer hardware is self-contained and uses two power supplies; one for the computer and one for the I/O. This isolates the computer power from noise and surges. The I/O tray is mounted separately for easy access to all input/output connection, buffer modules, and LED status indicators. All I/O devices are isolated to protect the computer system.

The Gencor BC-250™ blending computer main operating screen displays a logical presentation of operating data. The screen is divided into three sections; the upper section displays items at the point of liquid asphalt injection; the center section displays the calibrated devices; and the lower section displays volumetric rates and blends.

BC-250™ STANDARD FEATURES INCLUDE:

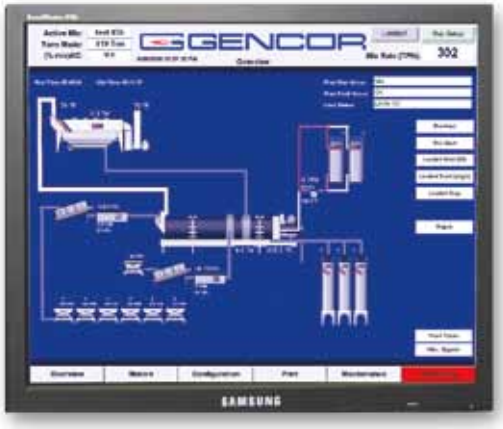
- Dust removal compensation software feature
- Dual feeder rate adjustment software
- 250 mix formula memory
- A “mix tons to-go” feature with automatic shut-down
- Recycle mix compensation feature
- AC no flow and material no flow indications
- Configurable software changes to the plant setup
- Online operators manual and simulation mode

SL-400™ STANDARD FEATURES INCLUDE:

- Indefinite storage of job, customer, product and truck files
- Automatic truck tare and G.V.W. to prevent overloading
- Bar code printing
- Daily reports are created for trucks, jobs, and customers
- Graphically displayed silo inventory for each silo
- File transmission via modem, network, CD or floppy disk

ULTRALOGIKS™ TOTAL PLANT CONTROL SYSTEM

The Gencor Ultralogiks™ Plant Control System is a totally integrated automation package that manages and monitors all plant control functions with a windows based environment and graphical user interface. The hardware is an advanced PLC control platform that performs all the plant operations including both blending and loadout functions. The graphical user interface is PC based using a high-speed PC compatible computer with a large capacity hard drive. A backup computer and redundant hard drive assure the operator of complete security of the data and operating system in the event of a failure of the PC or the PLC.



The Gencor Ultralogiks™ Plant Control System's main operating screens display a logical presentation of operating data through the use of segregated screen sections. The upper section displays items at the point of liquid asphalt injection; the center section offers selectable views of motors, maintenance, or event log information as well as configuration settings and calibration screens. Detailed user screens for each equipment component are displayed by simply clicking on the equipment image.

CONTROL AUTOMATION

VECTOR™ BURNER CONTROL

The **Vector**™ burner control is a fully automatic digital control system that minimizes fuel usage and gas emissions while maximizing production capacity. It is designed to control the start-up sequence, firing rate, and safe operation of the burner. The **Vector**™ is the latest evolution in process automation that programs and controls the character of the plant draft and fuels over the entire spectrum of operating range for optimum fuel to air ratio.

A large 10" LCD color display with touch-screen, controls the burner functions. A visual display indicates the current burner function, status, and alarm conditions via the HMI with audible alarm.

Digital actuators improve performance of the burner providing highly accurate and independent control of air, oil, and gas valves. Physical minimum and maximum positions for each servo for air and fuel are set and programmed allowing up to 10 programmable points to create air/fuel sets points for optimal air to fuel characterization throughout the firing range.

The Vector meets approvals for UC/CUL, FM, and NFPA-86.

GEN 3D™ DIGITAL BURNER CONTROL

The GEN 3D™ is a fully digital PLC based control that automatically manages start-up sequence, firing rate, and draft to provide smooth and accurate temperature adjustment and minimize fuel surges and spikes in the process. The control accuracy is increased by the "Advanced Temperature Detection" (ATD) circuit that monitors stack temperature changes due to moisture and feed rate changes and automatically makes corrections to the firing rate.

A large graphical HMI interface displays the current burner function, status, and alarm conditions for the operator, including an exclusive self-diagnostic "first out logic" feature for limits, and ignition and purge cycles. A standard built-in modem feature enables remote troubleshooting and diagnostics.

PLC FEATURES:

- Gencor's Ultraplant™ control system utilizes a high-speed Allen Bradley process controller and I/O for all plant functions including equipment interlocking and interlock bypassing controls.
- A fault finding system is programmed into the PLC to ease equipment troubleshooting and system startups. The Ultraplant™ PLC comes with a phone modem for direct on-line communication with Gencor's Service Center.

GENCOR CONTROL CENTER

Gencor's control centers offer the ultimate in structural design and efficiency. The center mounted on a heavy steel beam, is a split level design allowing the operator a 360° degree view of the entire plant. The motor control center is situated on the lower level of the unit for operator convenience.

Gencor control centers provide optimum efficiency with double-pane, sound insulated windows, industrial grade insulation, industrial vinyl siding and a high efficiency climate control system. All control centers are pre-wired from the factory for fast setup and operation.

CONTROL CENTER FEATURES:

- Raised operator position & brightly lit work area
- Night lighting
- UL approved building materials
- Split-level design with 360° view
- Industrial grade vinyl siding
- Heavy insulation & climate control
- Meets BOCA building codes
- High efficiency heatpump
- UL approved process controls
- Quick disconnect wiring plugs (optional)

Power Plug Bay

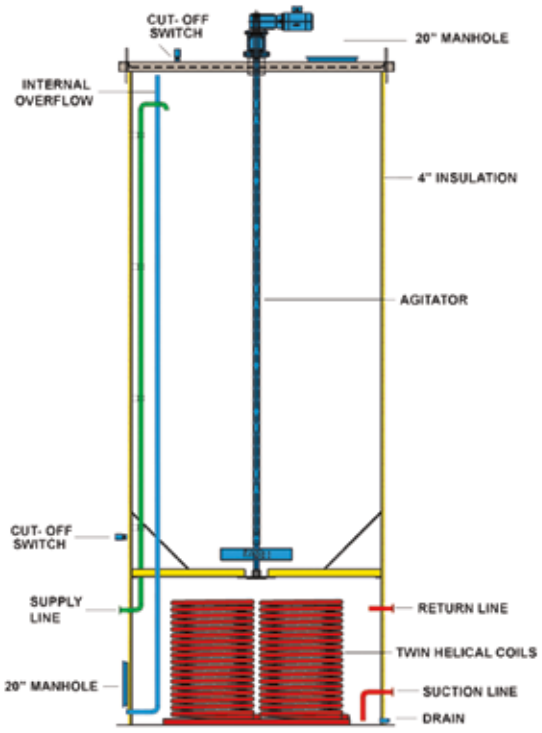
ASPHALT STORAGE TANKS

Hy-Way™ asphalt and polymer tanks are the most energy-efficient tanks available for today's liquid storage requirements. All Hy-Way™ coil tanks feature the highest quality materials and construction for durability and maximum heat retention. Hy-Way™ tanks are available in vertical, horizontal or portable, configurations and capacities from 1,000 to 50,000 gallons.

VERTICAL TANKS

Hy-Way™ vertical storage tanks are a space saving alternative to conventional tanks and provide a higher efficiency alternative for polymer blend and emulsified liquids. Each tank comes equipped with a unique, twin helical spiral coil for maximum heat release into the product. In some special applications an optional electric low-watt density coil can be added for extra heat transfer.

Constructed of heavy quarter-inch plate, every Hy-Way™ vertical tank features a standard OSHA approved caged ladder and twenty-inch manhole access to the top of the tank. Diamond plate top deck construction surrounded by a safety railing with kick plate provide a sturdy access platform. A secondary access is located at the base of the tank and a cable level indicator is mounted externally along with an electronic temperature controller. The unique bolt-on "tip-top" bottom design of the vertical tank allows easy transport and installation with the use of a single crane. All tank controls and piping are completely accessible at grade and include 3" inlet and outlet flanges and safety level cut-off switches.



