Volume 2:

Supporting Technical Reports

Appendix A:

Natural Heritage Reports

A1: Natural Heritage Characterization Report

SAVANTA
A GEI Company

Natural Heritage Characterization Report

Clarkson Wastewater Treatment Plant
Region of Peel,
Mississauga, Ontario

NOVEMBER 2022

SAVANTA
A GEI Company

Natural Heritage Characterization Report

Clarkson Wastewater Treatment Plant
Mississauga, Ontario

Submitted to:
The Region of Peel
c/o GM BluePlan
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Stoney Creek, ON L8E 5R9

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1.0 INTRODUCTION

Savanta Inc. – a GEI Company (Savanta) was retained GM BluePlan to prepare a Natural Heritage Characterization Report to understand the natural heritage features and functions associated with the Clarkson Wastewater Treatment Plant as part of the Schedule C Municipal Class Environmental Assessment. A Municipal Class Environmental Assessment is required to inform capacity expansion opportunities.

The property, herein referred to as the Subject Lands, is located north of the intersection of Lakeshore Road West and Avonhead Road, west of Southdown Road, and north of Lake Ontario in Mississauga, Ontario (**Figure 1, Appendix A)**. The Subject Lands currently host the wastewater treatment plant and is surrounded by commercial/industrial land uses. Immediately south of Lakeshore Road West is Lakeside Park, which borders Lake Ontario.

A Characterization Report is required to assess the natural heritage features and associated functions within the Subject Lands. This work considers applicable provincial and municipal requirements and policies including reference to the natural heritage policies of the Province of Ontario's Provincial Policy Statement (PPS; MMAH 2020) and associated provincial implementation guidance contained in the Natural Heritage Reference Manual (NHRM; Ministry of Natural Resources 2010).

The Characterization Report will include the following components:

- A review of existing natural heritage background information, policies and legislation applicable to the Subject Lands in its regional context;
- A background review of the natural heritage features on and immediately adjacent to the Subject Lands;
- An evaluation of the sensitivity of the natural heritage features and their functions on the Subject Lands; and
- An assessment of whether any of the existing natural heritage features within the Subject Lands meet the test of 'significance' as identified in the PPS.

This report presents the results of data collected during the background review and analyses of existing natural heritage conditions and provides an assessment of the significance and sensitivity of these resources in the context of the proposed wastewater treatment updates.

Based on the limited available background information and the nature of the site, the following ecological surveys were completed by Savanta in 2020 and 2022 within the Subject Lands:

- Botanical inventory and Ecological Land Classification (ELC; summer and fall);
- Breeding bird surveys; and
- Aquatic site reconnaissance.

2.0 NATURAL HERITAGE INFORMATION SOURCES

An assessment of the natural heritage features found on, and adjacent to, the Subject Lands and the potential impacts to these features from the proposed development applications was undertaken in association with the following legislation, policies and agency programs:

- City of Mississauga Official Plan (2021 Office Consolidation);
- Region of Peel Official Plan (2021 Office Consolidation);
- Credit Valley Conservation (CVC) – Ontario Regulation 160/06;
- Provincial Policy Statement (PPS; MMAH 2020);
- *Endangered Species Act* (Consolidation October 2021) (ESA);
- Federal *Fisheries Act* (R.S.C., 1985, c. F-14); and
- *Migratory Birds Convention Act*.

The Subject Lands are located outside of the Greenbelt and Oak Ridges Moraine planning areas.

2.1 City of Mississauga Official Plan

The City of Mississauga Official Plan (2011) was officially adopted by City Council on September 29, 2010. The Region of Peel granted partial approval on September 22, 2011 and the Official Plan came into partial effect on November 14, 2012. Further amendments have been made to the City of Mississauga Official Plan to reflect Council-approved Official Plan amendments, with the most recent office consolidation released on October 21, 2021.

As shown on Schedule 1a (Urban System – Green System), no Green Systems are identified within the Subject Lands.

As illustrated within Schedule 3 (Natural System), one Significant Natural Areas (NAS) is identified within the Subject Lands within the centre of the northern portion of the property (**Figure 2, Appendix A)**. This feature appears to be associated with an offsite treed area.

2.2 Region of Peel Official Plan

The Region of Peel Official Plan was adopted by the Regional Council on July 11, 1996 and approved by the Ministry of Municipal Affairs and Housing on October 22, 1996. Further amendments have been undertaken to revise the Regional Official Plan; however, the latest amended version (April 2022) is awaiting Provincial approval and has not come into force yet. Analysis of the September 2021 Office Consolidation was completed.

As illustrated within Schedule A (Core Areas of the Greenlands System in Peel), no Core Areas are identified within the Subject Lands. A treed area located north of the Subject Lands is identified as being part of the Core Areas, as shown on **Figure 2** (**Appendix A**).

2.3 Credit Valley Conservation

The Regulation Limit delineates hazardous lands, wetlands, shorelines and areas susceptible to flooding, and associated allowances. Pursuant to the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 160/06), any development in or on areas defined in the Regulation (e.g., river or stream valleys, hazardous land, wetlands) requires permission from the CVC. CVC may grant permission for development in or on these areas if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development. The Regulation also prohibits straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse or changing or interfering in any way with a wetland without permission from the CVC.

A review of the CVC's Regulation Mapping illustrated no hazard lands within the Subject Lands (**Figure 2, Appendix A)**. Hazard lands associated with Lakeside Creek are found immediately south of Lakeshore Road West.

A data request response from CVC was received on August 21, 2020 (**Appendix C**) identified portions of the Credit River Watershed Natural Heritage System within the Subject Lands. The following preliminary site sensitive/constraints were identified within or adjacent to the Subject Lands:

- Fish habitat within Lake Ontario and Lakeside Creek;
- Significant Natural Areas adjacent to and partially within the Subject Lands comprised of cultural woodlands, cultural meadow and deciduous forest ecosites;
- Highly vulnerable aquifer within the Subject Lands;
- Significant Wildlife Habitat (SWH) along the southern waterfront limits of the Subject Lands, as well as the norther limits of the Subject Lands; and
- Species at Risk (SAR) including:
  - Bobolink (*Dolichonyx oryzivorus)* – Threatened;
  - Eastern Meadowlark (*Sturnella magna)* – Threatened;
  - Little Brown Myotis (*Myotis lucifugus*) – Endangered; and
  - Peregrine Falcon (*Falco peregrinus)* – Special Concern.

2.4 Provincial Policy Statement

The PPS (MMAH 2020) provides direction on matters of provincial interest related to land use planning and development. It "supports improved land use planning and management, which contributes to a more effective and efficient land use planning system." The PPS is to be read in its entirety and land use planners and decision-makers need to consider all relevant policies and how they work together. The PPS (2020) came into effect May 1, 2020 and replaces the previous PPS issued April 30, 2014.

This report addresses those policies that are specific to Natural Heritage (section 2.1) with some reference to other policies with relevance to Natural Heritage and impact assessment considerations and areas of overlap (e.g., those related to Efficient and Resilient Development and Land Use Patterns, section 1.1; Sewage, Water and Stormwater, section 1.6.6; Water, section 2.2; Natural Hazards, section 3.1).

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- SWH;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

2.5 Endangered Species Act

The provincial *Endangered Species Act, 2007* (Consolidation 2021) was developed to:

- Identify SAR, based upon best available science;
- Protect SAR and their habitats and to promote the recovery of SAR; and
- Promote stewardship activities that would support those protection and recovery efforts.

The *Endangered Species Act* protects all threatened, endangered and extirpated species listed on the SARO list. These species are legally protected from harm or harassment and their associated habitats are legally protected from damage or destruction, as defined under the *Endangered Species Act*.

2.6 Federal Fisheries Act

The DFO administers the federal *Fisheries Act,* which defines fish habitat as "*spawning grounds and other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes*" (subsection (2)1). The *Fisheries Act* prohibits the death of fish by means other than fishing (subsection 34.4 (1)) and the harmful alteration, disruption or destruction of fish habitat (HADD; subsection 35. (1)). A HADD is defined as "*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes*" (DFO 2019a).

2.7 Migratory Birds Convention Act

This federal legislation protects the nests and offspring of listed migratory bird species from destruction or disturbance. In its application, it requires best management practices to detect and avoid disturbance to active nests.

3.0 SECONDARY SOURCE DATA REVIEW

The following resources were used to access information relating to natural features and species that may be found on the Subject Lands:

- Land Information Ontario (LIO) database;
- Natural Heritage Information Centre (NHIC) database;
- Online Atlas Data; and
- Aquatic SAR distribution maps.

The results of the background review are discussed in the following sections.

3.1 Land Information Ontario Natural Features Summary

Based on the Ministry of Natural Resources and Forestry (MNRF) LIO geographic database, no features were identified on or adjacent to the Subject Lands (**Figure 2**, **Appendix A**). Immediately south of the Subject Lands within Lakeside Park, Lakeside Creek is identified.

3.2 Natural Heritage Information Centre

The NHIC database (MNRF 2022) was searched for records of provincially significant plants, vegetation communities and wildlife on, and in the vicinity of the Subject Lands. The database provides occurrence data by 1 km^2 area squares, with three squares overlapping at least a portion of the Subject Lands (17PJ1116, 17PJ1117, and 17PJ1216). Within these squares, the search revealed five species records. The following records are considered as current occurrences in this reporting:

- Species listed as Threatened or Endangered on the Species at Risk in Ontario (SARO) list:
    - Henslow's Sparrow (*Ammodramus henslowii*) – Endangered;
    - Butternut (*Juglans cinerea)* – Endangered; and
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as provincially ranked S1-S3 species):
    - Peregrine Falcon – Special Concern.

One restricted species was recorded as part of the NHIC search. Listing a species as restricted is typically applied to species that are illegally hunted, harvested and/or fished for commercial and recreational purposes.

Moreover, one wildlife concentration area (Mixed Wader Nesting Colony) and one natural area (West End of Lake Ontario) was recorded.

3.3 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17PJ11). It should be noted that the Subject Lands are a small component of the overall bird atlas square, and therefore it is unlikely that all bird species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

A total of 81 species were recorded in the atlas square that overlaps with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
  - Bank Swallow (*Riparia riparia*) – Threatened;
  - Barn Swallow (*Hirundo rustica*) – Threatened;
  - Bobolink – Threatened; and
  - Chimney Swift (*Chaetura pelagica*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as provincially ranked S1-S3 species):
  - Common Nighthawk (*Chordeiles minor*) – Special Concern;
  - Eastern Wood-Pewee (*Contopus virens*) – Special Concern;
  - Peregrine Falcon – Special Concern;
  - Wood Thrush (*Hylocichla mustelina*) – Special Concern;
  - Purple Martin (*Progne subis*) – S3S4B (Rare to uncommon to common and apparently secure); and
  - Red-necked Grebe (*Podiceps grisegena*) – S3B (Rare to uncommon), S4N (Common and apparently secure).

3.4 Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas contains detailed information on the population and distribution status of Ontario herpetofauna (Ontario Nature 2018). The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17PJ11). It should be noted that the Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all herpetofauna species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in herpetofauna species presence and use.

A total of 24 species were recorded in the atlas square that overlaps with the Subject Lands, of which three are salamander species, eight are frog and toad species, five are turtle species and eight are snake species. Of these species, the following species of interest are noted:

- Species listed as Threatened or Endangered on the SARO list:
  - Blanding's Turtle (*Emydoidea blandingii)* – Threatened.

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as provincially ranked S1-S3 species):
  - Northern Map Turtle (*Graptemys geographica*) – Special Concern;
  - Snapping Turtle (*Chelydra serpentina*) – Special Concern.

Eastern Milksnake (*Lampropeltis triangulum*) was identified and is listed as Special Concern in Canada, however it is not at risk in Ontario.

3.5 Ontario Butterfly and Moth Atlases

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2018a, 2018b) contain detailed information on the population and distribution status of Ontario butterflies and moths. The data is presented on 100 km^2 area squares with one square overlapping a portion of the Subject Lands (17PJ11). It should be noted that the Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all butterfly and moth species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in butterfly and moth species presence and use.

A total of 63 species were recorded in the atlas square that overlaps with the Subject Lands, of which 57 are butterfly species and six are moth species. One Special Concern species was identified: Monarch (*Danaus plexippus*).

3.6 Aquatic Species at Risk Distribution Mapping

Aquatic species at risk distribution mapping (DFO 2022) was reviewed to identify any known occurrences of aquatic species at risk, including fish and mussels, within the subwatershed where the Subject Lands are located.

No aquatic species at risk were identified on or within 120 m of the Subject Lands, however, Deepwater Sculpin (*Myoxocephalus thompsonii* pop. 2) – S3? (rare to uncommon) was identified within Lake Ontario approximately 1.9 km east of the Subject Lands.

3.7 Species at Risk Assessment Tool

Mapped natural heritage features on the landscape were cross-referenced with species-specific habitat requirements through Savanta's Species at Risk Assessment Tool (SARAT) in order to determine potential species at risk habitat on the Subject Lands. SARAT includes all potential and known habitats for every species at risk listed under the ESA, and municipalities where these species are known to occur, where indicated in individual species assessment and/or recovery strategy reports.

The SARAT revealed that potentially suitable habitat is present on the Subject Lands for the following SAR:

- Species listed as threatened or endangered on the SARO list:
  - Barn Swallow – Threatened;
  - Bobolink – Threatened;
- Species listed as special concern on the SARO list:
  - Peregrine Falcon – Special Concern;
  - Snapping Turtle – Special Concern.

4.0 ECOLOGICAL INVENTORY METHODOLOGY AND RESULTS

A scoped fieldwork program was undertaken in 2020 within the Subject Lands including:

- Botanical inventory and ELC (summer and fall); and
- Breeding bird surveys.

An additional aquatic assessment was completed in May 2022, following comments received by CVC (**Appendix C**). The primary purpose of this visit was to further assess potential drainage features and wildlife corridors on site. CVC had indicated that a potential headwater drainage feature (HDF) flows onto the site from the northern property before being piped through the plant and presumably discharging into Lakeside Creek.

Survey dates and conditions can be found within **Table 1 (Appendix B).**

4.1 Vegetation

Survey Methods

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). ELC was completed to the finest level of resolution (Vegetation Type) where feasible. Species names generally follow nomenclature from the Database of Vascular Plants of Canada (Brouillet et al. 2010+).

The provincial status of all plant species and vegetation communities is based on NHIC (2021). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

Survey Results

<u>Ecological Land Classification</u>

Developed/disturbed land cover occupies over 75% of the Subject Lands. This land cover type includes paved roads, buildings, wastewater treatment structures, mowed lawn, and periodically disturbed areas (e.g., gravel areas with sparse herbaceous regeneration). Mineral Cultural Meadow (CUM) accounts for the next highest area of land cover at approximately 20%. Wetland occupies approximately 3% of the land cover, which is primarily Mineral Meadow Marsh (MAM) and a small Deciduous Swamp (SWD).

Preliminary interpretation of the adjacent vegetation communities was completed to inform future impact assessments of the adjacent lands (120 m). This interpretation was completed using available aerial imagery. Adjacent communities included CUM, MAM, Deciduous Forest (FOD), Cultural Woodland (CUW1) and Cultural Thicket (CUT1) within a disturbed/developed landscape.

ELC mapping of the Subject Lands and adjacent properties is shown on **Figure 3 (Appendix A).** A detailed list and description of ELC units surveyed within the Subject Lands are provided in **Table 2 (Appendix B).** No provincially rare vegetation communities were present on or immediately adjacent to the Subject Lands (NHIC 2021).

<u>Vascular Plants</u>

Botanical inventories completed on the Subject Lands identified a total of 130 species of vascular plants. Of these, 50 (38%) are native and 80 (62%) are exotic. This proportion of exotic species is high, and likely reflects the urban location, as well as the active use and disturbance to many areas of the site. A full species list is included in **Table 3 (Appendix B)**.

The majority of the native species (91%) are ranked S5 (secure in Ontario), while four species (9%) are ranked S4 (apparently secure in Ontario; NHIC, 2021). Six regionally rare plants were observed, as per the Peel Region rarity rankings (Varga et al. 2005), including:

- Common Bedstraw (*Galium aparine*):
  - Infrequent to occasional within the CUM.
- Peached-leaved Willow (*Salix amygdaloides*):
  - Infrequent within the CUM abutting the MAM.
- Sandbar Willow (*Salix interior*):
  - Infrequent within the disturbed/developed area and CUM (usually within drainage features).
- White Spruce (*Picea glauca*):
  - Infrequent to occasional within the CUM and Developed/Disturbed areas. This species was not naturally occurring on site, but rather was planted as part of landscaping efforts.
- Red Pine (*Pinus resinosa*):
  - Infrequent within the Developed/Disturbed areas. This species was not naturally occurring on site, but rather was planted as part of landscaping efforts.
- Old Field Aster (*Symphyotrichum pilosum* var. *pilosum*)
  - Observed occasionally within developed/disturbed and Mineral Cultural Meadow features.

None of the species recorded from the Subject Lands had a co-efficient of conservation value of 9 or 10. No SAR plants were observed on the Subject Lands or immediate adjacent lands.

A NHIC search was conducted for the Subject Lands using the MNRF Biodiversity Explorer. One restricted species has been documented on or in the vicinity of the Subject Lands. Aside from this, no provincially rare or protected plant species have been historically documented (i.e., within the last 20 years) on or in the vicinity of the Subject Lands.

Wetlands

Wetlands are present on the Subject Lands, occupying less than 3% of the land cover. No surface water was observed in these wetlands during the July 21 and October 2, 2020 surveys. The majority of these wetlands were MAM, all of which were generally dominated by the invasive European Reed (*Phragmites australis* ssp. *Australis*), a Category 1 invasive species (Urban Forest Associates Inc. 2002). A small Green Ash SWD was observed in the east corner, which has been severely impacted by Emerald Ash Borer (*Agrilus planipennis*), another invasive species. These ELC communities are further described in **Table 2 (Appendix B).**

The LIO database was accessed to determine if any wetlands mapped by the MNRF occur on or in the vicinity of the Subject Lands. Such wetlands could include Provincially Significant Wetlands (PSWs), MNRF evaluated wetlands, unevaluated wetlands, or wetlands identified as “other”. Results of this search show that no wetlands have been mapped by MNRF on or adjacent to the Subject Lands. Wetland mapping prepared by the MNRF is not comprehensive for all of Ontario and is continuously subject to updates and refinements. For the purpose of this Characterization Report, ground-truthed wetland observations by Savanta will be used.

Invasive Species

Invasive species are those that can become (or presently are) a serious problem within a defined location. These species reproduce and spread aggressively, reducing the local biodiversity and threatening ecological function. Depending on existing conditions, some invasive species can outcompete all other species. Urban Forest Associates (2002) provides a categorical ranking system for species known to be invasive in southern Ontario. Of the 121 species observed on the Subject Lands, nine are ranked as Category 1 by Urban Forest Associates.

Category 1 species are deemed to be the most invasive and can dominate a site to exclude all other species, remaining dominant on the site indefinitely. These are a threat to natural areas wherever they occur because they have very effective reproduction and dispersal mechanisms, allowing them to move long distances. These are regarded as a top priority for control, where eradication and follow-up monitoring are often necessary to ensure its effective removal, where sought. The nine Category 1 species observed on the Subject Lands are:

- European Reed (*Phragmites australis* ssp. *Australis*):
  - Dominant within MAM communities.
- Canada Thistle (*Cirsium arvense*):
  - Occasional to abundant within the CUM and the Disturbed areas.

- Garlic Mustard (*Alliaria petiolata*):
  - Infrequent to occasional within the CUM and Disturbed areas.
- European Buckthorn (*Rhamnus cathartica*):
  - Found throughout the Subject Lands, though most abundant within the Green Ash SWD.
- Manitoba Maple (*Acer negundo*):
  - Infrequent to occasional within the CUM and Disturbed areas.
- Purple Loosestrife (*Lythrum salicaria*):
  - Occasional within the MAM communities.
- Purple Crown-vetch (*Securigera varia*):
  - Infrequent within the Disturbed areas.
- Multiflora Rose (*Rosa multiflora*):
  - Infrequent within the CUM.
- Dame's Rocket (*Hesperis matronalis*):
  - Infrequent within the Disturbed areas.

4.2 Breeding Birds

Survey Methods

Breeding bird surveys were conducted following protocols set forth by the Ontario Breeding Bird Atlas (Cadman et al. 2007), the Ontario Forest Bird Monitoring Program (Cadman et al. 1998).

Surveys were conducted between dawn and five hours after dawn with suitable wind conditions, no thick fog or precipitation (Cadman et al. 2007). A total of four point count stations were surveyed within the Subject Lands and are illustrated on **Figure 4** (**Appendix A**). Point count stations were placed in various habitat types, where present, within the Subject Lands and combined with area searches to help determine the presence, variety and abundance of bird species. Each point count station was surveyed for 10 minutes for birds within 100 m and outside 100 m. All species recorded on a point-count were mapped to provide specific spatial information and were observed for signs of breeding behaviour. Surveys were conducted nineteen days apart.

Survey Results

A total of 26 bird species were observed within the Subject Lands. Of this total, four species are confirmed, six are probable and nine are possible breeders on the Subject Lands. The remaining seven bird species are considered non-breeders, flyovers or migrants. The observed breeding bird species are discussed in the sections below. All species observed on the Subject Lands are listed in **Table 4** (**Appendix B**).

A total of 19 (100%) of the confirmed, probable or possible breeders are provincially ranked S5 , S4 or SNA (species not native to Ontario; NHIC 2022).

The following SAR were observed on or adjacent to the Subject Lands:

- Peregrine Falcon – Special Concern in Ontario: one individual was observed perched on a nearby tall man-made structure within the CHR Canada lands (west of Avonhead Road) where suitable conditions may exist for nesting. No further evidence of nesting was observed as this species requires tall heights in urban environments.
- Bank Swallow – Threatened in Ontario: small numbers were observed foraging over the Subject Lands. Nearest nesting is likely along the Lake Ontario shoreline, which is located offsite. No evidence of breeding was recorded within the Subject Lands.
- Barn Swallow – Threatened in Ontario: small numbers were observed foraging over the Subject Lands. No evidence of nesting on man-made structures was observed within the Subject Lands.

4.3 Aquatic Site Reconnaissance

Survey Methods

An aquatic site reconnaissance was conducted on May 25, 2022 which consisted of a visual survey to determine whether any drainage features were present within the Subject Lands. If a drainage feature was observed, the assessment took note of the following features:

- Hydrology (e.g., flowing or standing water)
- Feature type in accordance with CVC/TRCA's Headwater Drainage Feature Assessment Guideline (2014)
- Bed and bank substrates
- Instream habitat (e.g., woody debris, aquatic vegetation, undercut banks)
- Presence of obstructions to fish movement (e.g., culverts, debris jams)
- Evidence of groundwater inputs (e.g., seeps or springs, iron staining)
- Riparian habitat.

Survey Results

The site reconnaissance recorded one headwater drainage feature (HDF) on the Subject Lands. The feature connects through a narrow treed corridor to the north, entering onto the Subject Lands beneath a chain-link fence. The feature is conveyed southward through a poorly defined channel dominated by silt and clay. At the time of the assessment, there was no discernible flow within the feature. Stagnant isolated pools of variable depth persisted for approximately 100 meters onto the site before completely drying up. The riparian corridor surrounding this portion of the feature included a variety of trees and shrubs towards the northern boundary of the site, but was dominated primarily by large pockets of European Reed.

Further downstream within the feature, flows were directed through a small diameter culvert and piped beneath an adjacent roadway. The culvert outlet was located south of the roadway, connecting into a shallow swale characterized by a combination of European Reed and manicured lawn. The culvert outlet and drainage swale were dry at the time of the assessment. At the downstream end of the 30 metre drainage swale, the feature enters into a catchbasin and appears to be piped throughout the remainder of the Subject Lands. An outlet for the feature was not observed within the Subject Lands; however, a culvert was recorded on the southern side of Lakeshore Road West. It is likely that this feature drains into Lakeside Creek. Given that the feature is piped greater than 450 metres, it is unlikely that this feature support direct fish habitat, rather, the feature contributes seasonal flows and allochthonous materials to downstream habitats.

HDF Management Recommendations and Classifications

A formal Headwater Drainage Feature Assessment (HDFA) was not completed on the site; however, using a precautionary approach a management recommendation can be assigned to the feature using TRCA/CVC's HDFA Guideline (2014). Part 2 of the HDFA Guidelines provides an approach to classify HDFs by providing a step-by-step characterization of specific functions that may be associated with the features assessed, including hydrology, riparian function and provision of fish or terrestrial habitat.

Part 3 of the HDFA Guidelines provides guidance on linking the characteristics and functions of features to specific management recommendations that may be applied to those features. To assist, the HDFA Guidelines include Figure 2: "Flow Chart Providing Direction on Management Options." The flow chart depicts various decision points associated with hydrology, fish habitat, riparian vegetation and terrestrial habitat, and ultimately leads the user to an appropriate management recommendation for each HDF segment. Management recommendations can include the following:

- Protection;
- Conservation;
- Mitigation;
- Maintain Recharge;
- Maintain/Replicate Terrestrial Linkage; or
- No Management Required.

Given the presence of the upstream CUT1 community and the assumption that the feature flows during early spring, this drainage feature has been assigned a Conservation management recommendation. The recommended management approach for a Conservation management recommendation (as per the HDFA Guidelines) is as follows:

- Maintain, relocate and/or enhance drainage feature and its riparian corridor zone;

- If catchment drainage had been previously removed or will be removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e. restore original catchment using clean roof drainage), as feasible;
- Maintain or replace on-site flows using mitigation measures and/or wetland creation, if necessary;
- Maintain or replace external flows;
- Use natural channel design techniques to maintain or enhance overall productivity of the reach; and/or
- Drainage feature must connect to downstream.

5.0 ECOLOGICAL CHARACTERIZATION

5.1 Physical Conditions

Currently the Subject Lands are occupied by a wastewater treatment facility and contain actively disturbed cultural communities. The Subject Lands are surrounded by industrial/commercial land uses within an urbanized setting. Lakeside Park is present immediately south of the Subject Lands and contains Lakeside Creek and forested communities, and borders Lake Ontario. One seasonal drainage feature has been identified along the northern quadrant of the Subject Lands (**Figure 5, Appendix A**). This feature connects onto the Subject Lands through a narrow treed corridor to the north. At the time this feature was assessed in May 2022, there was no flow or downstream connection within the channel. Stagnant isolated pools of variable depth persisted within the channel for approximately 100 m onto site, at which point the channel dried up completely. When flowing, this feature is piped beneath multiple roadways before entering what appears to be a municipal drain within a grass lined swale. It is unknown where the feature is piped to after entering the surface drain; however, it is likely that it ultimately drains into Lakeside Creek.

One small deciduous swamp community is present in the north-west corner of the Subject Lands adjacent to Avonhead Road, which is highly disturbed with invasive species such as European Buckthorn and Garlic Mustard. The impacts of Emerald Ash Borer are highly visible within this feature, causing many of the mature trees within this community to become deceased. Three MAM communities are located within CUM communities surrounding the wastewater treatment plant. These communities are highly disturbed from adjacent land-uses.

5.2 Biological Environment

The Subject Lands occur within the Carolinian or Deciduous Forest Zone (also referred to as the mixed wood plains), an area characterized by a relatively warmer climate that supports plant species typical of more southern areas. This zone is referred to by the Province as Ecoregion 7E. Broadleaved trees, including American Beech (*Fagus grandifolia)*, Sugar Maple (*Acer saccharum)*, Basswood (*Tilia americana)*, Red Maple (*Acer rubrum)*, White Oak (*Quercus alba)* and Bur Oak (*Quercus marcrocarpa)* dominate natural upland forest cover in this region (Rowe 1972). This region also contains Canada's main distribution of Black Walnut (*Juglans nigra)*, Sycamore (*Platanus occidentalis)*, Swamp White Oak (*Quercus bicolor)* and Shagbark Hickory (*Carya ovata)*.

Figure 2 (**Appendix A**) depicts the broader landscape and potential movement and linkage corridors surrounding the Subject Lands for abiotic and biotic movement of organisms, matter and energy. The Subject Lands are surrounded by an urbanized landscape consisting of a mixture of commercial/industrial areas. Lakeside Park is located immediately south of the Subject Lands and contains a mixture of wooded features along the Lake Ontario shoreline. This park is an isolated green space within a larger industrialized landscape, and therefore may support a variety of aquatic and terrestrial species. No apparent corridors or linkages appear to be present within or adjacent to the Subject Lands. No natural heritage systems appear to be present within the Subject Lands as the cultural communities are highly disturbed and disconnected due to the present land use. The entire perimeter of the Subject Lands is also surrounded by chain-link fencing topped with barbed wire. Gaps beneath the fencing were only noted at two locations, both of which occur along the northern boundary of site and do not connect with Lakeside Park. The adjacent road networks (Lakeshore Road West, Avonhead Road) are highly active and anticipated to further hinder the potential of movement.

The wastewater treatment plant is an actively managed facility that experiences a moderate amount of traffic on site. The perimeter of the Subject Lands is surrounded by chain-link fence. The perimeter fence is not only to protect the public from plant operations, but to minimize wildlife-human interactions as the active site could pose a significant risk of injury (exposed at-grade settling basins, trucks, etc.). The fence line would act as a visual and physical barrier for many wildlife species. It is noted that CVC indicated observations of Northern Raccoon (*Procyon lotor)* within the property and that north-south terrestrial corridors may be present within the Subject Lands. There is potential for local urban wildlife to use the site given its proximity to Lake Ontario and adjacent treed areas (found on the northern property). However, the truck activity, noises and other disturbances associated with the active wastewater treatment plan facility likely discourages wildlife from using the Subject Lands for any sensitive life processes. No primary or secondary linkages were identified within the Subject Lands. A primary linkage was identified approximately 2 km north-east of the Subject Lands associated with Sheldon Creek and Rattray Marsh Conservation Area.

A summary of all wildlife observed during Savanta's detailed assessments can be found within **Table 5 (Appendix B).**

6.0 ANALYSIS OF ECOLOGICAL AND NATURAL HERITAGE SIGNIFICANCE (PPS)

Eight types of significant natural heritage features are defined in the PPS (MMAH 2020), as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- SWH;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant ANSIs.

The presence/absence of these natural heritage features on the Subject Lands are discussed in the subsequent sections of this Characterization Report. The Natural Heritage Reference Manual (NHRM; MNR 2010) was referenced to assess the potential significance of the natural areas, and their associated forms and functions on the landscape.

Where significant natural features are present on the Subject Lands, their sensitivities are discussed.

6.1 Significant Wetlands

Within Ontario, significant wetlands are identified by the MNRF or by their designates. Other evaluated or unevaluated wetlands may be identified for conservation by the municipality or the conservation authority. There are no PSWs identified on or adjacent to the Subject Lands.

Other Unevaluated Wetland Units

Two wetland community types were identified within the Subject Lands (**Figure 3, Appendix A)**:

- Mineral Meadow Marsh (MAM2); and
- Green Ash Mineral Deciduous Swamp (SWD2-2).

The SWD2-2 community is located in the north-west corner of the Subject Lands adjacent to Avonhead Road in between the industrialized area to the north and the wastewater treatment plant. Four MAM2 communities are present within the Subject Lands and surround the wastewater treatment plant facility.

6.2 Significant Coastal Wetlands

Similar to significant wetlands, the MNRF or their designates identify significant coastal wetlands present on the landscape. Coastal wetlands identified under the NHRM (MNR 2010) as:

a) "any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or
b) Any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located two km upstream of the 1:100-year floodplain (plus wave run-up) of the large water body to which the tributary is connected."

No significant coastal wetlands are identified on the Subject Lands.

6.3 Significant Woodlands

Significant woodlands are identified by the planning authority using criteria established by the MNRF. Under the NHRM (2010), woodlands are defined as:

> *...treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels.*

One SWD community was identified in the north-west corner of the Subject Lands (**Figure 3, Appendix A).**

<u>Evaluation using the NHRM</u>

A review of Table 7-2 within the NHRM was completed to understand whether significance was met. Woodlands that meet any one of the below-noted criteria are considered significant.

Table 1: Test of significant woodland based on NHRM evaluation criteria

NHRM Criteria per Table 7-2		Criteria Met? SWD2-2
1. Woodland Size Criteria		No – Woodland measures at 0.10 ha.
2. Ecological Functions Criteria	a) Woodland interior	No – Woodland interior habitat is not present

NHRM Criteria per Table 7-2		Criteria Met? SWD2-2
	b) Proximity to other woodlands or habitats	No – Woodland is isolated within developed landscape
	c) Linkages	No – Woodland is not located within a defined natural heritage system
	d) Water protection	No – Woodlands are not located within sensitive or threatened watershed, or a specific distance from a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse or fish habitat
	e) Woodland diversity	No – Woodland is not expected to have a high native diversity or occur a composition of native forest species that have declined
3. Uncommon Characteristics Criteria		No – Woodlands do not contain uncommon characteristics and are not provincially rare
4. Economic and Social Functional Values Criteria		No – Woodlands are not economically, culturally or historically valuable

The north-western SWD2-2 vegetation community did not meet the test for significance per the NHRM (2010).

The SWD2-2 vegetation community would not qualify as a woodland as per section 6.3.12 of the Mississauga Official Plan (2011) due to the size and isolated nature of the feature.

<u>Evaluation using the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study</u>

The Region of Peel does not define significant woodlands within their official plan; rather, the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat (North-South Environmental Inc. et al. 2009) guideline has been developed in an attempt to better quantify criteria and thresholds in identifying significant woodlands. As per Section 5.4 of the Peel-Caledon Guideline, woodlands outside of the Oak Ridges Moraine planning boundaries satisfying any one of the following criteria should be considered significant:

1. With respect to woodland size (application of recommended thresholds to the Regional and Town scales may be determined through the policy development phase for the Region's and Town's Official Plan review exercises:
    - Option 1: Recommendation based on Urban-Rural System Distinction. Woodlands satisfying the following size criteria should be considered significant:

        - A) Urban Systems (i.e., within the 2031 urban boundaries for the Cities of Brampton and Mississauga): all woodlands equal to and larger than 4 ha in size;
        - B) Rural System (i.e., the Rural System that comprises all of the Town of Caledon): all woodlands equal to and larger than 16 ha.
    - Option 2: Recommendation based on Physiography/Historical Land Use. Woodlands satisfying the following size criteria should be considered significant:
        - A) Areas on and above (west of) the Niagara Escarpment: all woodlands equal to and greater than 16 ha in size;
        - B) Rural and Urban System below the Niagara Escarpment: all woodlands equal to and greater than 4 ha.
2. Woodlands, or inclusions in woodlands, that are 0.5 ha or greater in size, and older than 90 years should be considered significant.
3. It is recommended that any woodland (greater than or equal to 0.5 ha) identified as supporting a linkage function, as determined through a natural heritage study approved by the Region or Town, be considered significant (Regional and Town threshold).
4. Woodlands (greater than or equal to 0.5 ha) within 100 m of another significant feature (Regional and Town threshold).
5. Woodlands within 30 m of a watercourse, surface water feature or evaluated wetland (Regional and Town threshold).
6. Woodlands that supports any of the following (Regional and Town threshold):
    - A) any G1, G2, G3, S1, S2 or S3 plant or animal species, or community as designated by NHIC; or
    - B) any species designated by COSEWIC or COSSARO as Threatened, Endangered, or of Special Concern.
    - C) The following forest communities:
        - Dry-Fresh White Pine-Red Pine Coniferous Forest Type (FOC1-2)
        - Dry-Fresh White Pine-Oak Mixed Forest Type (FOM2-1)
        - Dry-Fresh White Pine-Sugar Maple Mixed Forest Type (FOM2-2)
        - Moist-Fresh Hemlock-Sugar Maple Mixed Forest Type (FOM6-1)
        - Dry-Fresh Red Oak Deciduous Forest Type (FOD1-1)
        - Dry-Fresh White Oak Deciduous Forest Type (FOD1-2)
        - Dry-Fresh Mixed Oak Deciduous Forest Type (FOD1-4)
        - Dry-Fresh Oak-Hickory Deciduous Forest Type (FOD2-2)
        - Dry-Fresh Hickory Deciduous Forest Type (FOD2-3)
        - Fresh Sugar Maple-Black Maple Deciduous Forest (FOD6-2)

The above noted criteria were not met within the SWD2-2 vegetation community.

6.4 Significant Valleylands

Significant valleylands are defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM (MNR 2010) for Policy 2.1 of the PPS. Recommended criteria for designating significant valleylands includes prominence as distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential and historical and cultural values.

No significant valleylands are present within the Subject Lands.

6.5 Significant Wildlife Habitat

SWH is one of the more complex natural heritage features to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the NHRM (MNR 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000), the SWH Eco-Region Criterion Schedule (MNRF 2015) and the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat (North-South Environmental Inc. et al. 2009). The Subject Lands are located in Eco-Region 7E and were therefore assessed using the 7E Criterion Schedule (MNRF 2015).

There are four general types of SWH:

- Seasonal concentration areas;
- Rare or specialized habitats;
- Habitat for species of conservation concern; and
- Animal movement corridors.

General descriptions of these types of SWH are provided in the following sections.

Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather together at one time of the year, or where several species congregate. Seasonal concentration areas include deer yards; wintering sites for snakes, bats, raptors and turtles; waterfowl staging and molting areas, bird nesting colonies, shorebird staging areas, and migratory stopover areas for passerines or butterflies. Only the best examples of these concentration areas are usually designated as SWH.

Rare or Specialized Habitats

Rare and specialized habitat are two separate components. Rare habitats are those with vegetation communities that are considered rare in the province. SRANKS are rarity rankings applied to species at the ‘state’, or in Canada at the provincial level, and are part of a system developed under the auspices of the Nature Conservancy (Arlington, VA). Generally, community types with SRANKS of S1 to S3 (extremely rare to rare-uncommon in Ontario), as defined by the NHIC (2021), could qualify. It is to be assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, and areas that provide habitat that greatly enhances species' survival.

Habitat for Species of Conservation Concern

Species of conservation concern include those that are provincially rare (S1 to S3), provincially historic records (SH) and Special Concern species. Several specialized wildlife habitats are also included in this SWH category, including Terrestrial Crayfish habitat, and significant breeding bird habitats for marsh, open country and early successional bird species.

Habitats of species of conservation concern do not include habitats of endangered or threatened species as identified by the ESA (2019). Endangered and threatened species are discussed in section 6.7 (below).

Animal Movement Corridors

Animal movement corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements, including areas used by amphibians between breeding and summer/over-wintering habitats, called amphibian movement corridors.

The perimeter of the site has a fence line associated with it. Given the activity of the site and limited access points into the site as a result of the chain-linked fence, movement through the site is generally limited. No primary or secondary linkage features (at a landscape scale) were identified on the site.

Tables 6a and **6b (Appendix B)** discusses all types of SWH relevant to the Subject Lands based on background ecological data collected and presence of ELC communities. Adjacent lands were only assessed through desktop review as onsite access was not available and therefore could not confirm SWH presence.

One candidate SWH type may be present within the Subject Lands: Bat Maternity Colonies/Bat Maternal Roosts within the SWD community in accordance with both the SWH Eco-Region Criteria and the Peel-Caledon SWH Criteria. No other candidate SWH types are likely to be present within the Subject Lands based on availability of habitat and/or presence of SWH indicator species.

The following candidate SWH types were identified within the adjacent lands (120 m):

- Bat Maternity Colonies within the two FOD communities south of Lakeshore Road West;
- Reptile Hibernacula within naturalized communities;
- Bald Eagle and Osprey Habitat within the two FOD communities south of Lakeshore Road West;
- Seeps and Springs within the two FOD communities south of Lakeshore Road West; and
- Terrestrial Crayfish habitat within adjacent MAM vegetation communities.

The above-noted candidate SWH type within the Subject Lands will need to be confirmed with detailed ecological inventories (bat maternity surveys), should alterations be proposed adjacent to or within the vicinity of candidate SWH. Candidate SWH types within the adjacent lands should be confirmed in future detailed design phases following site assessments.

6.6 Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act,* c. F-14, means "spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes." Fish, as defined in S.2 of the *Fisheries Act*, c. F-14, includes "parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals."

No watercourse features are identified within the Subject Lands. It is likely that Lakeside Creek flows underneath the wastewater treatment plant facility as this feature is present immediately south of Lakeshore Road West within Lakeside Park (**Figure 1, Appendix A)**. Indirect fish habitat (through contributions of flows and allochthonous material) is present within the seasonal headwater drainage feature. CVC has indicated that fish habitat is present within Lakeside Creek (**Appendix C**).

It was communicated to Savanta-GEI in 2020 that the City of Mississauga was currently developing the Southdown District Stormwater Servicing and Environmental Management Plan (SSEMP), which considered a new open by-pass channel for Lakeside Creek through the Subject Lands as an alternative (Appendix C). Since then, a preferred alternative has been identified in the final master plan report for the Southdown District SSEMP (2022), which identified an upgraded storm sewer on Avonhead Road, which would convey flows around the Subject Lands to the downstream receiving watercourse (Lakeside Creek). Given the existing conditions of the HDF, this feature provides indirect fish habitat to downstream habitats within Lakeside Creek.

6.7 Habitat for Endangered and Threatened Species

An evaluation of the background wildlife results and ecological findings from ecological inventories was reviewed to understand the SAR present within the vicinity of the Subject Lands.

A full review of SAR identified within the background wildlife review (section 3.0 of this report) has been completed to understand whether candidate SAR and SAR habitat may be present within the Subject Lands (**Table 7, Appendix B)**.

As previously identified within **Section 4.2**, no suitable breeding habitat was identified for Barn Swallow and Bank Swallow, despite them being observed foraging during targeted surveys. Moreover, no Bobolink, Eastern Meadowlark, Chimney Swift or Henslow's Sparrow were observed during targeted breeding bird surveys (**Table 4, Appendix B)**.

Candidate habitat for Little Brown Myotis may be present within the SWD vegetation community in the north-west corner.

6.8 Significant Areas of Natural and Scientific Interest

No ANSIs were identified on or within the general vicinity of the Subject Lands.

6.9 Key Natural Heritage and Hydrologic Features-City of Mississauga Official Plan

A review was undertaken to understand whether any key natural heritage features or key hydrologic features, as defined in the CMOP, are present within the Subject Lands.

Significant Natural Areas are comprised of areas that meet one or more of the following criteria:

- Provincially or regionally significant life science ANSI;
- Environmentally sensitive or significant areas;
- Habitat of threatened species or endangered species;
- Fish habitat;
- SWH;
- Significant woodlands;
- Significant wetlands (including PSW, provincially significant coastal wetlands, coastal wetland and other wetlands greater than 0.5 ha in size); and
- Significant valleylands.