FEATURES

- Large heat exchange coil surface
- Serpentine and helical coil designs for adequate expansion and contraction
- Four inches of high quality fiberglass insulation and embossed aluminum skin
- Safety suction system prevents the liquid level from dropping below the heating coil, yet allows complete emptying of the tank
- Internal vent and overflow system to prevent overfilling and condensing vapors from collecting in the insulation during truck unloading

HORIZONTAL TANKS

Hy-Way™ Horizontal tanks feature a high-efficiency, close-wound, serpentine coil for increased oil circulation and better heat transfer. The quarter-inch butt-welded steel plate forms the rugged shell construction of the tank with four inches of fiberglass insulation on the shell to reduce conductive heat loss. A series of integral saddles mounted on heavy twin twenty-five pound beams form the support frame which is easily set to grade or adaptable to concrete foundations. To ensure all-weather protection and durability, the Hy-Way™ coil tank is beautifully finished in a durable, scratch resistant, eighteen gauge embossed aluminum skin.

ADDITIVE TANKS

For efficiency and convenience, the Hy-Way™ additive metering system is an all inclusive, skid mounted unit. Each additive system is equipped with piping that runs from tank to pump; from pump to three-way valve; and from three-way valve back to the tank.

The storage tank has four inches of insulation and is fitted with either an electrical heating unit or a thermal fluid heating unit. Both the electrical heating unit and the thermal fluid heating unit contain automatic temperature control. The standard liquid storage capacity for the additive metering system ranges from 1,000 to 2,000 gallons.

CALIBRATION TANKS

The Hy-Way™ AC Calibration tank is a vertical 1,000 gallon coiled weight system. The unit is mounted on three (3) 5,000 lb. load cells which in turn are mounted on a platform. The platform scale has a remote digital indicator graduated in 5 lb. increments. The tank is insulated with 4" of high efficiency firm fiberglass. The insulation is covered with 18 gauge embossed aluminum covered with clear acrylic to maintain its luster. The AC calibration tank has a 20" manway on top which can be accessed via a tank mounted aluminum ladder. Features include two (2) test weight platforms that can be folded up for travel, discharge ports 3" butterfly valve and SOW control cable. Available in skid-mounted or portable configurations.

ASPHALT HEATING

ASPHALT HEATER

Gencor is recognized worldwide for manufacturing the Hy-Way™ line of premium thermal fluid heating systems. Gencor's HY heaters incorporate the all premium design features you've come to expect from Hy-Way™, including a close-wound helical coil design for maximum efficiency, high flow centrifugal pump, multi fuel burner, external insulation and low stack temperatures in an economical package. Better heat transfer and lower stack temperatures mean that Gencor heaters can use light heat transfer oils without the fear of coking, sludging or hot spots. HY heaters can burn Oil, Gas, LP and are available in electric models.

HY FEATURES

- Low pressure burner
- Annunciated control panel
- Adjustable differential temperature control
- Easy fill/drain system
- High capacity centrifugal pump
- Fully insulated with embossed aluminum

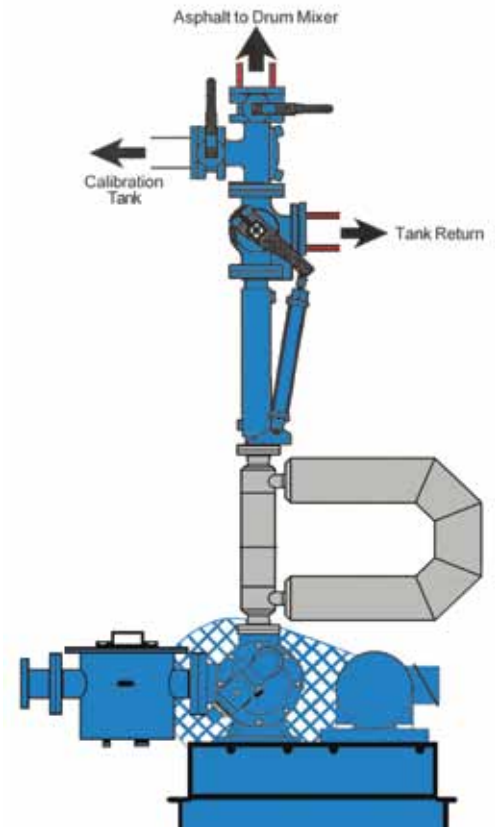
ASPHALT METERING

GENCOR ASPHALT INJECTION SYSTEM
CORIOLIS METER

The Coriolis asphalt meter delivers exceptional measurement accuracy for metering asphalt liquids. Based on the mass flow theory, the meter measures the flow of liquid asphalt through two tubes. The deflection of the tubes is measured and an electronic pulse is generated. The Coriolis asphalt meter measures total throughput of the liquid asphalt as it is injected into the drum and automatically adjusts to variations in product density and transmits an accurate flow rate to the computer for a highly accurate adjustment of the asphalt rate.

The asphalt injection system is protected by a hot oil jacketed asphalt strainer located prior to the asphalt meter. A remotely controlled, pneumatic operated, two position asphalt divert valve is provided at the AC meter. The drum inlet line is equipped with a tee and two butterfly valves for calibration purposes and an AC no flow indicator.

Liquid asphalt is supplied to the meter by a positive displacement asphalt pump and can be driven by either an eddy current or VFD drive.



GENCOR FUEL OIL HEATER

The Hy-Way™ line heater is a deluxe counterflow pre-heater for use with viscous fuels such as no. 4, 5, and 6 or reclaimed oils. The fuel heater can quickly and efficiently boost oil temperatures on demand to achieve optimum viscosity for proper atomization of heavier fuels. Heated thermal fluid is circulated through the inner manifold while fuel oil is circulated counter-current through the external jacket, thus providing optimum heat exchange and transfer to the fuel.

The heat exchanger is skid mounted and thermally insulated with an embossed aluminum skin for maximum efficiency and durability. Uniform pressure and volume are critical to a well-balanced and efficient combustion system.


Hy-Way

GENCOR
INDUSTRIES INC.

5201 N. Orange Blossom Trail • Orlando, Florida 32810
T (407) 290-6000 • F (407) 578-0577
www.gencor.com

Appendix C

Quantitative Modelling Summary

AIR DISPERSION MODELLING ASSESSMENT

The emission inventory and air dispersion modelling assessment for the site has been prepared in accordance with Section 26 of Ontario Regulation 419/05; the Ministry of the Environment and Climate Change's (MOECC) *Procedure for Preparing an Emission Summary and Dispersion Modelling Report (September 2016)* (MOECC Procedure) and the MOECC's *Air Dispersion Modelling Guideline for Ontario (February 2017)*.

EMISSION INVENTORY

The emissions from the Facility are i) particulate generated as a result of the handling and processing of aggregate materials; ii) particulate, polyaromatic hydrocarbons (assessed as benzo(a)pyrene [B(a)P]), benzene and naphthalene, generated as a result of the delivery, storage, and use of asphalt cement, and the storage and the transfer of HMA product; iii) particulate, nitrogen oxides, sulphur dioxide, carbon monoxide, polyaromatic hydrocarbons (assessed as [B(a)P]), benzene, naphthalene, arsenic, lead and nickel from the natural gas-fired rotary drum dryer/mixer; and iv) nitrogen oxides from the natural gas-fired hot-oil heater servicing the asphalt cement (AC). A source summary table is provided.

Emissions were estimated using a combination of published US Environmental Protection Agency (EPA) emission factors, MOECC emission factors as well as engineering calculations. The maximum emissions scenario represents very conservative maximum worst-case operations. Actual facility maximum operations are not expected to approach these conditions due to material and equipment scheduling logistics. Maximum emission estimates are provided in the Emission Summary Table (Table 3).

AIR DISPERSION MODELLING

Air dispersion modelling for the maximum emission scenarios was undertaken using the MOECC approved U.S. EPA AERMOD dispersion system (Version 14134) and the MOECC regional meteorological and terrain data. Various sources were modelled as point sources and, therefore, building downwash has been considered in the modelling exercise.