Candidate SWH (Bat Maternity) and SAR bat habitat (Little Brown Myotis) may be present within the SWD2-2 vegetation community in the north-west corner of the Subject Lands. Given that the SWD2-2 contains two candidate criteria, it could be considered Significant Natural Areas. Detailed investigations are required to confirm whether or not SWH and SAR habitat is present within these habitats. All wetland units are less than 0.5 ha in size. Indirect fish habitat (through contributions of flows and allochthonous material) is present within the seasonal headwater drainage feature.

Portions of the City of Mississauga's NAS was identified within the Subject Lands along the northern property boundary. The NAS within the Subject Lands was identified as part of the cultural meadow community. This cultural meadow community contained four Category 1 invasive species including Canada Thistle, Garlic Mustard, Manitoba Maple and Multiflora Rose. No SAR or SWH were identified in association with these habitats. These communities should not be considered part of the City's Significant Natural Areas, given the absence of the above noted criteria. Moreover, the cultural meadow was located along the edge of the wastewater treatment plant, including one of the three access roads into and out of the site. It is likely that these communities are quite disturbed from the ongoing activity associated with the management of the plant. The seasonal headwater drainage feature is associated with the NAS as it appears to convey flows from the adjacent (northern) site before being piped under the wastewater treatment plant. These communities should not be considered part of the City's Significant Natural Areas, given the absence of the above noted criteria.

6.10 Region of Peel Official Plan

A review was undertaken to understand whether any Core Areas are present within the Subject Lands that hadn't previously been identified within the Official Plan. Core Areas include key natural heritage features, key hydrologic features and/or landform conservation areas.

Key Natural Heritage Features include:

- Habitat of endangered species and threatened species;
- Fish habitat;
- Wetlands;
- Life science ANSIs;
- Significant valleylands;
- Significant woodlands;
- SWH;
- Sand barrens, savannahs and tallgrass prairies; and
- Alvars.

Key Hydrologic Features include:

- Permanent and intermittent streams;
- Lakes (and their littoral zones);
- Seepage areas and springs; and
- Wetlands.

Two wetland communities are present within the Subject Lands (MAM2, SWD2-2). These wetland communities are considered both key natural heritage features and key hydrologic features. Candidate SWH and SAR habitat is present within the SWD2-2 community. Indirect fish habitat (through contributions of flows and allochthonous material) is present within the seasonal headwater drainage feature. No other key natural heritage features or key hydrologic features are present within the Subject Lands. No landform conservation areas are present within the Subject Lands.

6.11 CVC Regulated Features

Pursuant to Ontario Regulations 160/06, CVC has the authority to regulate development within its regulated areas. The CVC regulates the following features:

- Valleylands (defined and/or undefined);
- Environmentally Significant Areas (including rare or unique plants, animal populations or habitats, plant or animal communities, concentrations of natural features and unique ecological functions and hydrologic functions);
- Life Science ANSIs;
- Significant Woodlands within regulated areas;
- PSWs or other wetlands;
- Watercourses; and
- Natural Hazards such as flood hazards, erosion hazards, dynamic beach hazards and other hazardous lands.

Two wetland communities were identified within and adjacent to the Subject Lands (MAM, SWD). These wetland communities are not PSW; however, they are regulated by CVC. One seasonal headwater drainage feature was identified within the Subject Lands that provides indirect fish habitat functions (flow conveyance, contribution of allochthonous material). This feature is not regulated by CVC; however, they do provide guidance on their management through the HDFA Guideline (2014). As discussed above within **Section 4.3**, the drainage feature within the Subject Lands has been assigned a Conservation management recommendation based on the precautionary approach.

No Environmentally Significant Areas, Life Science ANSIs, significant woodlands, watercourses or other natural hazards were identified within or adjacent to the Subject Lands.

6.12 Summary of Ecological Components

The PPS (MMAH 2020) defines the important natural heritage features to consider in terms of impact assessment. The following components were identified within the Subject Lands:

- Candidate SWH (Bat Maternity Colonies within the SWD2-2 community);

- Candidate SAR (Little Brown Myotis);
- Indirect fish habitat; and
- Non-PSW wetlands (MAM2, SWD2-2).

The following key natural heritage features and hydrologically sensitive features were also identified within the Subject Lands, as per the Peel Region Official Plan (2018):

- Wetlands (MAM2, SWD2-2); and
- Candidate SWH and SAR habitat (SWD2-2).

Finally, two CVC-regulated wetland communities (MAM2, SWD2-2) are identified within the Subject Lands. One headwater drainage feature assigned a Conservation management recommendation was identified.

All features are shown on **Figure 6** (**Appendix A**).

7.0 CONCLUSIONS AND RECOMMENDATIONS

This Characterization Report addresses the natural heritage features and associated functions found on and adjacent to the Subject Lands. The Subject Lands are currently developed and functioning as a wastewater treatment plant.

A desktop review and targeted field studies (botanical inventories, ELC, breeding bird and aquatic surveys) were completed to understand what natural heritage features and associated functions may be present within the Subject Lands. Based on the above-noted information, confirmed non-PSW wetlands, indirect fish habitat and candidate SWH and SAR habitat may be present within the Subject Lands. The extent of natural heritage features are depicted on **Figure 6** (**Appendix A**).

Detailed ecological inventories have not been completed within some of the natural heritage features to determine whether significant features and functions are present within the Subject Lands (e.g., SWH, SAR). Should alteration within or immediately adjacent to these features be required, additional survey effort may be warranted to better assess potential impacts.

Should you have any questions or concerns regarding the report, please contact one of the undersigned.

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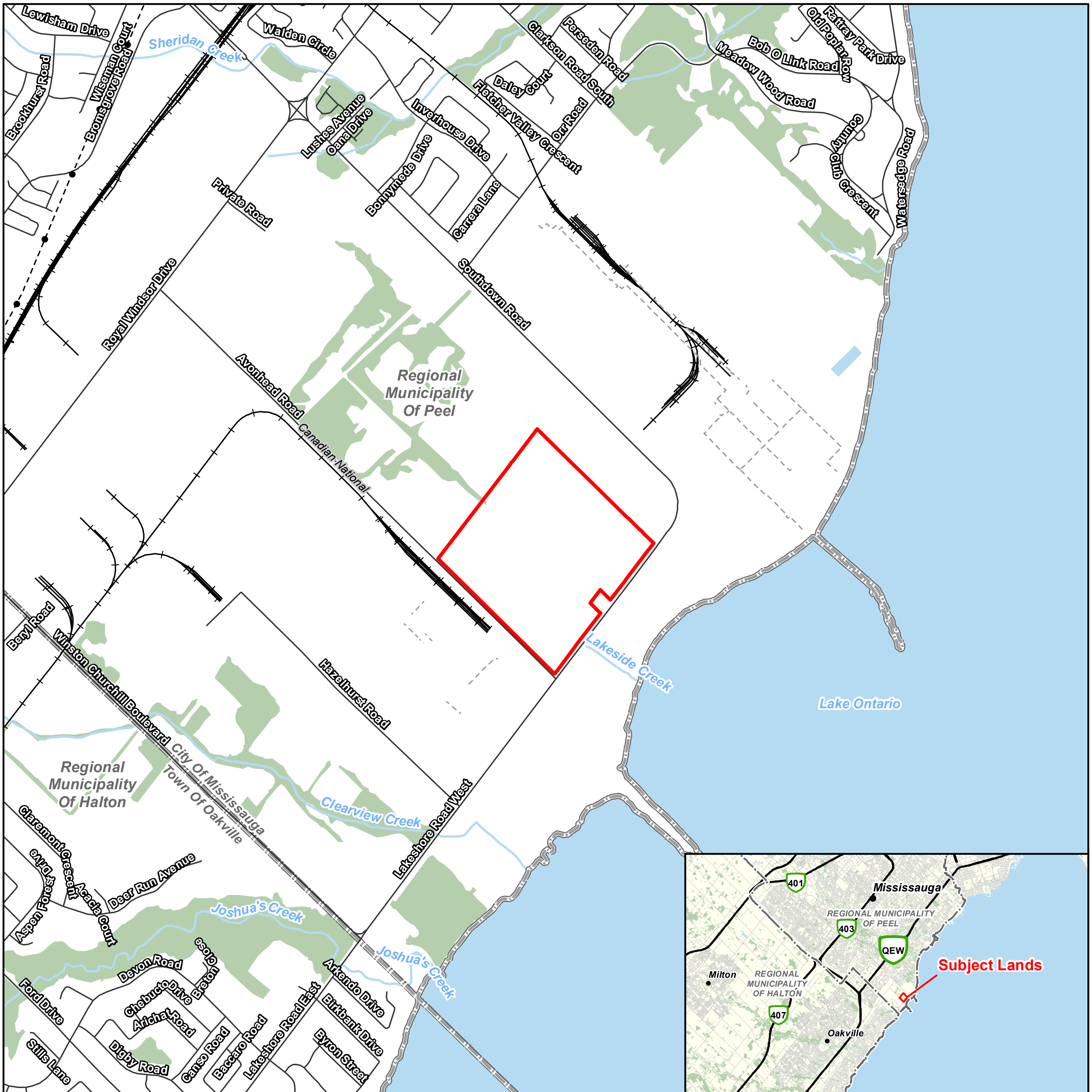
APPENDICES

Appendix A – Figures

Appendix B – Tables

Appendix C – Consultation and Agency Correspondence

Appendix A – Figures



NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.

Legend

- Subject Lands
- Road
- Railway
- Hydro Line
- Unknown Pipeline
- Watercourse
- Waterbody
- Wooded Area
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 1
Location of Subject Lands

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SAVANTA
A GEI Company

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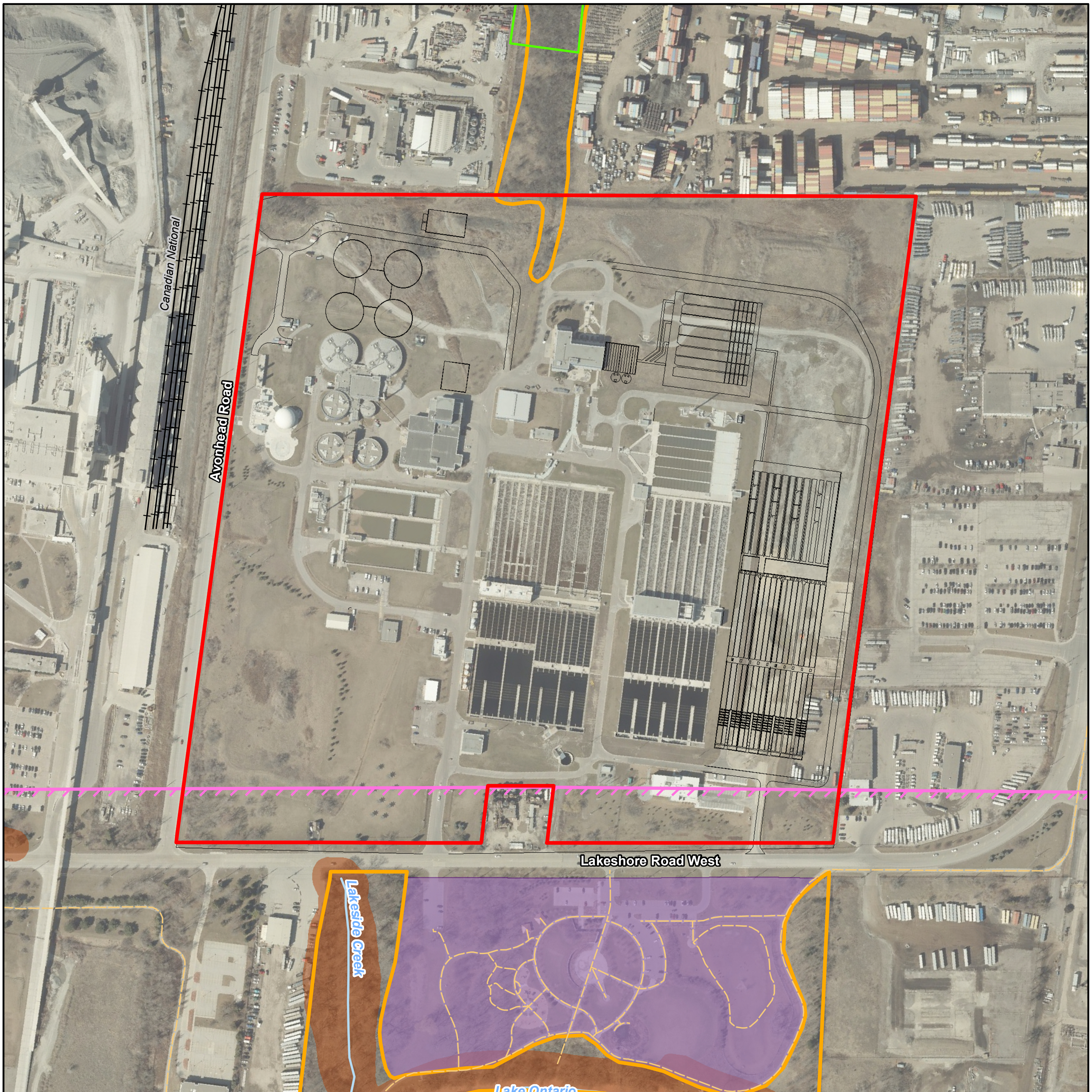

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Legend

- Subject Lands
- Proposed Development
- Railway
- Trail Segment (OTN)
- Watercourse
- Waterbody
- Important Bird Area - West End of Lake Ontario (BSC)
- CA Regulation Limits (CVC)
- Core Areas of the Greenlands System (Region of Peel)

Natural Heritage System (City of Mississauga)

- Significant Natural Areas and Natural Green Spaces
- Special Management Areas

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 2
Landscape Setting

0 100 m
1:5,000

N

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Legend

- Subject Lands
- Railway
- Confirmed Ecological Land Classification
- Interpreted Ecological Land Classification
- Watercourse

ELC Legend

CUM1, Mineral Cultural Meadow
CUT1, Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
DEV, Development
FOD, Deciduous Forest
MAM2, Mineral Meadow Marsh
SWD2-2, Green Ash Mineral Deciduous Swamp

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 3 Ecological Land Classification

0 100 m
1:5,000

N

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Legend

Subject Lands
Breeding Bird Station
Preliminary Ecological Land Classification
Railway
Watercourse

ELC Legend

CUM1, Mineral Cultural Meadow
CUT1, Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
DEV, Development
FOD, Deciduous Forest
MAM2, Mineral Meadow Marsh
SWD2-2, Green Ash Mineral Deciduous Swamp

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 4
Breeding Bird Station Locations

0 100 m
1:5,000

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Legend

- Subject Lands
- Railway
- Watercourse
- Confirmed Ecological Land Classification
- Interpreted Ecological Land Classification
- Drainage Feature
- Drainage Feature (Piped)
- Culvert
- Surface Drain/Catch Basin

ELC Legend

CUM1, Mineral Cultural Meadow
CUT1, Cultural Thicket
CUW1, Cultural Woodland
DIST, Disturbed
DEV, Development
FOD, Deciduous Forest
MAM2, Mineral Meadow Marsh
SWD2-2, Green Ash Mineral Deciduous Swamp

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 5
Drainage Features

0 50 m
1:5,000

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Legend

Subject Lands
Railway
Watercourse

Provincial (Ontario)

Candidate Significant Wildlife Habitat (Bat Maternity Colonies)
Candidate Species at Risk Habitat (Little Brown Myotis)

Regional (Region of Peel)

Key Natural Heritage Features and Key Hydrologic Features (Non-Provincially Significant Wetlands)
Key Natural Heritage Feature (Candidate Significant Wildlife Habitat and Habitat for Endangered Species)

Local (City of Mississauga)

Candidate Significant Natural Area (Candidate Significant Wildlife Habitat and Habitat for Endangered Species)

Credit Valley Conservation

Regulated Wetlands
Conservation HDF

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 6
Natural Heritage Features (Provincial, Regional and Local Significance)

0 50 m
1:3,500

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Appendix B – Tables

Table 1: Field Studies and Natural Inventories (2020, 2022)

SURVEYORS (SURNAME, INTL)	SURVEY ROUND	SURVEY TYPE	DATE	TIME		AIR TEMP (°C)	HUMIDITY (%)	CLOUD COVER (%)	BEAUFORT WIND SPEED	PRECIPITATION COMMENTS
				START	END					
2020										
Foerster, L.	1	Breeding Bird Survey	11-JU	5:30	7:00	17	78	70	5	None
Foerster, L.	2	Breeding Bird Survey	30-JU	7:00	8:00	23	66	0	2	None
Leslie, J.	1	Summer Botanical Inventory & Ecological Land Classification	21-JL	9:00	15:30	23	63	80	2	None
Leslie, J.	2	Fall Botanical Inventory	02-OC	9:30	13:00	12	80	100	2	None
2022										
Kimble, B.	1	Aquatic Assessment & Wildlife Passage	25-MA	12:00	16:00	19	52	35	1	None

LEGEND:

BEAUFORT WIND SPEED SCALE	
0	Calm (<1 km/hr)
1	Light Air (1-5 km/hr)
2	Light Breeze (6-11 km/hr)
3	Gentle Breeze (12-19 km/hr)
4	Moderate Breeze (20-28 km/hr)
5	Fresh Breeze (29-38 km/hr)

MONTH (CODE)	
JA	January
FB	February
MR	March
AP	April
MA	May
JU	June
JL	July
AU	August
SE	September
OC	October
NO	November
DE	December

Table 2: Ecological Landscape Characterization (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC 2021)	Area (in ha)
CULTURAL			
Cultural Meadow			
CUM1 Mineral Cultural Meadow	• Graminoid/Forb upland meadow with scattered occurrences of young to mid-age trees as well as shrub species. • Trees/shrubs were infrequent overall and often planted, variably composed of White Spruce (*Picea glauca*), White Ash (*Fraxinus americana*), Manitoba Maple (*Acer negundo*), Eastern Cottonwood (*Populus deltoides*), Hybrid Crack Willow (*Salix* x *fragilis*), Showy Fly Honeysuckle (*Lonicera* x *bella*), and Staghorn Sumac (*Rhus typhina*), among others. • Herbaceous species most commonly consisted of Kentucky Bluegrass (*Poa pratensis*), Canada Thistle (*Cirsium arvense*), and Quackgrass (*Elymus repens*), with common associations of Tall Goldenrod (*Solidago altissima*), Great Burdock (*Arctium lappa*), Bird's-foot Trefoil (*Lotus corniculatus*), Wild Carrot (*Daucus carota*), Smooth Brome (*Bromus inermis*), and Red Fescue (*Festuca rubra*),	Not ranked	7.57 ha
SWAMP			
Deciduous Swamp			
SWD2-2 Green Ash Mineral Deciduous Swamp	• Many dead or dying Green Ash (*Fraxinus pennsylvanica*) in the canopy, but with abundance of regenerative Green Ash in the sub-canopy. Hybrid Crack Willow was infrequent, but present in this canopy / sub-canopy. • Understory species was generally restricted to just occasional occurrences of Green Ash saplings and European Buckthorn (*Rhamnus cathartica*). • Ground cover was quite sparse, with only infrequent observations of Bittersweet Nightshade (*Solanum dulcamara*) and Tender Sedge (*Carex tenera*). • Surface water was not present in July, though indicators of seasonal pooling was noted (e.g. water stains at base of woody stems, exposed tree roots). If pooling occurs seasonally, the depth likely does not exceed 12cm for extended periods of time.	S5	0.10 ha
MARSH			
Meadow Marsh			
MAM2	• Frequently dominated by European Reed (*Phragmites australis*), with occasional herbaceous associations of Creeping Bentgrass	Not	0.86 ha

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC 2021)	Area (in ha)
Mineral Meadow Marsh	(*Agrostis stolonifera*), Purple loosestrife (*Lythrum salicaria*), and Bittersweet Nightshade, and Riverbank Grape (*Vitis riparia*). • Surface water was not present in July.	ranked	

Table 3: Plant List

														LOCAL / REGIONAL STATUS			
ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MECP)	COSEWIC STATUS		PEEL (Varga 2005)	GTA (Varga 2005)	CVC/PEEL (CVC 2002)	AUTHORITY
DICOTYLEDONS	Adoxaceae	Viburnum opulus ssp. opulus	Cranberry Viburnum		-3		-1	4	S5	G5				X	X	I	L.
DICOTYLEDONS	Amaranthaceae	Atriplex hortensis	Garden Saltbush		0		-1		SNA	GNR					X		L.
DICOTYLEDONS	Amaranthaceae	Atriplex patula	Spear Saltbush		-3				SNA	G5				X	X	X	L.
DICOTYLEDONS	Amaranthaceae	Bassia scoparia	Common Kochia		3		-1	3	SNA	GNR				X	X	I	(L.) Voss
DICOTYLEDONS	Amaranthaceae	Chenopodium album	Common Lamb's-Quarters		3		-1		SNA	G5				X	X	X	L.
DICOTYLEDONS	Anacardiaceae	Rhus typhina	Staghorn Sumac	1	3				S5	G5				X	X	X	L.
DICOTYLEDONS	Apiaceae	Daucus carota	Wild Carrot		5		-2		SNA	GNR				X	X	X	L.
DICOTYLEDONS	Apocynaceae	Asclepias syriaca	Common Milkweed	0	5				S5	G5				X	X	X	L.
DICOTYLEDONS	Asteraceae	Ambrosia artemisiifolia	Common Ragweed	0	3				S5	G5				X	X	X	L.
DICOTYLEDONS	Asteraceae	Arctium lappa	Great Burdock		3				SNA	GNR				X	X	X	L.
DICOTYLEDONS	Asteraceae	Carduus acanthoides ssp. acanthoides	Spiny Plumeless Thistle		5		-1		SNA	GNR				X	X	X	L.
DICOTYLEDONS	Asteraceae	Cichorium intybus	Wild Chicory		5		-1		SNA	GNR				X	X	X	L.
DICOTYLEDONS	Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	SNA	G5				X	X	X	(L.) Scop.
DICOTYLEDONS	Asteraceae	Cirsium vulgare	Bull Thistle		3		-1		SNA	GNR				X	X	X	(Savi) Tenore
DICOTYLEDONS	Asteraceae	Echinops sphaerocephalus	Great Globe-Thistle		5		-1		SNA	GNR				X	X	X	L.
DICOTYLEDONS	Asteraceae	Erigeron annuus	Annual Fleabane	0	3				S5	G5				X	X	X	(L.) Pers.
DICOTYLEDONS	Asteraceae	Lactuca serriola	Prickly Lettuce		3		-1		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Asteraceae	Leucanthemum vulgare	Oxeye Daisy		5		-1		SNA	GNR				X	X	X	Lam.
DICOTYLEDONS	Asteraceae	Picris hieracioides	Hawkweed Oxtongue		5		-1		SNA	G5					X		L.
DICOTYLEDONS	Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				S5	G5				X	X	X	L.
DICOTYLEDONS	Asteraceae	Sonchus arvensis ssp. arvensis	Field Sow-Thistle		3				SNA	GNR				X	X	I	L.
DICOTYLEDONS	Asteraceae	Symphyotrichum ericoides var. ericoides	White Heath Aster	4	3				S5	G5				X	X	X	(L.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster (ssp. lanceolatum)	3	-3	I			S5	G5				X	X	X	(Willd.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				S5	G5				X	X	X	(L.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum pilosum var. pilosum	Old Field Aster	1	3				S5	G5				R1	R	R	(Willd.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum x amethystinum	Amethyst Aster						HYB_n	GNR				X	X	X	(Nutt.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Tanacetum vulgare	Common Tansy		5		-1	3	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		SNA	G5				X	X	I	F.H. Wiggers
DICOTYLEDONS	Asteraceae	Tripleurospermum inodorum	Scentless Chamomile		0		-1		SNA	GNR				X	X	I	(L.) Schultz-Bip.
DICOTYLEDONS	Asteraceae	Xanthium strumarium	Rough Cockleburr	2	0	T			S5	G5				X	X	X	L.
DICOTYLEDONS	Balsaminaceae	Impatiens capensis	Spotted Jewelweed	4	-3	I			S5	G5				X	X	X	Meerburgh
DICOTYLEDONS	Boraginaceae	Echium vulgare	Common Viper's Bugloss		5		-2		SNA	GNR				X	X	X	L.
DICOTYLEDONS	Brassicaceae	Alliaria petiolata	Garlic Mustard		0		-3	1	SNA	GNR				X	X	X	(M. Bieb.) Cavara & Grande
DICOTYLEDONS	Brassicaceae	Barbarea vulgaris	Bitter Wintercress		0		-1	3	SNA	GNR				X	X	X	W.T. Aiton
DICOTYLEDONS	Brassicaceae	Diplotaxis muralis	Annual Wall Rocket		5		-1		SNA	GNR					X		(L.) de Candolle
DICOTYLEDONS	Brassicaceae	Erysimum cheiranthoides	Wormseed Wallflower		3		-1		S5	G5				X	X	X	L.
DICOTYLEDONS	Brassicaceae	Hesperis matronalis	Dame's Rocket		3		-3	1	SNA	G4G5				X	X	I	L.
DICOTYLEDONS	Brassicaceae	Lepidium campestre	Field Peppergrass		5		-1		SNA	GNR				X	X	I	(L.) W.T. Aiton
DICOTYLEDONS	Brassicaceae	Sisymbrium altissimum	Tall Tumble Mustard		3		-1		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Brassicaceae	Thlaspi arvense	Field Pennycress		5		-1		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Caprifoliaceae	Dipsacus fullonum	Common Teasel		3		-1	3	SNA	GNR				X	X	X	L.
DICOTYLEDONS	Caprifoliaceae	Lonicera x bella	Showy Fly Honeysuckle		3		-3		HYB_e	GNR				X	X	I	Zabel
DICOTYLEDONS	Caryophyllaceae	Silene latifolia	White Campion		5				SNA	GNR				X	X	I	Poiret
DICOTYLEDONS	Convolvulaceae	Convolvulus arvensis	Field Bindweed		5		-1	3	SNA	GNR				X	X	X	L.
DICOTYLEDONS	Cornaceae	Cornus sericea	Red-Osier Dogwood	2	-3	I*			S5	G5				X	X	X	L.
DICOTYLEDONS	Elaeagnaceae	Elaeagnus angustifolia	Russian Olive		3		-1	3	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Euphorbiaceae	Euphorbia virgata	Leafy Spurge		5		-2		SNA	GNRTNR				X	X	I	L.
DICOTYLEDONS	Fabaceae	Lotus corniculatus	Garden Bird's-Foot Trefoil		3		-2	2	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Fabaceae	Medicago lupulina	Black Medick		3		-1	4	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Fabaceae	Melilotus albus	White Sweet-Clover		3		-3	2	SNA	G5				X	X	I	Medik.
DICOTYLEDONS	Fabaceae	Melilotus officinalis	Yellow Sweet-Clover		3		-1	2	SNA	GNR				X	X	I	(L.) Pallas
DICOTYLEDONS	Fabaceae	Robinia pseudoacacia	Black Locust		3		-3	2	SNA	G5				X	X	I	L.
DICOTYLEDONS	Fabaceae	Securigera varia	Purple Crown-Vetch		5		-2	1	SNA	GNR				X	X	X	(L.) Lassen
DICOTYLEDONS	Fabaceae	Trifolium pratense	Red Clover		3		-2	4	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Hypericaceae	Hypericum perforatum ssp. perforatum	Common St. John's-Wort		5		-3	4	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Juglandaceae	Juglans nigra	Black Walnut	5	3				S4?	G5				X	X	X	L.
DICOTYLEDONS	Lamiaceae	Leonurus cardiaca ssp. cardiaca	Common Motherwort		5		-2		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Lamiaceae	Nepeta cataria	Catnip		3		-2	4	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Lythraceae	Lythrum salicaria	Purple Loosestrife		-5	I	-3	1	SNA	G5				X	X	I	L.
DICOTYLEDONS	Malvaceae	Abutilon theophrasti	Velvetleaf		3		-1	3	SNA	GNR				X	X	X	Medikus
DICOTYLEDONS	Malvaceae	Tilia americana	Basswood	4	3				S5	G5				X	X	X	L.
DICOTYLEDONS	Oleaceae	Fraxinus americana	White Ash	4	3				S4	G4				X	X	X	L.
DICOTYLEDONS	Oleaceae	Fraxinus pennsylvanica	Red Ash	3	-3	T			S4	G4				X	X	X	Marshall
DICOTYLEDONS	Onagraceae	Epilobium ciliatum ssp. ciliatum	Northern Willowherb	3	-3	I*			S5	G5				X	X	X	Raf.
DICOTYLEDONS	Onagraceae	Oenothera biennis	Common Evening Primrose	0	3				S5	G5				U	U	X	L.
DICOTYLEDONS	Oxalidaceae	Oxalis stricta	European Wood-Sorrel	0	3				S5	G5				X	X	X	L.
DICOTYLEDONS	Plantaginaceae	Chaenorhinum minus ssp. minus	Dwarf Snapdragon		5		-1		SNA	GNR				X	X	X	(L.) Lange
DICOTYLEDONS	Plantaginaceae	Linaria vulgaris	Butter-And-Eggs		5		-1	4	SNA	GNR				X	X	I	Miller
DICOTYLEDONS	Plantaginaceae	Plantago lanceolata	English Plantain		3		-1		SNA	G5				X	X	I	L.
DICOTYLEDONS	Plantaginaceae	Plantago major	Common Plantain		3		-1		SNA	G5				X	X	I	L.
DICOTYLEDONS	Polygonaceae	Fallopia convolvulus	Eurasian Black Bindweed		3		-1		SNA	GNR				X	X	I	(L.) Á. Löve
DICOTYLEDONS	Polygonaceae	Persicaria maculosa	Spotted Lady's-Thumb		-3	T	-1		SNA	G3G5				X	X	I	Gray
DICOTYLEDONS	Polygonaceae	Polygonum aviculare ssp. aviculare	Prostrate Knotweed		3		-1		SNA	G5TNR				X	X	I	L.
DICOTYLEDONS	Polygonaceae	Rumex crispus	Curled Dock		0	T	-2		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Portulacaceae	Portulaca oleracea	Common Purslane		3				SNA	GU				X	X	I	L.
DICOTYLEDONS	Ranunculaceae	Ranunculus sceleratus	Cursed Buttercup	2	-5	I			S5	G5				X	X		L.
DICOTYLEDONS	Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Rosaceae	Fragaria virginiana	Wild Strawberry	2	3				S5	G5				X	X	X	Miller
DICOTYLEDONS	Rosaceae	Geum canadense	White Avens	3	0	T			S5	G5				X	X	X	Jacquin
DICOTYLEDONS	Rosaceae	Potentilla recta	Sulphur Cinquefoil		5		-2		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Rosaceae	Prunus nigra	Canada Plum	4	3				S4	G4G5				U	U	X	Aiton
DICOTYLEDONS	Rosaceae	Rosa multiflora	Multiflora Rose		3		-3	1	SNA	GNR				X	X	I	Thunberg
DICOTYLEDONS	Rosaceae	Rubus idaeus ssp. strigosus	North American Red Raspberry	2	3				S5	G5T5				X	X	X	(Michaux) Focke
DICOTYLEDONS	Rosaceae	Rubus occidentalis	Black Raspberry	2	5				S5	G5				X	X	X	L.
DICOTYLEDONS	Rubiaceae	Galium aparine	Common Bedstraw	4	3				S5	G5				R4	U	L	L.
DICOTYLEDONS	Salicaceae	Populus balsamifera	Balsam Poplar	4	-3	T			S5	G5				X	X	X	L.
DICOTYLEDONS	Salicaceae	Populus deltoides ssp. deltoides	Eastern Cottonwood	4	0	T			S5	G5T5				X	X	X	Bartram ex Marshall
DICOTYLEDONS	Salicaceae	Populus tremuloides	Trembling Aspen	2	0	T			S5	G5				X	X	X	Michaux
DICOTYLEDONS	Salicaceae	Salix amygdaloides	Peach-Leaved Willow	6	-3	T			S5	G5				R6	X	L	Andersson
DICOTYLEDONS	Salicaceae	Salix interior	Sandbar Willow	1	-3	T			S5	GNR				R5	X	L	Rowlee
DICOTYLEDONS	Salicaceae	Salix petiolaris	Meadow Willow	3	-3	I			S5	G5				X	X	X	J.E. Smith
DICOTYLEDONS	Salicaceae	Salix x fragilis	Hybrid Crack Willow			T	-3	3	HYB_e	GNA				XSR	X	I	L.
DICOTYLEDONS	Salicaceae	Salix x sepulcralis	Golden Weeping Willow						HYB_e	GNA				XSR	X		Simonkai

Table 3: Plant List

														LOCAL / REGIONAL STATUS			
ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MECP)	COSEWIC STATUS		PEEL (Varga 2005)	GTA (Varga 2005)	CVC/PEEL (CVC 2002)	AUTHORITY
DICOTYLEDONS	Sapindaceae	Acer negundo	Manitoba Maple	0	0	T		1	S5	G5				X	X	X	L.
DICOTYLEDONS	Sapindaceae	Acer saccharinum	Silver Maple	5	-3	I			S5	G5				X	X	X	L.
DICOTYLEDONS	Sapindaceae	Acer x freemanii	Freeman's Maple	6	-5	I			HYB_n	GNA				XSR	X		E. Murray
DICOTYLEDONS	Scrophulariaceae	Verbascum phlomoides	Clasping Mullein		5		-1		SNA	GNR				X	X	I	L.
DICOTYLEDONS	Scrophulariaceae	Verbascum thapsus ssp. thapsus	Common Mullein		5		-2		SNA	GNRTNR				X	X	I	L.
DICOTYLEDONS	Solanaceae	Solanum dulcamara	Bittersweet Nightshade		0	T	-2	3	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Ulmaceae	Ulmus americana	White Elm	3	-3	T			S5	G4				X	X	X	L.
DICOTYLEDONS	Ulmaceae	Ulmus pumila	Siberian Elm		3		-1	2	SNA	GNR				X	X	I	L.
DICOTYLEDONS	Vitaceae	Parthenocissus vitacea	Thicket Creeper	4	3				S5	G5				X	X	X	(Knerr) Hitchcock
DICOTYLEDONS	Vitaceae	Vitis riparia	Riverbank Grape	0	0				S5	G5				X	X	X	Michaux
GYMNOSPERMS	Pinaceae	Picea abies	Norway Spruce		5		-1		SNA	G5				X	X	I	(L.) Karsten
GYMNOSPERMS	Pinaceae	Picea glauca	White Spruce	6	3	T			S5	G5				R3	X	L	(Moench) Voss
GYMNOSPERMS	Pinaceae	Pinus resinosa	Red Pine	8	3				S5	G5				R1	R	RL	Aiton
MONOCOTYLEDONS	Asparagaceae	Asparagus officinalis	Garden Asparagus		3		-1		SNA	G5?				X	X	X	L.
MONOCOTYLEDONS	Cyperaceae	Carex tenera	Tender Sedge	4	0	T			S5	G5				X	X	X	Dewey
MONOCOTYLEDONS	Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			S5	G5				X	X	X	Michaux
MONOCOTYLEDONS	Juncaceae	Juncus gerardi ssp. gerard	Blackgrass Rush		-5	I	-1		SNA	G5TNR					X		Loiseleur-Deslongchamps
MONOCOTYLEDONS	Poaceae	Agrostis stolonifera	Creeping Bentgrass		-3	T			SNA	G5				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Bromus inermis	Smooth Brome		5		-3	4	SNA	G5T5				X	X	I	Leysser
MONOCOTYLEDONS	Poaceae	Bromus japonicus	Japanese Brome		3		-1		SNA	GNR				X	X	I	Thunberg ex Murray
MONOCOTYLEDONS	Poaceae	Dactylis glomerata	Orchard Grass		3		-1	3	SNA	GNR				X	X	I	L.
MONOCOTYLEDONS	Poaceae	Echinochloa crus-galli	Large Barnyard Grass		-3	T	-1		SNA	GNR				X	X	I	(L.) Palisot de Beauvois
MONOCOTYLEDONS	Poaceae	Elymus repens	Quackgrass		3		-3	3	SNA	GNR				X	X	I	(L.) Gould
MONOCOTYLEDONS	Poaceae	Festuca rubra	Red Fescue		3				S5	G5				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Hordeum jubatum ssp. jubatum	Foxtail Barley	0	0	T			S5?	G5T5				X	X	I	L.
MONOCOTYLEDONS	Poaceae	Lolium perenne	Perennial Ryegrass		3		-1	4	SNA	GNR				X	X	I	L.
MONOCOTYLEDONS	Poaceae	Panicum capillare ssp. capillare	Common Panicgrass	0	0				S5	G5				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Panicum dichotomiflorum ssp. dichotomifloru	Fall Panicgrass		-3		-1		SNA	G5				X	X	I	Michaux
MONOCOTYLEDONS	Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	S5	GNR				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Phleum pratense ssp. pratense	Common Timothy		3		-1		SNA	GNRTNR				X	X	I	L.
MONOCOTYLEDONS	Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	SNA	G5T5				X	X		(Cav.) Trinius ex Steudel
MONOCOTYLEDONS	Poaceae	Poa compressa	Canada Bluegrass		3				SNA	GNR				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Poa pratensis	Kentucky Bluegrass	0	3			2	S5	G5				X	X	X	L.
MONOCOTYLEDONS	Poaceae	Puccinellia distans	Spreading Alkaligrass		-3	T	-1		SNA	G5				X	X	I	(Jacq.) Parlatore
MONOCOTYLEDONS	Typhaceae	Typha angustifolia	Narrow-Leaved Cattail		-5	I		P	SNA	G5				X	X	X	L.
MONOCOTYLEDONS	Typhaceae	Typha x glauca	Blue Cattail		-5	I		P	HYB_n	GNA				X	X	X	Godron

STATISTICS		
Species Diversity		
Total Number of Species:	130	
Native Species:	51	39%
Exotic Species:	79	61%
S1-S3 Species:	0	0%
S4 Species:	4	8%
S5 Species:	44	92%
Regionally Rare (Peel)	6	
Floristic Quality Indices		
Mean Co-efficient of Conservati	2.7	
CC 0 - 3 = lowest sensitivity	30	65%
CC 4 - 6 = moderate sensitivit	15	33%
CC 7 - 8 = high sensitivity	1	2%
CC 9 - 10 = highest sensitivity	0	0%
Floristic Quality Index (FQI)	18	
Weedy & Invasive Species		
Mean Weediness Index (Oldhar	-1.5	
-1 = low potential invasivene	46	65%
-2 = moderate potential invas	13	18%
-3 = high potential invasivens	12	17%
Mean Exotic Rank (Urban Fores	3	
Category 1	9	24%
Category 2	7	18%
Category 3	11	29%
Category 4	8	21%
Potentially Invasive (P)	3	8%
Wetland Species		
Mean Wetness Index	1.6	
Upland	27	21%
Facultative upland	56	44%
Facultative	16	13%
Facultative wetland	21	17%
Obligate wetland	7	6%

Common Name	Species Code	Scientific Name	Provincial Status (S Rank)	Global Status (G Rank)	SARO (MECP)	SARA Schedule 1 (Federal)	Highest Breeding Evidence
Anseriformes							
Anatidae							
Canada Goose	CANG	*Branta canadensis*	S5	G5			OB-X
Mallard	MALL	*Anas platyrhynchos*	S5	G5			OB-X
Columbiformes							
Columbidae							
Rock Pigeon	ROPI	*Columba livia*	SNA	G5			OB-X
Mourning Dove	MODO	*Zenaida macroura*	S5	G5			PR-T
Charadriiformes							
Charadriidae							
Killdeer	KILL	*Charadrius vociferus*	S4B	G5			PO-H
Scolopacidae							
Spotted Sandpiper	SPSA	*Actitis macularius*	S5B	G5			PO-H
Laridae							
Ring-billed Gull	RBGU	*Larus delawarensis*	S5	G5			OB-X
Falconiformes							
Falconidae							
Peregrine Falcon	PEFA	*Falco peregrinus*	S4	G4	SC	SC	PO-H
Passeriformes							
Tyrannidae							
Willow Flycatcher	WIFL	*Empidonax traillii*	S4B	G5			PR-T
Vireonidae							
Warbling Vireo	WAVI	*Vireo gilvus*	S5B	G5			PR-T
Hirundinidae							
Bank Swallow	BANS	*Riparia riparia*	S4B	G5	THR	THR	OB-X
Tree Swallow	TRES	*Tachycineta bicolor*	S4S5B	G5			PO-H
Northern Rough-winged Swallow	NRWS	*Stelgidopteryx serripennis*	S4B	G5			OB-X
Barn Swallow	BARS	*Hirundo rustica*	S4B	G5	THR	THR	OB-X
Turdidae							
American Robin	AMRO	*Turdus migratorius*	S5	G5			CO-FY
Mimidae							
Northern Mockingbird	NOMO	*Mimus polyglottos*	S4	G5			PO-S
Sturnidae							
European Starling	EUST	*Sturnus vulgaris*	SNA	G5			CO-FY
Bombycillidae							
Cedar Waxwing	CEDW	*Bombycilla cedrorum*	S5	G5			PO-H
Fringillidae							
House Finch	HOFI	*Haemorhous mexicanus*	SNA	G5			PO-S
American Goldfinch	AMGO	*Spinus tristis*	S5	G5			PR-P
Passerellidae							
Savannah Sparrow	SAVS	*Passerculus sandwichensis*	S5B, S3N	G5			PO-S
Song Sparrow	SOSP	*Melospiza melodia*	S5	G5			CO-CF
Icteridae							

Common Name	Species Code	Scientific Name	Provincial Status (S Rank)	Global Status (G Rank)	SARO (MECP)	SARA Schedule 1 (Federal)	Highest Breeding Evidence
Red-winged Blackbird	RWBL	*Agelaius phoeniceus*	S5	G5			CO-CF
Brown-headed Cowbird	BHCO	*Molothrus ater*	S5	G5			PO-S
Common Grackle	COGR	*Quiscalus quiscula*	S5	G5			PO-H
Parulidae							
Yellow Warbler	YWAR	*Setophaga petechia*	S5B	G5			PR-P
Cardinalidae							
Northern Cardinal	NOCA	*Cardinalis cardinalis*	S5	G5			PR-T

Species Common Name and Scientific Name: Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker. 2019. Check-list of North American Birds (online). American Ornithological Society. Available online: http://checklist.aou.org/taxa

Species Code: Consistent with the American Ornithologists' Union. 2019. Species 4-Letter-Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=species

Highest Breeding Evidence: Codes assigned for breeding evidence are consistent with the Ontario Breeding Bird Atlas (OBBA). 2018. Breeding Evidence Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=breeding&sortorder=aou