The model used both a receptor grid, which was centered in the site and extended out approximately 1 km from the property line in all directions, as well as individual receptors at the sensitive receptor locations shown in Figure 1.

This model calculates maximum hourly concentrations, which are used to provide maximum ½-hour, 1-hour, 24-hour and annual average concentrations using the appropriate MOECC supplied meteorological data.

AIR DISPERSION RESULTS

The resulting Point-of-Impingement (POI) concentrations were compared to the Schedule 3 standards in the MOECC Air Contaminants Benchmark (ACB) List, dated December 2016. The results are presented in Table 3 (maximum POI) and Table 4 (sensitive receptors).

Source and Contaminant Identification Table

Source Information				Expected Contaminants	Included in Modelling?
Source I.D.	Source Description	Material(s)	General Location		Significant? (Yes or No)
Hot Mix Asphalt Plant					
H1	Delivery truck(s) to aggregate stockpiles	Coarse aggregate / Sand	See Figure 2	PM RCS	Yes No - Washed/low silt material
H2	Front-end loader drop to aboveground cold feed bins	Coarse aggregate / Sand	See Figure 2	PM RCS	Yes No - Washed/low silt material
H3	Material transfer from aboveground cold feed bins to aggregate conveyor [A1]	Coarse aggregate / Sand	See Figure 2	PM RCS	Yes No - Washed/low silt material
H4	Aggregate screening	Coarse aggregate / Sand	See Figure 2	PM RCS	Yes No - Washed/low silt material
H5	Material transfer from inclined aggregate conveyor [A2] to rotary drum dryer / mixer	Coarse aggregate / Sand	See Figure 2	PM RCS	Yes No - Washed/low silt material
H6	Delivery truck(s) to RAP stockpiles	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H7	Front-end loader drop from RAP stockpile to RAP bins	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H8	Material transfer from RAP bins to RAP conveyor [A3]	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H9	RAP Lump Breaker	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H10	RAP Screening	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H11	Material transfer from inclined RAP conveyor [A4] to rotary drum dryer / mixer	RAP	See Figure 2	PM RCS	Yes No - Washed/low silt material
H12	Working / breathing loss from AC tanks	Asphalt Cement	See Figure 2	PM PAHs VOCs	Yes Yes Yes
H13	Hot-oil heater servicing the asphalt cement storage tanks	-	see Figure 2	NO_x	Yes
H14	AC transfer from AC tanks to rotary drum dryer / mixer	Asphalt Cement	See Figure 2	VOCs	No - Enclosed
H15	Baghouse servicing the rotary drum dryer / mixer	Baghouse Dust	See Figure 2	PM NO_x PAHs VOCs Metals	Yes Yes Yes Yes Yes
H16	Rotary drum dryer / mixer to slag conveyor [A5]	HMA	see Figure 2	PM NO_x PAHs VOCs Metals	No - Enclosed
H17	HMA silo filling	HMA	see Figure 2	PM PAHs VOCs	Yes Yes Yes
H18	HMA load out	HMA	see Figure 2	PM PAHs VOCs	Yes Yes Yes
H19	Truck box spray rack	Aqueous Solution	See Figure 2	PM	No - aqueous solution
Other Common Activities					
O1	Maintenance activities	n/a	See Figure 2	n/a	No - Exempt per EPA Section 9 (3)(a)
O2	Onsite vehicle fuelling	n/a	See Figure 2	Diesel Fumes	No - Table B-3
O3	Vehicle fuel storage tanks	n/a	See Figure 2	Diesel Fumes	No - Table B-3
O4	Vehicles travelling on onsite roads	n/a	See Figure 2	PM	No - Procedure Section 7.4.1
O5	Wind erosion from aggregate conveying	Coarse Aggregate / Sand / RAP	See Figure 2	PM	No - BMP Plan
O6	Wind erosion of stockpiles	Coarse Aggregate / Sand / RAP	See Figure 2	PM	No - Procedure Section 7.4.1

Notes: Source ID Codes: H = Hot Mix Asphalt Plant, O = Other Common Activites
PM = Particulate Matter, RCS = Respirable Crystalline Silica (Quartz) (PM_{10}), PAHs = Polyaromatic Hydrocarbons, VOCs = Volatile Organic Compounds, NO_x = Nitrogen Oxides
n/a = Not Applicable, BMP = Best Management Practices, RAP - Reclaimed Asphalt Pavement

Appendix D

Best Management Practices Plans

DIG-CON INTERNATIONAL LIMITED

BEST MANAGEMENT PRACTICES PLAN FOR THE CONTROL OF FUGITIVE DUST EMISSIONS

Site Location:
12415 Coleraine Drive
Bolton, Ontario
L7E 3A9

July 2017
(Revision 0)

TABLE OF CONTENTS

APPENDICES

REVISION HISTORY

Revision Number	Date
Revision 0	July 2017

INTRODUCTION

This Best Management Practices Plan for the Control of Fugitive Dust (BMP Plan) for Dig-Con International Limited's (Dig-Con's) hot mix asphalt (HMA) plant located at 12415 Coleraine Drive in Bolton, Ontario (Facility) has been prepared in accordance with the Ontario Ministry of the Environment and Climate Change (MOECC) standard requirements for a BMP Plan as summarized below.

MOECC Standard Requirements for a BMP Plan

(6) The Company shall develop in consultation with the District Manager and acceptable to the Director, a Best Management Practices Plan for the control of Fugitive dust emissions from the Facility. This Best Management Practices Plan shall include, but not limited to:

(1) Identification of the main sources of fugitive dust emissions such as:

- ***(a) on-site traffic;***
- ***(b) paved roads/areas;***
- ***(c) unpaved roads/areas;***
- ***(d) material stock piles;***
- ***(e) loading/unloading areas and loading/unloading techniques;***
- ***(f) material spills;***
- ***(g) material conveyance systems;***
- ***(h) exposed openings in process and storage buildings; and***
- ***(i) general work areas;***

(2) Potential causes for high dust emissions and opacity resulting from these sources;

(3) Preventative and control measures in place or under development to minimize the likelihood of high dust emissions and opacity from the sources of fugitive dust emissions identified above. Details of the preventative and control measures shall include:

- ***(a) a description of the control equipment to be installed;***
- ***(b) a description of the preventative procedures to be implemented; and/or***
- ***(c) the frequency of occurrence of periodic preventative activities, including material application rates, as applicable.***

(4) An implementation schedule for the Best Management Practices Plan, including training of facility personnel;

(5) Inspection and maintenance procedures and verification initiatives to ensure effective implementation of the preventative and control measures; and

(6) A list of all Ministry comments received, if any, on the development of the Best Management Practices Plan, and a description of how each Ministry comment was addressed in the Best Management Practices Plan.

DOCUMENT REQUIREMENTS

(7) The company shall record, in a logbook, each time a specific preventative and control measure described in the Best Management Practices Plan is implemented. The company shall record as a minimum:

(1) The date when each emission control measure is installed, including a description of the control measure;

(2) The date when each new preventative measure or operating procedure to minimize emission is implemented, including a description of the preventative measure or operating procedure; and

(3) The date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

The purpose of this BMP Plan is therefore to identify and describe significant sources of fugitive dust emissions associated with Dig-Con's proposed HMA plant; and identify and describe fugitive dust prevention and control measures (in place or under development) for these operations. In addition, this BMP Plan describes how Dig-Con will document and manage its overall continuous improvement program.

The BMP Plan has been divided into four separate sections to facilitate its clarity and implementation, as follows:

Part A: Identification of Main Sources of Fugitive Dust Emissions

This section identifies and describes the potential sources of significant fugitive dust emissions from Dig-Con's proposed operations and the potential causes of these emissions.

Part B: Fugitive Dust Prevention, Control Measures & Periodic Activities

This section identifies and describes the fugitive dust prevention and control measures to mitigate dust emissions from the significant sources of fugitive dust emissions identified in Part A.

Part C: Implementation Schedule, Assignment of Responsibilities & Staff Training

This section describes the implementation schedule for the BMP Plan, identifies who at the Facility is responsible for the various tasks in the BMP Plan as well as staff training responsibilities.

Part D: Inspection Activities & Record Keeping

This section describes how the fugitive dust prevention and control measures will be monitored through inspection. It details activities to ensure the effective implementation of the BMP Plan in addition to record keeping and document control.

PART A: IDENTIFICATION OF MAIN SOURCES OF FUGITIVE DUST EMISSIONS

Main Sources of Fugitive Dust Emissions

The main potential sources of fugitive dust at this Facility are presented in Table A.1 and are illustrated in Figure 1 (see Appendix A).

TABLE A.1: Identification of Potential Sources of Significant Fugitive Dust Emissions

ID	Main Sources of Fugitive Dust Emissions	Significant?	Comments
A	On-site traffic	Yes	Refers to traffic movement of heavy duty vehicles.
B	Paved roads / areas	Yes	The HMA plant site entrance and HMA product truck route will be paved
C	Unpaved roads / areas	Yes	The aggregate storage area and aggregate truck routes will be unpaved.
D	Aggregate stockpiles	Yes - marginal	All aggregate stockpiles (but not RAP) will be enclosed inside 3-sided enclosures, with the material remaining below the height of the wall(s). The coarse aggregate and sand will be received washed (i.e. they will have very low fines and high moisture contents). The aggregate stockpiles will, therefore, have a low potential to cause off-site fugitive dust emissions. The RAP contains residual asphalt cement and is, therefore, "sticky". The RAP stockpiles will, therefore, have a low potential to cause off-site fugitive dust emissions.
E	Loading / unloading areas and loading / unloading techniques: • Raw material delivery and delivery techniques • Raw material transfer and transfer techniques • Product loading techniques	Yes - marginal	Refers to aggregate and RAP material delivery to stockpiles, transfer of the aggregate and RAP to the cold feed bins/hopper and HMA loadout. The coarse aggregate and sand will be received washed (i.e. they will have very low fines and high moisture contents). The RAP and HMA product will be "sticky". Loading and unloading will, therefore, have a low potential to cause off-site fugitive dust emissions.

ID	Main Sources of Fugitive Dust Emissions	Significant?	Comments
F	Material spills	Yes - marginal	Significant spills will not be expected. Any material spills will be cleaned up promptly.
G	Material conveyance systems	No	With the exception of the transfer of HMA into the silos, all conveyors will be low and shielded by buildings/structures on at least one side. The conveyor transferring the HMA into the silos is enclosed. The coarse aggregate and sand will be received washed (i.e. they will have very low fines and high moisture contents). The RAP and HMA product will be "sticky". Conveyors will, therefore, have a very low potential to cause off-site fugitive dust emissions.
H	Exposed openings in process and storage buildings	n/a	The operations will not be enclosed in a building.
I	General work areas	Yes	General work areas are covered in the above categories.

The potential causes for significant fugitive dust emissions from the above sources are as follows:

TABLE A.2: Potential Causes of Significant Fugitive Dust Emissions

ID	Main Source of Fugitive Dust Emissions	Potential Causes of Significant Fugitive Emissions
A	On-site traffic	Traffic movement on paved and unpaved roads / areas (aggregate/RAP delivery trucks, asphalt cement tankers; front-end loader, HMA trucks).
B	Paved roads / areas	Wind erosion of accumulated dust from raw material delivery, storage and transfer, damage to paved area exposing dirt.
C	Unpaved roads / areas	Wind erosion of exposed disturbed surface.
D	Aggregate stockpiles	Wind erosion.
E	Loading / unloading areas and loading / unloading techniques: • Raw material delivery and delivery techniques • Raw material transfer and transfer techniques • Product loading techniques	Wind erosion.
F	Material spills	Wind erosion of raw material dropped outside of a transfer point.

PART B: FUGITIVE DUST PREVENTION AND CONTROL MEASURES

Tables B.1 through B.6 identify and summarize preventative and control measures to address each of the potential sources of fugitive dust emissions identified in Table A.2. The tables include a description of the prevention and control measures; the frequency of occurrence for the measures where applicable; and the implementation date for the measures where applicable. A placeholder is provided for new/under development prevention and control measures should additional fugitive dust control be required.

This BMP Plan is a living document that will be revised as new information or technologies become available or as practical experience identifies areas for improvement. The Foreperson/Supervisor or designate shall periodically update the tables in this section of the BMP Plan to identify any new prevention and/or control measures implemented or under development.

Significant updates require the BMP Plan to be revised. BMP Plan revisions should be included in the Revision History table at the front of this document.

A: ON-SITE TRAFFIC

Table B.1: Prevention and Control Measures for Fugitive Emissions Generated from On-Site Traffic

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Limit traffic speed	• Limit onsite traffic to 10 km/hr	Upon Startup	Ongoing
Use the shortest dedicated routes	• Use the shortest dedicated routes to reduce the total distance travelled, while maintaining efficiency and safety	Upon Startup	Annual or as required
Signage	• Speed limit sign posted at the site entrance	Prior to startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

B: PAVED ROADS / AREAS

Table B.2: Prevention and Control Measures for Fugitive Emissions Generated from Paved Roads / Areas

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Sweeping/Flushing	• Sweep/flush paved roads/areas to remove dirt buildup in a controlled manner with particular attention to the transition zones between paved and unpaved roads/areas* and the site entrance	Upon Startup	As required based on visual inspections (except for periods of rain, ice or snow) **
Repairs	• Repair any damage to paved areas as soon as possible	Upon Startup	As required based on visual inspections

* Dig-Con will retain a contractor to periodically sweep/flush paved roads/areas
** Typically, at least once per week during prolonged hot dry weather. Additional sweeping/flushing may be required based on visual inspections.

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

C: UNPAVED ROADS / AREAS

Table B.3: Prevention and Control Measures for Fugitive Emissions Generated from Unpaved Roads / Areas

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Limit traffic	• Limit traffic on unpaved roads / areas	Upon Startup	Ongoing
Surfacing	• Apply gravel to high traffic areas	Prior to Startup	As required based on visual inspections
Regularly apply water/ dust suppressants*	• Apply water and/or an appropriate dust suppressant to frequently disturbed areas during dry conditions and/or periods of high winds**	Upon Startup	As required based on visual inspections (except for periods of rain, ice or snow) **
Periodically apply long-lasting dust suppressants	• Apply long-lasting dust suppressants to critical areas, e.g. calcium chloride	Upon Startup	As required based on visual inspections

* Dig-Con will use water hoses and/or retain a contractor to water the unpaved roads/areas.
** Typically, at least twice per week during prolonged hot dry weather. Additional watering may be required based on visual inspections.

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

D: AGGREGATE STOCKPILES

Table B.4: Prevention and Control Measures for Fugitive Emissions Generated from Aggregate Stockpiles

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Minimize the disturbed area of stockpiles	• Front-end loader operators limit the disturbed area of the stockpile during handling of materials	Upon Startup	Ongoing
Shielding/ Enclosures	• All aggregate stockpiles (not RAP) will be enclosed on three sides • Aggregate materials kept below the height of the wall(s)	Upon Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

E: LOADING / UNLOADING AREAS AND LOADING / UNLOADING TECHNIQUES

Table B.5: Prevention and Control Measures for Fugitive Emissions Generated from Loading / Unloading Techniques

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Minimize drop heights	• Minimize drop heights from aggregate/RAP delivery trucks onto stockpiles and front-end loader drops into cold feed bins	Upon Startup	Ongoing
Shield open conveyor drop points	• Add wind shielding to conveyor transfers of aggregate and RAP where practical	Prior to Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

F: MATERIAL SPILLS

Table B.6: Prevention and Control Measures for Fugitive Emissions Generated from Material Spills

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Visual inspection	• Monitor working areas and the site entrance (visual inspection) throughout the day, with particular attention to material spillage • Clean-up spilled aggregate materials as quickly as possible	Upon Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	N/A	N/A	N/A

PART C: IMPLEMENTATION SCHEDULE, ASSIGNMENT OF RESPONSIBILITIES AND STAFF TRAINING

C.1 IMPLEMENTATION SCHEDULE

The procedures outlined in this document will be implemented according to the implementation schedule upon written MOECC acceptance of the BMP Plan.