S ranks: Provincial ranks are from the Natural Heritage Information Centre; S1 (critically imperiled), S2 (imperlied), S3 (vulnerable), S4 (apparently secure), S5 (secure); ranks were updated using NHIC species list December 2018. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

G ranks: Global ranks are from the Natural Heritage Information Centre; G1 (extremely rare), G2 (very rare), G3 (rare to uncommon), G4 (common), G5 (very common); ranks were updated using NHIC species list December 2018. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

COSSARO (MNRF): Ontario Species at Risk as listed by the Committee on the Status of Species at Risk in Ontario (from NHIC Table December 2018 and updates posted on Ontario Regulation 230/08 Species at Risk in Ontario website as of August 1, 2018: https://www.ontario.ca/laws/regulation/080230/); END - Endangered; THR - Threatened; SC - Special Concern; NAR - Not at Risk

COSEWIC: Assessed Species at Risk at the national level as listed by the Committee on the Status of Endangered Wildlife in Canada (from COSEWIC: https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm); END - Endangered, THR - Threatened, SC - Special Concern, NAR - Not at Risk

SWH Indicator Species: SWH refers to Significant Wildlife Habitat as defined by the MNRF (2015) Significant Wildlife Habitat Criteria Schedules for Ecoregions 7E and 6E (as appropriate for the Subject Lands). SWH indicator species are identified in this table and any potential SWH is discussed in the text of this report. Available online: http://www.townofnemi.on.ca/wp-content/uploads/2016/02/NEMI-OP-App-C-schedule-6e-jan-2015-access-ver-final-s.pdf

COMMON NAME	SCIENTIFIC NAME	Provincial Status (S RANK)	Global Status (G RANK)	SARO (MECP)	SARA Schedule 1 (Federal)	Local Status CVC	SWH Indicator Species 7E
ODONATA							
Black Saddlebags	*Tramea lacerata*	S4	G5				
BUTTERFLIES							
Northern Crescent	*Phycoides pascoensis*	S5	G5				
BIRDS							
Canada Goose	*Branta canadensis*	S5	G5				X
Mallard	*Anas platyrhynchos*	S5	G5				X
Rock Pigeon	*Columba livia*	SNA	G5				
Mourning Dove	*Zenaida macroura*	S5	G5				
Killdeer	*Charadrius vociferus*	S4B	G5				
Spotted Sandpiper	*Actitus macularius*	S5B	G5				
Ring-billed Gull	*Larus delawarensis*	S5	G5				X
Peregrine Falcon	*Falco peregrinus*	S4	G4	SC	SC		X
Willow Flycatcher	*Empidonax traillii*	S4B	G5				X
Warbling Vireo	*Vireo gilvus*	S5B	G5				
Bank Swallow	*Riparia riparia*	S4B	G5	THR	THR		
Tree Swallow	*Tachycineta bicolor*	S4SB5	G5				
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	G5				X
Barn Swallow	*Hirundo rustica*	S4B	G5	THR	THR		
American Robin	*Turdus migratorius*	S5	G5				
Northern Mockingbird	*Mimus polyglottos*	S4	G5				
European Starling	*Sturnus vulgaris*	SNA	G5				
Cedar Waxwing	*Bombycilla cedrorum*	S5	G5				
House Finch	*Carpodacus mexicanus*	SNA	G5				
American Goldfinch	*Spinus tristis*	S5	G5				
Savannah Sparrow	*Passerculus sandwichensis*	S5B, S3N	G5				X
Song Sparrow	*Melospiza melodia*	S5	G5				
Red-winged Blackbird	*Agelaius phoeniceus*	S5	G5				
Brown-headed Cowbird	*Molothrus ater*	S5	G5				
Common Grackle	*Quiscalus quiscula*	S5	G5				
Yellow Warbler	*Setophaga petechia*	S5B	G5				
Northern Cardinal	*Cardinalis cardinalis*	S5	G5				
MAMMALS							
White-tailed Deer	*Odocoileus virginianus*	S5	G5				X

SUMMARY

Total Odonata:	*1*
Total Butterflies:	*1*
Total Other Arthropods	*0*
Total Amphibians:	*0*
Total Reptiles:	*0*
Total Birds:	*27*
Total Breeding Birds:	*19*
Total Mammals:	*1*

SIGNIFICANT SPECIES

Global:	*0*
National:	*3*
Provincial:	*3*
Regional:	*0*
Local:	

Explanation of Status and Acronymns

COSSARO: Committee on the Status of Species at Risk in Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S#: Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species
S#B- Breeding status rank
S#N- Non Breeding status rank
?: Indicates uncertainty in the assigned rank
G1: Extremely rare globally; usually fewer than 5 occurrences in the overall range
G1G2: Extremely rare to very rare globally
G2: Very rare globally; usually between 5-10 occurrences in the overall range

COMMON NAME	SCIENTIFIC NAME	Provincial Status (S RANK)	Global Status (G RANK)	SARO (MECP)	SARA Schedule 1 (Federal)	Local Status CVC	SWH Indicator Species 7E

G2G3: Very rare to uncommon globally

G3: Rare to uncommon globally; usually between 20-100 occurrences

G3G4: Rare to common globally

G4: Common globally; usually more than 100 occurrences in the overall range

G4G5: Common to very common globally

G5: Very common globally; demonstrably secure

GU: Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
1. SEASONAL CONCENTRATION AREAS					
Waterfowl Stopover and Staging Areas (terrestrial)	Yes – CUM vegetation communities are present on the Subject Lands. CUT and CUM vegetation communities are also present within the adjacent lands (120 m).	No – Features are not large enough to attract or support significant numbers. This area does not have historical waterfowl stopover use and is not an area known for sheet water use.	No	N/A	Not Present
Waterfowl Stopover and Staging Areas (aquatic)	Yes – One SWD vegetation community is present within the Subject Lands.	No – SWD vegetation community is not large enough to attract or support large congregations of waterfowl.	No	N/A	Not Present
Shorebird Migratory Stopover Areas	Yes – MAM vegetation communities are present within and adjacent to the Subject Lands.	No – MAM vegetation communities are disturbed from adjacent wastewater management plant. Features are not large enough to attract or support significant numbers.	No	N/A	Not Present
Raptor Wintering Areas	No – Forested communities	No - Minimum size	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	are not present within the Subject Lands; however, two FOD vegetation communities were identified within the adjacent lands	criteria was not met (>20 ha with combination of forest and upland habitat).			
Bat Hibernacula	No – Vegetation communities are absent from the Subject Lands and adjacent lans.	N/A	No	N/A	Not Present
Bat Maternity Colonies	Yes – One small SWD vegetation community is present within the Subject Lands. Two FOD vegetation communities are present within the adjacent lands.	Candidate – The size of trees (diameter at breast height, dbh) present in this community is unknown. However, the area of the SWD community is small and unlikely to support significant numbers of bat maternity colonies.	Yes	No field surveys have been conducted at this time.	Candidate
Turtle Wintering Areas	Yes – MAM and SWD vegetation communities are present within and adjacent to the Subject Lands.	No – MAM and SWD vegetation communities do not support overwintering habitat as they are dry for a majority of the year.	No	N/A	Not Present
Reptile Hibernacula	Yes – ecosites are present on and adjacent to the Subject	No – No anthropogenic or natural features	Yes – within adjacent lands.	N/A	Candidate within adjacent lands

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	Lands.	provide any subsurface access below the frost line within the Subject Lands. Candidate habitat may be present within the adjacent naturalized habitats.			
Colonial Bird Nesting Sites (bank/cliff)	Yes – CUM and CUT vegetation communities are present on and adjacent to the Subject Lands.	No – Presence of exposed or eroding banks, hills, steep slopes are not present on or adjacent to the Subject Lands.	No	N/A	Not Present
Colonial Bird Nesting Sites (tree/shrubs)	Yes – One SWD vegetation community is present within the Subject Lands.	No – SWD vegetation community is adjacent to actively managed wastewater treatment plant and Avonhead Road. Feature is disturbed from adjacent land uses and would not be attractive for nesting opportunities.	No	N/A	Not Present
Colonial Bird Nesting Sites (ground)	No – No rocky islands or peninsulas are present on or	N/A	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	adjacent to the Subject Lands.				
Migratory Butterfly Stopover Areas	No – Forested vegetation communities are absent from the Subject Lands; however, two FOD vegetation communities are present within the adjacent lands	No - minimum size criteria was not met (10 ha with a combination of field and forest habitat).	No	N/A	Not Present
Migratory Landbird Stopover Areas	Yes – One SWD vegetation community is present within the Subject Lands, and two FOD vegetation communities are present within the adjacent lands.	No – SWD and FOD vegetation community does not meet the minimum size criteria (>5 ha).	No	N/A	Not Present
Deer Winter Congregation Areas	No – Mapping from the MNRF LIO database did not depict any deer wintering areas on or adjacent to the Subject Lands.	N/A	No	N/A	Not Present
2. RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE					
2a. Rare Vegetation Communities					
Rare Vegetation Types (cliffs, talus slopes, sand	No – Rare vegetation communities are not found on or adjacent to the Subject	N/A	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
barrens, alvars, old-growth forests, savannahs, and tallgrass prairies)	Lands.				
Other Rare Vegetation Types (S1 to S3 communities)	No – All vegetation communities identified on or adjacent to the Subject Lands are culturally influenced.	N/A	No	N/A	Not Present
2b. Specialized Wildlife Habitat					
Waterfowl Nesting Area	Yes –SWD and MAM vegetation communities are present within and adjacent to the Subject Lands.	No – Subject Lands is actively managed wastewater treatment plant. All upland vegetation communities are highly disturbed from adjacent land uses.	No	N/A	Not Present
Bald Eagle and Osprey Habitats	Yes – SWD and FOD vegetation communities are present within and adjacent to the Subject Lands.	Candidate – While no large aquatic features are present within the Subject Lands, Lake Ontario is located adjacent to the FOD communities south of Lakeshore Road West.	Yes – within adjacent lands.	N/A	Candidate within adjacent lands
Woodland Raptor Nesting	Yes – One SWD vegetation	No – Minimum size	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Habitat	community is present within the Subject Lands, and two FOD vegetation communities are present within the adjacent lands.	criteria is not met (>30 ha with >4ha interior forest habitat).			
Turtle Nesting Areas	No – Vegetation communities are absent from the Subject Lands and adjacent properties.	N/A	No	N/A	Not Present
Seeps and Springs	Yes – While forested ecosites are absent from the Subject Lands, two FOD vegetation communities are present within the adjacent lands.	Candidate	Yes – within adjacent lands	N/A	Candidate within adjacent lands
Woodland Amphibian Breeding Habitats (within or < 120m from woodland)	Yes – One SWD vegetation community is present within the Subject Lands and two FOD vegetation communities are present within the adjacent lands.	No – Presence of vernal pooling within the SWD and FOD vegetation communities are unknown; however, it is unlikely that minimum size criteria is met as no evidence of larger pools were visible within aerial imagery. Due to the location within the Subject Lands adjacent to an	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		actively managed wastewater treatment plant and Avonhead Road, it is unlikely that significance will be met.			
Wetland Amphibian Breeding Habitats (wetland >120m from woodland)	Yes – SWD and MAM vegetation communities are present within and adjacent to the Subject Lands.	No – Presence of vernal pooling within the SWD and adjacent MAM vegetation communities is unknown; however, it is unlikely that minimum size criteria is met as no evidence of larger pools were visible within aerial imagery. Due to the location within the Subject Lands adjacent to an actively managed wastewater treatment plant and Avonhead Road, it is unlikely that significance is met.	No	N/A	Not Present
Woodland Area-Sensitive Bird Breeding Habitat	Yes – One SWD vegetation community is present within the Subject Lands and two FOD vegetation communities	No – Minimum size criteria was not met (>30 ha). No interior habitat is present.	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
	are present within the adjacent lands.				
3. SPECIES OF CONSERVATION CONCERN					
Marsh Bird Breeding Habitat	Yes – MAM and SWD vegetation communities are present on and adjacent to the Subject Lands.	No – Vegetation communities are adjacent to actively managed wastewater treatment plant and Avonhead Road. These communities are likely disturbed from adjacent land uses.	No	N/A	Not Present
Open Country Bird Breeding Habitat	Yes – CUM vegetation communities are present on and adjacent to the Subject Lands.	No – Minimum size criteria is not met (>30 ha).	No	N/A	Not Present
Shrub/Early Successional Bird Breeding Habitat	Yes – While these vegetation communities are absent from the Subject Lands; CUT and CUW vegetation communities are present within the adjacent lands.	No - Minimum size criteria was not met (10 ha).	No	N/A	Not Present
Terrestrial Crayfish	Yes – MAM and SWD vegetation communities are present within and adjacent to the Subject Lands.	Yes – no minimum size requirement.	Yes – any observation of crayfish chimneys will be documented	No terrestrial crayfish chimneys were observed despite survey effort.	Candidate within adjacent lands

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
			during ecological surveys within the Subject Lands.	No survey effort was completed on adjacent lands.	
Special Concern and Rare Wildlife Species					
(i) Peregrine Falcon (*Falco peregrinus*)	N/A	No – No tall structures are present to support perching or nesting.	No	N/A	Not Present
(ii) Common Nighthawk (*Chordeiles minor*)	N/A	Yes – CUM vegetation communities are present.	Yes	Two rounds of breeding bird surveys were completed in 2020 (see **Table 1, Appendix B** for survey dates and conditions). No Common Nighthawk were documented (see **Table 4, Appendix B** for survey results and **Figure 4, Appendix A** for point count locations). No Common Nighthawks were recorded incidentally on adjacent lands.	Not Present
(iii) Eastern Wood Pewee (*Contopus virens)*	N/A	Yes – One SWD vegetation community is present within the Subject Lands and FOD/CUW vegetation	Yes	Two rounds of breeding bird surveys were completed in 2020 (see **Table 1, Appendix B** for survey dates and conditions). No Eastern	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		communities are present within adjacent lands.		Wood Pewee were documented (see **Table 4, Appendix B** for survey results and **Figure 4, Appendix A** for point count locations). No Eastern Wood Pewee were recorded incidentally on adjacent lands.	
(iv) Wood Thrush (*Hylocichla mustelina)*	N/A	Yes – One SWD vegetation community is present within the Subject Lands and FOD/CUW vegetation communities are present within adjacent lands.	Yes	Two rounds of breeding bird surveys were completed in 2020 (see **Table 1, Appendix B** for survey dates and conditions). No Wood Thrush were documented (see **Table 4, Appendix B** for survey results and **Figure 4, Appendix A** for point count locations). No Wood Thrush were recorded incidentally on adjacent lands.	Not Present
(v) Purple Martin (*Progne subis*)	N/A	Yes – One SWD vegetation community is present within the Subject Lands and FOD/CUW vegetation communities are present within adjacent lands. Open areas to	Yes	Two rounds of breeding bird surveys were completed in 2020 (see **Table 1, Appendix B** for survey dates and conditions). No Purple Martin were documented (see **Table 4, Appendix B** for survey results and **Figure 4,**	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		support foraging are also present. It is likely that snags are present within the community to support nesting.		**Appendix A** for point count locations). No Purple Martins were recorded incidentally on adjacent lands.	
(vi) Red-necked Grebe (*Podiceps grisegena*)	N/A	No – While Lake Ontario is nearby no permanent aquatic habitats are present. Species is also sensitive to human activity and disturbance.	No	N/A	Not Present
(vii) Eastern Musk Turtle (*Sternotherus odoratus*)	N/A	No – MAM/SWD vegetation communities do not support overwintering habitat as they are dry for a majority of the year.	No	N/A	Not Present
(viii) Northern Map Turtle (*Graptemys geographica)*	N/A	No – MAM/SWD vegetation communities do not support overwintering habitat as they are dry for a majority of the year. No large watercourses	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		are present within the Subject Lands. It is unlikely that Lakeside Creek would support Northern Map Turtle given its small size.			
(ix) Snapping Turtle (*Chelydra serpentina)*	N/A	No – MAM/SWD vegetation communities do not support overwintering habitat as they are dry for a majority of the year.	No	N/A	Not Present
(x) Monarch (*Danaus plexxipus)*	N/A	No – While CUM vegetation communities are present within, no large abundances of Common Milkweed (*Asclepias syriaca)* were recorded. CUM vegetation communities are highly disturbed from adjacent land-use practices (active wastewater treatment plant).	No	N/A	Not Present

Table 6a: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
4. ANIMAL MOVEMENT CORRIDORS					
Amphibian Movement Corridors	N/A	No – Amphibian breeding SWH types are absent from the Subject Lands.	No	N/A	Not Present

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
Seasonal Concentrations of Animals	
A1. Deer Wintering Area	**Not Present**
A2. Colonial Bird Nesting Sites	**Not Present**
A3. Waterfowl Nesting Habitat	**Not Present** One indicator species was recorded during breeding bird surveys (Mallard). This species was observed flying over the site; no breeding habitat was present on the site.
A4i. Migratory Landbird Stopover Areas	**Not applicable.** While the Subject Lands are located within 2 km of Lake Ontario, the property is excluded from this SWH type given that the lands have been permanently transformed for human services or infrastructure (through the operation of the wastewater treatment plant).
A4ii. Migratory Bat Stopover Areas	**Not applicable.** This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
A4iii. Migratory Butterfly Stopover Areas	**Not Present** As illustrated within **Table 6a (Appendix A)**, this SWH type was not met.
A4iv. Migratory Waterfowl Stopover and/or Staging (Terrestrial)	**None detected.** No evidence of flooded fields was identified on or in the vicinity of the Subject Lands. No aggregations of indicator species were observed on, or adjacent to, the Subject Lands.
A4v. Migratory Waterfowl Stopover and/or Staging (Aquatic)	**None detected.** No aquatic habitat was identified on or adjacent to the Subject Lands that is considered suitable to support large numbers of migratory waterfowl. Furthermore, there are no records of migratory stopover areas on the Subject Lands.

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
A4vi. Migratory Shorebird Stopover Areas	**None detected.** No suitable areas for shorebird migratory stopover areas were identified on the Subject Lands.
A5. Raptor Wintering Areas	**None detected.** Open field habitat and abandoned agricultural fields adjacent to the Subject Lands, do not meet minimum size criteria (>20 ha). Furthermore, indicator species were not observed in sufficient numbers to warrant SWH based on previous studies conducted on the adjacent lands.
A6. Snake Hibernacula	**None detected.** No suitable habitat is present within the Subject Lands.
A7. Bat Maternal Roosts and Hibernacula	**Candidate detected within SWD Community** Candidate bat maternity colonies have the potential to occur within the SWD vegetation community. No bat hibernacula habitat is present.
A8. Bullfrog Concentration Areas	**Not applicable.** The Peel-Caledon SWH Study (2009) incorporated this SWH type into criterion B8ii. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
A9. Wild Turkey Winter Range	**Not applicable.** No threshold recommended, as Wild Turkey is no longer of conservation concern in Ontario, the Region of Peel or Town of Caledon. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
A10. Turkey Vulture Summer Roosting Areas	**None detected.** Insufficient information to suggest specific threshold for this criterion; most preferred roosting areas would be protected through SWH Criteria B1 (rare vegetation communities) and B6 (cliffs and caves). This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
Rare vegetation communities or specialized habitat for wildlife	
B1. Rare Vegetation Communities	**None detected.**

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
B2. Forests Providing a High Diversity of Habitats	**Not applicable.** It is assumed that all forests providing a high diversity of habitats will be captured by the suite of significant woodland criteria. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
B3. Old-Growth or Mature Forest Stands	**Not applicable.** It is assumed that all old-growth and mature forests will be captured by the significant woodlands criteria.
B4. Foraging Areas with Abundant Mast	**None detected.** This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
B5. Highly Diverse Areas	**Not applicable.** The Caledon-Peel SWH study consultant team provided a map to the Town for review regarding the most diverse patches in Caledon / the Region. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
B6. Cliffs and Caves	**None detected.**
B7. Seeps and Springs	**None detected.** No seeps or springs detected within the SWD vegetation community on the Subject Lands.
B8i. Amphibian Breeding Habitat (Forested Sites)	**None detected.** Presence of vernal pooling within the SWD and FOD vegetation communities are unknown; however, it is unlikely that minimum size criteria is met as no evidence of larger pools were visible within aerial imagery. Due to the location within the Subject Lands adjacent to an actively managed wastewater treatment plant and Avonhead Road, it is unlikely that significance will be met.
B8ii. Amphibian Breeding Habitat (Non-Forested Sites)	**None detected.** Presence of vernal pooling within the SWD and adjacent MAM vegetation communities is unknown; however, it is unlikely that minimum size criteria is met as no evidence of larger pools were visible within aerial imagery.

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
	Due to the location within the Subject Lands adjacent to an actively managed wastewater treatment plant and Avonhead Road, it is unlikely that significance is met.
B9. Turtle Nesting Habitat and Turtle Overwintering Areas	**None detected.** Suitable ecosites are absent from the Subject Lands.
B10. Habitat for Area-Sensitive Forest Interior Breeding Bird Species	**None detected.** Mature forests (>60 years) with interior patch size greater than or equal to 4 ha are not present within the Subject Lands.
B11. Habitat for Open Country and Early Successional Breeding Bird Species	**None detected.** Minimum size criteria was not met (greater than or equal to 10 ha in size).
B12. Habitat for Wetland Breeding Bird Species	**None detected.** No indicator species were recorded.
B13i. Raptor Nesting Habitat (Raptors associated with wetlands, ponds, and rivers)	**None detected.** No Northern Harrier or Osprey nests were detected on, or adjacent to, the Subject Lands (indicator species from the Peel-Caledon study). The habitat size criteria (MNRF 2015) are also not met (i.e., woodland > 30 ha with > 10 ha interior that is 200m from the woodland edge).
B13ii. Raptor Nesting Habitat (Raptors associated with woodland habitats)	**None detected.** No nests or indicator species were recorded on, or adjacent to, the Subject Lands.
B14. Mink, River Otter, Marten and Fisher Denning Sites	**None detected.** Suitable habitat for these species is not present on, or adjacent to, the Subject Lands. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
B15. Mineral Licks	**Not applicable.** Mineral licks are not recommended as an SWH type for the Region of Peel or

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
	the Town of Caledon. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
Species of Conservation Concern	
C1. Species Identified as Nationally Endangered or Threatened by COSEWIC which are not listed as Endangered or Threatened under Ontario's *Endangered Species Act*	**None detected.** Thorough review of SAR and SAR habitat potential within the Subject Lands is provided within **Table 7** (**Appendix B**). Bank and Barn Swallow were recorded within the Subject Lands; however, no suitable breeding habitat is present. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
C2. Species Identified as Special Concern based on Species at Risk in Ontario List that is Periodically updated by OMNR	**None detected.** Thorough review of SAR and SAR habitat potential within the Subject Lands is provided within **Table 7** (**Appendix B**). Incidental observations of Peregrine Falcon were recorded; however, no suitable habitat is present within the Subject Lands.
C3. Species that are listed as Rare (S1-S3) or Historical in Ontario based NHIC	**None detected.**
C4. Species whose populations appear to be experiencing substantial declines in Ontario	**Not applicable.** The Peel-Caledon SWH Study (2009) does not provide a threshold for this criterion due to insufficient information. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
C5. Species that have a high percentage of their global population in Ontario and are Rare or Uncommon in the Region of Peel/ Town of Caledon	**Not applicable.** The Peel-Caledon SWH Study (2009) does not provide a threshold for this criterion due to insufficient information. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).

Table 6b: Significant Wildlife Habitat Review (Peel ROP Peel-Caledon Significant Wildlife Habitat Study 2009)

SWH Type	SWH Analysis
C6. Species that are Rare within the Region of Peel or Town of Caledon, even though they may not be Provincially Rare	**None detected.** Six regionally rare plant species were recorded (as summarized within **Section 4.1** of the report). This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
C7. Species that are subjects of Recovery Programs	**None detected.** This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
C8. Species considered important to the Region of Peel/ Town of Caledon, based on recommendations from a Local Conservation Advisory Committee	**Not applicable.** No Conservation Advisory Committee currently exists in the Region. This is not considered an SWH type under the Province's ecoregional criteria (MNRF 2015).
Animal Movement Corridors	
D. Animal Movement Corridors	**None detected.** Due to the limited abundance of species habitats present on the Subject Lands, no animal movement corridors were identified on the Subject Lands.

Table 7: Species at Risk (SAR) Habitat Potential

Species Name	SARO RANKING	Habitat Preferences	Habitat Potential within Subject Lands?
SAR identified within the background wildlife review (section 3.0)			
Common Nighthawk (*Chordeiles minor*)	Special Concern	Open areas with little to no surrounding vegetation.	No – While nearby lakeshore habitat and pavement areas present, no Common Nighthawk habitat is present within the Subject Lands (**Table 4, Appendix B)**.
Eastern Wood-Pewee (*Contopus virens*)	Special Concern	Deciduous forests and woodlands.	No – Eastern Wood-Pewee were not identified within the Subject Lands during targeted breeding bird surveys (**Table 4, Appendix B).**
Peregrine Falcon (*Falco peregrinus*)	Special Concern	Associated with large riverine and wooded features.	No – While tall buildings and nearby lakeshore habitat are present, no suitable breeding habitat is present within the Subject Lands (**Table 4, Appendix B**).
Wood Thrush (*Hylocichla mustelina*)	Special Concern	Mature deciduous and mixed forests.	No – Wood Thrush were not identified during targeted breeding bird surveys (**Table 4, Appendix B**).
Northern Map Turtle (*Graptemys geographica*)	Special Concern	Riverine and lacustrine systems with deep, slow moving sections.	No – aquatic corridors required for movement from potential nesting habitat along beach are not present.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Open aquatic habitat with slow moving water and muddy substrate	No –small meadow marsh features are present, but do not retain water past July.

Table 7: Species at Risk (SAR) Habitat Potential

Species Name	SARO RANKING	Habitat Preferences	Habitat Potential within Subject Lands?
Monarch (*Danaus plexippus*)	Special Concern	Caterpillars are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats.	No – no large congregations of milkweed were identified within the Subject Lands.
Bank Swallow (*Riparia riparia*)	Threatened	Vertical cliffs or banks along natural bluffs or eroding streamside banks	No – streams or eroding banks are not present. Bank Swallow were observed foraging over the Subject Lands but no breeding habitat is present (**Table 4, Appendix B)**.
Barn Swallow (*Hirundo rustica)*	Threatened	Forages in fields, parks and along edge habitats; Nests in anthropogenic structures (barns, sheds, bridges etc.)	No – Barn Swallow were observed foraging over the Subject Lands during targeted breeding bird surveys, however no breeding habitat was identified (**Table 4, Appendix B)**.
Bobolink (*Dolichonyx oryzivorus*)	Threatened	Tall grasslands, undercut pastures, overgrown fields and meadows.	No – While small pockets of cultural meadow habitat present, no Bobolink were identified within the Subject Lands during targeted breeding bird surveys (**Table 4, Appendix B)**.
Chimney Swift (*Chaetura pelagica*)	Threatened	Nest within chimneys and on other vertical surfaces.	No – no Chimney Swifts were identified within the Subject Lands during targeted breeding bird surveys (**Table 4, Appendix B)**.

Table 7: Species at Risk (SAR) Habitat Potential

Species Name	SARO RANKING	Habitat Preferences	Habitat Potential within Subject Lands?
Eastern Meadowlark	Threatened	Tall grasslands, undercut pastures, overgrown fields and meadows.	No – While small pockets of cultural meadow habitat present, no Bobolink were identified within the Subject Lands during targeted breeding bird surveys (**Table 4, Appendix B)**.
Blanding's Turtle (*Emydoidea blandingii*)	Threatened	Open aquatics, usually in large wetlands and shallow lakes.	No –small meadow marsh features are present, but do not retain water past July.
Little Brown Myotis	Endangered	Overwinters in cages and abandoned mines. Roosts in mature deciduous and mixed forests.	Yes – The small SWD vegetation community may support Little Brown Myotis. Targeted surveys required.
Henslow's Sparrow (*Ammodramus henslowii*)	Endangered	Tall grasslands, undercut pastures, overgrown fields and meadows.	No – While small pockets of cultural meadow habitat present, no Henslow's Sparrow were identified within the Subject Lands during targeted breeding bird surveys (**Table 4, Appendix B)**.
SAR identified during ecological field investigations (section 4.0)			
Peregrine Falcon (*Falco peregrinus*)	Special Concern	Associated with large bodies of water and wooded features.	No – while tall buildings and nearby lakeshore habitat are present, they are not present within the Subject Lands. No Peregrine Falcons were identified within the Subject Lands during targeted breeding bird

Table 7: Species at Risk (SAR) Habitat Potential

Species Name	SARO RANKING	Habitat Preferences	Habitat Potential within Subject Lands?
			surveys (**Table 4, Appendix B)**.
Bank Swallow (*Riparia riparia*)	Threatened	Vertical cliffs or banks along natural bluffs or eroding streamside banks	No – streams or eroding banks are not present. Bank Swallows were identified foraging during targeted breeding bird surveys, however no breeding habitat was identified (**Table 4, Appendix B)**.
Barn Swallow (*Hirundo rustica)*	Threatened	Forages in fields, parks and along edge habitats; Nests in anthropogenic structures (barns, sheds, bridges etc.)	No – structures would need to be screened for habitat suitability. Barn Swallows were identified foraging during targeted breeding bird surveys, however no breeding habitat was identified (**Table 4, Appendix B)**.

Appendix C – Agency Correspondence

From:	Park, Olivia
To:	Paudel, Elizabeth
Cc:	Lohnes, Shelley; Dania.Chehab@gmblueplan.ca; Laurie.Boyce@gmblueplan.ca
Subject:	RE: [External] Data Request - GE Booth Lakeview and Clarkson Wastewater Treatment Plants (SAV PN 2003025)
Date:	Wednesday, August 12, 2020 3:59:00 PM
Attachments:	image001.png Figure 1 - Location of SL.pdf Figure 1 - Location of SL (1).pdf

Hello Elizabeth,

Thank you very much for your message. We have two facilities that we are requesting information on – the GE Booth Lakeview wastewater treatment plant (WWTP) and the Clarkson WWTP. Please note they are under the same project number, as we have been retained to complete a fulsome review of both facilities by the Region of Peel. I have filled out the information below and attached approximate Subject Land mapping for both sites.

Detailed list of data requested:

- Savanta requests any and all publicly available ecological data be provided including all survey data specific to the WWTPs (terrestrial and aquatics – e.g., birds, amphibians, reptiles, mammals (including bats), insects, fish, benthics, vegetation, headwater drainage features, etc.)
- Savanta requests any and all publicly available ecological data for the Marie Curtis and Lakeside Parks
- Savanta requests any and all publicly available ecological data for the Jim Tovey Lakeview Conservation Area
- Any other relevant ecological data

Project Name: Two Schedule C Municipal Class EAs and Conceptual Designs
Proponent's Name: Peel Region
User's Name: Savanta Inc. – Environmental Consulting Firm
Intended use and publication: This information will be used to inform Phase 2 Characterization Reports for both WWTPs, in support of a Municipal Class Environmental Assessment.

Please let me know if you have any further questions or concerns!

Thank you very much,

Olivia

SAVANTA
A GEI Company

OLIVIA PARK
Intermediate Ecologist, CERP
Phone: 647.988.2849

From: Paudel, Elizabeth <Elizabeth.Paudel@cvc.ca>
Sent: Wednesday, August 12, 2020 3:46 PM
To: Park, Olivia <opark@savanta.ca>
Cc: Lohnes, Shelley <slohnes@savanta.ca>; Dania.Chehab@gmblueplan.ca; Laurie.Boyce@gmblueplan.ca

Subject: [EXT] RE: [External] Data Request - GE Booth Lakeview and Clarkson Wastewater Treatment Plants (SAV PN 2003025)

Hi Olivia,

Thank you for your email. In order to process the data request, I require the following information:

- Detailed list of data requested
- Map of the study area
- Project name
- Proponent's name
- User's name
- Intended use and publications

Please note that a Data Sharing Agreement will be required and the process can take up to 4 weeks from the date of receipt of the above information.

Regards,

Elizabeth Paudel, MES
Junior Planner (Acting) | Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 236 | 1-800-668-5557
elizabeth.paudel@cvc.ca | cvc.ca

From: Park, Olivia <opark@savanta.ca>
Sent: Tuesday, August 4, 2020 12:48 PM
To: Paudel, Elizabeth <Elizabeth.Paudel@cvc.ca>
Cc: Lohnes, Shelley <slohnes@savanta.ca>; Dania Chehab - GM BluePlan <Dania.Chehab@gmblueplan.ca>; Laurie Boyce - GM BluePlan <Laurie.Boyce@gmblueplan.ca>
Subject: [External] Data Request - GE Booth Lakeview and Clarkson Wastewater Treatment Plants (SAV PN 2003025)

Hello Elizabeth,

Savanta has been retained to complete the ecological components associated with a Municipal Class Environmental Assessment for both GE Booth Lakeview and Clarkson Wastewater Treatment Plants (WWTPs) in the City of Mississauga. We would like to submit a data request to obtain any information associated with the WWTPs and adjacent lands (within 120 m). The Jim Tovey Lakeview Conservation Area is located immediately south of the Booth WWTP, and have read within the Lakeview Connection report that some detailed ecological work has been completed by CVC staff within the Booth WWTP previously.

We are working on preparing a characterization report due the end of the month, so if we can request a rush on this data request that would be appreciated.

Please let me know if you require any further information to process the data request.

Kindest regards,

Olivia

SAVANTA
A GEI Company

OLIVIA PARK
Intermediate Ecologist, CERP
Phone: 647.988.2849

From:	Park, Olivia
To:	Paudel, Elizabeth
Cc:	Lohnes, Shelley; Dania.Chehab@gmblueplan.ca; Laurie.Boyce@gmblueplan.ca
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Project Name: Two Schedule C Municipal Class EAs and Conceptual Designs
Proponent's Name: Peel Region
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Olivia

SAVANTA
A GEI Company
OLIVIA PARK
Intermediate Ecologist, CERP
Phone: 647.988.2849

From: Paudel, Elizabeth <Elizabeth.Paudel@cvc.ca>
Sent: Wednesday, August 12, 2020 3:46 PM
To: Park, Olivia <opark@savanta.ca>
Cc: Lohnes, Shelley <slohnes@savanta.ca>; Dania.Chehab@gmblueplan.ca; Laurie.Boyce@gmblueplan.ca

Subject: [EXT] RE: [External] Data Request - GE Booth Lakeview and Clarkson Wastewater Treatment Plants (SAV PN 2003025)

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- Detailed list of data requested
- Map of the study area
- Project name
- Proponent's name
- User's name
- Intended use and publications

Please note that a Data Sharing Agreement will be required and the process can take up to 4 weeks from the date of receipt of the above information.

Regards,

Elizabeth Paudel, MES
Junior Planner (Acting) | Planning and Development Services | Credit Valley Conservation
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Kindest regards,

Olivia

SAVANTA
A GEI Company
OLIVIA PARK
Intermediate Ecologist, CERP
Phone: 647.988.2849

Robinson, Olivia

From:	Ahmad, Iftekhar <Iftekhar.Ahmad@cvc.ca>
Sent:	Thursday, May 5, 2022 11:53 AM
To:	Benjamin.Peachman@gmblueplan.ca
Cc:	Kilis, Jakub; cindy.kambeitz@peelregion.ca; Laurie.Boyce@gmblueplan.ca; Robinson, Olivia; Lohnes, Shelley
Subject:	[EXT] CVC comments (natural heritage report) - EA 20/010 - EA Phase 3 recommendations for the Clarkson WWTP (GMBP#719051)

EXTERNAL EMAIL

Hi Benjamin,

CVC staff have reviewed the Natural Heritage Characterization Report of the Clarkson Wastewater Treatment Plant prepared by SAVANTA/GEI dated November 2020 and provide these ecology comments for your consideration.

CVC Ecology Comments

1. As is typical, please expand the report to include adjacent lands to 120m beyond the WWTP property (e.g. this is to include ELC and Candidate SWH layers and assessment as documented from the treatment plant property and as gleaned from air photos).

2. Please include the size of all ELC units on Table 2.

3. Please speak to the City of Mississauga's Significant Natural Areas (NAS) which are located within and beyond the property boundaries. Although identified on figures, the form and function of the NAS units is missing from the body of the report.

4. Please also identify the Headwater Drainage Feature (HDF) that flows onto the site from the north (from within the NAS) which is eventually piped through the Plant and discharges (presumably) at Lakeside Creek.

5. Please provide an assessment of the Migratory Bird Stopover Habitat as assessed using the comparative area of the onsite and offsite connected habitat (CVC staff have measured >16Ha woodland area when broadening the assessment to include the adjacent Peel Core Greenlands and onsite NAS). When presenting this analysis in the report, please also make reference to the Peel-Caledon Significant Woodland and Significant Wildlife Habitat Study Report (Peel, 2009).

6. Please speak to whether it is anticipated that the identified regionally rare plant species will be removed/impacted by the proposed expansion - is there an opportunity to relocate species?

7. In terms of the potential wildlife corridors, the report indicates that the roads "likely act as a barrier to movement". While they do pose some hindrances, it is well known that mammals and herptiles do cross roads. That said, numerous deer prints and north/south running deer paths were noted on the property immediately to the north of the Plant and within the north and north western limits of the Plant property. Given the highly trodden (more than a foot wide) path running parallel to the HDF feature (both of which are located along the center of the otherwise vegetated NAS), it can be concluded that this area gets a lot of wildlife foot traffic likely due to the Plant's location between the waterfront area, NAS and Peel Core Greenlands. Of note, numerous racoon prints were also observed along the well-trodden path. Subsequently, it is recommended that the Region seek opportunities to maintain a north/south running greenspace component to their development such that part of the

property can continue to act as a wildlife conduit between the lakefront and northern habitats particularly given the lack of any north/south connecting systems in the vicinity. Maintaining and/or enhancing a degree of wildlife permeability (best efforts) for the site will allow for better landscape level connectivity and geneflow and better prospects for the maintenance of the broader NHS in the long run.

If you have any questions, please contact me.

Thanks,

Best regards,
Iftekhar

I'm working remotely. The best way to reach me is by email or Microsoft Teams.

Iftekhar Ahmad | he/him/his
Planner, Environmental Assessment | Credit Valley Conservation
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View our privacy statement

From: Benjamin Peachman - GM BluePlan <Benjamin.Peachman@gmblueplan.ca>
Sent: Thursday, April 7, 2022 1:37 PM
To: Kilis, Jakub <Jakub.Kilis@cvc.ca>
Cc: cindy.kambeitz@peelregion.ca; Laurie Boyce - GM BluePlan <Laurie.Boyce@gmblueplan.ca>; Robinson, Olivia <orobinson@geiconsultants.com>; Lohnes, Shelley <slohnes@geiconsultants.com>; De Stefano, Matteo <matteo.destefano@cvc.ca>; Cook, Lori <lori.cook@cvc.ca>; Ahmad, Iftekhar <Iftekhar.Ahmad@cvc.ca>
Subject: [External] CVC Meeting Notes - EA Phase 3 recommendations for the Clarkson WWTP (GMBP#719051)

Good afternoon Jakub,

As a record of the meeting held between CVC and Peel Region (including the Region's consultant team; GM BluePlan and GEI/Savanta) regarding the EA Phase 3 recommendations for the Clarkson WWTP, please see attached for a summary of the collected meeting notes. Feel free to let me know if there are any errors or omissions within the document.

In addition, as per CVC's request, please follow the link below for the site's Natural Heritage Characterization Report by GEI/Savanta.
https://savanta.egnyte.com/dl/oSeufv21ih (Password: KMm4ct6B)

Thanks,

Benjamin Peachman, P. Eng.
Infrastructure Planning

GM BluePlan Engineering Limited
Royal Centre | 3300 Highway No. 7, Suite 402 | Vaughan ON L4K 4M3
t: 416.703.0667 ext. 7216 | c: 437.328.5016
benjamin.peachman@gmblueplan.ca | www.gmblueplan.ca

From:	Laurie Boyce - GM BluePlan
To:	Dania Chehab - GM BluePlan; Park, Olivia
Cc:	Jasmine Biasi - GM BluePlan
Subject:	[EXT] FW: CVC Comments - Notices of Commencement - GE Booth WWTP EA (EA 20/009) and Clarkson WWTP EA (EA 20/010)
Date:	Monday, August 24, 2020 9:44:43 AM
Attachments:	Lakeside FMH-Tile 1 (17x11).pdf Serson FHM-Tile 1 (17x11).pdf Applewood FHM-Tile 1 (17x11).pdf

Comments from CVC on natural features – lots of mitigation will be necessary.

We will be arranging a meeting with them soon.

Laurie Boyce, B.Sc., M.A.
Strategic Planning and Project Advisor

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From: Kilis, Jakub <Jakub.Kilis@cvc.ca>
Sent: Friday, August 21, 2020 3:03 PM
To: Laurie Boyce - GM BluePlan <Laurie.Boyce@gmblueplan.ca>
Cc: cindy.kambeitz@peelregion.ca; Stewart, Rebecca <Rebecca.Stewart@cvc.ca>; Cook, Lori <lori.cook@cvc.ca>
Subject: CVC Comments - Notices of Commencement - GE Booth WWTP EA (EA 20/009) and Clarkson WWTP EA (EA 20/010)

Hi Laurie,

It is the understanding of CVC staff that the Region of Peel has initiated two Schedule 'C' Municipal Class Environmental Assessments (EAs) for the G.E. Booth Wastewater Treatment Plant (WWTP) and the Clarkson WWTP to identify the preferred solutions for wastewater treatment and biosolids management in the Region. We further understand that these two Class EA studies are integrated, as the preferred solutions will impact both facilities and that the Class EA process will evaluate alternatives to address capacity for future growth across the Region, to establish servicing, treatment and biosolids policy, and incorporate factors such as energy efficiency, climate resiliency, lifecycle planning and operational flexibility.

We have had an opportunity to review the Notices of Commencement and associated study areas and offer the following preliminary comments for your consideration:

General

1. As per the joint Notices of Commencement and the integrated nature of the EAs, CVC is providing our comments for both projects within this correspondence. The

correspondence is separated by location below.