The implementation schedule for the BMP Plan prevention and control measures is presented in Tables B.1 through to Tables B.6. As indicated in these tables, all preventative / control measures for each source of fugitive dust will be in place upon startup of the facility.

C.2 ASSIGNMENT OF RESPONSIBILITIES

All staff are responsible for:

- Reporting any significant dust emission incidents/concerns to the Foreperson/Supervisor or designate; and
- Attending required training.

The Foreperson/Supervisor or designate or designate is responsible for:

- Completing periodic inspections of the Facility;
- Recording any incidents of high dust emissions;
- Implementing corrective actions when required;
- Updating the tables in Section B in BMP Plan to record a description of and the date if a new emission control/prevention measure is installed.

Management Team is responsible for:

- Providing the resources essential for the effective implementation and continual improvement of the BMP Plan.

C.3 STAFF TRAINING

Employee personnel assigned to Dig-Con's operations will be trained on the BMP Plan. All new staff assigned will be trained at their hiring and employee personnel will review the training annually. Training includes the requirement for all staff to visually monitor for fugitive dust emissions throughout their work shift. Training will be recorded in the logbook as specificed below.

Training Record

Training Date	Employee	Training Type (New Hire / Annual)	Employee Signature

The following items will serve as training material for sessions to be held with appropriate staff and/or contractors:

1. BMP Plan
    a. Overview and Importance
    b. Responsibilities
    c. Control/Preventative Measures
    d. Inspection/Maintenance
    e. Reporting Fugitive Dust

2. Logs/Checklists
    a. Daily Dust Inspection Checklist
    b. Periodic Activities Logs

PART D: INSPECTION ACTIVITIES AND RECORD KEEPING

D.1 INSPECTIONS

It is a best practice to periodically inspect the potential sources of odour emissions to monitor the implementation and continual effectiveness of the prevention and control measures.

D.1.1 DAILY INSPECTIONS

The Foreperson/Supervisor or designate will conduct a visual overview of the site at least once per day and complete the Daily Dust Inspection Checklist (see Appendix B). At any time, if a significant fugitive dust emission incident / concern is identified, the Foreperson/Supervisor or designate will immediately proceed to investigate and mitigate the source of significant fugitive dust emissions. The corrective action(s) implemented to remedy the situation will be recorded in the Daily Dust Inspection Checklist.

In addition, other staff will visually monitor all aspects of the operations on a continuous basis during operating hours. In the event that significant fugitive emissions are observed, the staff member will be required to report to the Foreperson/Supervisor or designate immediately. The Foreperson/Supervisor or designate will record the observation in the Daily Dust Inspection Checklist and will immediately proceed to investigate and mitigate the source of significant fugitive dust emissions. The mitigation measure will be recorded on the Daily Dust Inspection Checklist.

Severe Weather Conditions

Elevated fugitive dust emissions may occur under severe weather conditions, i.e. very dry conditions with high winds. The Foreperson/Supervisor or designate will monitor local weather forecasts. As necessary the Foreperson/Supervisor or designate will implement additional dust mitigation (which may include additional watering, reduced operations, etc.) to limit the potential for fugitive dust to migrate off-site during severe weather conditions.

D.2 PERIODIC ACTIVITIES

Dig-Con or a contractor will apply dust controls periodically to the site. Periodic activities including flushing, watering, etc. will be recorded per the Dig-Con Periodic Activities log sheet in Appendix B.

D.3 VERIFICATION AND CONTINUOUS IMPROVEMENT

The effective implementation of the Plan will be the responsibility of the Foreperson/Supervisor or designate. The Foreperson/Supervisor or designate will keep a master copy of the plan and associated documents at the Facility office.

The Foreperson/Supervisor or designate will monitor the on-going performance of the Plan based on completed daily checklists.

On an annual basis, the Foreperson/Supervisor or designate will evaluate the overall performance of the Plan. As required, the Plan and record keeping procedures will be updated to reflect the plant's continuous improvement objective.

D.4 RECORD KEEPING

Dig-Con will retain all records and documents relating to the BMP Plan on-site for a minimum of 2 years.

APPENDIX A

FIGURE

COLERAINE DRIVE

GEORGE BOLTON PARKWAY

Proposed Office Building

Main Entrance (641145 m E, 4854471 m N)

RAP Stockpile

RAP Stockpile

Sand and Coarse Aggregate Stockpiles

Sand and Coarse Aggregate Stockpiles

HMA Queue Area

AC Tanks

Hot Oil Heater

Baghouse

Dust Silo

Aggregate Screen

Cold Feed Bins

RAP Bin

RAP Screen

Rotary Drum Dryer/Mixer

HMA Silos

Weigh Scale

Control Room

SIMPSONS ROAD

LEGEND

- Property Line
- Roads
- Traffic - All Trucks
- Traffic - HMA Trucks
- Traffic - AC Delivery Trucks
- Traffic - Aggregate Delivery Trucks

0 m 50 m 100 m

SITE LAYOUT

DIG-CON INTERNATIONAL LIMITED
12415 Coleraine Drive, Bolton, Ontario, L7E 3A9

BCX

BEST MANAGEMENT PRACTICES PLAN FOR THE CONTROL OF FUGITIVE DUST EMISSIONS

File No.: 1259-01.01
Date: May 2018
Dwg.: 1259-01.01_1
Drawn By: MO

FIGURE 1

APPENDIX B

DAILY DUST INSPECTION CHECKLIST
PERIODIC ACTIVITIES CHECKLIST

DIG-CON ASPHALT INC.
Best Management Practices Plan for the Control of Fugitive Dust Emissions

DAILY DUST INSPECTION CHECKLIST

Refer to Part B of BMP Plan for Dust Prevention and Control Measures.
[✓] PASS - No significant fugitive dust.
[X] FAIL - Fugitive dust with potential to migrate off-site. Corrective action required. Record in ACTIONS.

Date	On – Site Traffic[1,2]	On-Site Paved Roads and Areas	On-Site Unpaved Areas	Stockpiles [3]	Loading/Unloading Techniques [3]	Material Spills [4]	Comments/ Actions	Initials

[1] Drivers causing fugitive dust emissions as a result of not obeying speed limits and traffic routes will be cautioned and directed to observe the signage at the site entrance. If the issue is not resolved, the manager or designate must escalate the issue to management.
[2] Damage to paved areas should be noted in the comments section and addressed promptly.
[3] Controlled operations while limiting drop height
[4] AC tank storage area, mixer area, silo storage area, loading point

As appropriate, record corrective actions in Periodic Activities table (e.g. watering)

PERIODIC ACTIVITIES

Name	Date dd/mm/yyyy	Start Time	End Time	Description of Preventative Measure/Procedure	Comments

Periodic Activities Include:

- Sweeping paved roads and areas
- Flushing/watering paved roads and areas
- Watering of unpaved areas
- Application of alternative dust controls e.g. calcium chloride

APPENDIX C

MOECC COMMENTS

MOECC COMMENTS

Date	Ministry Comment Received	Description of How the Comment was Addressed in the Plan

DIG-CON INTERNATIONAL LIMITED

ODOUR MANAGEMENT PLAN

Site Location:
12415 Coleraine Drive
Bolton, Ontario
L7E 3A9

July 2017
(Revision 0)

TABLE OF CONTENTS

APPENDICES

REVISION HISTORY

Revision Number	Date
Revision 0	July 2017

INTRODUCTION

This Odour Management Plan (Plan) for Dig-Con International Limited's (Dig-Con) hot mix asphalt (HMA) plant located at 12415 Coleraine Drive in Bolton, Ontario (Facility) has been prepared in accordance with the Ontario Ministry of the Environment and Climate Change (MOECC) standard requirements for a BMP Plan as summarized below.

MOECC Standard Requirements for a BMP Plan

(5.1) The Company shall develop in consultation with the District Manager and acceptable to the Director, an Odour Management Plan to minimize odourous emissions from the Facility. This Odour Management Plan shall include, but not limited to:

(1) Identification of the main sources of odour emissions, including fugitive odour sources such as:

- ***(a) truck deliveries of asphaltic materials;***
- ***(b) loading/unloading areas and loading/unloading techniques;***
- ***(c) material spills;***
- ***(d) material conveyance systems;***
- ***(e) exposed openings in process and storage buildings; and***
- ***(f) general work areas;***

(2) an assessment of the likelihood of these sources to cause adverse effect to the environment;

(3) Potential causes for high odour emissions resulting from these sources;

(4) Preventative and control measures in place or under development to minimize the likelihood of high odour emissions from the sources identified above. Details of the preventative and control measures shall include:

- ***(a) a description of the control equipment to be installed;***
- ***(b) a description of the preventative procedures to be implemented; and/or***
- ***(c) the frequency of occurrence of periodic preventative activities, including material application rates, as applicable.***

(5) An implementation schedule for the Odour Management Plan, including training of Facility personnel;

(6) Inspection and maintenance procedures and monitoring initiatives to ensure effective implementation of the preventative and control measures; and

(7) A list of all Ministry comments received, if any, on the development of the Odour Management Plan, and a description of how each Ministry comment was addressed in the Odour Management Plan.

The purpose of this Plan is therefore to identify and describe potential sources of odour emissions associated with Dig-Con's proposed HMA plant, and identify and describe the prevention and control measures for these operations.

The Plan has been divided into four separate sections to facilitate its clarity and implementation, as follows:

Part A: Identification of Potential Sources of Odour Emissions

This section identifies and describes the potential sources of odour emissions from Dig-Con's proposed operations, the likelihood of these sources to cause an adverse effect to the environment, and the potential causes of these emissions.

Part B: Odour Prevention, Control Measures & Periodic Activities

This section identifies and describes the prevention and control measures (in place and under development) to mitigate potential sources of odour emissions identified in Part A.

Part C: Implementation Schedule, Assignment of Responsibilities & Staff Training

This section describes the implementation schedule for the Plan, identifies who at the Facility is responsible for the various tasks in the Plan as well as staff training responsibilities.

Part D: Inspection Activities & Record Keeping

This section describes how the odour prevention and control measures will be monitored through inspection. It details activities to ensure the effective implementation of the Plan.

PART A: IDENTIFICATION OF POTENIAL SOURCES OF ODOUR EMISSIONS

Any odours that could be emitted from Dig-Con's proposed HMA plant are associated with the use of asphalt cement. The main sources of potential odour emissions at this Facility are presented in Table A.1.

TABLE A.1: Identification of Potential Sources of Odour Emissions

ID	Main Sources of Odour Emissions	Likelihood to Result in Off-site Impact	Comments
A	Asphalt cement (AC) storage tanks	Low	Refers to filling asphalt cement storage tanks and tank breathing losses.
B	Mixing (Drum Mixer)	Low - Medium	Refers to the mixing of asphalt cement with heated aggregates.
C	HMA storage silos	Medium	Refers to the transfer into and storage of HMA product in the on-site silos.
D	HMA loading areas and loading techniques	Medium	Refers to the transfer of product onto shipping trucks.
E	Trucks transporting HMA product off-site	Low to High	Refers to traffic movement off-site.
F	Material spills	Low	Significant spills are not expected. Any material spills are to be cleaned up promptly.
G	Exposed openings in process and storage buildings	n/a	The operations are not enclosed in a building.

Negligible Sources:

1. The use of truck box release agents to prevent HMA from sticking to the truck box is not a significant source of odour since aqueous solutions will be used, which have a low odour associated with them.
2. The delivery and storage of recycled asphalt pavement (RAP) is not a significant source of odour as any odours associated with the original HMA will no longer be present.

The potential causes of odour emissions from the above sources are as follows:

TABLE A.2: Potential Causes of Significant Odour Emissions

ID	Main Source of Odour Emissions	Potential Causes of Significant Odour Emissions
A	Asphalt cement (AC) storage tanks	Filling of the asphalt cement storage tanks with heated asphalt cement, and tank breathing losses during storage
B	Mixing	Mixing of the heated asphalt cement with heated aggregates
C	HMA Storage Silos	Transfer of hot product from the drum mixer into silos, and the storage of hot product on-site
D	HMA Loading areas and loading techniques	Transfer hot product into shipping trucks
E	Trucks transporting HMA product off-site	Airflow across the hot product as the trucks are moving off-site
F	Material Spills	Spillage of AC and HMA product

PART B: ODOUR PREVENTION AND CONTROL MEASURES

Tables B.1 through B.6 identify and summarize preventative and control measures to address each of the potential sources of odour emissions identified in Table A.2. The tables include a description of the prevention and control measures; the frequency of occurrence for the measures where applicable; and the implementation date for the measures where applicable. A placeholder is provided for new/under development prevention and control measures should additional odour control be required.

This Plan is a living document that will be revised as new information or technologies become available or as practical experience identify areas for improvement. The Foreperson/Supervisor shall periodically update the tables in this section of the Plan to document any new prevention and/or control measures implemented or under development.

Significant updates require the BMP Plan to be revised. BMP Plan revisions should be included in the Revision History table at the front of this document.

A: ASPHALT CEMENT (AC) STORAGE TANKS

Table B.1: Prevention and Control Measures for Odour Emissions Generated from Asphalt Cement (AC) Storage Tanks

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Delivery schedule	• Asphalt cement delivery is scheduled during week-days during periods of least impact to most neighbours;	Upon Startup	Ongoing
Temperature Management	• Maintain the temperature of asphalt cement delivered and stored on-site in accordance with the OAPC Environmental Practices Guide see Appendix B)	Upon Startup	Ongoing
Tank Filling	• Fill tanks in a controlled manner to minimize the potential for spills and to manage filling losses (the release of air in the empty space inside the tank); • Keep lids on AC tanks closed where possible	Upon Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

B: MIXING

Table B.2: Prevention and Control Measures for Odour Emissions Generated from Mixing

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Temperature management	• Maintain the proper operating temperature of the drum mixer.	Upon Startup	Ongoing
Mixing operation	• The airflow through the drum mixer is directed through the dust collection system to reduce odour emissions and promote dispersion of any residual odours	Prior to Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

C: HOT MIX ASPHALT STORAGE SILOS

Table B.3: Prevention and Control Measures for Odour Emissions Generated from the Hot Mix Asphalt Storage Silos

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Temperature management	• Maintain the proper operating temperature of the HMA storage silos.	Upon Startup	Ongoing
HMA silo filling operation	• The silo is fully enclosed • Enclose the slat conveyor used to transfer HMA from drum mixer • Direct airflow from the slat conveyor system through the dust collection system using a scavenger fan	Prior to Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

D: HOT MIX ASPHALT LOADING AREAS AND LOADING TECHNIQUES

Table B.4: Prevention and Control Measures for Odour Emissions Generated from Hot Mix Asphalt Loading Areas and Loading Techniques.

a) In Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Temperature management	• Maintain the HMA loadout temperatures below the industry maximum per the OHMPA Environmental Practices Guide (see Appendix B)	Upon Startup	Ongoing
HMA loadout	• Load HMA into shipping trucks in a controlled manner	Upon Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

E: TRUCK TRANSPORTING HOT MIX ASPHALT PRODUCT OFF-SITE

Table B.5: Prevention and Control Measures for Odour Emissions Generated from Trucks Transporting Hot Mix Asphalt Product Off-site

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
Tarps on HMA shipping trucks	• Fit shipping trucks with tarps to reduce airflow over the hot product during transport off-site	Upon Startup	Ongoing
No idling policy after loading	• Loaded and tarped trucks will not be permitted to idle on-site.	Upon Startup	Ongoing
Optimize off-site truck routes	• Offsite truck routes to major transportation corridors have been optimized to limit travel in the vicinity of residential areas.	Prior to Start-up	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

F: MATERIAL SPILLS

Table B.6: Prevention and Control Measures for Odour Emissions Generated from Material Spills

a) In-Place

Control/Preventative Measure	Description	Implementation Date	Frequency of Occurrence for Periodic Measures
AC transfer lines	• Inspect asphalt cement transfer lines into the drum mixer daily to ensure there are no leaks	Upon Startup	Ongoing
Visual inspection	• Monitor working areas (visual inspection) throughout the day, with particular attention to AC and HMA spillage • Clean up any spilled AC and HMA as quickly as possible	Upon Startup	Ongoing

b) Under Development

Control/Preventative Measure	Description	Completion Date	Results / Comments
N/A	• N/A	N/A	N/A

PART C: IMPLEMENTATION SCHEDULE, ASSIGNMENT OF RESPONSIBILITIES AND STAFF TRAINING

C.1 IMPLEMENTATION SCHEDULE

The procedures outlined in this document will be implemented according to the implementation schedule upon written MOECC acceptance of the Plan.