GE Booth WWTP (CVC File No. EA 20/009)

2. Site Characteristics:
    a. REGULATED AREA - The subject property is located partially within the Regulated Area. A permit may be required from CVC for any grading or construction works within this area.
    b. WATERCOURSE - The subject property is traversed by Applewood and Serson Creeks. Any alteration to a watercourse requires a permit issued by CVC. Our concerns for new construction would include maintaining setbacks to address channel bank erosion, sediment control during construction, and to ensure no degradation to water quality.
    c. FLOODPLAIN - The subject property is located partially within the Regulatory Storm Floodplain. A permit may be required from CVC for any construction activity in this area. Our primary concern is the protection of life and property from the flood hazard. We have specific criteria and requirements for construction in the floodplain.
    d. VALLEY SLOPE - Based upon our existing mapping, the subject property is traversed by valley slopes. CVC does not support construction on a valley slopes, and typically requires setbacks from the top of slope for new construction or grading. This includes any overhangs or cantilevered structures and is to ensure that new development is protected from potential slope instability or erosion and to protect the environmental integrity of the valley system.
    e. CREDIT RIVER WATERSHED NATURAL HERITAGE SYSTEM - A portion of the subject property is located within the Credit River Watershed Natural Heritage System (CRWNHS). The CRWNHS consists of High Functioning and Supporting terrestrial and aquatic natural heritage features, buffers, and complementary natural heritage areas (Centres for Biodiversity). Based on a watershed scale, the CRWNHS is intended to support Provincial, Regional and local municipal natural heritage systems as identified in their respective Strategies or Plans. As a watershed based management agency and landowner, CVC intends to implement the CRWNHS by using it as a strategic program guidance tool; to inform further development of CVC projects and policies; to assist CVC staff in providing technical advice to landowners and stakeholders at a watershed scale; and to promote a more consistent approach to natural heritage system planning across CVC's jurisdiction. For more detailed information or questions please contact the undersigned to discuss further.
    f. WETLAND - The subject property contains wetlands. Wetlands are diverse and productive ecosystems that are hydrologically significant to a watershed. They store water during flood events and provide low flow augmentation during dry periods. The vegetation and organic soils of wetlands aid in the filtration of nutrients and sediments that enhances water quality and assists in the maintenance of cool water temperatures. Wetlands also provide habitat for diverse and uncommon species of flora and fauna. CVC does not support new development in wetlands, including buildings, structures, driveways, septic

systems, ponds, etc. An Environmental Impact Study Report may be required for new development located adjacent to wetlands, depending on potential impacts.

g. MUNICIPAL GREENLANDS - The subject property is partially within an area designated as Core Greenlands by the Region of Peel. It is the policy of the Region of Peel to protect the form and function of these natural areas. CVC provides technical support to the Region with respect to delineation of natural features and reviewing potential impacts from subsequent development within and adjacent to these lands. We suggest you discuss internally at the Region if you have questions on this matter.
h. LAKE ONTARIO SETBACKS - The subject property is located adjacent to Lake Ontario, and is therefore subject to the Lake Ontario Shoreline flooding and erosion hazards. In this regard, our primary concerns are related to ensuring that all new development is located outside of the hazards associated with the lake, including the 100 year erosion limit, the 100 year flood limit, wave uprush and stability hazards associated with the slope.
i. SOURCE WATER PROTECTION - The subject property may be subject to the Approved Source Protection Plan: CTC Source Protection Region. We recommend that you contact Therese Estephan, Risk Management Official for further information with respect to these policies to establish if and how the Protection Plan may apply. You may also refer to the CTC Source Water Protection website www.ctcswp.ca
j. MISSISSAUGA NATURAL HERITAGE SYSTEM & NATURAL AREAS SURVEY - The subject property is located within the City of Mississauga's Natural Heritage System and Urban Forest. The City's Natural Heritage System is made up of Significant Natural Areas, Natural Green Spaces, Special Management Areas, Residential Woodlands and Linkages as described in the City of Mississauga's Official Plan. The subject property is also located within the City of Mississauga's Natural Areas Survey and designated as LV1 and LV2. CVC provides technical support to the City of Mississauga with respect to the identification and delineation of natural heritage features or areas as well as reviewing proposals for potential negative impacts to the natural features or areas. For more detailed information or any questions on this matter we suggest you contact, the City of Mississauga to discuss further.

3. An increase in impervious area due to any proposed works being completed will require a stormwater management (SWM) investigation that adheres to all of CVC's criteria and applicable Provincial criteria. Therefore, please apply CVC's Stormwater Management Criteria for any proposed works, as applicable. Provide consideration and opportunity for a stormwater management strategy that incorporates a treatment train approach and the use of Low Impact Development (LID) measures where feasible. Further requirements may be identified through Section 4.0 of the Region of Peel's Draft Public Works Stormwater Design Criteria and Procedural Manual (June 2019). Please review and apply as appropriate in order to design the optimal SWM strategy.

4. Please find CVC's floodplain mapping for Applewood and Serson Creeks attached. CVC recommends that all proposed permanent infrastructure be located outside of the flood and erosion hazards associated with the regulated watercourses and Lake Ontario hazards. Please note that the regulatory floodplain is the greater of the 100-year and regional flood hazard.

5. The Lake Ontario Shoreline Hazards report completed by Shoreplan Engineering Limited (September 2005), provides a determination of the erosion hazard and flood hazard associated with Lake Ontario adjacent to the WWTP location. Please refer to Appendix B within this report. CVC is currently in the process of conducting a peer review of this report. The results of this peer review will be made available to the public soon and may impacts expectations within the report.

6. Based on today's conditions, the channel that flows under the access road and then under the WWTP is considered to be a watercourse. This is the baseflow of Serson Creek. In the future condition, as part of the ongoing projects adjacent to the GE Booth WWTP, Serson Creek baseflow will be re-routed and only storm water flow will drain through this culvert and under the WWTP. The proposed timing of the Region's project(s) compared to the timing of the Serson Creek re-alignment will need to be considered as part of this study process.

7. Note that there will be ongoing discussions with the adjacent development to the west of Serson Creek (Lakeview Village) in order to determine the ultimate floodplain (associated with Serson Creek) along both the development lands and the WWTP property. Ensure consultation is being maintained in order to move forward with the Environmental Assessment of the Wastewater Treatment Plant.

8. The subject site is located in the vicinity of the Lake Ontario Shoreline and as such the site's natural areas provide important ecological functions in terms of supporting local and migratory wildlife and movement corridor functions. Sensitive terrestrial woodland habitat occupies portions of the immediate site and surrounding lands. Species at Risk have also been located onsite and on adjacent lands. That said project planning and implementation will need to be mindful of associated construction and disturbance setbacks for each specific SAR and identified terrestrial features. Further, timing, duration, location of staging areas, and points of access to the works will need to be well thought out in order to minimize impacts and footprint at the implementation stage.

9. It is understood that a collaborative approach to development has been established with the adjacent development to the west (Lakeview Village) which is also favourable and beneficial from a regional development and ecosystem function perspective. All in all, a sensitive and integrative approach for planning and implementation will be key.

10. Please see below for a list of known site sensitivities/constraints. This is a preliminary list and will be discussed further at the project commences:

    Aquatics

    a. Fish Habitat – Lake Ontario to the south, Serson Creek to the west, and

Applewood Creek to the east.

b. Applewood Creek is comprised of small warmwater fish habitat, estuarine fish community.
c. Serson Creek is an engineered watercourse with an unclassified fish community under its current condition. As rehabilitation of this feature is in the planning stages, please address how this endeavor fits in with any proposed WWTP expansion timeline.

Terrestrial

d. Significant Natural Areas/Significant Woodlands LV1 and LV2 are located adjacent to and partially within the project area.
e. There is a small significant ground water recharge area within the eastern most property boundary near the confluence of Applewood Creek and Lake Ontario (to the west of Applewood Creek).
f. The entire surrounding area is comprised of a highly vulnerable aquifer.
g. CVC property exists to the south west of the project area (north east of and along the abandoned power plant intake channel.
h. Excepting to the immediate north, the property is entirely surrounded by SWH including all woodlands within the site boundary. The woodland could potentially support habitat for endangered bats.
i. Two large wetlands have recently been constructed to the south of the project area by CVC/TRCA as part of LWC project and meet PSW criteria.
j. Colonial Waterbird Nesting areas have been identified in the vicinity of the subject property.
k. The following species of concern have been identified in the vicinity of the project site: American Eel, Butternut, Barn Swallow, Bank Swallow and Peregrine Falcon, Bobolink, Eastern Meadowlark, Little Brown Myotis, Monarch butterfly, Blanding's Turtle and Chimney Crayfish.

11. As per usual, please contact, MNRF/MECP and DFO directly regarding project specific concerns regarding potential Species at Risk or alteration to fish habitat, and any associated mitigation or permit requirements.

Opportunities for coordination with Jim Tovey Lakeview Conservation Area (JTLCA) Project

12. The Jim Tovey Lakeview Conservation Area (JTLCA) is a joint project effort between the Region of Peel, Credit Valley Conservation (CVC) and the Toronto and Region Conservation Authority (TRCA). This project is currently underway and is located adjacent to the G.E. Booth Wastewater Treatment Plant (WWTP). The JTLCA project includes the creation of a new 26 ha conservation area along the eastern Mississauga shoreline. The intended purpose of this project is to enhance and re-create natural coastal habitats, build a natural park that encourages public access, use, and exploration along the waterfront, and facilitate sustainable city building. Some of the completed works include the completion of the east and western Serson wetlands, approximately 300 m of the Serson channel extension, which includes the outlet to Lake Ontario, construction of the Applewood wetland, the installation of aquatic plants in the Serson wetlands, the construction of confinement berms, earth filling,

completion of approximately 750 m of armourstone revetment, fine grading, topsoiling, seeding and terrestrial planting of several confinement cells and interim protection of rubble confinement berms for example.

-

Based on the close proximity of the G.E. Booth WWTP to this project, and with the commencement of the G.E. Booth WWTP Environmental Assessment, TRCA and CVC staff are interested in opportunities to coordinate efforts with the Region of Peel that would complement on-going work at the JTLCA. Given that the EA has just commenced, it is unclear at this time what the preferred solutions will be and how those solutions will impact the plant and surrounding area, if at all. As such, if there are any opportunities to further enhance the adjacent site staff are open to those discussions and would appreciate any future support.

-

Notwithstanding, as this project proceeds, it is recommended that opportunities to improve the local viewscapes be incorporated into the expansion project. The current park design screens the plant from conservation area visitors using a system of planted berms that also provide habitat. To augment the visual design and habitat elements of the park, please consider including the following commitments in the EA that relate to detailed design:

- Constructing a living wall around the perimeter of the plant at locations that are feasible with landscaping and plantings along the east side of Serson Creek to improve the viewscape for the future Lakeview Village residents.
- Increased plantings at the JTLCA as part of the public realm design and on the east portion of the G.E. Booth WWTP may provide additional screening and limit public access.

Additionally, opportunities to improve stormwater quality draining from the site, such as the installation of an oil-grit separator to treat discharge collected within the G.E. Booth WWTP from the existing storm sewer pipe that will outlet into the newly constructed Applewood wetland should be considered.

Staff will be happy to provide further information as it is requested and as the EA proceeds.

Clarkson WWTP (CVC File No. EA 20/010)

13. Site Characteristics:
    a. CREDIT RIVER WATERSHED NATURAL HERITAGE SYSTEM - A small portion of the subject site is located within the Credit River Watershed Natural Heritage System (CRWNHS) and the site is adjacent to other portions of the CRWNHS. The CRWNHS consists of High Functioning and Supporting terrestrial and aquatic natural heritage features, buffers, and complementary natural heritage areas (Centres for Biodiversity). Based on a watershed scale, the CRWNHS is intended to support Provincial, Regional and local municipal natural heritage systems as identified in their respective Strategies or Plans. As a watershed based management agency and landowner, CVC intends to implement the

CRWNHS by using it as a strategic program guidance tool; to inform further development of CVC projects and policies; to assist CVC staff in providing technical advice to landowners and stakeholders at a watershed scale; and to promote a more consistent approach to natural heritage system planning across CVC's jurisdiction. For more detailed information or questions please contact the undersigned to discuss further.

b. MISSISSAUGA NATURAL HERITAGE SYSTEM & NATURAL AREAS SURVEY - The subject property is located adjacent to the City of Mississauga's Natural Heritage System and Urban Forest. The City's Natural Heritage System is made up of Significant Natural Areas, Natural Green Spaces, Special Management Areas, Residential Woodlands and Linkages as described in the City of Mississauga's Official Plan. The subject property is also located adjacent to the City of Mississauga's Natural Areas Survey and designated as SD4 and SD7. CVC provides technical support to the City of Mississauga with respect to the identification and delineation of natural heritage features or areas as well as reviewing development proposals for potential negative impacts to the natural features or areas. For more detailed information or any questions on this matter we suggest you contact, the City of Mississauga to discuss further.

c. SOURCE WATER PROTECTION - The subject property may be subject to the Approved Source Protection Plan: CTC Source Protection Region. We recommend that you contact Therese Estephan, Risk Management Official for further information with respect to these policies to establish if and how the Protection Plan may apply. You may also refer to the CTC Source Water Protection website www.ctcswp.ca

14. An increase in impervious area due to any proposed works being completed will require a stormwater management (SWM) investigation that adheres to all of CVC's criteria and applicable Provincial criteria. Therefore, please apply CVC's Stormwater Management Criteria for any proposed works, as applicable. Provide consideration and opportunity for a stormwater management strategy that incorporates a treatment train approach and the use of Low Impact Development (LID) measures where feasible. Further requirements may be identified through Section 4.0 of the Region of Peel's Draft Public Works Stormwater Design Criteria and Procedural Manual (June 2019). Please review and apply as appropriate in order to design the optimal SWM strategy.

15. Please find CVC's floodplain mapping for Lakeside Creek attached. CVC recommends that all proposed permanent infrastructure be located outside of the flood and erosion hazards associated with the regulated watercourses. Please note that the regulatory floodplain is the greater of the 100-year and regional flood hazard. Further, the City of Mississauga is currently developing the Southdown District Stormwater Servicing and Environmental Management Plan which considers a new open by-pass channel for Lakeside Creek through the Clarkson WWTP. Please ensure proper coordination between the two studies, as required.

16. The subject site is located in the vicinity of the Lake Ontario Shoreline and as such the

site's natural areas provide important ecological functions in terms of supporting local and migratory wildlife and movement corridor functions. Sensitive terrestrial woodland habitat occupies portions to the northern and southern limits of the study area. Species at Risk have been located onsite and on adjacent lands. That said project planning and implementation will need to be mindful of associated construction and disturbance setbacks for each specific SAR and identified terrestrial features. Further, timing, duration, location of staging areas, and points of access to the works will need to be well thought out in order to minimize impacts and footprint at the implementation stage.

17. Please see below for a list of known site sensitivities/constraints. This is a preliminary list and will be discussed further at the project commences:

    Aquatics

    a. Fish Habitat – Lake Ontario to the south, Lakeside Creek.
    b. Lakeside Creek, located just south of the plant, is comprised of an intermittent warm water creek

    Terrestrial

    c. Significant Natural Areas SD4 and SD7 are located adjacent to and partially within the project area.
    d. Significant Natural Area SD7 is located along the waterfront along the southern limits of the study area and is comprised of cultural woodland, cultural meadow and deciduous forest ecosites.
    e. A portion (fingerlike projection) of SD4 extends onto the northern limits of the site and is comprised of cultural woodland and cultural savannah ecosites.
    f. The entire surrounding area is comprised of a highly vulnerable aquifer.
    g. Significant Wildlife habitat occurs along the southern waterfront limits of the property as well as the northern limits of the property boundary.
    h. The site is encompassed by Credit River Natural Heritage System along the Lake Ontario Shoreline, and the Peel Greenlands System to the west and north.
    i. The following species of concern have been identified in the vicinity of the project site: Peregrine Falcon, Bobolink, Eastern Meadowlark, Little Brown Myotis with Peregrine Falcon observed hunting within the property boundary.

18. The following general management directions have been identified fort his site*: Increase habitat diversity and improve habitat quality for migratory landbirds, investigate opportunities to improve north-south terrestrial connectivity to connect the Lake Ontario shoreline to the rail line and beyond.*

19. As per usual, please contact, MNRF/MECP and DFO directly regarding project specific concerns regarding potential Species at Risk or alteration to fish habitat, and any associated mitigation or permit requirements.

Given CVC's interest staff would like to be kept informed of future meetings and proceedings throughout the EA processes. We also request to be invited to participate on any Technical Advisory Committee(s) that may be formed for these EAs. Please forward any information or reports when available to ensure that this Authority's policy and program interests are reflected in the planning and design components for this project.

Please let me know if you have any questions about our comments above,
Jakub

Jakub Kilis, RPP
Manager, Infrastructure and Regulations | Credit Valley Conservation
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Appendix A:

Natural Heritage Reports

A2: Natural Heritage Impact Assessment Report

Impact Assessment Report

Clarkson Water Resource Recovery Facility
Region of Peel, Mississauga, Ontario

OCTOBER 2022

Impact Assessment Report

Clarkson Water Resource Recovery Facility
Mississauga, Ontario

REPORT PREPARED FOR
The Region of Peel
C/O GM BluePlan
1266 South Service Road, Unit C3-1
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REPORT PREPARED BY
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OCTOBER 2022

GEI FILE: 2003025

TABLE OF CONTENTS

1.0 INTRODUCTION

GEI Consultants Ltd., Savanta Division (GEI) was retained by the Region of Peel and GM BluePlan to prepare an Impact Assessment to understand whether any of the identified candidate and confirmed natural heritage features and functions found within the Clarkson Water Resource Recovery Facility (Clarkson WRRF) would be impacted as a result of the proposed expansion. A Municipal Class Environmental Assessment (Schedule C) is required to inform capacity expansion opportunities.

The property, herein referred to as the Subject Lands, is located north of the intersection of Lakeshore Road West and Avonhead Road, west of Southdown Road and north of Lake Ontario in Mississauga, Ontario (**Figure 1**, **Appendix A**). The Subject Lands currently host a wastewater treatment plant facility and is surrounded by commercial/industrial land-uses. Immediately south of Lakeshore Road west is Lakeside Park, which borders Lake Ontario.

GEI prepared a Preliminary Natural Heritage Characterization Report (October 2022; herein referred to as the Characterization Report) to assess the presence and extent of natural heritage features and functions within the Subject Lands. The Characterization Report was based on a mixture of secondary source information and ecological surveys that were completed in 2020 and 2022.

The following natural heritage features were identified within the Subject Lands in the Characterization Report:

- Two non-provincially significant wetlands;
  - Mineral Meadow Marsh (MAM2)
  - Green Ash Mineral Deciduous Swamp (SWD2-2)
- Candidate Significant Wildlife Habitat (SWH) for Bat Maternity Colonies within a SWD2-2 community;
- Candidate habitat for endangered species (Little Brown Myotis - *Myotis lucifugus*; and
- Indirect fish habitat.

Detailed investigations are required to confirm whether or not the SWH and/or Species at Risk (SAR) habitat may be present within the SWD2-2 vegetation community. Until detailed investigations are completed, the SWD2-2 community is considered a candidate Significant Natural Areas. A portion of the City of Mississauga's NAS was identified along the northern property boundary of the Subject Lands. The NAS was identified as part of a cultural meadow community (CUM1-1). This CUM1-1 vegetation community contained four Category 1 invasive species. No SAR or SWH were identified in association with these habitats. These areas should not be considered part of the City's Significant Natural Areas, given the absence of criteria identified within Chapter 20 of their Official Plan (2021 Office Consolidation). Under the City of Mississauga Official Plan, candidate SWH and SAR habitat may be present within the SWD2-2 and thus, this community could be considered a Significant Natural Area.

Under the Peel Region Official Plan (2021 Office Consolidation), the wetland communities (MAM2, SWD2-2) are considered both key natural heritage features and key hydrologic features. Moreover, the SWD2-2 community also contains candidate SWH and SAR habitat and thus, is considered a candidate key natural heritage feature.

The Subject Lands also contains two regulated wetland community types (SWD2-2, MAM2). One headwater drainage feature (HDF) with a Conservation management recommendation was identified within the northern portion of the Subject Lands, before being piped through the facility.

All natural heritage features (provincial, regional and local significance) are identified on **Figure 2**, **Appendix A**.

2.0 PROPOSED REDEVELOPMENT STRATEGY

The Subject Lands currently hosts an existing, active water resource recovery facility. The Region's Growth Management Process and 2020 Water and Wastewater Master Plan identified that there will be significant growth across the Region of Peel. With this approved growth to year 2041 and vision for growth beyond 2041, additional treatment capacity is required to meet the needs of the Region of Peel and to continue to protect the natural environment.

The Clarkson Water Resource Recovery Facility is proposed to be expanded from 350 MLD to 500 MLD. In addition to the increased wastewater treatment capacity, the expansion is proposed to include biosolids management. The overall preferred design concept includes an expansion of the wastewater treatment facility using the Biological Nutrient Removal (BNR) process, an expansion of the existing digestion system and construction of a new thermal drying facility to provide biosolids management, and a diversified approach to the biosolids management end uses to ensure operational flexibility and redundancy. The existing chlorination and dechlorination disinfection system and plant outfall are proposed to be maintained with additional chemical dosing provided to treat the additional flows.

The following new infrastructure is proposed to support and expand the existing functions of the facility:

- Plant 3 Aeration tanks;
- Plant 3 Blower building;
- Plant 3 Primary clarifiers;
- Plant 3 Secondary clarifiers;
- Sidestream treatment buildings and reactors;
- Six anaerobic digesters;
- Biosolids Drying Facility;
- Energy Centre;
- Headworks facility; and
- Additional transformers, sewers, channels, manholes and roadways.

The proposed site plan is shown on **Figure 3** (**Appendix A**).

3.0 IMPACT ASSESSMENT, AVOIDANCE AND MITIGATION MEASURES

The Characterization Report (October 2022) identified several provincial, regional and locally significant natural heritage features within the Subject Lands. This impact assessment will assess the potential effects on these natural heritage features and functions that could occur over various periods of time (short or long-term) following the implementation of the redevelopment plan (as shown on **Figure 3**, **Appendix A**).

The potential direct and indirect effects of the proposed redevelopment and a summary of general recommended mitigation and restoration strategies are provided below.

3.1 Non-Provincially Significant Wetlands

Two wetland communities were identified within the Subject Lands: MAM2 and SWD2-2. The MAM2 communities were described within the Characterization Report as being “frequently dominated by European Reed, with occasional herbaceous associations of Creeping Bentgrass, Purple Loosestrife, Bittersweet Nightshade and Riverbank Grape”. The SWD2-2 community was described as containing “many dead or dying Green Ash” and an understory of occasional occurrences of Green Ash saplings and European Buckthorn. No surface water was observed within any wetland features during summer botanical investigations.

0.15 ha of MAM2 habitat will be permanently removed as a result of the proposed redevelopment strategy to accommodate portions of the new site access road, digesters and biosolid dryers. Temporarily alteration of the MAM2 habitat will also occur to facilitate the construction of the site access roads and installation of an underground concrete encased power distribution system. The exact footprint of temporary disturbance has not been finalized; however, consideration to minimize the extent of grading and alteration within the retained portions of the MAM2 communities will be undertaken. Areas of temporary disturbance will be revegetated with native seed mix following grading activities to avoid additional loss of wetland. No candidate SWH or SAR habitat was identified within these MAM2 units. No removal of SWD2-2 habitat is proposed as a result of the proposed redevelopment strategy. Several site orientations were considered to accommodate the necessary expansion of the facility to meet ongoing Regional targets, while working to preserve existing natural heritage features and functions. Previous concepts reviewed by GEI included the removal of the SWD2-2 to allow for a different site access; however, this has since been adjusted to avoid alteration within this habitat. Given the abundance of invasives within the MAM2 communities, it was determined that the removal of a small amount of wetland was necessary. The extent of wetland removals was reduced to the extent feasible, while still meeting the plant’s capacity requirements.

Meadow marsh habitat will be recreated within the Subject Lands to ensure that no loss in wetland habitat occurs on site. The created wetlands will be planted with a variety of native plant species to provide increased wildlife function and habitat availability to terrestrial and semi-aquatic species, when compared to the existing riparian communities which are largely characterized by features dominated by invasive European Reed and Purple Loosestrife. A conceptual restoration plan for the created wetlands is provided within **Section 4**.

To mitigate the removal of the wetland features, wildlife rescues will be completed within all wetland features prior to their removal, as a precautionary approach. Removals should occur during the summer months when the features are dry to avoid dislodgement of sedimentation to downstream habitats. Opportunities for phasing will be considered to recreate wetlands ahead of the removal of existing wetlands within the Subject Lands to maintain functionality on the Subject Lands and to keep all rescued wildlife within the Subject Lands boundary. Relocation of wildlife will also be dependent on MNRF's permitting requirements.

Erosion and sediment control (ESC) measures should be installed along the boundary of the retained features to avoid negative impacts to the retained portions of the wetlands. ESC measures should be installed throughout construction to ensure that they are functioning as intended. Spill prevention and response measures should be enacted.

It is recognized that CVC recommends a 10 m setback is applied to non-provincially significant wetlands (in accordance with Section 6.2.1 of their Watershed Planning and Regulation Policies (2010). Given that this application is in support of a redevelopment project, some of these setbacks are not achievable. Where feasible, buffers will be applied to retained features in areas that are not currently developed. A 10 m native vegetated buffer will be created surrounding the created wetland.

With the implementation of the mitigation efforts and associated wildlife rescues of the features containing wildlife species, no negative impacts are expected. The created wetlands will increase native plant diversity within the site, while working to replicate the existing functions of the MAM2 communities on the property.

3.2 Indirect Fish Habitat

No permanent or intermittent watercourse features are present within the Subject Lands. One seasonal HDF was identified within the northern portion of the property. The HDF enters the Subject Lands from the adjacent northern land before flowing through a cultural meadow community, and then being piped underneath the existing facility. It is likely that this feature contributes allochthonous materials and flows to downstream habitats (Lakeside Creek).

A Conservation management recommendation will ensure that valued functions of the HDF are retained on the landscape; however, maintenance in place is not warranted given that the hydrology and the feature itself have been subject to several modifiers (e.g., downstream modification, existing road crossing). The feature also contains invasive European Reed. The upstream portion feature will be maintained on the landscape; however, the downstream extent of the feature will be removed and piped into the existing piped feature. Given that the downstream extent of the feature has previously been altered to facilitate the existing facility footprint and the feature is not identified as a regulated watercourse by CVC, modification of the downstream extent of the HDF is permitted, provided that flows to downstream receiving habitats are maintained. All flows will be conveyed via a pipe into the existing piped feature to maintain conveyance of flows and allochthonous materials to downstream habitats. There is a possibility in the future that this feature may be re-routed to an upgraded storm sewer along Avonhead Road since the pipes within the facility are currently undersized and cannot convey the 10-year flow, as discussed within the Southdown District Stormwater Servicing and Environmental Management Master Plan (T.Y. Lin 2022). Impacts associated with this rerouting should be reviewed as part of the upgraded storm sewer application.

The receiving watercourse downstream (Lakeside Creek) is approximately 190 m in length and drains into Lake Ontario. This HDF is expected to have relatively limited effect on overall fish habitat within such a short stretch of watercourse, particularly given the highly seasonal nature of the HDF. Removal of the feature should be completed when it is dry to avoid mobilization of sedimentation to receiving habitats.

Provided the above noted mitigative measures are enacted and monitored, no negative impacts are expected as a result of the proposed redevelopment strategy.

3.3 Candidate Significant Wildlife Habitat

Candidate SWH habitat for Bat Maternity Roosting was identified within the SWD2-2 community. No detailed assessments were completed to determine whether suitable habitat is present, or whether SWH indicator species were found within the feature.

No removal of the SWD2-2 community is proposed; rather, the feature will be retained in place. The existing site access road will be maintained and will continue to run south along the edge of the feature. Where possible, opportunities to plant buffer plantings surrounding the vegetation community on the east and south will be explored. Buffer plantings would provide further enhancement to the candidate habitats. The installation of ESC measures will work to further protect the feature during construction.

The existing SWD2-2 community is invaded by European Buckthorn, given that the ash trees within the community were impacted by Emerald Ash Borer. It is likely that this community will continue to decline in ecological function as the invasive European Buckthorn continues to establish and the native Green Ash trees continue to die as a result of the Emerald Ash Borer.

Given the existing anthropogenic location of the SWD2-2 community, any wildlife in this feature would adjust to the existing urban level of background noise and interference associated with existing industrial development and facility’s activity.

No negative impacts are expected to candidate SWH as a result of the proposed redevelopment strategy.

3.4 Candidate Species at Risk Habitat

Candidate SAR habitat associated with Little Brown Myotis was identified within the SWD2-2. This habitat is currently constrained on three sides with Avonhead Road (west), commercial parking lot (north) and a site access road (south). No targeted surveys have been completed within the SWD2-2 community to determine whether Little Brown Myotis and/or suitable SAR bat habitat is present within the feature. This vegetation community is quite disturbed given the abundance of dying Ash trees and prevalence of invasive European Buckthorn.

No removal of the SWD2-2 community is proposed; therefore, no negative impacts to candidate habitat are predicted. The existing site access will be maintained and, where feasible, buffer plantings will be provided surrounding the existing feature to further enhance the feature and its potential functions. The installation of ESC measures will work to further protect the feature during construction.

Given the existing anthropogenic location of the SWD2-2 community, any wildlife in this area is expected to have generally adjusted to the existing urban level of background noise and interference associated with existing industrial development and facility's activity.

No negative impacts to candidate SAR (Little Brown Myotis) are predicted as a result of the proposed redevelopment strategy.

3.5 City of Mississauga Official Plan (2021 Office Consolidation)

One candidate Significant Natural Area was identified within the Subject Lands given the candidate SWH and Habitat for Endangered Species. The candidate Significant Natural Area was associated with the SWD2-2 community.

Please refer to **Sections 3.3 and 3.4** for impacts, mitigation and restoration measures for candidate SWH and SAR habitat. No negative impacts are expected as a result of the proposed site development, so long as the above noted mitigative and restorative measures are enacted.

3.6 Region of Peel Official Plan (2021 Office Consolidation)

Several Key Natural Heritage and Hydrologic Features were identified within the Subject Lands:

- Non-provincially significant wetlands (MAM2, SWD2-2)
- Candidate SWH (Bat Maternal Roosts) and Habitat for Endangered Species (Little Brown Myotis) within the SWD2-2 community

Please refer to **Sections 3.1, 3.3 and 3.4** for impacts, mitigation and restoration measures for wetlands, candidate SWH and Candidate SAR habitat. No negative impacts are expected as a result of the proposed site development, so long as the above noted mitigative and restorative measures are enacted.

The following locally or regionally rare species will be removed as a result of the proposed redevelopment:

- Common Bedstraw (*Galium aparine*; R4 (native species locally rare) in Peel, U (uncommon native species) in the GTA, L in CVC/Peel) – found within the central cultural meadow (CUM1) community where a portion of the access road is proposed;
- Peach-leaved Willow (*Salix amygdaloides*; R6 in Peel, X (common native species or an introduced species that is present) in the GTA, L in CVC/Peel) – found within the western CUM1 near where the additional digesters and access road are proposed;
- Sandbar Willow (*Salix interior*; R5 in Peel, X in the GTA, L in CVC/Peel) – found within the developed/disturbed (DEV/DIST) area where Plant 3 expansions are proposed;
- White Spruce (*Picea glauca*; R3 in Peel, X, in the GTA, L in CVC/Peel) and Red Pine (*Pinus resinosa*; R1 in Peel, R (rare native species) in the GTA, R in CVC/Peel) – scattered plantings throughout the site; and
- Old Field Aster (*Symphyotrichum pilosum var. pilosum* ; R1 in Peel, R in the GTA, RL in CVC/Peel) – found within the DEV/DIST areas of the site and within portions of the CUM1 communities.

All species have low to medium coefficients of conservation except for Red Pine (coefficient of conservation = 8). It is likely that the White Spruce and Red Pine were cultivated and planted within the facility given their scattered plantings; they are common species associated with landscaping plans. Given that these species are relatively common and do not have high coefficients of wetness, transplanting/salvage is not warranted.

The proposed redevelopment is in alignment with Chapter 2 (The Natural Environment) of the Region's Official Plan.

3.7 CVC – Ontario Regulation 160/06

Two regulated wetland communities (MAM2 and SWD2-2) were identified within the Subject Lands. No other regulated features were identified within the property; however, one Conservation HDF was identified.

Please refer to **Sections 3.1 and 3.2** for impacts, mitigation and restoration measures for non-provincially significant wetlands and indirect fish habitat.

Provided that wetland creation can occur prior to the removal of the existing communities, no negative impacts to wetlands are expected. Section 7.1 (b) of CVC's Watershed Planning and Regulation Policies (2010) states that "CVC may permit interference with a wetland or watercourse or permit development (1) within a regulated area if, in the opinion of CVC, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected". Given that these wetlands do not have other hazard lands associated with them (e.g., like floodplains connected to regulated watercourses) and the total impacted area will be replicated at a 1:1 ratio, the proposed redevelopment plan is in compliance with CVC's policies. A permit will be required by CVC to permit this alteration.

3.8 Other Natural Heritage Considerations

Where trees are proposed for removal on the landscape (as determined within the Tree Preservation Plan), the following mitigation measures should be considered:

- All tree removals should occur outside of the active bat maternity window (April 1 to September 30) and the Migratory Bird window (early April to end of August);
- Tree removals should follow best arboricultural practices;
- ESC measures should be installed around nearby/receiving hydrologic features to reduce sedimentation inputs; and
- To slow the spread of invasive species (such as Emerald Ash Borer), all trees (not just Ash) should be disposed of locally to reduce transportation to other local municipalities.

Tree removal and protection measures should follow the Project Arborist's requirements.

4.0 RESTORATION AND ENHANCEMENT OPPORTUNITIES

Ecological offsetting is a mitigation strategy that is often considered in an effort to achieve a net ecological benefit to projects, subject to the approval of the planning authority. This compensation strategy quantifies the loss of natural features in order to provide compensation through habitat re-creation or alternative compensation process. Ecological offsetting approaches are typically applied as a last resort (after avoidance and mitigation have been considered). In this case, ecological offsetting is proposed as a means to achieve additional ecological benefit by meeting the replication requirement.

A review of CVC's Ecosystem Offsetting Guidelines (2020) was completed as it was determined that wetland removal was required to facilitate the expansion of the existing Clarkson WRRF. As discussed above, various options were explored to avoid and/or minimize the extent of removal; however, removals of wetland vegetation were unavoidable due to the size of expansion that was required to meet the Region's growth targets. The Ecosystem Offsetting Guideline (CVC 2020) was created to ensure that ecosystem functions and services are not lost through site alteration and development processes. CVC's land-based offsetting strategy strives to achieve a net gain in both ecosystem form and function (i.e., like for like). An Offsetting Plan will be prepared during the detailed design stage. Conceptual components are discussed below.

4.1 Conceptual Restoration Plan

4.1.1 Summary of Restoration Requirements

The preservation of all existing natural heritage features within the Subject Lands property cannot be achieved due to the facility's capacity requirements (as previously discussed within **Sections 2 and 3**).

As described in **Section 3**, the proposed development area will result in the permanent removal of 0.15 ha of MAM2 habitat. To compensate for the removal of the non-significant wetlands, one created wetland (0.15 ha in size) is proposed in the south-western corner of the property. This compensation will meet CVC's land-based offsetting requirements, as land will be replicated at a 1:1 ratio. A 10 m buffer will be provided surrounding the created wetland in accordance with CVC guidelines. Several opportunities and locations for wetland compensation were considered throughout the Subject Lands; however, this location was selected as it is not located within future expansion footprints given it is located overtop of the former ash lagoon. It is also located nearest to Lakeside Creek. The exact location within the southwest corner of the property will be identified during the detailed design stage, as there is ample space to accommodate the created wetland and associated buffer.

A conceptual restoration approach is outlined in this section to show how ecological features and functions will be replicated and/or enhanced within the created wetland area and associated buffer.

At the detailed design stage, an Offsetting Plan will be prepared for review by CVC, the Region and the City ahead of submitting the NHS planting plan drawings. The Offsetting Plan will provide specific details including the results of detailed hydroperiod investigations, plant species lists, proposed plant stock type and sizing, planting timing considerations, created wetland design parameters, and wildlife habitat structure details. Hydrological information will be available at the detailed design stage regarding feature depth and predicted water levels to guide the design of created wetland. This will also allow associated plant species lists to be developed that suit the hydrological conditions.

Once reviewing agencies have generally approved the proposed wetland compensation plan, a proposed monitoring plan will be prepared.

4.1.2 Restoration Goals and Objectives

The restoration goal is to recreate ecological features and functions, replicate total wetland area, and establish diverse and resilient vegetation communities along with wildlife habitat features at a local scale.

The restoration design includes wetland and terrestrial habitat elements. These vegetation communities will create a mosaic of habitats that are expected to create and mimic wildlife habitat functions found within the surrounding landscape. Ecological restoration objectives for the Subject Lands include:

- Replicate wetlands proposed for removal within the created wetland area at a 1:1 replication ratio (0.15 ha total area) with a 10 m vegetated buffer;
- Create floristically diverse and resilient wetland that will support a variety of native fauna;

- Stabilize soils through the application of an annual cover crop seed mix applied in conjunction with native perennial seed mixes (along with other ESC measures, as necessary); and
- Include nectaring plants and Milkweed species within groundcover planting areas to attract/support local insect populations including Monarch.

4.1.3 Restoration Planting Approach

The target community will be a MAM2 vegetation community, as this will replicate impacted vegetation community. A MAM2 is usually dominated by grasses or sedges and is located in mineral substrates (e.g., sand, clay, silt). This community was selected as a MAM2 community currently exist within this location; therefore, the created wetland will be installed adjacent to this existing feature. As previously discussed, there is ample space to accommodate the created wetland and the 10 m vegetated buffer within the southwestern corner. The exact location, orientation and shape of the wetland will be defined during the detailed design phase. This will expand the existing wetland community in proximity to Lakeside Creek and Lake Ontario.

Species selection will consider specific moisture, soil, and sun requirements. Some species (e.g., Ash, Elm) will not be selected due to pest and disease concerns that could impact their survivability. All plants will be selected from CVC's Plant Selection Guidelines (2018). Native plant materials should be sourced from native plant nurseries and seed suppliers within 100 km of the Subject Lands, if possible, to reduce transplant shock. All plant materials will be obtained and installed in accordance with the Canadian Nursery Stock Standard (Canadian Nursery Landscape Association 2014). As feasible, plant material and seed will be sourced from CVC's approved Native Plant Nurseries and Seed Suppliers (as detailed within their Guideline to Native Plant Nurseries & Seed Suppliers 2011). Native shrub and tree species will be selected to provide a diverse assemblage of plant species. Buffer plantings will include fast-growing and pioneer species more tolerant of harsher/variable growing conditions.

The type of planting stock is dependent on the species and their modes of reproduction, as well as practicality. The following plant stock will be considered within the created wetland:

- Herbs (forbs, graminoids): seeds, plugs;
- Shrubs: 1-gallon pots, stem cuttings, rootstock cuttings; and
- Tree saplings: seed, bareroot, ball and burlap, whips, potted seedlings.

Moreover, an appropriate seed mix will be proposed for the bioswale to increase native plant diversity.

<u>Invasive Species Consideration</u>

A review of the existing MAM2 in the south-western corner will be completed to understand the existing extent of invasives (e.g., European Buckthorn, European Reed) to determine whether management is warranted. If a high abundance of invasives is recorded within this community, the targeted community (MAM2) may be altered to create less idealized conditions (e.g., deeper pools of water, prolonged hydroperiods).

During grading/construction on-site, appropriate stockpile stabilization (including application of cover crop) is essential to ensure invasive species don't colonize the created wetland area. There is potential that non-native and invasive species could colonize the created vegetation communities.

Site Preparation

Further soil investigations are warranted within the proposed wetland compensation area given that this area historically hosted ash lagoons. Moreover, ahead of planting, site preparation is key to ensure that soil moisture capacity and nutrient content are suitable for native plant growth. Native plants generally require low soil nitrogen content and nutrient supplementation is not expected. The addition of mycorrhizal inoculants is generally helpful to facilitate native plant establishment.

CVC's Healthy Soil Guideline for the Natural Heritage System (2017) will be reviewed and incorporated into the Offsetting Plan.

4.1.4 Wildlife Considerations

Limited insect/pollinator habitat is currently present within the Subject Lands due to the limited diversity of native plant species.

Creation of pollinator habitat will be incorporated into the created wetland design. Peel Region's Significant Woodland and Significant Wildlife Habitat Guideline (North-South Environmental et al. 2009), states that "According to CVC, migratory butterfly congregations have been observed along the Lake Ontario shoreline (e.g., Lakeside Park and Rattray Marsh) during the fall)". Given that both Lakeside Park and Rattray Marsh are located within the immediate vicinity of the Subject Lands, the incorporation of pollinator habitat (specifically for butterflies) will support existing roosting migratory habitat by providing additional nectaring and breeding habitat.

Most common butterflies are generalist species with a larger variety of host plants (e.g., Painted Lady, Orange Sulphur, Question Mark, American Lady). Monarch and Red Admiral have one genus of host plant (Milkweeds and Nettles). A range of spring, summer and fall blooming plant species will be targeted to provide nectar sources throughout the breeding season. Native groundcover seed mixes applied within the created wetland will include Milkweed and Nettle species as well as other nectaring plants to help support local generalist butterflies. Selected seed mixes should provide pollinator breeding and foraging opportunities for butterflies through the targeted inclusion of nectaring species that flower from mid-spring to mid-fall.

The inclusion of this additional nectaring and breeding habitat immediately adjacent to documented migratory roosting habitats will strengthen butterfly and pollinator habitats.

5.0 CONCLUSIONS

A combination of secondary source information and targeted ecological field investigations were completed by GEI to determine the presence and extent of natural heritage features and associated functions within the Subject Lands. These results were summarized within the Characterization Report (October 2022). The following natural heritage features were identified within the Subject Lands in the Characterization Report:

- Two non-provincially significant wetlands;
    - MAM2
    - SWD2-2
- SWH for Bat Maternity Colonies within a SWD2-2 community;
- Candidate habitat for endangered species (Little Brown Myotis); and
- Indirect fish habitat.

This redevelopment application will support the proposed facility expansion in an effort to meet the significant growth targets as identified within the Region's Growth Management Process and 2020 Water and Wastewater Master Plan. To accommodate the projected growth to year 2041 and beyond, the additional treatment capacity will work to meet the growing population demands while continuing to protect the natural environment. Expansions within the existing facility include the addition of Plant 3 aeration tanks, blower buildings, primary and secondary clarifiers, side-stream treatment buildings and reactors, anaerobic digesters, biosolid drying facilities, energy centres, headworks facility and additional transformers, sewers, channels, manholes and roadways.

An impact assessment was completed to determine whether any potential impacts to existing natural heritage features as a result of the proposed redevelopment application were anticipated. Several mitigative and restorative measures were provided within **Sections 3 and 4** to minimize potential negative impacts to existing and retained natural heritage features. 0.15 ha of MAM2 wetland will be permanently removed to support the installation of new site access roads, digesters and biosolid dryers. Temporary alteration within the wetlands will occur as a result of grading associated with the roads and installation of an underground power distribution system. The extent of the temporary disturbance is currently not known; however, the impacts will be mitigated by revegetating the disturbed areas with native species. Several compensation locations were considered; however, the south-western corner was identified as the opportune location as it is located within an area that is not proposed for future development, it is located across the road from Lakeside Creek/Park and an existing MAM2 community is present adjacent to the proposed compensation wetland. A 1:1 ratio is warranted given that portions of the wetlands that are proposed for removal are already degraded and/or disturbed from physical and/or biological disturbances. The created wetland will increase native plant diversity to provide a net gain in ecological functions and resiliency of the system. In addition, the inclusion of pollinator nectaring and breeding habitat will support existing migratory roosting habitats located immediately adjacent to the Subject Lands. Pollinator habitat is currently limited within the Subject Lands. Hydroperiod modelling associated with the created wetland will be completed following initial discussions with reviewing agencies during the detailed design phase.

A conceptual restoration plan (**Section 4**) has been provided to illustrate how the created wetland area will support various biophysical functions (e.g., improve water quality, increase native vegetation species diversity, provide pollinator habitat). An Offsetting Plan will be prepared during the detailed design phase, which will provide specific details for the created wetland area (e.g., plant lists, planting timing considerations, wildlife habitat structure locations), as well as confirming hydrologic availability. A detailed monitoring plan will be prepared as part of the detailed design phase once it is understood whether reviewing agencies are supportive of the proposed wetland removal and compensation plans.

Considering the above, and as discussed within the impact assessment, redevelopment of the Subject Lands can be completed without negative impacts to the natural heritage features and associated functions both within the property boundaries and to adjacent (offsite) features. A net benefit will be provided to the overall ecological function of the site by creating a biologically diverse wetland near Lakeside Creek, which will offer pollinator breeding habitat that is currently limited within the Subject Lands.

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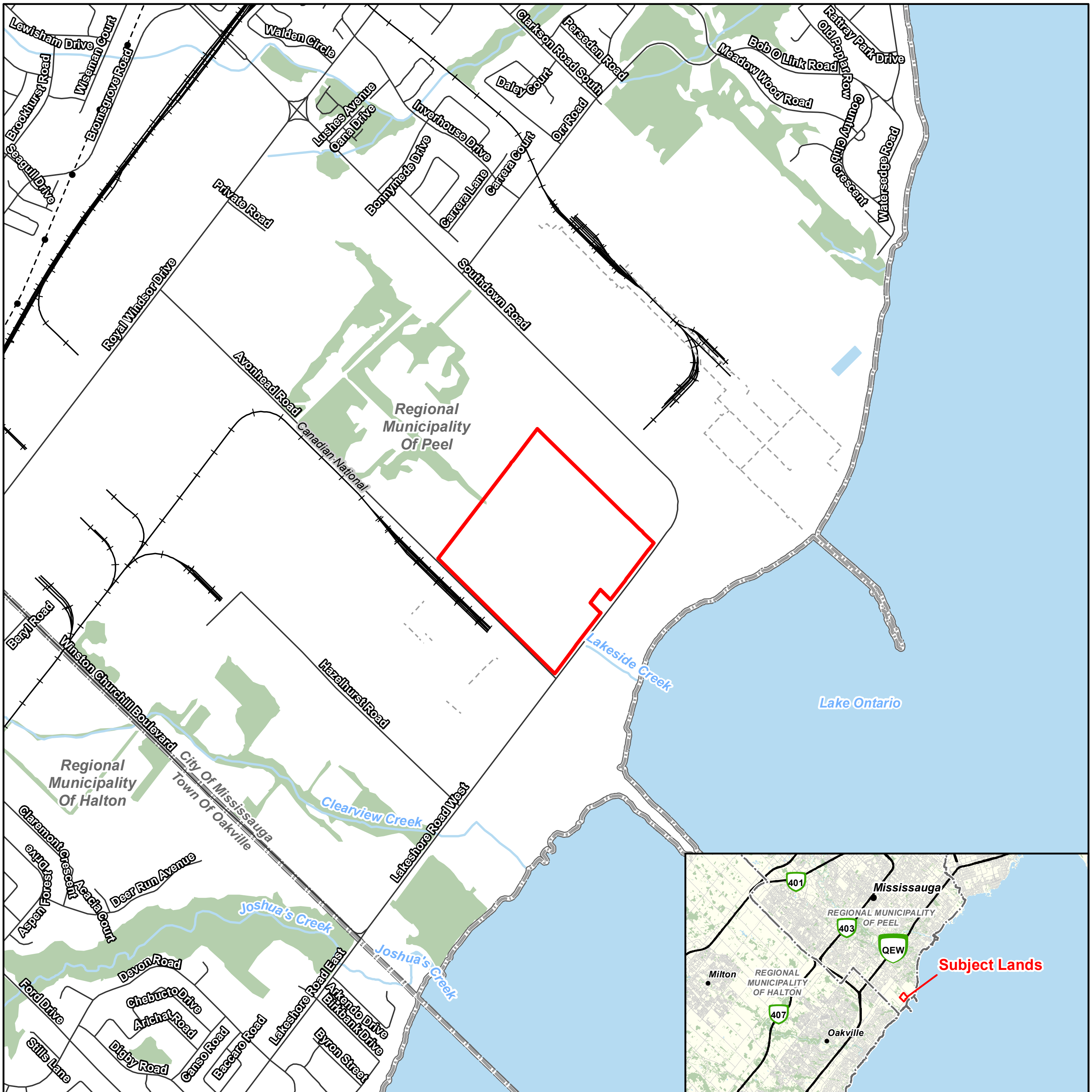
APPENDICES

Appendix A – Figures

Figure 1.0: Location of Subject Lands
Figure 2.0: Natural Heritage Features
Figure 3.0: Conceptual Site Plan



NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.

Legend

- Subject Lands
- Road
- Railway
- Hydro Line
- Unknown Pipeline
- Watercourse
- Waterbody
- Wooded Area
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 1
Location of Subject Lands

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Savanta Division

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Project 2003025

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Legend

Subject Lands
Railway
Watercourse

Provincial (Ontario)

Candidate Significant Wildlife Habitat (Bat Maternity Colonies)
Candidate Species at Risk Habitat (Little Brown Myotis)

Regional (Region of Peel)

Key Natural Heritage Features and Key Hydrologic Features (Non-Provincially Significant Wetlands)
Key Natural Heritage Feature (Candidate Significant Wildlife Habitat and Habitat for Endangered Species)

Local (City of Mississauga)

Candidate Significant Natural Area (Candidate Significant Wildlife Habitat and Habitat for Endangered Species)

Credit Valley Conservation

Regulated Wetlands
Conservation HDF

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 2
Natural Heritage Features (Provincial, Regional and Local Significance)

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N

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NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
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3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.

Legend
- Subject Lands
- Railway
- Site Plan
- Key Natural Heritage Features and Key Hydrologic Features
- Wetland Removal (0.15 ha)
- Conservation Headwater Drainage Feature

Project 2003025

Clarkson Wastewater Treatment Plan
GM BluePlan

Figure 3
Conceptual Site Plan

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1:3,500

GEI Consultants
Savanta Division

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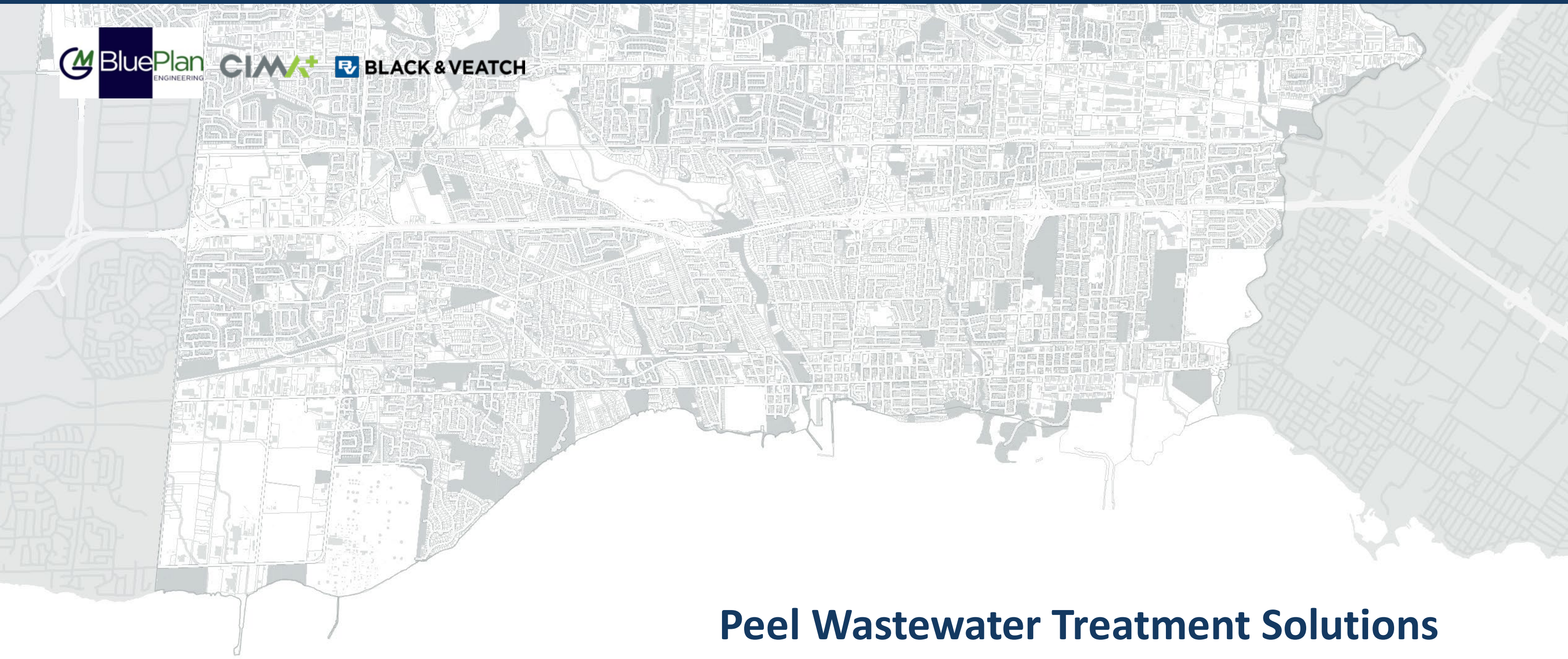
Appendix B:

Receiving Water Impact Assessment



Peel Wastewater Treatment Solutions

Clarkson Water Resource Recovery Facility Schedule C Class Environmental Assessments

Clarkson Water Resource Recovery Facility Receiving Water Impact Assessment

October 2022

1.0 Introduction

1.1 Background and Purpose

The Phase 2 recommended solution from the Schedule C Class Environmental Assessment (EA) for the Clarkson Water Resource Recovery Facility (WRRF), is to expand the plant's rated capacity from 350 MLD to 500 MLD by about the year 2029. In order to confirm the effluent limits for the expansion, a Receiving Water Impact Assessment (RWIA) was undertaken to meet the Ministry of Environment, Conservation, and Parks (MECP)'s Provincial Water Quality Objectives (PWQO). The results of the RWIA have been used in the evaluation of alternative treatment technologies and design concepts, and the development of the preferred design concept.

Baird was retained as part of the GMBP, CIMA+, and Black & Veatch team, to undertake the RWIA. A copy of Baird's Final RWIA for the Clarkson WRRF is provided in **Appendix A**, with a summary of the Final RWIA presented in this Technical Memorandum (TM).

1.2 Report Outline

This TM is organized into the following sections:

- **1.0 Introduction:** This section describes the background, where we are in the Class EA, and the purpose and organization of the report.
- **2.0 Regulatory Requirements:** This section describes the regulatory requirements for establishing future effluent requirements.
- **3.0 Existing Effluent Requirements**: This section describes the existing effluent compliance limits and objectives established under Amended ECA Number 0729-9KBNNY.
- **4.0 Existing Outfall Characteristics and Capacity:** This section describes the outfall capacity based on a hydraulic assessment and the design characteristics of the outfall and diffuser.
- **5.0 Receiving Water Impact Assessment Results:** Appendix A includes the Final RWIA for the Clarkson WRRF prepared by Baird (August 2022), while Section 5 presents a summary of these results.
- **6.0 Proposed Effluent Objectives and Limits:** The proposed effluent limits for Total Phosphorus (TP) and Total Ammonia Nitrogen (TAN) are presented in this section.
- **7.0 Communications with MECP:** Two meetings were held with MECP to discuss and present the results of the RWIA. A summary of the discussion items raised during these meetings is provided in Section 7.
- **8.0 Summary and Recommendations:** This section presents a summary and recommendations for establishing future effluent limits and objectives.

2.0 Regulatory Requirements

Lake Ontario is shared between the Province of Ontario and New York State, with both provinces and countries sharing responsibility for its stewardship. Annually, the federal governments of Canada and the United States, under the Great Lakes Water Quality Agreement – (GLWQA), jointly publish an annual State of the Great Lakes Report (US EPA & Environment and Climate Change Canada, 2020) to document the condition of each of the Great Lakes with respect to the following indicators: Drinking water, Beaches, Fish consumption, Toxic chemicals, Habitat and species, Nutrients and algae, Invasive species, and Groundwater. Overall, the status and trend for Lake Ontario is fair and unchanging to improving.

In addition to the GLWQA, there are numerous other federal and provincial legislation governing the water quality in Lake Ontario. Federal legislation includes the Canada-Ontario Agreement (2014), Canada-wide Strategy for the Management of Municipal Wastewater Effluent and the Fisheries Act. Key provincial legislation include: The Environmental Protection Act, the Water Opportunities Act, Clean Water Act, the Environmental Protection Act, and the Ontario Water Act [administered by the Ontario Ministry of Environment, Conservation and Parks (MECP)] and the Lakes and Rivers Improvement Act [(administered by the Ontario Ministry of Natural Resources and Forestry (MNRF) and the Conservation Authorities]. Of key importance to this study is the MECP Water Management Policies, Guidelines, and Provincial Water Quality Objectives (PWQOs).

PWQO are numerical and narrative criteria which serve as chemical and physical representations of healthy populations of aquatic biota. These criteria represent an acceptable level of quality for surface waters, such as lakes, to protect all forms of aquatic biota and all aspects of the aquatic life cycles during indefinite exposures to the water. Water bodies are regulated according to two policies:

- Policy 1: "In areas which have water quality better than the Provincial Water Quality Objectives, water quality shall be maintained at or above the Objectives."

- Policy 2: "Water quality which presently does not meet the Provincial Water Quality Objectives shall not be degraded further and all practical measures shall be taken to upgrade the water quality to the Objectives."

Lake Ontario in the vicinity of the Clarkson WRRF outfall is a Policy 1 Receiver for the relevant water quality parameters. The critical parameters for receiving water in Ontario consists of Total Ammonia Nitrogen (TAN), Total Phosphorous (TP), un-ionized ammonia (UIA) and *E. coli*. These parameters with their corresponding PWQO are presented in Table 2-1. Wastewater effluent must be of high quality to ensure that Lake Ontario concentrations of the parameters noted in Table 2-1 are not exceeded, outside an approved mixing zone. (Note: A mixing zone is an area of dilution that is influenced by an effluent point-source discharge. This area is an allocated impact zone, in which water quality criteria can be exceeded, so long as acutely toxic condition criteria are met. Policy 5 of the MECP's Surface Water Quality Goal and Policies specifies that a mixing zone should be designed to be as small as possible, as to not interfere with beneficial uses of the surrounding water body, such as water supply intakes, other effluent discharges, recreational uses, fish spawning areas, or fish migration routes.)

Table 2-1 Water Quality Levels for Key Parameters

Parameter	PWQO/GLWQA Concentration Limit
Un-ionized ammonia (UIA)[1]	0.02 mg/L
Total ammonia nitrogen (TAN)[2]	0.5 mg/L
Total phosphorus (TP)[1]	0.02 mg/L
E. coli[1]	100 E. coli per 100 mL
[1] Provincial Water Quality Objective (PWQO) [2]Great Lakes Water Quality Agreement (GLWQA) Water Source Protection Objective	

The MECP requires that effluent discharges and lake ambient conditions be evaluated through lake modelling to meet the PWQOs. The modelling is undertaken on a "near field" and "far field" basis. Currently, there is no single model that assesses all scales and aspects of plume behavior as a single entity. Instead, near field and far field models are coupled.

The "near-field" zone describes the section within the incoming effluent plume that experiences strong initial mixing, as influenced by temperature, buoyancy, and momentum differences. This section typically extends from the effluent line diffuser outlets to the location where the discharged plume has effectively completed its initial mixing with the receiving water body. The modelling at this stage is specifically designed to assist in the prediction of plume mixing behaviour, which is controlled by the properties of the outfall under various lake and effluent conditions.

After the effluent has completed initial dilution and mixing in the near-field zone, the next procedure is to determine dilution of the effluent plume in the far-field zone. Dilution beyond the near-field zone is usually associated with ambient lake processes (offshore currents, dispersion, etc.) and tends to occur at a greatly reduced rate in comparison to the initial mixing within the near-field. Modelling the far-field effluent plume and associated dilution is accomplished using a whole lake model wherein the main purpose is to determine the portion of the zone where the PWQO is not achieved, and the plumes' potential effects on lake water quality and surrounding water uses (e.g., drinking water intakes, near shore recreation, etc.). The goal of the modelling is to aid in the development of treatment and outfall solutions that protect lake quality and water users.

Further discussion on the regulatory requirements, modelling approaches, and Lake Ontario background conditions are provided in **Appendix A**.

3.0 Existing Effluent Requirements

Table 3-1 outlines the approved design objectives and compliance limits for the existing Clarkson WRRF effluent. The Clarkson WRRF continues to meet the compliance limits for TSS, $CBOD_5$, TP and TAN, and E. coli. The plant effluent is also within the approved pH range of 6.5 to 9.0.

Table 3-1: Clarkson WRRF Design Objectives and Compliance Limits (Amended ECA NUMBER 0729-9KBNNY, June 2014)

Parameter	Effluent Design Objectives	Compliance Limits	
	Concentration	Concentration	Loading (kg/d)[3]
Carbonaceous Biological Oxygen Demand ($CBOD_5$)[1]	15 mg/L	25 mg/L	N/A
Total Suspended Solids (TSS)[2]	15 mg/L	25 mg/L	N/A
Total Phosphorous (TP)	0.8 mg/L	1.0 mg/L	350
Total Ammonia Nitrogen (TAN)[2] May 1 to June 15	6.6 mg/L	13.2 mg/L	N/A
Total Ammonia Nitrogen (TAN)[2] June 16 to Sept 15	6.6 mg/L	10.5 mg/L	N/A
Total Ammonia Nitrogen (TAN)[2] Sept 16 to Oct 31	6.6 mg/L	13.2 mg/L	N/A
Total Ammonia Nitrogen (TAN)[2] Nov 1 to Apr 30	13.2 mg/L	24.7 mg/L	N/A
E. coli	N/A	200 organisms/100mL (June 1 to Sept 30)	N/A
Total Chlorine Residual (TCR)	0.0 mg/L	0.1 mg/L	N/A
pH	6.5 to 9.0, inclusive, at all times	6.5 to 9.0, inclusive, at all times	N/A

[1] Based on annual average concentration values
[2] Based on monthly average concentration values
[3] Based on the annual average daily loading during any calendar year

Note: The Amended ECA NUMBER 0729-9KBNNY issued June 2014 mistakenly expressed total ammonia as TAN. The table above has been corrected accordingly, and the future amended ECA for the Clarkson WRRF will also be corrected.

4.0 Existing Outfall Characteristics and Capacity

4.1 Existing Outfall and Diffuser Configuration

The final effluent from the Clarkson WRRF is discharged to Lake Ontario through a 3-metre (3,000 mm) diameter and 2,200-metre-long outfall with eighteen 500 mm diameter dispersion shafts that have 450 mm diameter diffuser nozzles. The diffusers are an important element of the outfall because they are used to improve mixing by distributing effluent through a larger area and slowly integrate flows into the receiving water. The outfall has a rated capacity of 1,400 MLD (16,203 L/s). The diffuser system details are presented in Table 4-1.

Table 4-1: Outfall and Diffuser Characteristics

Parameter	Characteristic
ECA Rated Peak Flow Capacity	1,400 MLD (16,203 L/s)
Total Outfall (including diffuser) Length	2,200 m
Diameter of Outfall	3 m
Distance of Diffuser from Shore	1,600 m
Length of Diffusers	200 m
Water Depth at Diffuser	19 m
Number of Diffuser Ports	18
Port Diameter	0.45 m
Flow Rate (at 350 MLD)	4.1 m^3/s
Flow Rate (at 500 MLD)	5.8 m^3/s

The existing chlorination/dechlorination system is integrated into the existing outfall. This outfall structure allows the final effluent to be retained for long enough to be thoroughly disinfected and to discharge effluent to the lake over a large area. The treatment and outfall/diffuser structure are designed to achieve a high standard of treated wastewater quality to protect Lake Ontario.

4.2 Outfall Hydraulic Analysis

Lake levels are projected to increase in the future due to potential impacts related to climate change. Changing levels in Lake Ontario may impact the hydraulic capacity of the existing outfalls at each respective plant. A summary of historical lake levels as well as lake level projections relative to the International Great Lakes Datum (IGLD) 1985 is presented in Table 4-2.

Table 4-2: Historical and Projected Lake Levels for Lake Ontario

Climate Condition	Climate Variable	Trend	Historical Baseline (1981-2010)	Climate Model Projections[1]	
				Mid-Century (2050s)	End of Century (2080s)
Water Level	Lake Ontario Water Level – high scenario (90th percentile), m IGLD	Increasing	74.77 m	75.55 m	76.02 m
[1] The study used state-of-the-science climate modelling recommended by the Intergovernmental Panel on Climate Change (IPCC) to obtain future climate conditions for the period of 2011-2100, resulting in three future time horizons: the 2020s, 2050s and 2080s.					

The hydraulic capacity assessment was completed at lake levels of 75.65 m and 76.00 m. For each lake level, the following hydraulic capacity scenarios were examined for plant operation:

1. No flooding of the secondary clarifier weirs.
2. Maximum of 100 mm of flooding to the secondary clarifier weirs.

A similar analysis was conducted for the Clarkson WRRF outfall; the analysis is summarized in Table 4-3. Based on the results of the hydraulic modelling, the existing outfall hydraulic capacity is higher than the approved rated capacity of the outfall as identified in the ECA, i.e., 1400 MLD.

Table 4-3: Outfall Capacity at Clarkson WRRF

Secondary Clarifier Weir Flooding Scenario	High Lake Level (m)	Total Flow to Outfall Sewer (MLD)	Bottom Elevation of SC V-Notch (m)	Water Level Downstream of SC Weir (m)
No flooding	75.65	1,500	83.90	83.88
	76.00	1,500	83.90	83.88
100 mm flooding	75.65	1,680	83.90	83.97
	76.00	1,641	83.90	83.96

As shown above, the maximum peak outfall capacity in Scenario 1 (no weir flooding) was 1,500 MLD to the outfall sewer and 1,641 MLD in Scenario 2 (100 mm weir flooding). In this case, rising lake levels had minimal impact on hydraulic capacity of the outfall at the Clarkson WRRF. At a peaking factor of 3, the current outfall at the Clarkson WRRF is sufficient to meet future peak flow capacity requirements at a rated average flow capacity of 500 MLD.

5.0 Receiving Water Impact Assessment Results

The mixing model CORMIX was used to evaluate the performance of the diffuser with respect to TP and TAN under the existing (i.e., 350 MLD) and future (i.e., 500 MLD) scenarios. The model assumed a conservative (worst-case) condition with respect to dilution as it considered high effluent concentrations based on effluent limits. The far-field model MIKE3 was used to simulate the discharge and movement of the effluent to examine far-field impacts at the adjacent water treatment plant intakes, key locations along the shore, and to define mixing zones.

For the existing scenario, a TP concentration limit of 1 mg/L and seasonal limits for TAN as per the existing ECA (as defined in Table 3-1) were used. The findings from the CORMIX analysis for the existing scenario showed that the effluent discharge from the diffuser will not meet PWQO for TP within half pipe length of 900 m based on the existing compliance limit of 1.0 mg/L. However, the results show that with a future average daily flow of 500 MLD and a TP limit of 0.7 mg/L, conditions in the receiver are not made worse. In fact, there is a slight decrease in phosphorus concentrations for future flows, illustrating the importance of reducing the phosphorus limits.

The CORMIX analysis predicts TAN concentrations in the lake will increase as flow increases from 350 to 500 MLD; however, concentration levels fall below the drinking water guideline of 0.50 mg/L approximately 800 m away from the diffuser (less than the half-pipe length).

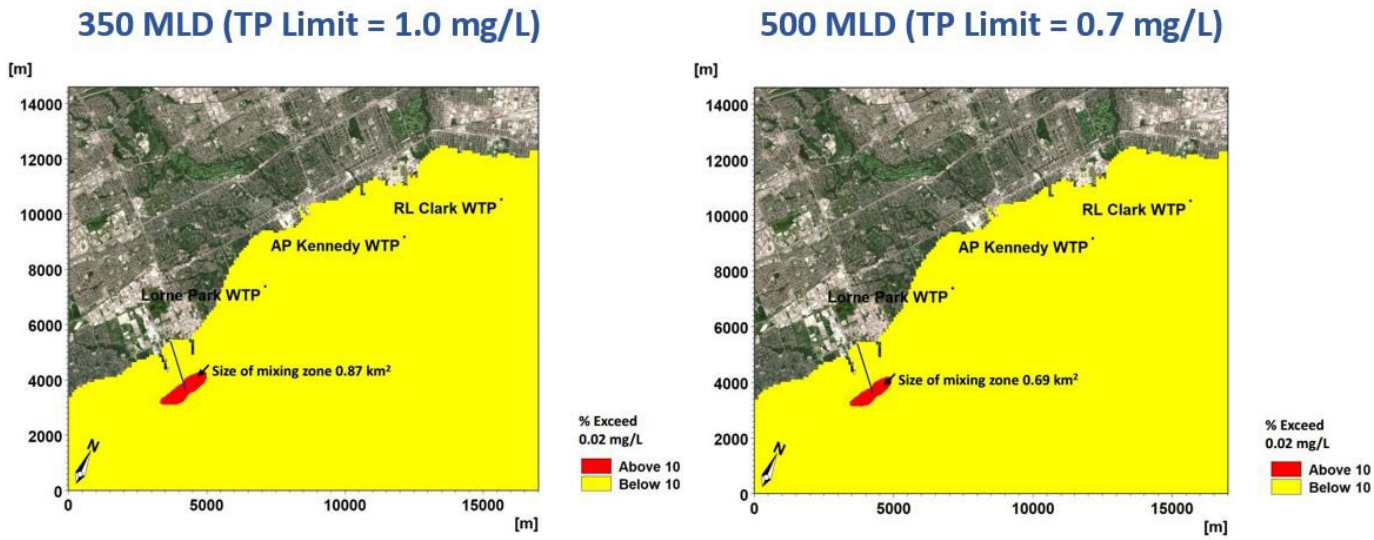
The CORMIX modelling focused on a conservative (worst-case) condition to assess diffuser performance in the near-field region and at the half pipe length; however, the lake is dynamic and three dimensional in nature and requires the use of a far-field model such as MIKE3 to assess plume movement over a wider range of lake currents and temperature conditions, and to define the mixing zone.

The MIKE3 model predicted that the peak daily TP concentration remained below PWQO at all locations under both existing and future flow conditions. Furthermore, the maximum instantaneous value was also below PWQO at all locations except for Lakeside Park and Lorne Park WTP intake. Lakeside Park is situated directly north of the outfall between two marine terminals. Under existing conditions, TP concentrations exceeded 0.02 mg/L a total of four hours over the course of the simulation, which is 4,777 hours in length; this equates to 0.08% of TP (mg/L). TP concentrations at Lorne Park WTP intake exceeded PWQO a total of three hours over the simulation period or 0.06% of the time. It should be noted that the maximum instantaneous TP concentration remained below PWQO at all locations under the future flow scenario.

TAN concentrations were assessed at the Lorne Park, A.P. Kennedy, and R.L. Clark water intakes, assuming TAN limits would remain as in the current ECA. Ammonia was used as a surrogate measure of the conditions at the water filtration plant intakes and an indicator of effluent impacts on intake quality. Although TAN concentrations are higher under the future flow condition, predicted TAN concentrations remained below the GLWQA source water protection objective of 0.5 mg/L for both existing and future flow conditions. The Intake Protection Zones (IPZ) of the Peel Lorne Park and A.P. Kennedy Water WTPs and the Toronto R.L Clark WTP were not impacted.

The future flow condition (i.e., 500 MLD) and a proposed TP limit of 0.7 mg/L, generate a 20% smaller mixing zone compared to the existing conditions (350 MLD; 1.0 mg/L TP limit) as illustrated in **Figure 5-1**. Far-field impacts occurred during short periods of time and were isolated, similar to the existing scenario. Overall, the model demonstrates the positive benefits of lower effluent TP concentrations on the receiving water, even though net loadings remain unchanged.

UIA was calculated using predicted hourly TAN concentrations and temperature values and applying a constant (75^{th}) percentile value of 8.2 for Lake Ontario pH. **Figure 5-2** shows the far-field mixing zones or UIA under existing and future flow conditions, assuming TAN ECA limits remain the same as present. The results indicated that while the mixing zone size increased slightly, the predicted TAN concentrations remained below the GLWQA source protection objective of 0.5 mg/L. The IPZs are also not impacted under the future scenario.



Note: The red area represents the region where the TP PWQO is exceeded at least 10% of the time over the simulation period and is defined as the mixing zone.

Figure 5-1: TP Mixing Zone for Existing and Future Scenarios

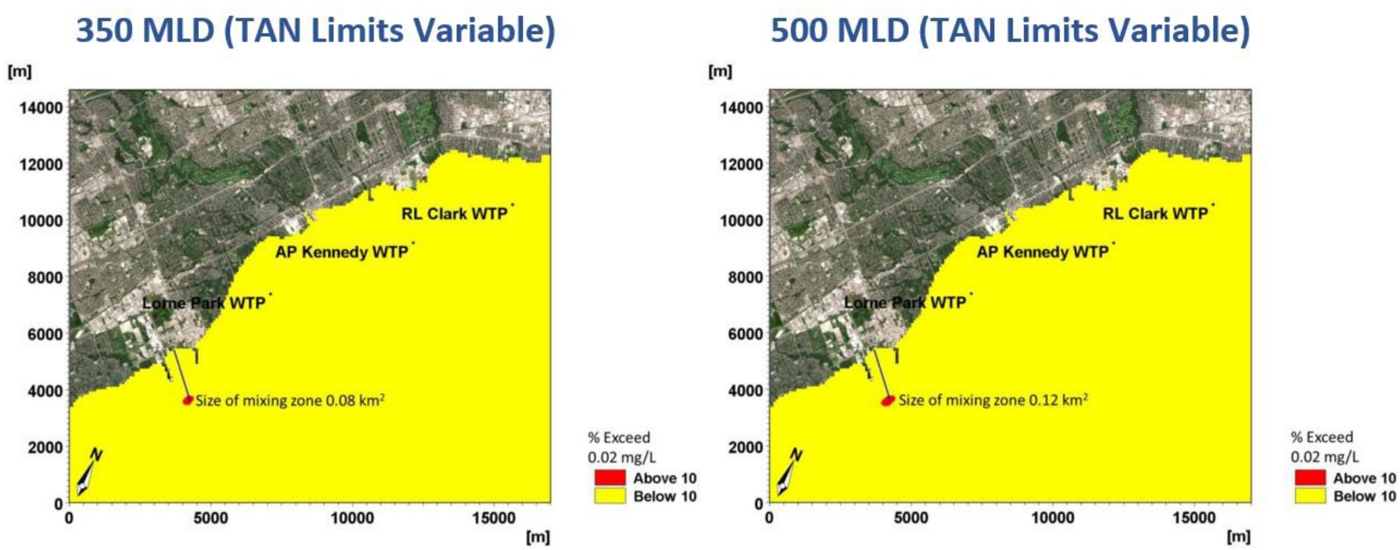


Figure 5-2: Un-ionized Ammonia Mixing Zone for Existing and Future Scenarios

6.0 Proposed Effluent Objectives and Limits

6.1 Total Phosphorus (TP)

To maintain existing ECA approved loading limits at 350 kg/d at the expanded plant capacity it is proposed that the TP limits be reduced to 0.7 mg/L. The proposed operating objective is 0.6 mg/L.

6.2 Total Ammonia Nitrogen (TAN)

The proposed total ammonia nitrogen (TAN) limits and objectives were assessed based on achieving end-of pipe non-lethal effluent toxicity. Unionized ammonia (UIA) was determined leveraging 75th percentile seasonal effluent temperature and pH from the Clarkson WRRF. Recommended effluent limits were derived based on the worst case of the following:

- Existing ECA seasonal TAN objectives and effluent compliance limits for the Clarkson WRRF. Based on discussions with the MECP, while the ECA indicates TAN limits, these limits were incorrectly derived based on ammonia (NH_3) concentrations rather than total ammonia nitrogen (NH_3-N). As a result, the existing ECA TAN limits were reduced by a factor of 1.216 times.
- Objective limits to achieve unionized ammonia (UIA) concentrations of <0.1 mg/L at 75th percentile effluent temperature and pH
- Compliance limits to achieve unionized ammonia (UIA) concentrations of <0.2 mg/L at 75th percentile effluent temperature and pH.

Overall, the controlling factors for determining TAN objectives and limits was the existing ECA (corrected to be 1.216 times lower). Seasons were selected to match those currently defined within the Clarkson WRRF ECA, namely:

- Winter November 1 – April 30
- Spring May 1 – June 15
- Summer June 16 – September 15
- Fall September 16 – October 31

Five (5) full years of effluent temperature and pH data from 2016 to 2020 inclusively was used to determine 75th percentile values. **Table 6-1** summarizes the proposed TAN objectives and limits for the Clarkson WRRF and the corresponding 75th percentile UIA concentrations, which are well below 0.1 mg/L and 0.2 mg/L respectively. Overall, the proposed objectives and limits are consistent with the existing ECA (corrected by a factor of 1.216).

Table 6-1: Confirmation of TAN Limits and Objectives

Period		No. Samples	75th Percentile Effluent pH	75th Percentile Effluent Temperature	Proposed TAN Objective (mg/L)	Proposed TAN Limit (mg/L)	75th Percentile UIA at TAN Objective	75th Percentile UIA at TAN Limit
Winter	Nov 1 - Apr 30	907	6.81	16.9	**13.2**	**24.7**	0.033	0.061
Spring	May 1 - June 15	230	6.85	18.7	**6.6**	**13.2**	0.020	0.041
Summer	June 16 - Sept 15	460	6.85	22.2	**6.6**	**10.5**	0.026	0.042
Fall	Sept 16 - Oct 31	230	6.87	21.7	**6.6**	**13.2**	0.027	0.053
						TARGET	**<0.1 mg/L**	**<0.2 mg/L**

7.0 Communications with MECP

Four meetings were held with MECP to discuss the EA and present and receive input on the Receiving Water Impact Assessment (RWIA). At the first meeting, the Class EAs were introduced (October 7, 2020). At the second meeting (April 14, 2021), the overall approach to the assimilative capacity analysis was presented and discussed and the modelling parameters and approach were confirmed. At the third meeting (November 22, 2021), the results of the near and far-field modelling were presented. A final meeting was held with MECP to present the final design concept and measures to mitigate risks, as well as receive any final comments on the RWIA. The MECP was in general agreement with the findings and recommendations of reducing TP concentration limits and objectives to maintain existing ECA TP loading of 350 kg/d. The minutes of these meeting are provided in **Appendix B**.

The MECP was also provided with a copy of the Draft RWIA in January 2022 and provide comments in a letter on March 23, 2022, which is also provided in **Appendix B**. This Final RWIA and proposed effluent criteria reflect comments received by the MECP.

8.0 Summary and Recommendations

Based on the hydraulic analysis, expanding the Clarkson WRRF will not require additional outfall capacity. The existing outfall is sufficient to meet future needs. A separate study is being undertaken by Peel Region to explore the feasibility of retrofitting the existing fixed orifice diffusers with variable orifice diffusers (Tideflex “duckbilled” diffusers). Variable orifice diffusers offer the advantage of being able to change output depending on different flow conditions, thereby allowing for increased discharge velocities and enhanced mixing and dilution. This will only benefit the RWIA findings in terms of dilution, especially under low flow and average flow conditions.

Based on the receiving water assessment and discussions with the MECP, proposed effluent limits and objectives were established for the purpose of developing wastewater design alternatives. These proposed limits are presented in **Table 8-1**.

- BOD_5 and TSS limits and objectives will remain the same as the existing ECA.
- Total ammonia nitrogen (TAN) limits and objectives are the same as the existing (corrected) ECA
- The phosphorus limit and objectives were reduced and were conservatively selected to maintain existing ECA approved loading limits at 350 kg/d at the expanded plant capacity.

The proposed effluent objectives and limits are achievable through conventional secondary treatment without the need for tertiary filtration. Disinfection will continue at the Clarkson WRRF using chlorination/dechlorination to meet E.coli limits in the effluent.

Table 8-1: Summary of Proposed Effluent Limits and Objectives for the Clarkson WRRF Expansion

Parameter	Existing ECA	Proposed Future Conditions
Effluent Limits		
cBOD5	25 mg/L	25 mg/L
TSS	25 mg/L	25 mg/L
TAN	13.2 mg/L (May 1 - June 15) 10.5 mg/L (Jun 16 - Sep 15) 13.2 mg/L (Sept 16 - Oct 31) 24.7 mg/L (Nov 1 - Apr 30)	13.2 mg/L (May 1 - June 15) 10.5 mg/L (Jun 16 - Sep 15) 13.2 mg/L (Sept 16 - Oct 31) 24.7 mg/L (Nov 1 - Apr 30)
TP	1.0 mg/L	0.70 mg/L
Total Chorine Residuals (TCR)	0.01 mg/L	0.01 mg/L
E. Coli	200 organisms per 100 mL	200 organisms per 100 mL
pH	6.0 to 9.5, inclusive, at all times	6.0 to 9.5, inclusive, at all times
Effluent Objectives		
cBOD5	15 mg/L	15 mg/L
TSS	15 mg/L	15 mg/L
TAN	6.6 mg/L (May 1 -Oct 31) 13.2 mg/L (Nov 1 - Apr 30)	6.6 mg/L (May 1 -Oct 31) 13.2 mg/L (Nov 1 - Apr 30)
TCR	0 mg/L	0 mg/L
TP	0.80 mg/L	0.60 mg/L
E. Coli	150 organisms per 100 mL	150 organisms per 100 mL
pH	6.0 to 9.5, inclusive, at all times	6.0 to 9.5, inclusive, at all times

Region of Peel

Appendix A

Clarkson WRRF Receiving Water Impact Assessment Report

Clarkson Wastewater Treatment Plant

Receiving Water Impact Assessment

August 10, 2022 | 13344.101.R1.Rev2_Clarkson RWIA

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Clarkson Wastewater Treatment Plant

Receiving Water Impact Assessment

Prepared for:

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13344.101.R1.Rev2_Clarkson RWIA

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Revision	Date	Status	Comments	Prepared	Reviewed	Approved
Rev A	2021 12 10	Draft	For GMBP Review	DMF	FJLD	FJLD
Rev 1	2022 05 07	Final	Final Report	DMF	FJLD	FJLD
Rev 2	2022 08 10	Final	Final Report	DMF	FJLD	FJLD

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1. Introduction

1.1 Purpose of Assessment

A Receiving Water Impact Assessment (RWIA) was completed in support of the Schedule C Class Environmental Assessment (EA) of the Clarkson Wastewater Treatment Plant (WWTP). This RWIA was conducted to demonstrate that the proposed expansion and treatment alternatives meet the Ministry of the Environment, Conservation and Parks (MECP) regulatory requirements for surface water discharges based on the analysis undertaken, which included near-field and far-field modelling. This report describes the approach and methodology used to support the RWIA along with the findings from the technical analysis.

The regulatory requirement for treatment (i.e., non-lethal toxicity at end of pipe) is not assessed in this study.

1.2 Clarkson WWTP

The Clarkson WWTP is located at 2307 Lakeshore Road West in Mississauga as shown in Figure 1.1. It is operated under MECP's Environmental Compliance Approval (ECA) #0729-9KBNNY and 5146-9JQWA. Existing compliance limits and objectives are summarized in Table 1.1.

The plant provides secondary treatment, phosphorus removal and seasonal disinfection and is designed to treat an average flow of 350 million litres per day (MLD). The plant is operating below its capacity limit of 350 MLD. The average flow from January 2016 to December 2020 was determined to be 209 MLD, which is 60% of the rated capacity. Treated effluent from the plant is discharged to Lake Ontario through an outfall pipe and multiport diffuser system. The pipe extends 1600 m offshore in a south-southeast direction to a staged diffuser that is 204 m in length. The average water depth over the length of the diffuser is 19 m below Chart Datum.

In general, the plant is performing well with respect to cBOD5, TSS and TP removal as it consistently meets performance objectives as noted in the RFP (2020-030P). Phase 2 of the Class EA identified the preferred solution for treatment to include expansion of both the Clarkson and G.E. Booth WWTPs to accommodate growth in the Region of Peel. Specifically, the preferred solution includes expansion of the Clarkson WWTP from 350 MLD to 500 MLD and G.E. Booth WWTP from 500 MLD to 550 MLD. As described above, this RWIA focuses on the Clarkson WWTP only. There are no plans to construct a new outfall at the Clarkson WWTP as the existing plant and outfall diffuser system have adequate capacity to manage the proposed increase in flow.