The implementation schedule for the Plan prevention and control measures is presented in Tables B.1 through to Tables B.6. As indicated in these tables, all of the preventative / control measures for each source of odour emissions will be in place upon startup of the facility.

C.2 ASSIGNMENT OF RESPONSIBILITIES

All staff are responsible for:

- Reporting any significant odours to the Foreperson/Supervisor or designate; and
- Attending required training.

The Foreperson/Supervisor or designate is responsible for:

- Completing periodic inspections of the Facility;
- Recording any incidents of high odour emissions;
- Implementing corrective actions when required;
- Updating the tables in Section B in Plan to record a description of and the date when each new odour emission control/prevention measure is installed.

Management Team is responsible for:

- Providing the resources essential for the effective implementation and continual improvement of the Plan.

C.3 STAFF TRAINING

Employee personnel assigned to Dig-Con's operations have been trained on the Plan. All new staff assigned will be trained at their hiring and employee personnel will review the training annually. Training includes the requirement for all staff to monitor and report any significant odours that could cause an impact off-site. Training is recorded in the logbook as described below.

Training Record

Training Date	Employee	Training Type (New Hire / Annual)	Employee Signature

PART D: INSPECTION ACTIVITIES AND RECORD KEEPING

D.1 INSPECTIONS

It is a best practice to periodically inspect the potential sources of odour emissions to monitor the implementation and continual effectiveness of the prevention and control measures.

D.1.1 DAILY INSPECTIONS

The Foreperson/Supervisor or designate will conduct a tour of the Facility at least once per day and complete the Daily Odour Checklist (see Appendix A). At any time, if significant odours are identified that could result in an off-site impact, the Foreperson/Supervisor or designate will immediately proceed to investigate and mitigate the source of odours. The corrective action(s) implemented to remedy the situation will be recorded in the Daily Odour Checklist.

In addition, other staff will monitor all aspects of the operations on a continuous basis during operating hours. In the event that significant odour are identified that could have an off-site impact, the staff member will be required to report to the Foreperson/Supervisor immediately. The Foreperson/Supervisor or designate will record the observation and will immediately proceed to investigate and mitigate the source of odours. The mitigation measure will also be recorded Daily Odour Checklist.

Adverse Weather Conditions

Poor odour dispersion can result under very calm weather conditions. Poor dispersion is typically most noticeable during warm weather. The Foreperson/Supervisor or designate will monitor the weather forecast and as necessary the Foreperson/Supervisor or designate will implement additional odour mitigation (which may include rescheduling and/or reduced production) to limit the potential for poorly dispersed odours to migrate off-site during adverse weather conditions.

D.2 VERIFICATION AND CONTINUOUS IMPROVEMENT

The effective implementation of the Plan will be the responsibility of the Foreperson/Supervisor or designate. The Foreperson/Supervisor or designate will keep a master copy of the plan and associated documents at the Facility office.

The Foreperson/Supervisor or designate will monitor the on-going performance of the Plan based on completed daily checklists.

On an annual basis, the Foreperson/Supervisor will evaluate the overall performance of the Plan. As required, the Plan and record keeping procedures will be updated to reflect the plant's continuous improvement objective.

D.3 RECORD KEEPING

Dig-Con will retain all records and documents relating to the Odour Management Plan on-site for a minimum of 2 years.

APPENDIX A

DAILY ODOUR CHECKLIST

Daily Odour Checklist

Refer to Part B of Odour Management Plan for Odour Prevention and Control Measures.

[✓] PASS - No significant odours
[x] FAIL - Odour with the potential to migrate off-site. Corrective action required. Record in ACTIONS.

Date	Asphalt Cement Delivery	Asphalt Cement Tank Lids [1]	Operations	HMA Trucks [2]	Temperature Controls [3]	Spills [4]	Comments/Actions	Initials

[1] Ensure lids are kept closed
[2] Ensure a) Trucks are tarped after loading; and b) Loaded trucks are not idling on site
[3] Are temperatures on Daily Operational Record maintained per Best Practices?
[4] AC tank storage area, mixer area, silo storage area, loading point

APPENDIX B
OHMPA ENVIRONMENTAL PRACTICES GUIDE: TEMPERATURE LIMITS

AC Pumping and Storage Temperatures

Performance Graded Asphalt Cement (PGAC AASHTO M320)*	AC PUMPING TEMP. (Unloading)		AC STORAGE TEMP.	
	Min.	Max.	Min.	Max.
PG 52-34	110ºC	160ºC	120ºC	150ºC
PG 52-40	110ºC	160ºC	120ºC	150ºC
PG 58-22	115ºC	165ºC	125ºC	160ºC
PG 58-28	115ºC	165ºC	125ºC	160ºC
PG 58-34	115ºC	165ºC	125ºC	160ºC
PG 64-28	120ºC	170ºC	130ºC	165ºC
PG 64-34	125ºC	170ºC	135ºC	170ºC
PG 70-28	125ºC	170ºC	135ºC	170ºC
PG 70-34	125ºC	170ºC	135ºC	170ºC

* For specialty asphalt cements check with the asphalt cement supplier.

HMA Loadout Temperature

- The HMA loadout temperature at the discharge point should not exceed 175°C (347°F), unless directed by owner specifications or suppliers' guidelines.

APPENDIX C

MOECC COMMENTS

MOECC Comments

Date	Ministry Comment Received	Description of How the Comment was Addressed in the Plan

Appendix E

Wind Roses

Wind Rose showing Wind Speed and Direction (blowing from)
Toronto Pearson International Airport Met Data (2013 - 2017)

Spring
(April - June)

WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.91%

NORTH
EAST
SOUTH
WEST

15.8%
12.6%
9.48%
6.32%
3.16%

R1
R2
R3
R4
R5

Coleraine Dr
George Bolton Pkwy
Simpson Rd
Simona Dr
Par Blvd

340 m

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Google earth

Tour Guide 2004

Imagery Date: 10/9/2016 17 T 602388.33 m E 4856395.43 m N elev 241 m eye alt 1.75 km

Wind Rose showing Wind Speed and Direction (blowing from)
Toronto Pearson International Airport Met Data (2013 - 2017)

Summer
(July - September)

WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.95%

NORTH
EAST
SOUTH
WEST
12.3%
9.88%
7.41%
4.94%
2.47%
R1
R2
R3
R4
R5
Pillsworth Rd
Simona Dr
Simpson Rd
George Bolton Pkwy
Parr Blvd
351 m
© 2017 Google
Google earth
Tour Guide
2004
Imagery Date: 10/9/2016 17 T 602479.55 m E 4856535.63 m N elev 241 m eye alt 1.80 km

Wind Rose showing Wind Speed and Direction (blowing from)
Toronto Pearson International Airport Met Data (2013 - 2017)

Fall
(October - December)

WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.72%

NORTH
EAST
SOUTH
WEST

15.8%
12.6%
9.48%
6.32%
3.16%

Coleraine Dr
Simona Dr
Simpson Rd
George Bolton Pkwy
Par Blvd

R1
R2
R3
R4
R5

340 m

Google earth

Tour Guide 2004

Imagery Date: 10/9/2016 17 T 602388.33 m E 4856395.43 m N elev 241 m eye alt 1.75 km