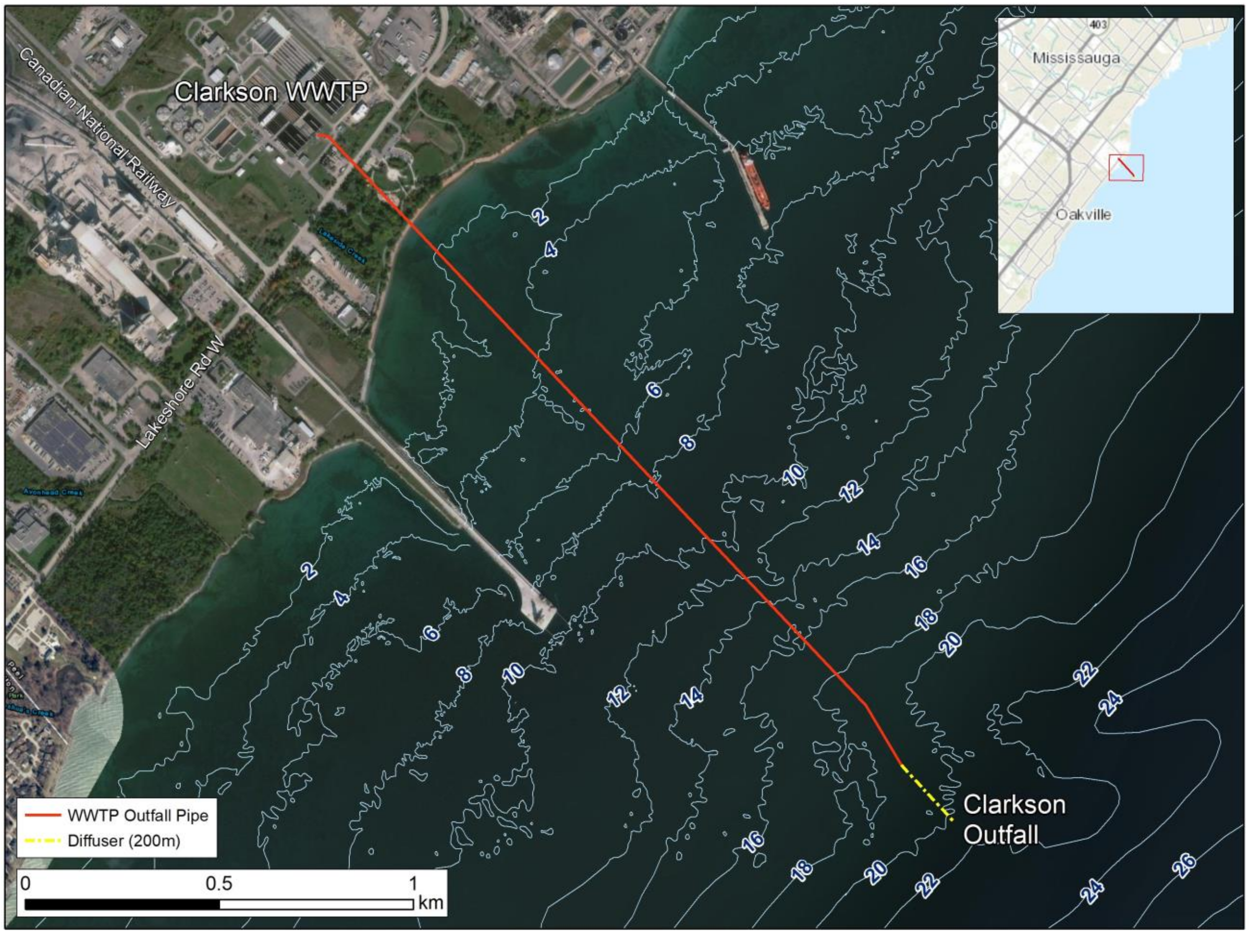


Figure 1.1: Location of Clarkson WWTP outfall and diffuser

Table 1.1: Clarkson WWTP existing compliance limits and objectives

Parameter	Averaging Calculator	ECA Objective (mg/L)	ECA Limit (mg/L)	Average Waste Loading (kg/d)
CBOD (mg/L)	Annual Average Effluent Concentration	15.0	25.0	N/A
TSS (mg/L)	Annual Average Effluent Concentration	15.0	25.0	N/A
TP (mg/L)	Monthly Average Effluent Concentration	0.8	1.0	350.0
TAN (mg/L)	Monthly Average Effluent Concentration	6.6 (May 1 – Oct 31) 13.2 (Nov 1-Apr 30)	13.2 (May 1 – June 15) 10.5 (Jun 16 – Sept 15) 13.2 (Sept 16 – Oct 31) 24.7 (Nov 1 – Apr 30)	N/A

2. Regulatory Requirements

Approval for surface water discharges from wastewater treatment plants falls under the jurisdiction of the MECP. There are two key MECP documents that are applicable to the derivation of effluent requirements for outfalls. The ambient conditions and the new effluent discharge are evaluated relative to the MECP's Policies for Surface Water Quality Management (MECP, 1994a) and the MECP Guidelines for Deriving Effluent Requirements (MECP, 1994b). These regulatory requirements are discussed in this section. The regulatory requirement for non-lethal toxicity at end of pipe is not assessed in this study because that requirement is determined by the treatment process in the plant, not by the outfall.

2.1 Provincial Water Quality Objectives (PWQO)

Effluent requirements for surface water discharges are outlined in the MECP publication: Policies, Guidelines and Provincial Water Quality Objectives of the Ministry of Environment Conservation and Parks (1994a), which provides direction on the management of surface water and groundwater quantity and quality. With regards to surface water quality, the goal is to ensure that the water quality is satisfactory for aquatic life and recreation. The PWQO are set by the MECP at a level of water quality which is protective of all forms of aquatic life and all aspects of the aquatic life cycles during indefinite exposure to the water. The objectives for protection of recreational water uses are based on public health and aesthetic considerations.

The applicable policies with respect to surface water quality management, based on the water quality of the receiving water body, include:

- Policy 1 - In areas which have water quality better than the PWQO, water quality shall be maintained at or better than the objectives.
- Policy 2 - Water quality which presently does not meet the PWQO shall not be degraded further, and all practical measures shall be taken to upgrade the water quality to meet the objectives.

As will be shown in Section 3, Lake Ontario, in the vicinity of this project, is Policy 1 for the relevant water quality parameters.

MECP (1994a) provides specific numerical and descriptive criteria for a range of chemical, physical, and biological parameters that are protective of aquatic life and recreational water usage. Pollutant discharge limits can be determined based on the above policies for water quality and the existing physical, chemical, and biological conditions of the receiving water.

The water quality parameters that were the focus of the RWIA for the Clarkson WWTP include: Total Phosphorus (TP), Un-ionized Ammonia (UIA), and Escherichia Coli (*E. Coli*). These parameters are summarized in Table 2.1 along with their PWQO.

Total ammonia is used as the major surrogate for UIA from a mass balance perspective. Local background data for pH and temperature are also compiled as reference conditions and are summarized in Table 2.1.

Table 2.1: Summary of relevant Provincial Water Quality Objectives (MECP, 1994a)

Receiving Water Parameter	PWQO
Escherichia Coli (*E. Coli*)	100 counts/100 mL (geometric mean of at least five samples) at a designated beach.
pH	Maintained within range of 6.5-8.5.
Total Phosphorus (TP)	Concentrations should not exceed 0.02 mg/L for the ice-free period to avoid nuisance concentrations of algae.
Temperature	The temperature at the edge of the mixing zone shall not be more than 10°C above the natural ambient water temperature.
Un-ionized Ammonia (UIA)	0.02 mg/L at edge of near-field mixing zone, calculated using Formula 1 below.

UIA, which can be toxic above certain levels, can be calculated from the formula provided in MECP (1994a), adapted from Emerson et al. (1975).

- $f = 1/(10^{pKa - pH}) + 1)$; where (1)
- $pKa = 0.09018 + 2729.92/T$ (2)

where f *is the fraction of UIA (NH_3) in total ammonia (NH_3+NH_4^+) and* T *is the ambient water temperature in Kelvins (K = °C + 273.16).*

Ammonia is typically reported in terms of its nitrogen content as Total Ammonia-Nitrogen (TAN). NH_3+NH_4^+ can be calculated from TAN using a conversion factor of 1.216, which is the mass ratio of ammonia to nitrogen (Emerson et al., 1975). UIA is then calculated by multiplying the un-ionized fraction "f" by the total ammonia. The Great Lakes Water Quality Agreement (GLWQA) of 1978 states that total ammonia should not exceed 0.5 mg/L for the protection of public water supplies (International Joint Commission United States and Canada, 1989).

The PWQO for Dissolved Oxygen (DO) require that the concentrations should not be less than the values specified for cold water biota (e.g., salmonid fish communities) and warm water biota (e.g., centrarchid fish communities), listed in Table 2.2 as a function of temperature.

Table 2.2: PWQO for DO as a function of temperature (MECP, 1994a)

Temperature (°C)	Cold Water Biota		Warm Water Biota	
	% Saturation	Dissolved Oxygen Concentration (mg/L)	% Saturation	Dissolved Oxygen Concentration (mg/L)
0	54	8	47	7
5	54	7	47	6
10	54	6	47	5
15	54	6	47	5
20	57	5	47	4
25	63	5	48	4

2.2 Mixing Zone

The MECP publication titled Deriving Receiving-Water Based, Point-Source Effluent Requirements for Ontario Waters (1994b), provides guidance about the requirements for point-source discharges and the procedures for determining effluent requirements for an Environmental Compliance Approval (ECA). The process outlined for establishing effluent requirements includes:

- Site-specific receiving water assessments to be carried out to determine the effluent requirements based on the assimilative capacity of the receiving water.
- The effluent requirements will be compared to regulatory guidance for effluent discharges.
- The effluent requirements, expressed as both waste loadings and/or concentrations, will be incorporated into the Clarkson WWTP ECA.
- Effluent dilution requirements must consider background concentrations in the receiving water body, as defined by 75th percentile values of measured data (25th percentile for dissolved oxygen). Seasonal and/or diurnal changes may need to be considered.

The Clarkson WWTP expansion recommended through the Class EA considers treatment options to maintain current effluent loads, which will be discharged through the existing multiport diffuser outfall system. This study focused on the performance of the existing diffuser system and its ability to meet effluent mixing requirements and minimize the potential impacts on environmental endpoints such as, recreational uses, aquatic communities, and water treatment plant intakes.

MECP (1994b) defines a mixing zone as an area of water contiguous to a point source or definable non-point source where water quality does not comply with one or more of the PWQO. Terms and conditions related to a mixing zone are designated on a case-by-case basis and may be specified in the ECA. Specific requirements of the mixing zone are as follows:

- The mixing zone is to be designed to be as small as possible.
- In the Great Lakes, initial mixing for discharge diffusers must have a minimum near field (initial mixing) ratio of 20:1.
- Mixing zones cannot interfere with other water uses such as drinking water supply or recreation.
- MECP terms of reference developed for previous wastewater treatment plant outfall receiving water impact assessments on Lake Ontario stated that the PWQO should be met at the edge of the near-field mixing zone, and as a minimum requirement the near-field mixing zone should be limited to half the distance between the off-shore length of the outfall and the nearest shore also referred to as the 'half pipe distance'. While it is recognized that the definition of a mixing zone is open to interpretation, the PWQO were assessed against predicted concentrations at various distances away from the point of discharge, including, the half pipe distance to shore criteria based on discussions with MECP (see Meeting Minutes from April 14 and Nov. 22, 2021). The half pipe distance for this study is shown in Figure 2.1 and was used to support the near-field assessment. Model predictions were also evaluated at other critical locations such as drinking water intakes, beaches and selected shoreline locations; this was completed as part of the far-field assessment.

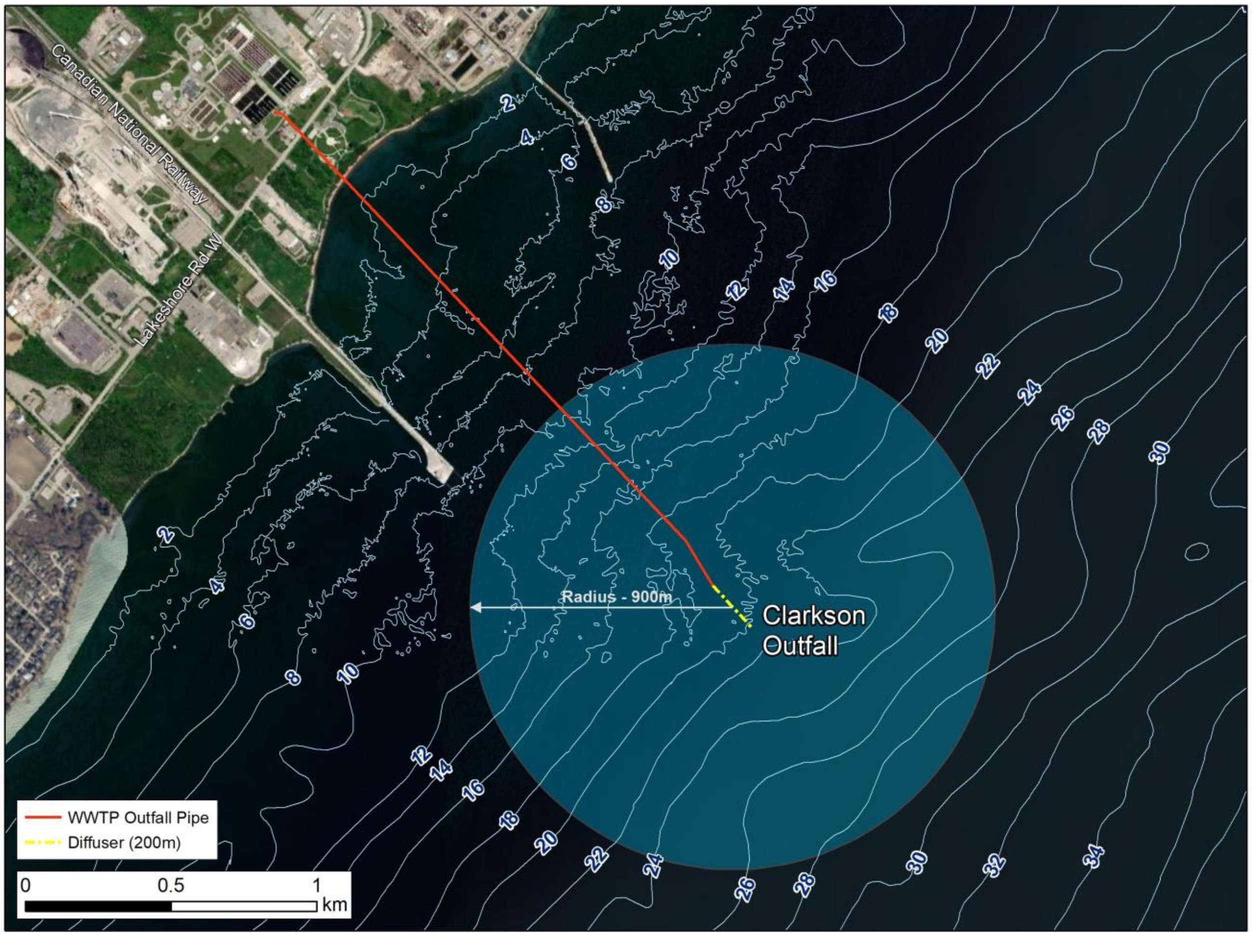


Figure 2.1: Half pipe distance at Clarkson WWTP used to support near-field assessment

3. Lake Ontario Background Conditions

The data used to define the background concentrations and physical characteristics in Lake Ontario are shown in Figure 3.1 and summarized in Table 3.1. Water quality data were collected from MECP's Drinking Water Surveillance Program (DWSP), Environment Canada's Great Lakes Surveillance Program (GLSP) and raw water samples from adjacent drinking water treatment plants. Lake currents and water temperature data were collected from one of MECP's Acoustic Doppler Current Profilers (ADCP) and temperature strings that were deployed in 2018.

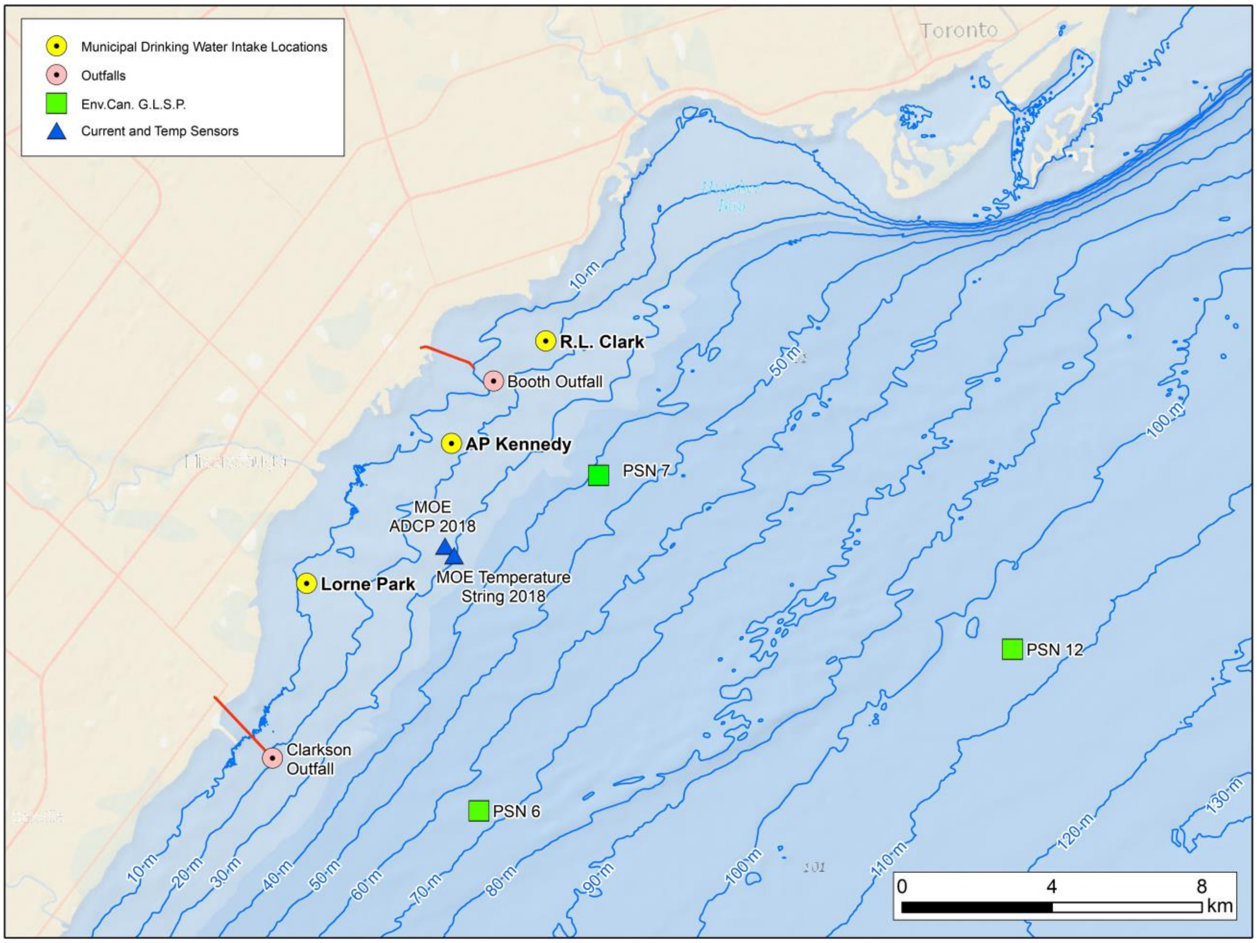


Figure 3.1: Location of data sources used to define the background conditions in Lake Ontario

Table 3.1: Summary of sampling frequency and period of coverage for key water quality parameters

Agency	Program	Station	Collection Period	Sampling Frequency	Measured Parameters
Lake Water Quality					
MECP	DWSP	Lakeview Lorne Park RL Clark	2013-2020	1 to 4 times per year	TP, pH, Ammonia
Environment Canada	GLSP	6, 7, 12	2001-2018	1-3 times per year	TP, DO, Ammonia
Municipal	WTP Raw Water Sampling	AP Kennedy Lorne Park	2015-2020	~ 2 days	E.coli
Physical Characteristics of Lake					
MECP	Temp String	GTA1	2018	Hourly	Temp
MECP	ADCP	Etobicoke	2018	30 min	Currents

The background conditions in the lake were summarized for the following key parameters: TP, TAN, UIA, E.coli, pH, and water temperature. The MECP publication titled Deriving Receiving-Water Based, Point-Source Effluent Requirements for Ontario Waters (MECP, 1994a), provides guidance regarding the requirements for point-source discharges and the procedures for determining effluent requirements for Environmental Compliance Approvals. The process outlined requires consideration of background concentrations in the receiving water body, defined by 75th percentile values of measured data (25th percentile for dissolved oxygen). Seasonal and/or diurnal changes may also need to be considered in the analysis. For this study, the data were analysed by season and the results are presented in Table 3.2. Current speed was also analysed based on depth-averaged currents derived from the ADCP, the 25th percentile value was calculated to support near-field modelling activities as low currents represent a “worst case” condition with respect to mixing. The seasons were divided into representative three-month periods as shown in Table 3.2.

Overall, the water quality conditions in the lake are below PWQO with respect to UIA, TAN, TP and E.coli making the lake a Policy 1 receiver; MECP therefore requires “water quality shall be maintained at or above the Objectives”. Historically, higher concentrations tend to occur during the summer months but still below PWQO. The 25th percentile of the depth-averaged current speed was relatively consistent across all seasons. The data presented in Table 3.2 provides a characterization of the background conditions in Lake Ontario and was used to support numerical modelling activities.

Table 3.2: Summary of background conditions in Lake Ontario

Parameter	PWQO	All Data	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)
75th Percentile						
UIA (mg/L)[4]	0.02	0.0018	0.0009	0.0004	0.0052	0.0007
TAN (mg/L)[1,5]	0.5	0.029	0.038	0.014	0.041	0.021
TP (mg/L)[1]	0.02	0.008	0.006	0.007	0.010	0.010
E.coli (#/100mL)[3]	100	2	2	1	1	2
pH[1]	-	8.2	8.2	8.3	8.5	7.9
Temp (C)[2]	-	12.8	5.0	7.0	20.0	19.0
25th Percentile						
Current Speed (m/s)	-	0.04	0.04	0.04	0.04	0.04

[1]GLSP/DWSP
[2]AP Kennedy WTP/MECP
[3]AP Kennedy WTP
[4]Calculated
[5]GLWQA

4. Effluent Conditions

This section summarizes the effluent flow and quality from the wastewater treatment plant. This information was used to support both near-field and far-field modelling activities.

4.1 Effluent Flow

The rated capacity of the Clarkson WWTP is 350 MLD. While historical flows are less than the rated capacity, the rated capacity of 350 MLD was used as a basis of comparison for the modeling. It is proposed that the rated capacity will be increased to 500 MLD to accommodate future growth in the Region of Peel, as indicated by the Class EA Phase 2 preferred solution.

4.2 Effluent Quality

Effluent quality is summarized in Table 4.1. The compliance limit and the 75th percentile values are presented for both TP and TAN. Calculation of the 75th percentile was based on raw water quality samples collected between 2016 and 2020. Samples of the effluent were collected daily for TP, temperature, pH and flow; TAN and E. coli were sampled weekly. Note that the seasonal limits for TAN do not match the seasons defined for this study. The limits shown in Table 4.1 are the calculated averages of the TAN limits based on the seasons used in this study. Note that, although not shown in the table, the calculated UIA using the TAN limits presented below does not exceed 0.063 mg/L for any season and is below the end-of-pipe criteria of 0.2 mg/L. The geometric mean was used to define E. coli concentrations; elevated values were observed in the winter, spring and fall due to seasonal disinfection that occurs only during the summer months.

Table 4.1: Summary of Clarkson WWTP effluent quality and flow

WQ Parameter	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)
Based on 75th Percentile – Represents current operating conditions				
UIA (mg/L)[1]	0.0019	0.0018	0.0029	0.0034
TAN (mg/L)	1.10	1.00	0.99	1.00
TP (mg/L)	0.45	0.47	0.55	0.51
E.coli (counts/100mL)[2]	6368	1628	19	1425
pH	6.8	6.9	6.8	6.9
Effluent temperature (°C)	16.6	16.3	22.0	21.6
Based on existing compliance limits for TAN and TP				
TP (Existing Limit 1.0 mg/L)	1.0	1.0	1.0	1.0
TAN (mg/L)[3]	24.7	20.6	10.7	16.5
Proposed compliance limit for TP at 500 MLD				
TP (Proposed limit of 0.7 mg/L)	0.7	0.7	0.7	0.7
Average Design Flow (MLD)	Currently 350 MLD with proposed increase to 500 MLD			

[1]Calculated value using TAN, water temp and pH

[2]Seasonal disinfection during summer months. Geometric mean calculated instead of 75th percentile.

[3]Limits shown for TAN were averaged based on the seasons defined for this study

5. Calculation of Target Dilutions

MECP terms of reference for recent receiving water impact assessments on Lake Ontario (i.e., G.E. Booth (formerly Lakeview) WWTP, Clarkson WWTP, and Duffin Creek Water Pollution Control Plant) stated that the PWQO should be met at the edge of the near-field mixing zone, and as a minimum requirement, the extent of the near-field mixing zone should be limited to half the distance between the off-shore length of the outfall and shore. It is recognized that the definition of a mixing zone is open to interpretation but generally accepted as a starting point for evaluation by MECP; for the purpose of this study the mixing zone is defined based on the far-field model results discussed in the next section. Note that the half pipe distance was used in the near-field analysis to evaluate the performance of the outfall system in a region closer to the diffuser where rapid dilution occurs. An understanding of the dilutions required to achieve PWQO is needed to support this assessment; this was achieved using the following equation:

$$Dilution\ Ratio = \frac{C_{Eff} - C_{Amb}}{C_{WQO} - C_{Amb}}$$

Where:

C_{Eff} = effluent concentration (mg/L)
C_{Amb} = lake ambient concentration (mg/L)
C_{WQO} = water quality objective concentration (mg/L)

The required target dilutions were determined seasonally, and the analysis considered various effluent concentrations, including: the existing compliance limits for TP and TAN, the 75th percentile values based on effluent water quality data from 2016 to 2020, and the proposed future limit for TP of 0.7 mg/L. No increase in daily phosphorus load is proposed as reducing the limit of TP to 0.7 mg/L for an ADF of 500 MLD will generate the same average waste loading limit that is currently identified in the ECA (350 kg/d). The results are presented in Table 5.1.

Table 5.1: Seasonal dilution targets for key water quality parameters

WQ Parameter	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)
Based on 75th Percentile – Represents current operating conditions				
UIA	<1:1	<1:1	<1:1	<1:1
TAN	2:1	2:1	2:1	2:1
TP	32:1	36:1	53:1	48:1
E.coli	65:1	16:1	<1:1	14:1
Based on existing compliance limits for TAN and TP				
TP (Existing Limit 1.0 mg/L)	71:1	78:1	97:1	94:1
TAN (vary by season)	53:1	42:1	23:1	34:1
Proposed compliance limit for TP				
TP (Proposed limit of 0.7 mg/L)	50:1	54:1	67:1	66:1

The following observations are based on a review of the target dilutions presented in Table 5.1.

- The target dilutions shown for the 75th percentiles are based on actual measurements at the plant and are representative of current operating conditions. The geometric mean was used to represent E.coli.

- E.coli has the highest required dilution during the winter months (65:1) as the effluent undergoes seasonal disinfection before discharge only in the summer months.
- TP is the governing constituent for spring, summer and fall with dilution values of 36:1, 53:1 and 48:1, respectively.
- A review of target dilutions based on existing compliance limits for TP and TAN showed that TP is the governing parameter with values ranging from 71:1 in winter to 97:1 in summer. The required dilutions for TAN are lower ranging from 23:1 to 53:1.
- The proposed reduction in the TP limit to 0.7 mg/L generates target dilution values ranging from 50:1 in winter to 67:1 in summer. Under this scenario TAN would govern during the winter months (53:1) but TP would still be the governing parameter in spring, summer and fall.
- The target dilutions presented in Table 5.1 will be used to support an assessment of the performance of the existing diffuser system; this is discussed in Section 7.0.

6. Outfall and Diffuser Configuration

As previously stated, a new outfall is not proposed for the Clarkson WWTP as the existing treatment plant and diffuser system have adequate (hydraulic) capacity to service the proposed increase in design flow from 350 MLD to 500 MLD. Details on the diffuser system are provided in Table 6.1.

The current outfall extends approximately 1600 m from shore where it attaches to a 204 m long multiport diffuser system. The average water depth over the length of the diffuser is 19 m below Chart Datum. There are 18 risers with a diameter of 500 mm, each riser has a 450 mm diameter diffuser port spaced 12 m on centre. The exit velocity from each port based on an average design flow of 350 MLD and 500 MLD is 1.4 m/s and 2.0 m/s, respectively.

The average daily flow measured at the plant between 2016 and 2020 was determined to be 209 MLD, which is approximately 60% of the existing design flow (350 MLD). The exit velocity at this flow rate is approximately 0.84 m/s.

Table 6.1: Clarkson WWTP diffuser system details

Length of outfall pipe from shore	1600 m
Length of diffuser	204 m
Total length of outfall pipe and diffuser	1804
Average water depth over length of diffuser	19 m
Type of diffuser	Staged
Number of risers	18
Number of ports	18
Port spacing	12 m
Port diameter	0.45 m
Diffuser alignment angle	10 degrees
Vertical discharge angle	110 degrees
Exit velocity (350 MLD average design flow)	1.4 m/s
Exit velocity (500 MLD average design flow)	2.0 m/s

7. Modelling to Support RWIA for Clarkson WWTP

The numerical modelling approach utilized both near-field and far-field modelling techniques. The two models used in this study were CORMIX and MIKE3. These models (described below) have been recently used to support other receiving water impact studies on Lake Ontario. The models and overall approach to the RWIA were presented to the MECP for comment and to ensure agreement on the methodology (see meeting minutes with MECP on April 14 and Nov 22, 2021).

7.1 Near-Field Model CORMIX

CORMIX is a United States Environmental Protection Agency (USEPA) approved software system for the analysis, prediction, and design of aqueous, toxic, or conventional pollutant discharges into diverse water bodies. CORMIX is a knowledge-based model that uses rule-based criteria to quantitatively define the geometry and dilution characteristics of the effluent plume. In regions characterized by relatively uniform currents, the model is also capable of predicting dilution estimates in the far-field where passive processes such as ambient currents dominate mixing and transport. The CORMIX model consists of three subsystems: CORMIX 1 is used to evaluate single port discharges, CORMIX 2 simulates multi-port discharges, and CORMIX 3 is used in the analysis of surface water discharges. The existing outfall at Clarkson is a multiport diffuser system, therefore CORMIX 2 was used to assess initial dilution and mixing. Regulatory agencies such as the MECP generally require the use of a near-field model such as CORMIX to quantify dilution estimates in the mixing zone as part of a RWIA.

The CORMIX model was used to predict dilutions 200 m, 400 m, 900 m and 1600 m away from the diffuser; the 200 m and 900 m distances represent the (approximate) near-field region and the half distance between the outfall system and the shore, respectively. The strength of the model is in its ability to predict mixing and dilution where the momentum and buoyancy characteristics of the effluent jet dominate the mixing process. CORMIX cannot resolve complex shorelines or temporally and spatially varying meteorological conditions in a dynamic sense; the MIKE3 model was used to predict the movement of the effluent in the lake and its impact on beneficial uses such as water intakes, parks, and beaches.

7.2 Far-Field Model MIKE3

MIKE3 is a comprehensive software system designed for the simulation of 3D flows and environmental processes. Developed by the Danish Hydraulic Institute (DHI), the modelling package includes unsteady 3D flows considering density and temperature variations, variable bathymetry, and external forcing such as wind, pressure, water levels, and currents. MIKE3 has different configurations for its grid system, including the original regularly spaced finite difference grid with fixed vertical layers, and the more recently developed flexible mesh version with the option of sigma layers in the vertical. This study utilized the MIKE3 finite difference non-hydrostatic model due to its ability to simulate submerged buoyant discharges for extended periods (i.e., several months) in a reasonable period of time. Simulating the movement of the plume from April to October produces a more comprehensive receiving water assessment by dynamically accounting for variable wind and water temperatures as seasons change.

The strength of far-field models, such as MIKE3, is in evaluating the fate and transport of effluent plumes throughout the model domain where spatially varying current conditions may exist due to shoreline features, irregular bathymetry, and/or forcing mechanisms such as wind.

7.3 Near-Field Assessment

Multiport diffuser systems are an efficient design to convey effluent away from shore and generate conditions favourable for rapid dilution and dispersion. By distributing the flow to multiple ports along the diffuser, the total surface area for entrainment is increased compared to a single port, resulting in higher dilutions. The CORMIX 2 model (used for this assessment), assumes that the hydraulic discharge pattern from the risers can be represented as a uniform line source, where a constant flow distribution is achieved along the length of the diffuser. The model also assumes that the effluent plumes merge before the end of the near-field region.

The CORMIX model was set up to predict initial dilutions from the Clarkson diffuser system on a seasonal basis. Data provided in Table 4.1 and Table 6.1 were used to define the effluent water quality and geometric configuration of the multiport diffuser system respectively. Seasonal temperature and current conditions in the lake are defined in Table 3.2.

Output from the CORMIX model includes centerline dilution predictions at various distances away from the diffuser. Four distances were selected to evaluate the results, including, the half pipe length of 900 m. The initial dilutions are based on low current speeds (25th percentile) and high effluent concentrations (compliance limits or 75th percentile values). This approach is generally recognized by the MECP for assessing receiving water impacts as it represents a conservative (worst case) condition with respect to mixing.

The dilution predictions from CORMIX for an average design flow of 350 MLD and 500 MLD are shown in Table 7.1 and Table 7.2, respectively. The calculated target dilutions required to meet PWQO based on the compliance limit for TP (1.0 mg/L) and the 75th percentile concentration are also provided in Table 7.1 for context. Recall that TP was identified as the governing constituent because it required the highest dilutions to meet PWQO for the existing compliance limits.

For the 500 MLD case, a reduction in the TP limit is proposed to maintain existing phosphorus loads. Table 7.2 provides target dilutions based on a TP limit of 0.7 mg/L. Note that phosphorus still governs for all seasons except for winter where E.coli is the governing constituent with a target dilution of 65:1. It should also be noted that Table 7.2 does not include 75th percentile concentrations as this information does not yet exist for the 500 MLD flow condition.

Figure 7.1 provides another way to assess the impact of the proposed expansion by comparing predicted TP and TAN concentrations under existing and proposed future conditions. The figure compares seasonal TP concentrations for the existing 350 MLD case with a limit of 1.0 mg/L against the proposed future flow of 500 MLD with a limit of 0.7 mg/L. The effluent concentration for TAN is not expected to change under the proposed flow of 500 MLD.

Table 7.1: CORMIX initial dilution predictions for 350 MLD

Seasons	Target Dilutions[1]		CORMIX Dilution Predictions (Distance from diffuser)			
	TP Limit (1.0 mg/L)	TP 75th Percentile	200 m	400 m	900 m	1600 m
Winter	71:1	32:1	49:1	59:1	70:1	78:1
Spring	78:1	36:1	49:1	59:1	69:1	78:1
Summer	97:1	53:1	47:1	55:1	65:1	74:1
Fall	94:1	48:1	48:1	56:1	66:1	75:1

[1] TP is the governing parameter that generates the highest dilution requirements based on effluent limit and 75th percentile effluent value

Table 7.2: CORMIX initial dilution predictions for 500 MLD

Seasons	Target Dilutions[1]		CORMIX Dilution Predictions (Distance from diffuser)			
	Limit (mg/L)	75th Percentile	200 m	400 m	900 m	1600 m
Winter[1]	65:1	NA	34:1	47:1	56:1	63:1
Spring[2]	54:1	NA	34:1	47:1	56:1	62:1
Summer[2]	67:1	NA	34:1	43:1	52:1	59:1
Fall[2]	66:1	NA	34:1	44:1	53:1	60:1

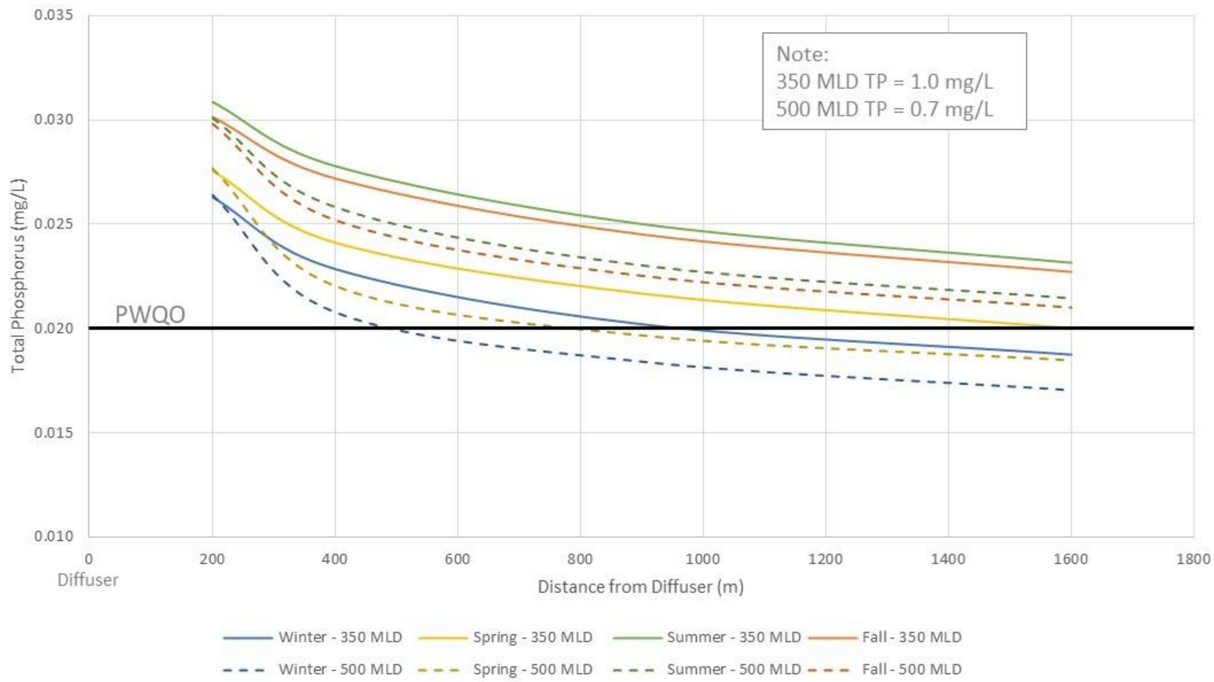
[1] E.coli is the governing parameter in winter

[2] TP is the governing parameter (proposed TP limit of 0.70 mg/L)

The following observations were based on the findings from the CORMIX model results.

- Table 7.1 showed that the Clarkson diffuser system meets or exceeds the target dilutions for the 75th percentile effluent concentration within 400 m from the diffuser. These results are reflective of current operating conditions and shows that effluent from the existing diffuser can meet PWQO well within the 900 m half pipe length. It should also be noted that the average design flow (ADF) of 350 MLD was used in these model simulations. The average daily flow over the past four years (2016-2020) was calculated to be 209 MLD, this lower flow condition would generate even higher dilutions than presented in Table 7.1, however this study focused on the ADF.
- Table 7.1 also showed that the existing diffuser would not meet PWQO for TP at the half pipe length of 900 m based on the existing compliance limit of 1.0 mg/L. The compliance limit is higher than the concentrations currently being discharged from the plant.
- Table 7.2 showed that the existing diffuser would not meet the target dilutions at the half pipe length for winter, summer and fall based on the proposed average design flow of 500 MLD and the proposed compliance limit for TP of 0.7 mg/L.
- The results presented in Table 7.1 and Table 7.2 are based on dilution estimates only and show that both existing and future conditions cannot meet PWQO under very conservative effluent and ambient conditions. These tables do not (intuitively) show how future flow conditions will impact the receiving water quality relative to existing conditions.
- Figure 7.1 provides more insight by comparing the predicted TP concentrations under an ADF of 350 MLD and limit of 1.0 mg/L, with the proposed ADF flow of 500 MLD and TP limit of 0.7 mg/L. The results showed that the future flow and limit do not make conditions worse in the receiver. In fact, there is a slight decrease in phosphorus concentrations for the future flow scenario illustrating the importance of reducing the phosphorus limit.
- Figure 7.1 also shows that predicted TAN concentrations in the lake will increase as the flow increases from 350 to 500 MLD; however, concentration levels fall below the drinking water guideline of 0.50 mg/L approximately 800 m away from the diffuser (less than the half-pipe length).
- Note that predicted E.coli concentrations were not shown in Figure 7.1 even though its dilution governs in winter; it is assumed this can be addressed through disinfection if it is deemed necessary to do so. UIA is also not shown as the target dilutions were very low and PWQO would be met almost immediately.

As discussed, the CORMIX modelling focused on a conservative (worst case) condition to assess diffuser performance in the near-field region and at the half pipe length; however, the lake is dynamic and three-dimensional in nature and requires the use of a far-field model such as MIKE3 to assess plume movement over a wider range of lake currents and temperature conditions. While the half pipe length is a reasonable metric for evaluating the general performance of the diffuser, the mixing zone for this study was defined using the MIKE3 model. This is discussed further in the next section.



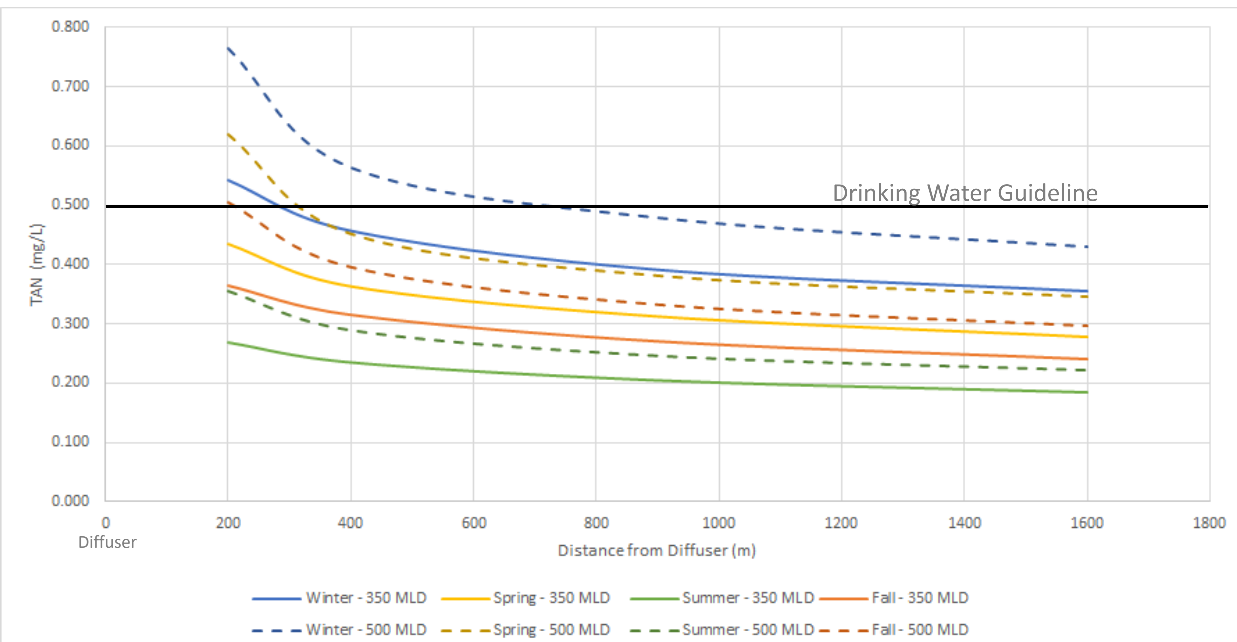


Figure 7.1: Predicted dilution concentrations away from diffuser under existing and future conditions

7.4 Far-Field Assessment

The 3D finite difference model MIKE3 FD was developed for this study and used to define the mixing zones for key constituents (TP, UIA) and to predict the impact at key locations near shore and at adjacent drinking water intakes (TP, TAN). The model was selected for its ability to simulate spatially varying meteorological conditions and submerged buoyant jets in complex regions near shore. The MIKE3 model was used to simulate hydrodynamic conditions in the lake from April to October 2008.

Developed by the Danish Hydraulic Institute (DHI), MIKE3 is a comprehensive state of the art software system designed for the simulation of 3D flows and environmental processes where stratification is of concern. The finite difference model is appropriate for Lake Ontario, which is subjected to 3D phenomena such as thermal stratification, thermal bars, up-welling, and down-welling events. The MIKE3 FD model has been used extensively by Baird and other users around the world to investigate receiving water impacts from submerged discharges.

The finite difference model uses a structured grid system to discretize the lakebed bathymetry and solve the governing partial differential equations. Higher resolution can be introduced into specific regions in the model domain using a nested grid approach. The MIKE3 model was developed using a series of nested grids with increased resolution along the Peel waterfront. Figure 7.2 shows the extent of the model domain and the location of the nested grids. All grids were rotated 25 deg.

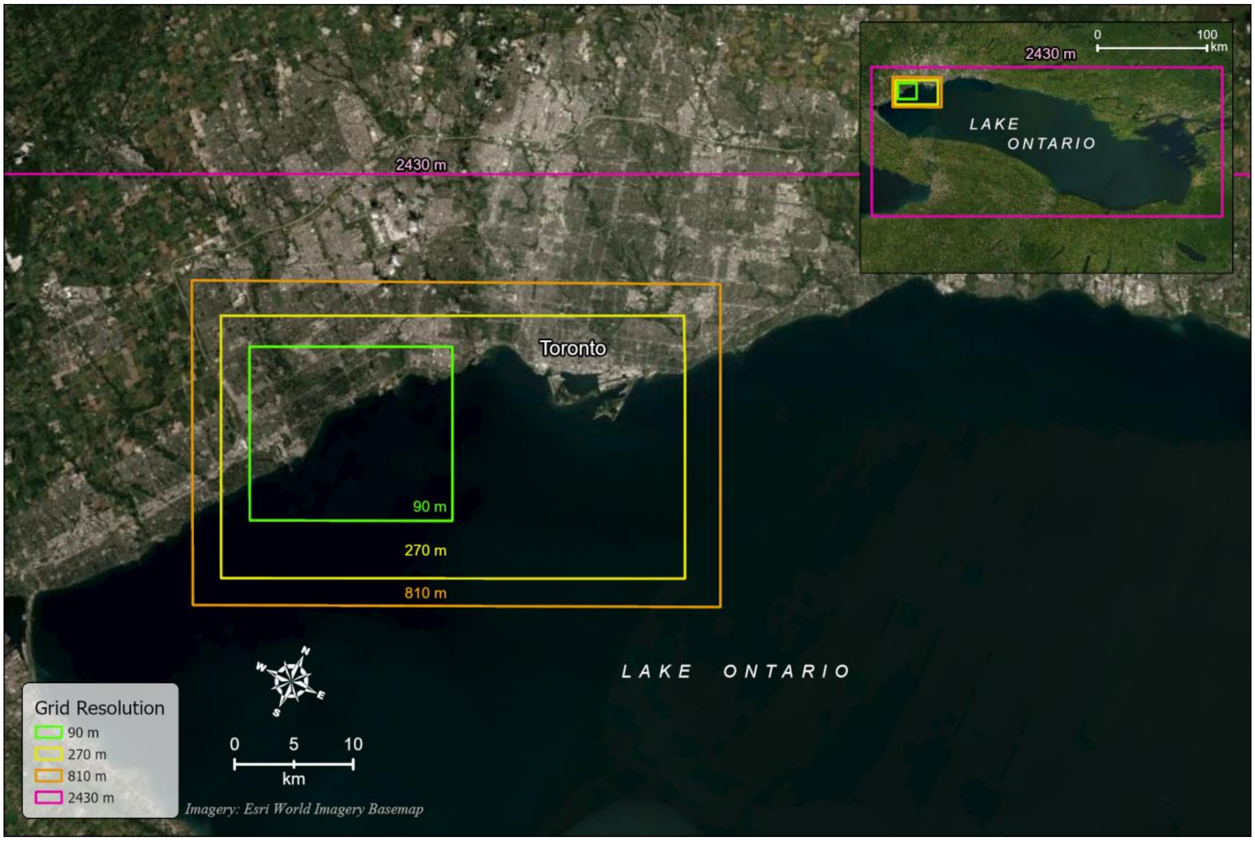


Figure 7.2: MIKE3 model domain and nested grids

The coarse outer grid has a resolution of 2,430 m and covers the entire lake. The first level of nested grid has a resolution of 810 m, the second level of nesting is 270 m. Both grids extend from Oakville to the east side of Toronto and encompass the Peel shoreline; a 90 m grid resolves the area surrounding the Clarkson WWTP. The model used 40 vertical layers with 2 m spacing to discretize the water column.

The MIKE3 model was used to simulate the receiving water impacts from the Clarkson diffuser for an ADF of 350 MLD and 500 MLD. The receiving water assessment was completed based on a six-month period from April 15 to October 15, 2008. This period has been used on past RWIA studies on Lake Ontario. Starting the simulations in the spring allows the model to begin under constant isothermal temperature conditions in the lake and lets the thermal structure in the water column develop over the course of the summer and fall.

The primary driving mechanism in the model for hydrodynamics is wind. Spatial winds developed by NOAA on a 5 km grid spacing were used in the simulations; additional inputs such as air temperature, relative humidity, and cloud cover (clearness coefficient) were defined using recorded data from Pearson Airport. The model simulated TP, which was the governing constituent based on dilution, and TAN, which is of interest at the drinking water intakes and for calculating UIA. The 75th percentile values for TP and TAN (averaged over all seasons) were used to define the initial receiving water quality conditions in the lake. Table 7.3 provides a summary of the water quality conditions used in the model.

Table 7.3: Background and effluent conditions defined in the MIKE3 model

Background/Effluent Scenarios	Average Design Flow (MLD)	Total Phosphorus TP (mg/L)	Total Ammonia Nitrogen TAN (mg/L)
Background	NA	0.008	0.029
Effluent: Existing	350	1.0[1]	ECA Limits (refer to Table 1.1)
Effluent: Future	500	0.7[2]	

[1] Existing compliance limit for TP

[2] Proposed compliance limit for TP

Output from the MIKE3 model was used to predict water quality concentrations at locations near shore and at adjacent drinking water intakes; these locations are shown in Figure 7.3. The Oakville WTP intake was not considered in the far-field assessment as it is over 7 km away from the Clarkson outfall and is located on the outer (2,430 m) model grid.

An example 2D plot showing a snapshot of predicted effluent (TP) concentrations during the model simulation is shown in Figure 7.4. In this case, the plume is moving easterly due to winds blowing from the south-west. Westerly winds are a dominant wind direction in this region.

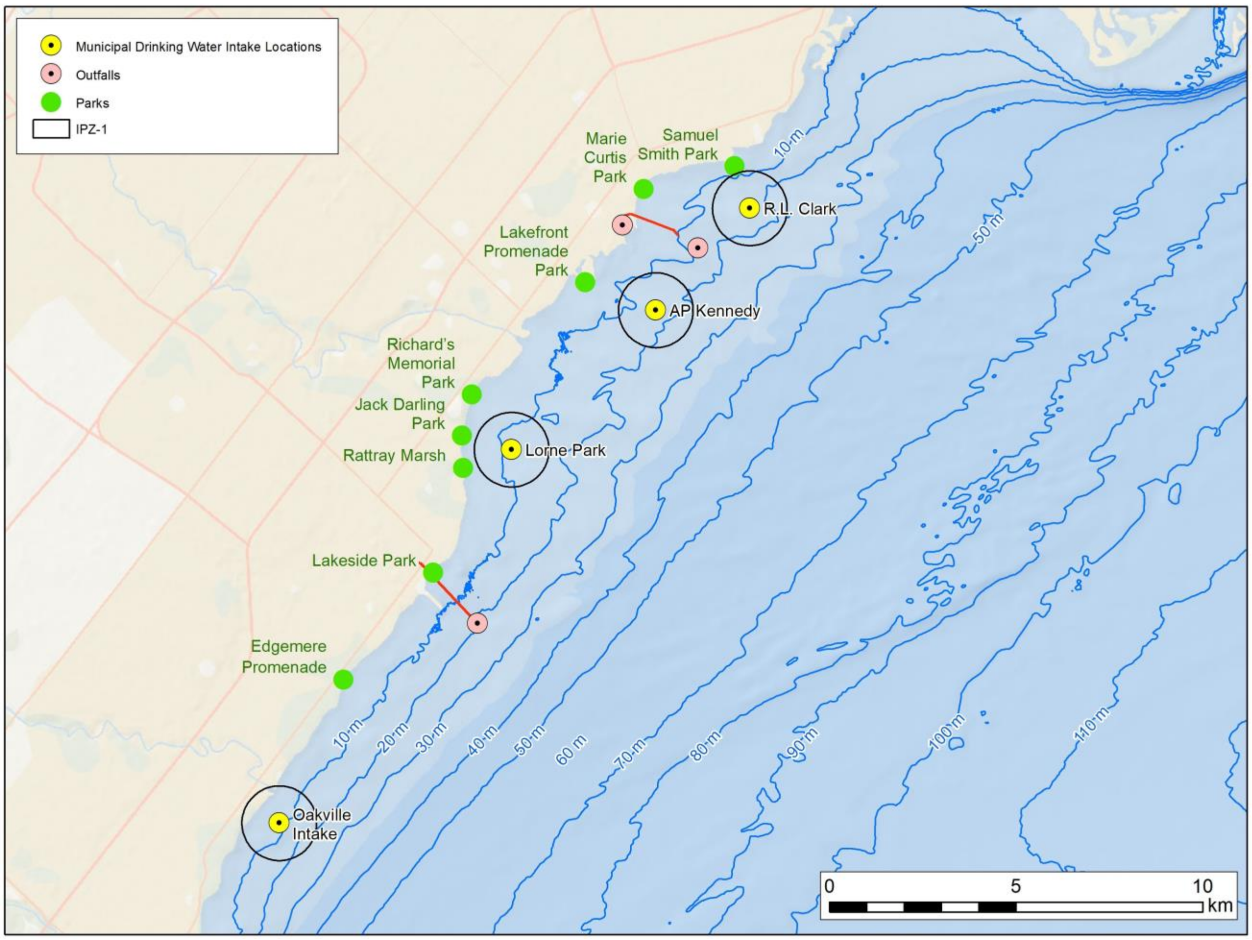


Figure 7.3: Fiducial markers used to assess water quality impacts

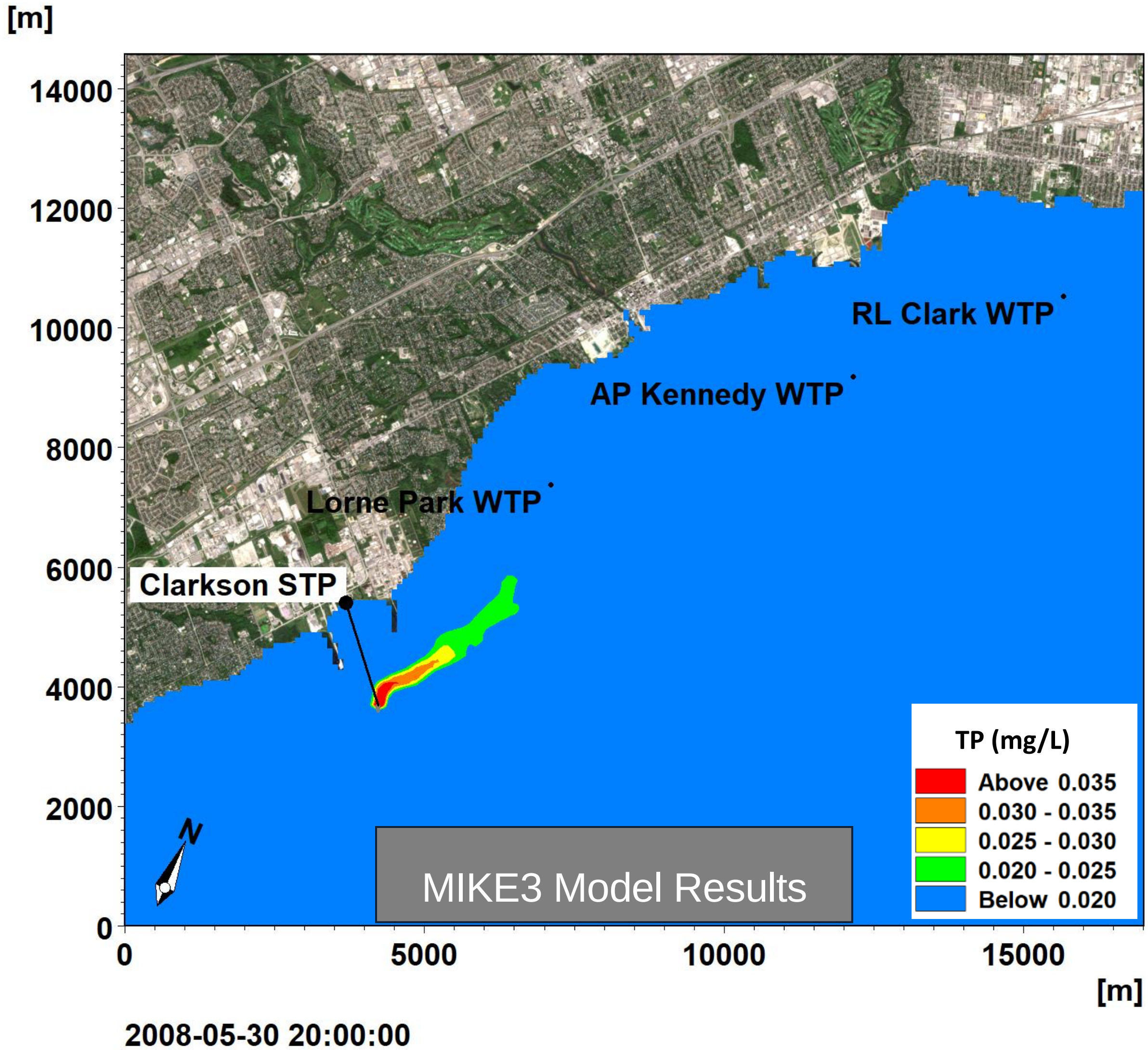


Figure 7.4: MIKE3 2D plot of TP concentration under westerly wind conditions

7.4.1 Effluent Impacts at Shore

The growth of algae, in particular epiphytic growth on rocks near shore, is stimulated by phosphorus. Table 7.4 provides a summary of the maximum instantaneous, the peak (average) daily, and the average concentration for TP at key locations used to assess water quality impacts along shore (see Figure 7.3 for locations). The peak daily concentration is based on a 24-hour rolling average as it is assumed that epiphytic growth is not driven by an instantaneous hourly measurement or prediction of phosphorus. The annual mean ambient TP concentration in the lake was defined as 0.008 mg/L in the model.

The model predicted that the peak daily TP concentration remained below PWQO at all locations under both existing and future flow conditions. Furthermore, the maximum instantaneous value was also below PWQO at all locations except for Lakeside Park and Lorne Park WTP intake. Lakeside Park is situated directly north of the outfall between two marine terminals. Under existing conditions, TP concentrations exceeded 0.02 mg/L a total of four hours over the course of the simulation, which is 4,777 hours in length; this equates to 0.08% of the time. TP concentrations at Lorne Park WTP intake exceeded PWQO a total of three hours over the simulation period or 0.06% of the time. It should be noted that the maximum instantaneous TP concentration remained below PWQO at all locations under the future flow scenario. The average TP concentration over the simulation period remained slightly above background concentrations at all locations.

Table 7.4: Predicted TP concentrations at locations near shore

Fiducial Markers	Predicted TP for ADF = 350 MLD & TP Limit = 1.0 mg/L			Predicted TP for ADF = 500 MLD & TP Limit = 0.7 mg/L		
	Inst. Max (mg/L)	Peak Day (mg/L)	Average (mg/L)	Inst. Max (mg/L)	Peak Day (mg/L)	Average (mg/L)
Drinking Water Intakes						
Lorne Park WTP	0.021[1]	0.016	0.009	0.018	0.015	0.009
A.P. Kennedy WTP	0.017	0.017	0.009	0.016	0.015	0.009
R.L. Clark	0.017	0.015	0.009	0.016	0.014	0.009
Locations at Shore						
Edgemere Promenade	0.016	0.014	0.009	0.013	0.013	0.009
Lakeside Park	0.022[2]	0.015	0.009	0.019	0.014	0.009
Rattray Marsh	0.019	0.016	0.009	0.017	0.015	0.009
Jack Darling Park	0.019	0.016	0.009	0.017	0.015	0.009
Richard's Memorial Park	0.019	0.017	0.009	0.017	0.015	0.009
Lakefront Promenade Park	0.017	0.016	0.009	0.016	0.015	0.009
Marie Curtis Park	0.014	0.013	0.009	0.013	0.013	0.009
Samuel Smith Park	0.015	0.014	0.009	0.014	0.013	0.009

[1] TP exceeded PWQO (0.02 mg/L) a total of three hours over simulation (0.06% of time)

[2] TP exceeded PWQO (0.02 mg/L) a total of four hours over simulation (0.08% of time)

7.4.2 Effluent Impacts at Drinking Water Intakes

TAN concentrations were assessed at the Lorne Park, A.P. Kennedy, and R.L. Clark water intakes. Ammonia was used as a surrogate measure of the conditions at the water filtration plant intakes and an indicator of effluent impacts on intake quality.

Table 7.5 provides a summary of the maximum instantaneous, the peak (average) daily, and the average concentration for TAN at all three intakes as well as shoreline locations over the six-month simulation. Predicted TAN concentrations remained below the GLWQA source water protection objective of 0.5 mg/L for both existing and future flow conditions. TAN concentrations are higher under the future flow condition as there is no proposed change to the ECA limits.

Table 7.5: Predicted TAN concentrations at drinking water intakes

Fiducial Markers	Predicted TAN for ADF = 350 MLD & Existing ECA Limits			Predicted TAN for ADF = 500 MLD & Existing ECA Limits		
	Inst. Max (mg/L)	Peak Day (mg/L)	Average (mg/L)	Inst. Max (mg/L)	Peak Day (mg/L)	Average (mg/L)
Drinking Water Intakes						
Lorne Park	0.21	0.17	0.04	0.27	0.23	0.05
A.P. Kennedy	0.13	0.12	0.04	0.15	0.14	0.04
R.L. Clark	0.14	0.12	0.04	0.17	0.15	0.04
Locations at Shore						
Edgemere Promenade	0.18	0.11	0.04	0.22	0.11	0.04
Lakeside Park	0.22	0.12	0.04	0.23	0.14	0.04
Rattray Marsh	0.15	0.11	0.04	0.16	0.13	0.04
Jack Darling Park	0.14	0.12	0.04	0.16	0.14	0.04
Richard's Memorial Park	0.14	0.12	0.04	0.16	0.14	0.04
Lakefront Promenade Park	0.13	0.11	0.04	0.15	0.13	0.04
Marie Curtis Park	0.10	0.10	0.04	0.12	0.11	0.04
Samuel Smith Park	0.12	0.10	0.04	0.15	0.12	0.04

7.4.3 Mixing Zones for TP and UIA

Figure 7.5 and Figure 7.6 show the predicted far-field mixing zone for TP under existing and future flow conditions (mixing zone is the red colour). Water quality concentrations were simulated hourly at every grid point over the entire six-month simulation. The percent of time that concentrations exceeded PWQO were then calculated for each grid point. The red area indicates those grid points where PWQO were exceeded at least 10% of the time. This approach, which directly accounts for the spatial and temporal variability in lake currents and thermal structure, has been used to define the far-field mixing zone for similar studies on the Great Lakes.

The future flow condition and proposed TP limit of 0.7 mg/L generated a slightly smaller mixing zone by 20% compared to existing conditions (ADF=350 MLD and TP limit=1.0 mg/L). The primary conclusion from this analysis is that conditions will improve in the receiver with respect to TP under an ADF of 500 MLD provided the TP limit is reduced to 0.7 mg/L.

UIA is of concern to aquatic systems because of its link to toxicity to fish and other biota. UIA was calculated using predicted hourly TAN concentrations and temperature values and applying a constant (75th) percentile value of 8.2 for Lake Ontario pH. Figure 7.7 and Figure 7.8 show the far-field mixing zones for UIA under existing and future flow conditions. Based on the modeling, the size of the mixing zone is expected to increase slightly under the future flow condition as the limits for TAN are not expected to change.

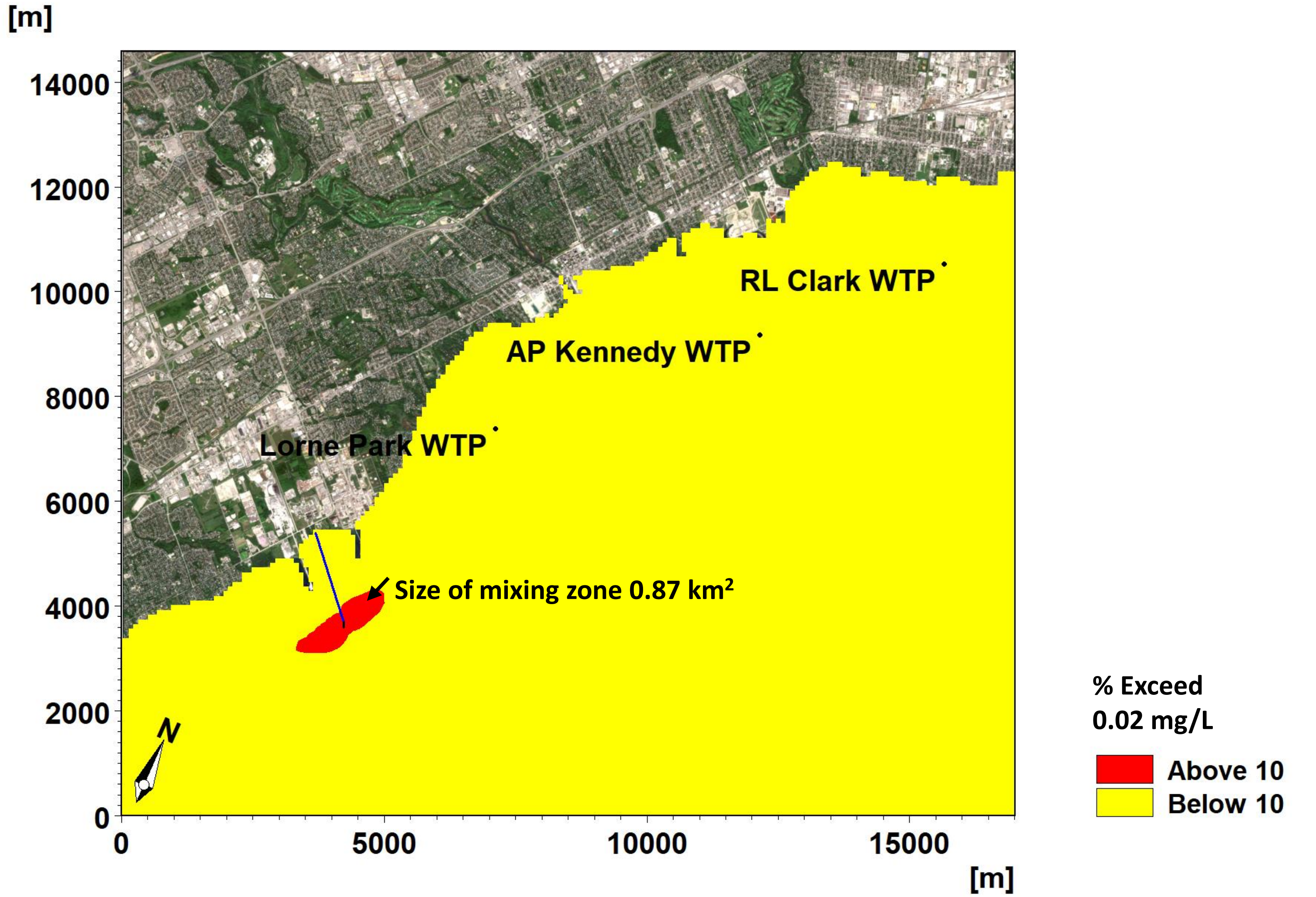


Figure 7.5: TP mixing zone: ADF = 350 MLD & TP limit = 1.0 mg/L

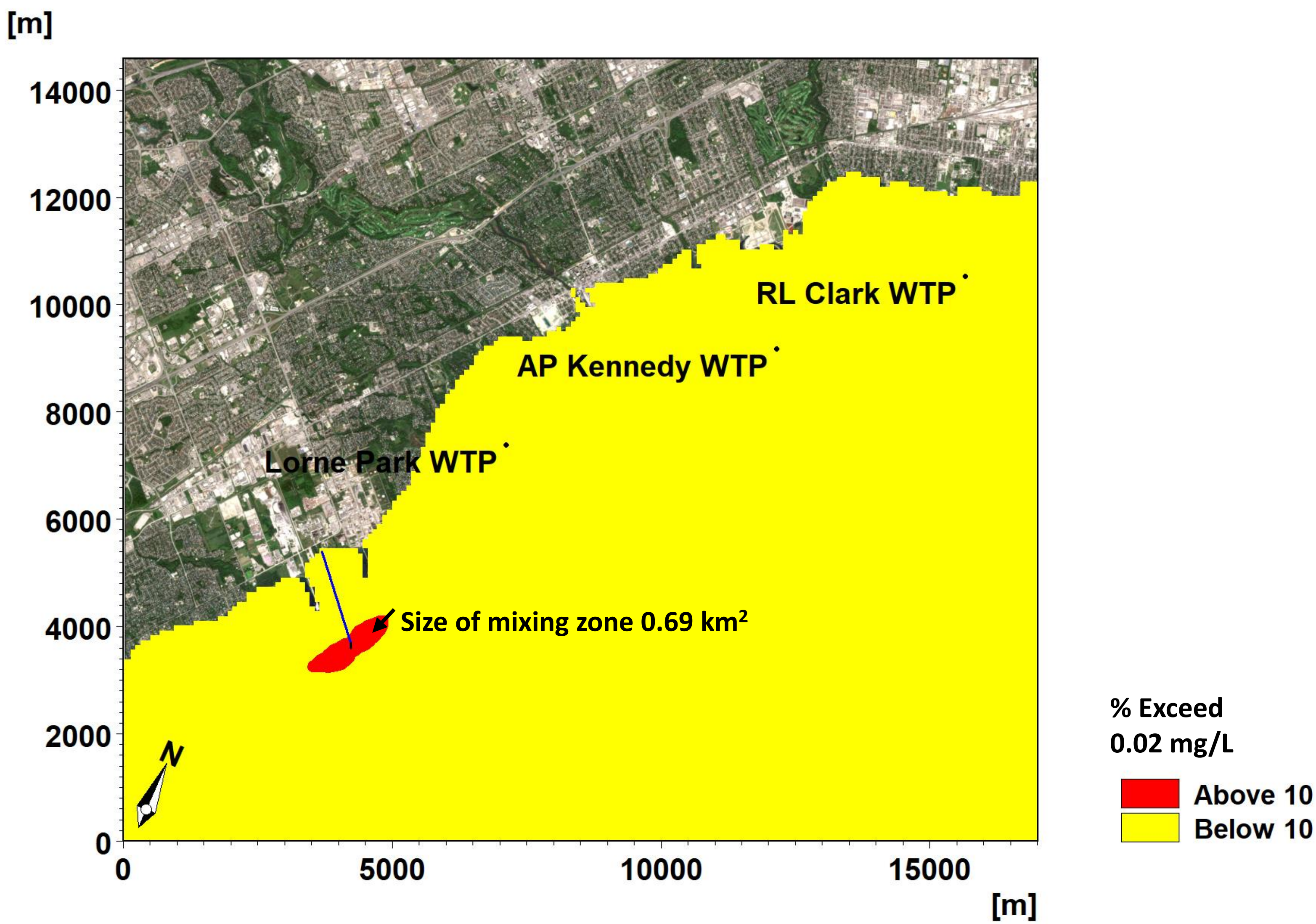


Figure 7.6: TP mixing zone: ADF = 500 MLD & TP limit = 0.7 mg/L

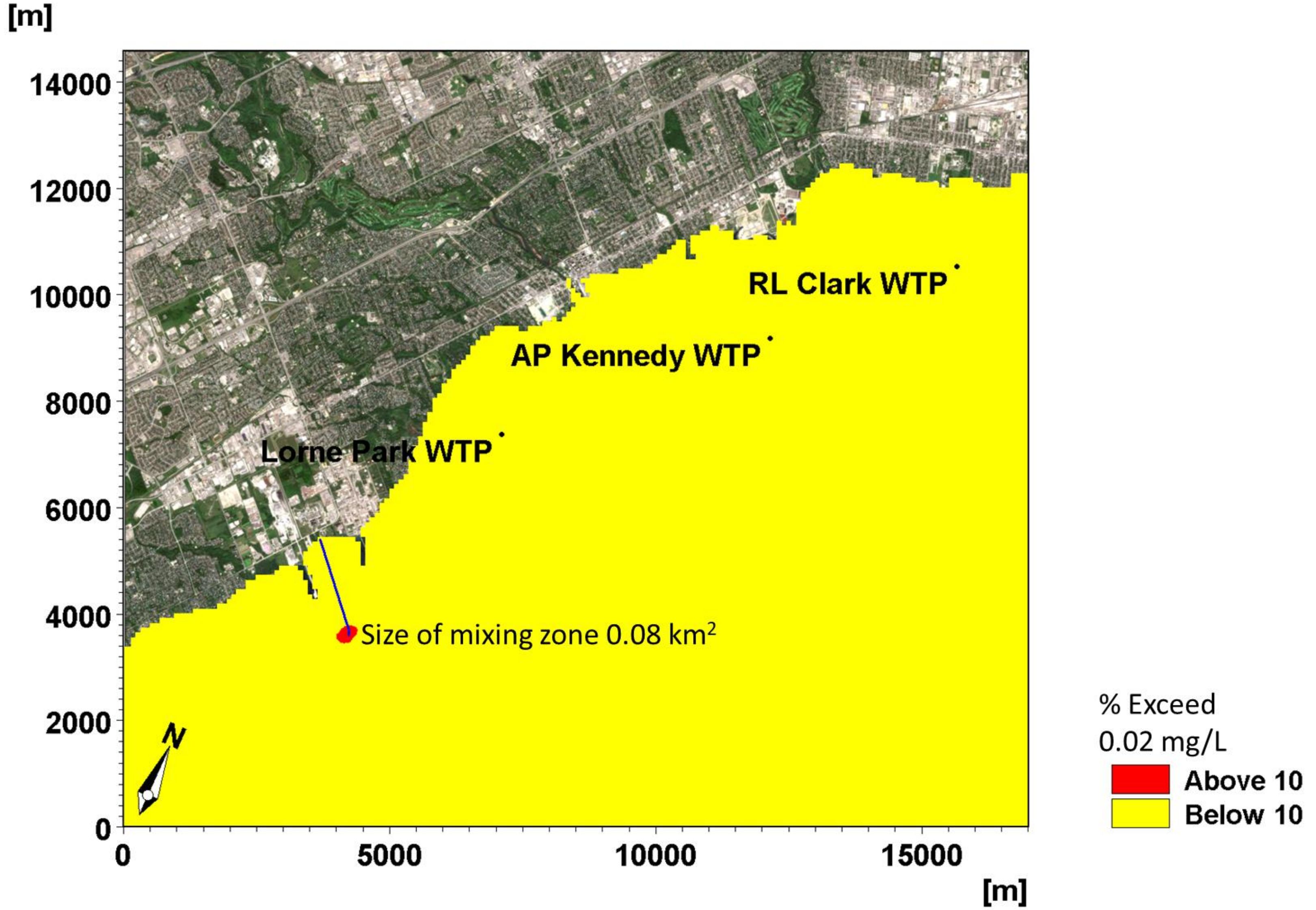


Figure 7.7: UIA mixing zone: ADF = 350 MLD & TAN limits (variable)

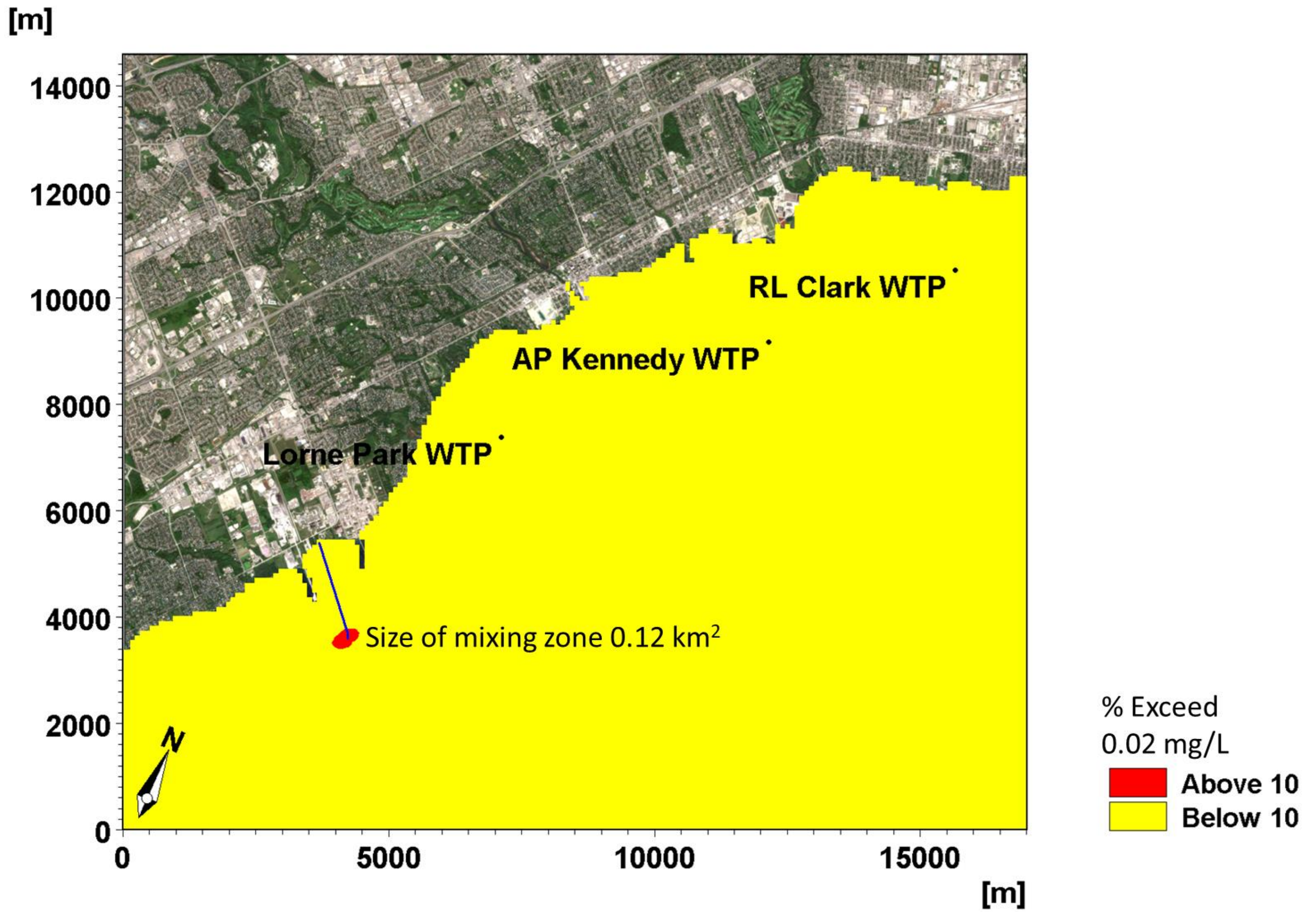


Figure 7.8: UIA mixing zone: ADF = 500 MLD & TAN limits (variable)

8. Conclusions

A Receiving Water Impact Assessment (RWIA) was completed for the Clarkson WWTP to demonstrate that the proposed expansion and treatment alternatives meet the Ministry of the Environment, Conservation and Parks (MECP) regulatory requirements for surface water discharges based on the analysis undertaken, which included near-field and far-field modelling. The data and modelling analysis were completed by season for this study (i.e., winter, spring, summer, and fall).

Lake Ontario is a Policy 1 receiver around the Clarkson outfall with respect to TP, pH, UIA, and *E. Coli* in which, according to MOE policy, “water quality shall be maintained at or above the Objectives”. The assessment of the diffuser with respect to mixing focused on TP, TAN, and UIA which are the parameters of most concern. E.coli counts in winter are higher than other seasons as the plant does not disinfect during the non-recreational season. The higher counts observed could be reduced through disinfection if MECP deems it necessary.

A simple mixing formula was used to calculate the dilutions required to meet PWQO. It was determined that TP is the governing constituent for all seasons based on a review of the existing effluent and lake water quality data as well as effluent compliance limits. Dilution requirements ranged from 71:1 in winter to 97:1 in summer.

For the future flow condition of 500MLD, a reduction in the effluent limit for TP from 1.0 mg/L to 0.7 mg/L was proposed to maintain the same phosphorus load from the plant. TP remained the governing constituent for spring, summer and fall with dilution targets ranging from 54:1 to 67:1. E.coli was the governing constituent in winter with a target dilution of 65:1; this could be reduced through disinfection. The target dilution for TAN was 53:1 in winter, which is also higher than TP. While the TAN parameter was used as a surrogate measure of the conditions at the water filtration plant intakes, the importance of TAN is in the calculation of un-ionized ammonia (UIA), which is of concern to aquatic systems because of its link to toxicity to fish and other biota.

The mixing model CORMIX was used to evaluate the performance of the diffuser under existing and future scenarios. The model assumed a conservative (worst-case) condition with respect to dilution; that is, the model was setup to simulate high effluent concentrations being discharged into the lake, which is characterized by high background concentrations and low lake current speeds. Output in the form of dilution estimates were summarized at various distances from the diffuser, including, the half pipe length which MECP does accept as a reasonable starting point for delineation of a mixing zone.

The findings from the analysis showed that the existing diffuser can meet PWQO for TP (governing parameter) within 400 m of the point of discharge. This is based on an ADF of 350 MLD and the 75th percentile concentration values for effluent discharged from the plant. Actual measured flows are less than 350 MLD as the average flow between 2016 and 2020 was calculated to be 209 MLD, so the performance with respect to mixing would be even better.

In order to complete a comparative analysis between existing and future conditions, the compliance limits for TP and TAN were assessed as part of the RWIA. The existing limit for TP is 1.0 mg/L and the limits for TAN vary throughout the year. For the future flow scenario of 500 MLD, a proposed limit of 0.7 mg/L was used for TP and the limits for TAN remained the same. The findings from the CORMIX analysis showed that effluent discharged from the diffuser will not meet PWQO for TP within the half pipe length of 900 m for either the existing or future flow scenarios. A comparison of predicted TP concentrations in the lake showed that the future flow condition scenario generated lower values compared to existing conditions highlighting the importance of reducing the phosphorus limit from 1.0 mg/L to 0.7 mg/L. Higher TAN concentrations were observed due to the increase in effluent flow, however, concentrations in the lake dropped below the drinking water guidelines of 0.50 mg/L within 800 m of the diffuser (less than the half-pipe length).

The far-field model MIKE3 was used to assess the receiving water impacts from the Clarkson diffuser for an ADF of 350 MLD and 500 MLD. The model was set up to simulate the discharge and movement of the effluent in the lake over a six-month period from April 15 to October 15, 2008. Spatial and temporally varying wind fields were used to drive model hydrodynamics and meteorological inputs were used to simulate the change in lake temperature over time. Output from the model were used to examine far-field impacts at adjacent water treatment plant intakes, key locations along shore, and to define mixing zones.

Output from the model showed that the movement of the plume is highly dynamic and strongly correlated with wind conditions. Shoreline impingement does occur for periods of time during the model simulations; in most cases, the plume was isolated to localized regions of the shoreline and was dependent on the wind direction.

The growth of algae, in particular epiphytic growth on rocks near shore, is stimulated by phosphorus. Predicted TP levels remained below PWQO at all locations based on the peak (average) daily concentration. This value was based on a 24-hour rolling average and used as a metric against PWQO as it is assumed that epiphytic growth is not driven by an instantaneous hourly measurement or prediction of phosphorus. The maximum predicted (instantaneous) TP concentration exceeded PWQO at two locations under existing conditions, however, the number of hours above PWQO were very low (three to four hours) relative to the model simulations period (4,777 hours in length).

Predicted TAN concentrations remained below the GLWQA source water protection objective of 0.5 mg/L at all fiducial markers for both existing and future flow conditions. TAN concentrations were higher under the future condition as there is no proposed change to the ECA limits.

The mixing zones were defined by the 10% exceedance (or 90th percentile) contour throughout the model domain. That is, the red area represents the region where PWQO were exceeded at least 10% of the time over the simulation period, this is defined as the mixing zone. The yellow area is defined as the region where PWQO were exceeded less than 10% of the time.

The mixing zones for TP under existing and future conditions are very similar as the phosphorus load is not expected to change. In fact, the mixing zone for the future scenario is 20% smaller than the existing scenario due to a lower compliance limit of 0.7 mg/L.