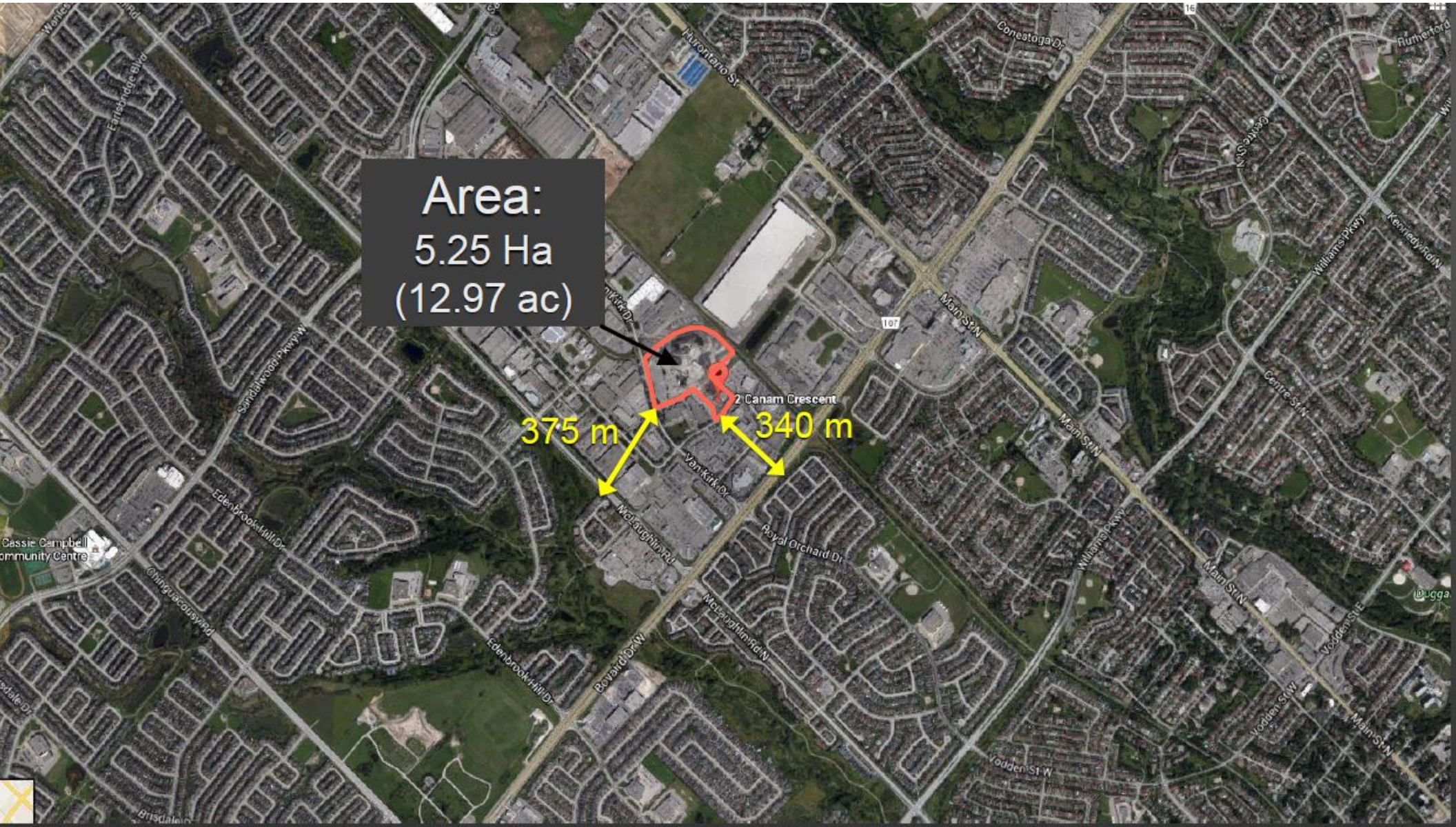
Appendix F

Comparison to Other Plant Locations

Cox Construction, Guelph Plant

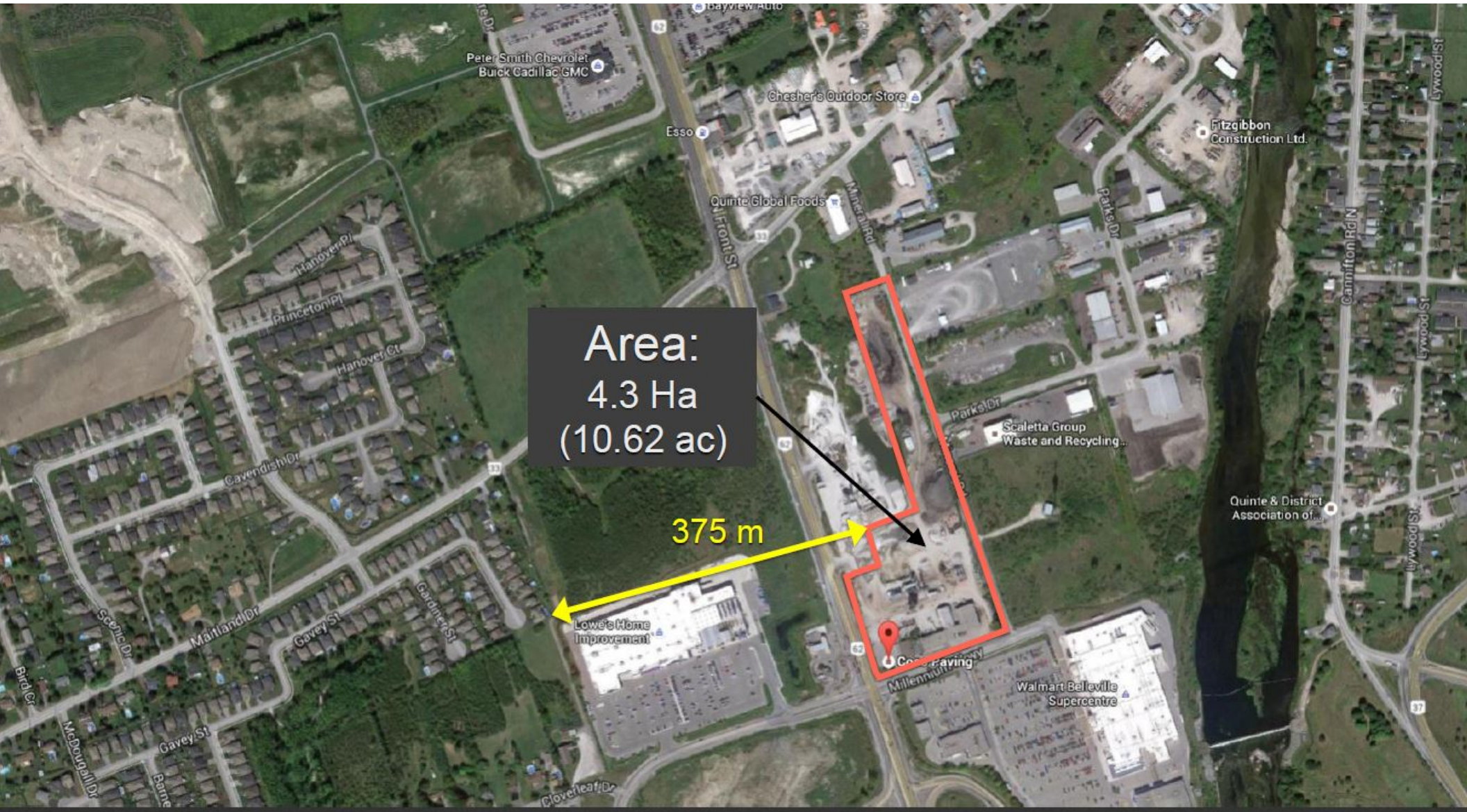
Cox Construction, Guelph Plant

Aecon Plant, Brampton, Ontario



Aecon Plant, Brampton, Ontario

Coco Plant, Bellville, Ontario



Coco Plant, Bellville, Ontario

Fermar Asphalt Limited, Dixie Road, Mississauga