The UIA mixing zone is 80% to 90% smaller than the TP mixing zone for the 500 MLD and 350 MLD scenarios, respectively. Unlike TP, the future flow condition generated a slightly larger mixing zone compared to existing conditions as the compliance limits are expected to remain the same.

9. References

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Appendix C:

Air Quality Assessment Report

AIR QUALITY ASSESSMENT

SCHEDULE "C" CLASS ENVIRONMENTAL ASSESSMENT

CLARKSON WATER RESOURCE RECOVERY FACILITY (WRRF)

REGIONAL MUNICIPALITY OF PEEL

PROJECT NO.: OAQC2166A
MAY 2023

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EXECUTIVE SUMMARY

The Regional Municipality of Peel (Region of Peel)'s lake-based wastewater system consists of two major interconnected trunk sewer systems (East and West) which convey flows through sewage pumping stations, force mains, trunk sewers, and local gravity sanitary sewers, to the Clarkson WRRF and the G.E. Booth WRRF for final treatment and discharge to Lake Ontario. Both facilities are located within in the Region of Peel on the shore of Lake Ontario approximately 11 kilometres apart from each other, as shown in Figure 1-1.

Both the Clarkson and G.E. Booth WRRFs are conventional activated sludge facilities, with rated capacities of 350 million litres per day (MLD) and 518 MLD, respectively. The G.E. Booth WRRF is currently approaching its capacity, with a 5-year average day flow (ADF) to the G.E. Booth WRRF of approximately 450 MLD. Currently, the ADF to the Clarkson WRRF is approximately 220 MLD.

The Region of Peel proposes to expand operations (Project) at two Water Resource Recovery Facility (WRRFs): the Clarkson WRRF (Project A) and the G.E. Booth WRRF (Project B), formerly known as the Clarkson Wastewater Treatment Plant and the G.E. Booth Wastewater Treatment Plant.

A Class Environmental Assessment (EA), pursuant to the *Ontario Environmental Assessment Act,* is required to be completed for both Projects A and B. This Air Quality Impact Assessment (AQIA) report is one of a series of Technical Support Documents (TSDs) prepared on behalf of Region of Peel to assess the potential effects of the operations expansions at the Clarkson WRRF (Project A) on air quality.

The Clarkson WRRF Schedule C Class EA has developed a preferred regional solution for managing flows within the lake-based Peel wastewater collection system and a design concept for expanding the Clarkson WRRF to meet future wastewater treatment needs to the year 2041. The preferred design concept will help the Region respond to changing regulations and needs well into the future.

The preferred alternative includes:

- Diversion of flows through the East-to-West Trunk sewer to alleviate current capacity challenges at the G.E. Booth WRRF, while taking advantage of surplus capacity at the Clarkson WRRF.
- Expanding the existing Clarkson WRRF from a rated capacity of 350 MLD to 500 MLD by the year 2029. The expansion includes additional preliminary treatment, primary treatment, and disinfection capacity by using the same technologies as the existing and providing additional secondary treatment capacity through the implementation of a Biological Nutrient Removal (BNR) facility.
- Digested/dewatered sludge produced at the Clarkson WRRF will no longer be trucked to the G.E. Booth WRRF for incineration. Additional solids treatment capacity will be provided at the Clarkson WRRF through the construction of additional digesters and a drying facility.
- Biosolids produced through the new solids' treatment processes include a digested/dewatered cake product and a dried product for collection and distribution for beneficial land use by third-party firms:
  - The digested/dewatered cake can be applied directly on agricultural lands, or further treated off-site by third-party vendors for use as a fertilizer.
  - The dried product can be used directly as a fertilizer.

The Clarkson WRRF upgrade and expansion works include new processes equipment, as follows:

- New headworks facility building with associated equipment;
- Carbon adsorption units related to screening channels and grit removal facilities;
- Radial flow dry media unit associated with proposed expanded Plant 3 clarifiers influent and effluent channels;
- Primary clarifier tanks related to Primary Treatment Plant 3;
- Primary sludge thickening facility and odour control system;
- Dewatered sludge direct thermal drying and dried product loading bay; and
- Four standby diesel generators at the new energy center, each having a capacity of 2.5MW.

The air quality assessment required quantification of air pollutant and odour emissions from all sources and activities at the Clarkson WRRF, and the use of air dispersion modelling to predict the resulting effects of WRRF emissions on air quality beyond the boundary of the facility. The air dispersion modelling was completed using the US EPA AERMOD, which is the approved regulatory model in Ontario. The AQIA included consideration of the existing background air concentrations of the air pollutants to compare the cumulative effects to the Ontario ambient air quality criteria.

The findings of the air quality assessment are as follows:

- Criteria air contaminants emitted to the atmosphere from combustion processes at the WRRF include oxides of nitrogen (NO_X), conservatively assumed all to be in nitrogen dioxide (NO_2) form, and sulphur dioxide;
- Sulphur dioxide, total reduced sulphur compounds and ammonia are released to the air from the treatment processes;
- The operational expansion of Clarkson WRRF (Project A) is expected to emit to the atmosphere the same contaminants as at the current conditions plus additional sulphur dioxide and $PM_{2.5}$ emissions from the proposed sludge drying facility, and additional nitrogen oxides from the standby diesel generators when these are operating;
- The assessment determined that the modelled concentrations of all air pollutants were below the respective ambient air quality criteria, even with consideration of the existing background air concentrations; the contaminant with the highest level of air quality impact from the current configuration of the facility is nitrogen dioxide (NO_2) at 71% and 80% of the ambient air quality criteria for 1-hour and 24-hours averaging periods, respectively;
- For the upgraded facility (Project A), the total reduced sulphur emissions (TRS) were predicted at concentrations of 59% and 84% of applicable criteria for 10-minutes and 24-hr averaging period respectively;
- Sulphur dioxide emissions to the atmosphere from the proposed Direct Thermal Drying unit is expected to be at 4.5% and 3.4% of applicable criteria for 1-hour and annual averaging periods, respectively;
- For the upgraded facility (Project A) it is expected that the modelled effects of NO_2 will increase to 81% of criteria for 24-hours averaging time. There is no change to the modelled 1-hour average NO_2 concentrations, which remain at 71% of applicable criterion;

- For all air pollutants assessed, the predicted cumulative concentrations (ambient air concentrations plus Project A emissions) were found to be less than the respective criteria at all locations beyond the Clarkson WRRF property boundary and at all sensitive receptors;
- The current facility and Project A both have sources of odour emissions that require effective mitigation and management to prevent, or minimize, off-site effects. The odour impacts at identified sensitive receptors proximate to the plant are not expected to change appreciably as a result of the planned upgrades; and
- Compliance with O. Reg. 419/05 applicable standards and criteria for the proposed Project A demonstrates that the Project A potentially meets the air quality requirements for obtaining a provincial Environmental Compliance Approval for air.

A series of mitigation measures, including air emission control systems, were included in the project design to avoid and minimize adverse effects. In addition to these controls, the Clarkson WRRF will implement Odour Mitigation and Management Plan (OMMP) to minimize off-site odour impacts. This plan will include an odour compliant response protocol should an odour complaint be received for the operations of the expanded facility.

The proposed expansion of the Clarkson WRRF will result in increased air emissions for criteria air contaminants, odour, total reduced sulphur, and ammonia; however, the air dispersion modelling assessment predicts that the ambient air concentrations in the vicinity of the WRRF will continue to be lower than the ambient air quality criteria for all of the pollutants.

A draft of this report was provided to the Ministry of Environment, Parks and Conservation (MECP), and comments were received. These comments and the Project Team's responses are provided in Appendix D. This final report reflects the input received from the MECP.

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FIGURES

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LIST OF ACRONYMS

AAQC	Ontario Ambient Air Quality Criteria
ACB	Air Contaminants Benchmark
ADF	Average daily flow
ADMGO	Guideline A-11: Air Dispersion Modelling Guideline for Ontario, v3.0, 2018
AERMOD	US EPA AERMOD version 19191, an MECP approved air quality dispersion model
AQIA	Air Quality Impact Assessment
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminant
EA	Environmental Assessment
ECA	Ontario Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
ESDM	Emission Summary Dispersion Modelling Report
km	kilometre
L	litres
m	metre
m^3	cubic metres
m^3/s	cubic metres per second
MECP	Ministry of the Environment, Conservation and Parks
MLD	million litres per day
NAPS	Canada's National Air Pollutant Surveillance Program
NH_3	ammonia
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	ozone
O. Reg.	Ontario Regulation
OU	odour unit, also OU/m^3
PM	particulate matter
POI	point of impingement
Project A	Clarkson WRRF upgrade
SO_2	sulphur dioxide
SO_3	sulphur trioxide
SOx	sulphur oxides
TRS	total reduced sulphur
TSD	Technical Support Document
US EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
WRRF	Water Resource Recovery Facilities
°C	degrees Celsius
$\mu g/m^3$	micrograms (one-millionth of a gram) per cubic metre

1 INTRODUCTION AND PROJECT OVERVIEW

The Regional Municipality of Peel's (Region of Peel) lake-based wastewater system consists of two major interconnected trunk sewer systems (East and West) which convey flows through sewage pumping stations, force mains, trunk sewers, and local gravity sanitary sewers, to two treatment plants for final treatment and discharge to Lake Ontario.

The Region of Peel is proposing to upgrade and expand operations at these two Water Resource Recovery Facilities (WRRFs): the Clarkson WRRF (Project A) and the G.E. Booth WRRF (Project B). Both facilities are in the Region of Peel on the shore of Lake Ontario approximately 11 km apart (as shown in the Figure 1-1).

A Class Environmental Assessment (EA) pursuant to the Ontario Environmental Assessment Act is required to be completed for the Project. This Air Quality Impact Assessment (AQIA) report is one of a series of Technical Support Documents (TSDs) prepared on behalf of Region of Peel to describe the potential air quality effects of the Project.

Figure 1-1: Project Location

1.1 PURPOSE AND OBJECTIVES OF AIR QUALITY IMPACT ASSESSMENT

This AQIA Report has been prepared to assess the potential effects of the upgrades associated with Project A on air quality.

The objectives of the assessment are as follow:

- Identify the air contaminants that are expected to be emitted in notable quantities from operations at Clarkson WRRF, the key contaminants, for the current scenario and the Project A scenario with the upgrades completed;
- Prepare estimates of the air emissions of the key air contaminants from Project, both point and area sources;
- Complete air dispersion modelling for key contaminants and odour to predict the resultant air quality effects on ambient air in the vicinity to allow for comparisons of the Project A effects to the current scenario, and to compare predicted air quality effects to the relevant air quality criteria;
- Identify mitigative measures to prevent, or minimize, off-site effects; and
- Demonstrate compliance with the regulatory standards of Ontario Regulation (O. Reg.) 419/05 – Local Air Quality, as required to obtain in future an Environmental Compliance Approval (ECA) – Air and Noise.

A draft of this report was provided to the MECP and comments were received. These comments and the Project Team's responses are provided in Appendix D. This final report reflects the input received from the MECP.

1.2 OVERVIEW OF THE PROJECT

The Clarkson and G.E. Booth WRRFs are both conventional activated sludge facilities, with rated capacities of 350 million litres per day (MLD) and 518 MLD, respectively. The G.E. Booth WRRF is currently approaching its capacity limits, as the 5-year average day flow (ADF) to the G.E. Booth WRRF is approximately 450 MLD. Currently, the ADF to the Clarkson WRRF is approximately 220 MLD.

The East and West trunk sewer systems are approximately divided by the watershed boundary between the Etobicoke Creek and the Credit River. The two systems are currently connected via the West-to-East Sanitary Trunk Sewer, which can be used to divert some wastewater flows by gravity from the west trunk system to the east trunk system at Highway 407. In addition, an East-to-West Sanitary Trunk Sewer Diversion is currently being constructed, to help alleviate capacity challenges at the G.E. Booth WRRF, and allow the Region to better optimize wastewater flows and loading in their systems. The diversion is a deep gravity tunnelled trunk sewer of 2400 mm diameter that extends 11 km between Spring Creek and the Credit River, aligned primarily along Derry Road. Construction of the gravity trunk sewer diversion is expected to be completed by 2026.

The Region's Growth Management process and 2020 Water and Wastewater Master Plan identified that there will be significant population and employment growth across the Region of Peel. With this approved growth to year 2041 and vision for growth beyond 2041, the WRRFs together will not have the capacity to meet the needs of Peel's citizens and to continue to protect the environment, even with the East-to-West Trunk Sewer Diversion in place. Additional treatment capacity will therefore be required at the G.E. Booth and Clarkson WRRFs.

Biosolids are the organic materials resulting from the physical, chemical and biological treatment of sewage sludge generated at Water Resource Recovery Facility. Currently, digested sludge generated at Clarkson WRRF is dewatered and hauled by trucks approximately 18 km to the G.E. Booth WRRF for incineration. The residual ash slurry from the incineration process is transferred to two on-site settling lagoons which are dredged regularly and stored on-site in the ash ponds and berms. The existing biosolids management program has challenges related to its capacity, long-term sustainability, cost effectiveness, and reliability.

The purpose this Clarkson WRRF EA is to document the process undertaken to identify a strategy for addressing immediate and long-term wastewater servicing needs in the Region, and to develop a preferred design concept for meeting these needs at the Clarkson WRRF.

The Clarkson WRRF Class EA will:

- Establish flow diversion requirements through the East-to-West Diversion Trunk Sewer,
- Develop a long-term sustainable program for managing biosolids in the Region,
- Identify and develop expansion needs at the Clarkson WRRF, including wastewater and biosolids treatment technologies and process requirements,
- Identify measures to avoid and mitigate impacts to the natural, social, cultural, and technical environments,
- Prepare an enhanced conceptual design, and
- Develop an overall plan and schedule for implement infrastructure works.

At the Clarkson WRRF, this expansion will include the following new processes and equipment:

- New headworks facility building with associated equipment;
- Carbon adsorption units related to screening channels and grit removal facilities;
- Radial flow dry media unit associated with proposed expanded Plant 3 clarifiers influent and effluent channels;
- Primary clarifier Tanks related to Primary Treatment Plant 3;
- Primary sludge thickening facility and odour control system;
- Dewatered sludge direct thermal drying and dried product loading bay; and
- Four standby diesel generators at the new energy center, each having a capacity of 2.5MW.

1.3 REGIONAL SETTING

The Project is located in a well-developed urban area of the Region of Peel within the boundary of the City of Mississauga. The civic address for the facility is 2307 Lakeshore Rd. W., Mississauga, ON, L5J 4B1.

The facility is surrounded by industrial lands with the closest residential receptors located in approximately 580 meters to the west from the property line. The proposed changes to the Clarkson WRRF under the current EA assumed the property footprint of the facility will not change.

For the purposes of the AQIA, the term 'receptor' is defined as a location with human activity. It is recognized that the term 'receptor' in air quality assessments commonly refers to all computer-generated points where the modelling software computes concentrations of contaminants, independent of land use.

2 METHODOLOGY

2.1 STUDY AREA

The study area for air quality modelling is defined as an area approximately 10 km by 10 km centered at the Clarkson WRRF property, as illustrated in Figure 2-1. The impacts are expected in the vicinity of the facility where most of the air quality effects of the Project A are expected to occur and can be predicted or measured with a reasonable degree of accuracy.

2.2 TEMPORAL BOUNDARIES

The temporal boundaries of the air quality assessment correspond to those of the EA, and will span all phases of the Project:

- Current operations at the Clarkson WRRF (Current Scenario); and
- Operations at the Clarkson WRRF after changes proposed in the EA are implemented (Project A).

2.3 IDENTIFICATION OF MODELLED AIR CONTAMINANTS

The modelled air contaminants selected are those contaminants with air emissions and predicted ground level air concentrations that are relevant to the Current Scenario and Project A.

The modelled air contaminants selected are those contaminants identified in the Emission Summary and Dispersion Modelling (ESDM) Reports prepared for the Clarkson WRRF and approved by the Environmental Compliance Approval (ECA) granted by the Ministry of the Environment, Conservation and Parks (MECP) (ECA Number 5146-9JNQWA issued on May 28, 2014). The Project phase of the assessment is not expected to add any new contaminants which were not previously assessed for the Current Scenario, which is the operating scenario approved by MECP.

The air contaminants include the Criteria Air Contaminants (CACs) associated with natural gas combustion with nitrogen oxides (NO_X) were used as a surrogate for all CACs, and contaminants associated with wastewater treatment operations (sulphur dioxide (SO_2), total reduced sulphur (TRS) compounds, ammonia (NH_3) and odour). The modelled contaminants are further described in Section 3.1 of this report.

2.4 PREDICTION OF EFFECTS

2.4.1 METHODOLOGY

The assessment of the potential air quality effects of the proposed Project was performed in accordance with the requirements stipulated in the MECP reference documents.

The prediction of effects involved the following steps:

- Identify emissions sources associated with the Current Scenario and Project A.
- Identify the key air contaminants emitted to the atmosphere from the identified sources.
- Summarize the baseline ambient air quality conditions in the absence of the Project for each of the key air contaminants.
- Identify the relevant regulatory air quality standards and criteria and establish the appropriate assessment criteria for the site in Ontario, noting that for some of the parameters there may be more than one applicable limit depending upon the air concentration averaging time.
- Estimate the air emission rates for each of the key air contaminants using appropriate estimation methods and established data sources.
- Prepare a source summary table that identifies sources at the Project site which may release one or more of the key air contaminants or odour emitted to the atmosphere in appreciable quantities and the corresponding compounds and emission rates.
- Perform air dispersion modelling using the U.S. Environmental Protection Agency (US EPA) AERMOD version 19191, the current regulatory air dispersion model used in Ontario.
- Compare the dispersion modelling output to the assessment criteria, comparing predicted offsite effects on ambient air quality with the corresponding air quality standard or criterion.

2.4.2 DISPERSION MODEL SELECTION

AERMOD, a steady-state Gaussian dispersion model, was determined to be the most appropriate model for assessment as it is capable of handling multiple sources of varying types such as point, area, and linear sources. The dispersion model was used to predict the concentrations (in $\mu g/m^3$) of the air contaminants identified in Section 3.1 at each receptor beyond the property boundary.

The input data used for AERMOD includes five years of local, hourly meteorological data, terrain elevations for the site and vicinity, and the characteristics of the buildings, and emission sources.

Although the immediate area surrounding the site does not have major topographical features such as mountains, valleys, or canyons, the topography was considered in the AERMOD modelling. Canadian Digital Elevation Data were publicly available as GeoTIFF files for the modelling domain.

2.4.3 METEOROLOGICAL DATA FOR AIR DISPERSION MODELLING

The site-specific meteorological data used for the AERMOD modelling consisted of five years (2016 to 2020) of surface meteorological data and upper air data processed and provided to WSP E&I air quality team by the Ontario MECP.

The meteorological data included hourly wind speed, wind direction, temperature, and barometric pressure. The surrounding land use was used in processing the AERMET file to establish appropriate surface roughness, albedo, and Bowen ratio values for the modelling domain. These data allow for the determination of the mixing height and other parameters that influence air dispersion of emissions from sources at the WRRF.

The method outlined in the ADMGO was used to address the potential for meteorological anomalies to overly influence the results of air dispersion modelling (MECP 2017).

The wind data from the site-specific data set provided by the MECP is presented for the entire 5-year period (2016 to 2020) as wind roses in Figure 2-2. A wind rose is a useful frequency distribution plot that shows the wind speed and direction data in one plot. Each colour in the plot represents a wind speed range, and each segment extending out from the centre represents the frequency that wind is blowing from that direction. This is the wind speed and direction data used for the air dispersion modelling. It is noted that MECP modifies the wind speed data in the data set to replace all calm conditions with low wind speeds. As such, the wind rose does not show any calm conditions, which makes the dispersion modelling results more conservative.

Southwest winds were the most common and prevailing and the average wind speed for the data set was 3.8 metres per second.

2.4.4 AIR DISPERSION MODELLING FOR ODOUR AND TOTAL REDUCED SULPHUR

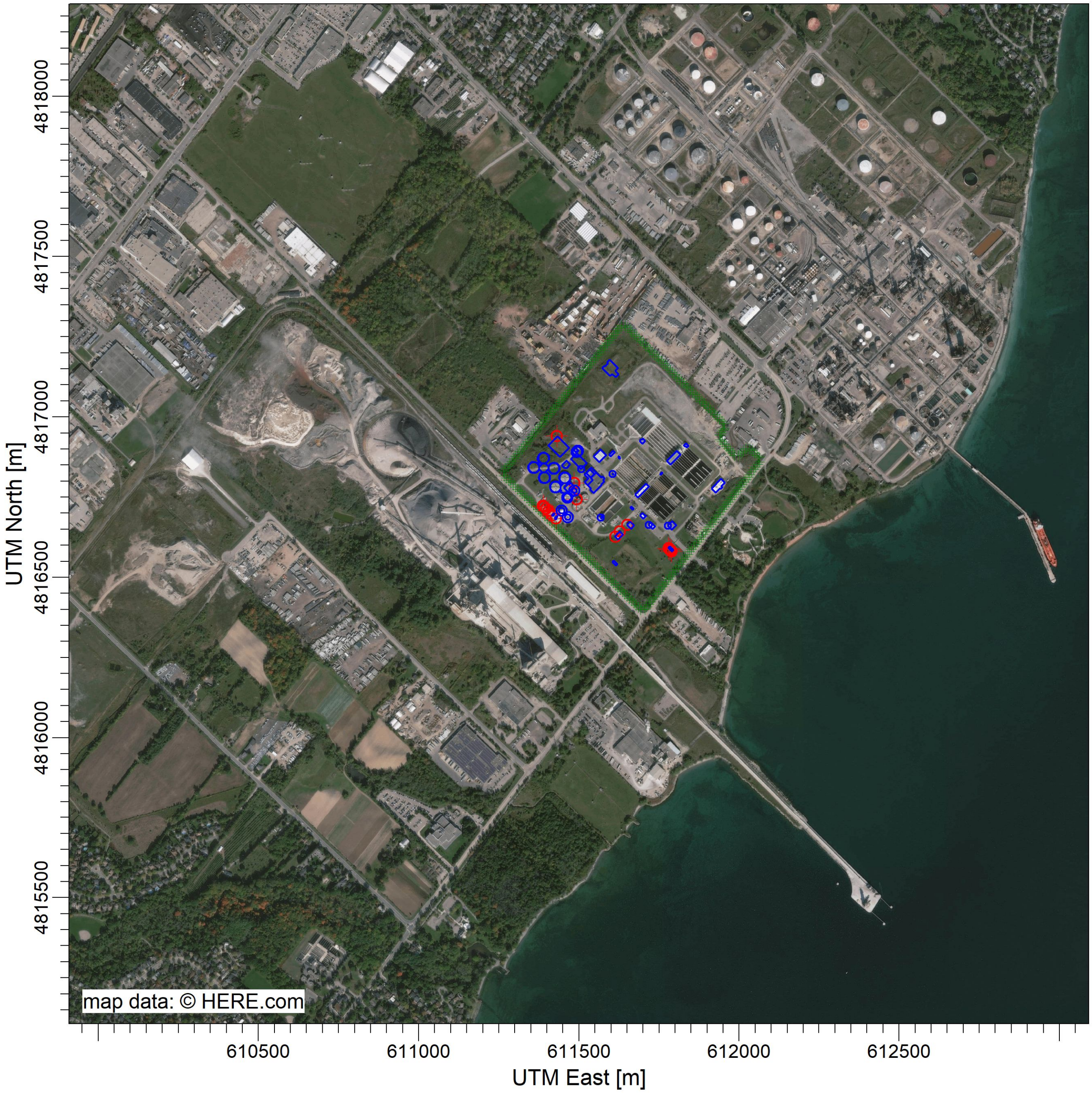
The MECP introduced in 2008 and finalized in 2016 the technical bulletin “Methodology for Modelling Assessments of Contaminants with 10 minutes average Standards and Guidelines under O. Reg. 419/05”.

This methodology is relevant for modelling assessments of two contaminants emitted from Clarkson WRRF: total reduced sulphur (TRS) compounds and odour. TRS has an ambient air quality criterion (AAQC) for the 10-minute averaging time and an air quality standard under O.Reg. 419/05. Odour has a recommended 10-minute average benchmark in Ontario which is used in Ontario to evaluate the likelihood of odour effects.

It is considered an acceptable condition by the MECP where a facility that emits a contaminant with a 10-minute odour-based standard or guideline and the modelling shows that at a sensitive receptor the guideline is exceeded less than 0.5% of the time, which corresponds to approximately 44 hours per year. This means that 99.5% of the time in any given year, the 10-minute odour-based standards and guidelines will be met.

Project Title:

Air Quality Study Area
Clarkson WRRF



Comments:	Sources: **16**		
	Receptors: **2890**		
		SCALE: 1:20,000 0 0.5 km	
		Date: **11-Oct-22**	Figure Number: **2-1**

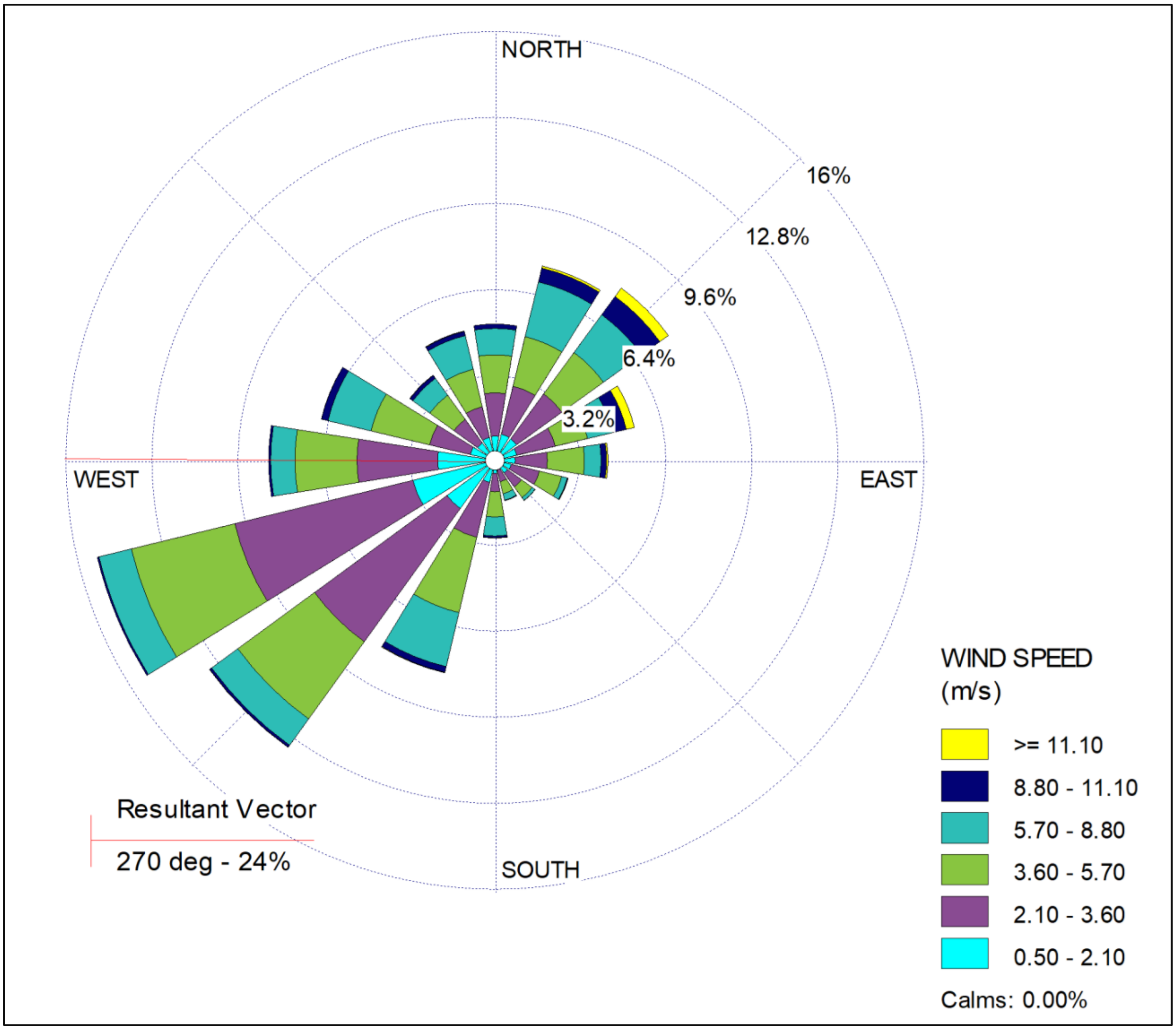


Figure 2-2: Five-Year Wind Rose – Site Specific (2016 to 2020)

3 ATMOSPHERIC EMISSIONS AND APPLICABLE CRITERIA

The air quality effects prediction study requires comparing the results of the dispersion modelling to applicable air quality criteria in order to determine whether there are potential adverse effects on the environment and human health from the release of the key contaminants to the air.

3.1 AIR POLLUTANTS ASSOCIATED WITH WASTEWATER TREATMENT

Emissions to the atmosphere of the following compounds are anticipated from the Project, which are considered to be the key contaminants for the assessment:

- Criteria Air Contaminants (CACs) associated with natural gas combustion, specifically oxides of nitrogen (NO_X), reported as nitrogen dioxide (NO_2);

  For natural gas combustion the emissions of sulphur dioxide, carbon monoxide, carbon dioxide, particulate matters, water and unburned hydrocarbons are considered insignificant because the impact of their emissions is very small when compared with the relevant standards (US EPA).

- Other contaminants associated with wastewater treatment processing;
  - Ammonia (NH_3);
  - Sulphur dioxide (SO_2);
  - Total Reduced Sulphur (TRS), and
  - Odour.

3.1.1 NITROGEN OXIDES

Nitrogen oxides (NO_X) are a mixture of compounds of oxygen and nitrogen, including primarily nitric oxide (NO), and nitrogen dioxide (NO_2). Environment and Climate Change Canada (ECCC) and the MECP have set standards for NO_2 concentrations; there is no standards for NO.

Since NO_2 has adverse effects at much lower concentrations than NO, and NO converts to NO_2 in ambient air, the standard and AAQC for nitrogen oxides is based on the health effects of NO_2. In the assessment of ambient air quality, NO_2, not NO_X, is the reference contaminant.

3.1.2 SULPHUR OXIDES

Sulphur oxides, or SOx, comprise sulphur dioxide (SO_2), sulphur trioxide (SO_3) and solid sulphate forms. SO_2 is a non-flammable, non-explosive colourless gas. In connection with fuel burning, where the majority is in the form of SO_2, SOx is normally expressed in terms of the equivalent mass concentration of SO_2.

SO_2 emissions from the Clarkson WRRF are expected from the direct thermal drying facility proposed for installation as part of operational upgrade of the plant.

New, more stringent O. Reg. 419/05 air quality standards for SO_2 will be introduced in July 2023 for the 1-hour and annual averaging times; the AAQCs for SO_2 already reflect this change. The standards and AAQC are based upon potential health effects of SO_2, as well as potential effects on vegetation.

3.1.3 TOTAL REDUCED SULPHUR (TRS)

Total reduced sulphur (TRS) is a gaseous mixture of pollutants that contain sulphur (S) in its reduced state. There are many TRS compounds, but for the purposes of reporting to the NPRI, TRS refers to the following substances:

- hydrogen sulphide (H_2S)
- carbon disulphide (CS_2)
- carbonyl sulphide (COS)
- dimethyl sulphide (C_2H_6S)
- methyl mercaptan (CH_4S)
- dimethyl disulphide ($C_2H_6S_2$)

The main TRS compound emitted from the Clarkson WRRF is expected to be hydrogen sulphide (H_2S), as noted by the Class EA design team for Project A.

3.1.4 AMMONIA (NH_3)

Ammonia (NH_3) is an inorganic compound of nitrogen and hydrogen and is a colourless gas with a distinct odour. It is present in the wastewater and sewage sludge at the Clarkson WRRF facility, with air emissions from the headworks, Screening Channels/Grit Removal Facilities, thermal drying process of dewatered sludge, and Biosolids Truck Loading operations.

3.1.5 ODOUR

Odour emissions have the potential to become a nuisance to people who live near odour sources, or to people who frequent sports fields, community centres, or other sensitive land uses in the Study Area. Odour becoming a nuisance varies widely from person to person and there are varying degrees of sensitivity and opinions about what is considered offensive. Five factors that contribute to odour nuisance have been defined to help deal with the complex and subjective nature of odours, referred to as the FIDOL factors:

Frequency (F) – how often odour is detected;

Intensity (I) – how strong is the odour;

Duration (D) – are odours very brief or are episodes lengthy;

Offensiveness (O) - the hedonics or descriptors (putrid, solvent); and

Location (L) – is someone present to smell the odour.

Various combinations of these five factors may lead to odour complaints or adverse effects, and all five must be considered for effective odour management.

Odours from wastewater treatment facilities are generally caused by reduced sulphur compounds, ammonia, or certain volatile organics. Emissions of odour to the atmosphere, in odour units per second (OU/s), can be measured at a source of emissions like stacks or digesters/lagoons by taking a grab air sample and analyzing it by an odour panel, or by using devices that measure surrogate compounds.

The odour emission rates from various sources pertaining to the site were provided to WSP air quality team by the Class EA design team. No odour sampling was undertaken at the facility over the course of the AQIA report preparation.

3.2 AIR QUALITY STANDARDS AND CRITERIA

Various regulatory agencies set specific target criteria to be protective of human health and the environment. Criteria and standards can have different averaging times depending on the type of effect the compound may have. The averaging time is the duration of exposure to the air contaminant, and ranges from 10-minute averaging periods for odour-based criteria to evaluate acute effects, to annual averaging periods for long-term exposure effects (chronic).

The MECP has established AAQC for various parameters, including most of the target air contaminants identified for this air quality assessment. The AAQCs are set to determine a target concentration for a location, inclusive of all sources and background. The AAQC levels are not compliance standards but set to provide guidance for acceptable ambient air quality in Ontario.

In contrast, the O. Reg. 419/05 standards are used for the assessment of stationary sources, without considering the effects of deposition or plume depletion, and assuming that all NO_X is converted to NO_2 immediately. This assessment is also conducted in accordance with specific requirements of the Regulation, Guideline A-10: Procedure for Preparing an Emission Summary and Dispersion Modelling Report (MECP 2018), and Guideline A-11: Air Dispersion Modelling Guideline for Ontario (MECP 2017). The standards, as well as other Air Contaminants Benchmarks (ACBs) are used for permitting and compliance purposes; the ACBs include standards, guidelines and jurisdictional screening levels for more than 5,000 contaminants. In many cases, the AAQC criteria and the O. Reg.419/05 standards or ACBs are numerically the same.

For this assessment, it was appropriate to compare the modelled effects to the respective AAQC with consideration of background air concentrations. In addition, the Project was assessed in accordance with O. Reg. 419/05 and the noted MECP Guidelines to establish whether the provincial requirements for obtaining an ECA can be met.

In addition to the provincial criteria, federal CAAQS for NO_2, and SO_2 have been adopted by the Canadian Council of Ministers of the Environment and were considered in this assessment. These CAAQS are intended as targets for air quality to determine appropriate air quality management actions for action within an air zone and not for local assessment or enforcement. The CAAQS are not directly comparable to the maximum modelled air concentrations but rather to the 3-year average of the 98th percentile for NO_2 and the 99^{th} percentile for SO_2. As the CAAQS are not intended for the assessment of specific emission sources but rather to characterize air quality within a broader air zone, therefore the SO_2 and NO_2 effects were assessed against the AAQCs and standards under O.Reg.419/05.

A summary of the applicable AAQCs, ACBs, and CAAQS is provided in Table 3-1.

Table 3-1: Air Quality Standards and Criteria

PARAMETER	AVERAGING TIME	UNIT OF MEASURE	O. REG. 419/05 STANDARDS AND AIR CONTAMINANTS BENCHMARK (ACB)	AMBIENT AIR QUALITY CRITERION (AAQCS)	CANADIAN AMBIENT AIR QUALITY STANDARD (2) (CAAQS)
Nitrogen Dioxide (NO_2)	1 hour	µg/m³	400 (1)	400	84
	24 hours	µg/m³	200 (1)	200	—
	Annual	µg/m³	—	—	24
Nitrogen Dioxide (NO_2) - with Emergency Generators	½ hour	µg/m³	1,880	—	—
Sulphur Dioxide (SO_2)	10-minute	µg/m³	—	178	—
	1 hour	µg/m³	100	106	173
	Annual	µg/m³	10	10	10.6
$PM_{2.5}$	24 hours	µg/m³	—	27	27
	Annual	µg/m³	—	8.8	8.8
Total Reduced Sulphur (TRS)	10-minute	µg/m³	13	13	—
	24 hours	µg/m³	14	14	—
Ammonia (NH_3)	24 hours	µg/m³	100	100	—
Odour	10-minute	µg/m³	1 (3)	—	—

Notes:

"—" indicates that there is no criterion or standard for the respective contaminant and/or averaging period.

1 NO_X expressed as NO_2.

2 2025 CAAQS for NO_2 and SO_2.

4 EXISTING ENVIRONMENTAL CONDITIONS

4.1 BASELINE AIR QUALITY CONDITIONS (PROJECT BACKGROUND)

The air quality local to the Study Area is influenced by various sources that include traffic related air pollution from the major local arterial roads, railroads, residential, institutional, and commercial heating, and transboundary sources.

There are a number of air quality monitoring stations operated by the Ontario MECP and as part of the ECCC's National Air Pollution Surveillance (NAPS) program that are located within reasonable distances of the Clarkson WRRF. These stations were used to establish baseline air concentrations in the Study Area as the surrounding land uses are similar (suburban development, highways, arterial roads, commercial and industrial). The stations are also at similar distances from heavy industrialized centres such as Hamilton, Sarnia, and areas in the US such as the Ohio Valley.

For contaminants that are assessed for the 1-hour, and 24-hour averaging times, the 90th percentile of the measured concentrations were used as a representative baseline. The use of maximum measured ambient concentrations for the assessment of cumulative effects would be overly conservative for these shorter averaging periods, as the assumption would be that the worst-case emissions from the site would coincide with unfavorable weather conditions in the direction of the receptor and maximum contributions from all regional sources. For this reason, the 90th percentile concentration is frequently used as a conservative baseline, as a concentration that is expected to be exceeded only under certain weather conditions or other air quality influences. For contaminants that have AAQCs for the annual averaging period, the average of the monitoring data was used for the baseline.

A five-year dataset (2016-2020) was used to calculate the statistics used for the baseline concentrations. The monitoring stations used to establish regional baseline conditions for the Study Area are identified in Table 4-1 and Table 4-2. The selection of the stations was based on the proximity to the project area, similarity of land use, and most recent robust data set.

Table 4-1: MECP and NAPS Air Monitoring Stations

STATION ID		UTM COORDINATES		DISTANCE FROM STUDY AREA (KM, DIRECTION)
NAPS ID	NAME	X(M)	Y(M)	
60434	Mississauga 3359 Mississauga Road N.	608 329	4 822 435	6 km, NW
60430	Toronto West 125 Resources Road	617 350	4 840 819	22 km, NE

Table 4-2: Baseline Concentrations

COMPOUND	CAS NUMBER	AVERAGING TIME	BASELINE CONCENTRATION	REFERENCE FOR BASELINE CONCENTRATION
Nitrogen dioxide (NO_2)	10102-44-0	1-hour	32.0 µg/m³	90th percentile of 1-hr averaging data measured at Mississauga, 2016-2020
		24-hour	25.7 µg/m³	90th percentile of 24-hr averaging data measured at Mississauga, 2016-2020
		Annual	14.6 µg/m³	Annual average measured at Mississauga, 2016-2020
Sulphur dioxide (SO_2)	7446-09-5	1-hour	2.3 µg/m³	90th percentile of 1-hr averaging data measured at Toronto West, 2016-2020
		24-hour	2.1 µg/m³	90th percentile of 24-hr averaging data measured at Toronto West, 2016-2020
		Annual	1.0 µg/m³	Annual average measured at Toronto West, 2016-2020
$PM_{2.5}$	NA	24-hour	12.8 µg/m³	90th percentile of 24-hr averaging data measured at Mississauga, 2016-2020
		Annual	7 µg/m³	Annual average measured at Mississauga, 2016-2020

4.2 TEMPERATURE AND PRECIPITATION

According to the Canadian Climate Normals (calendar years 1981 to 2010) for Toronto Pearson International Airport, the mean annual temperature was 8.2°C. The warmest month of the year is August with an average temperature of 20.6°C and the coldest month is January with an average temperature of -5.5°C. The meteorological station recorded a total average annual precipitation of 785.9 mm, of which 681.6 mm was rainfall. Precipitation is distributed throughout the year, with most of the rain occurring between April and October. Climate Normals for the Toronto Pearson International Airport station are summarized in Table 4-3.

These parameters are relevant to discussions of potential fugitive dust and air quality effects as precipitation acts as a natural dust suppressant, and lower temperatures reduce the speed at which soils and aggregate materials dry following a precipitation event. Although this is not reflected in the air dispersion modelling, fugitive dust mitigation should be intensified during summer months and into October.

Table 4-3: Toronto Pearson International Airport Weather Station Data

PARAMETER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Daily Average Temperature (°C)	-5.5	-4.5	0.1	7.1	13.1	18.6	21.5	20.6	16.2	9.5	3.7	-2.2	8.2
Daily Maximum Temperature (°C)	-1.5	-0.4	4.6	12.2	18.8	24.2	27.1	26.0	21.6	14.3	7.6	1.4	13.0
Daily minimum Temperature (°C)	-9.4	-8.7	-4.5	1.9	7.4	13.0	15.8	15.1	10.8	4.6	-0.2	-5.8	3.3
Rainfall (mm)	25.1	24.3	32.6	63.0	74.3	71.5	75.7	78.1	74.5	60.6	68.0	34.0	681.6
Snowfall (cm)	29.5	24.0	17.7	4.5	0.0	0.0	0.0	0.0	0.0	0.4	7.5	24.9	108.5
Total Precipitation (mm)	51.8	47.7	49.8	68.5	74.3	71.5	75.7	78.1	74.5	61.1	75.1	57.9	785.9

5 EMISSION SOURCES AND EMISSIONS RATE ESTIMATION

5.1 EMISSION SOURCES

Clarkson WRRF is a conventional activated sludge wastewater treatment facility with separate waste activated sludge thickening, anaerobic digestion, and centrifuge dewatering of digested biosolids.

An overview summary of emission sources and potential emissions is provided in Table 5-1.

All sources pertaining to the facility were considered in the air dispersion modelling to assess effects on air quality for comparison against the air quality criteria.

Table 5-1: Source Summary

SOURCE ID	DESCRIPTION	EMISSION CONTROLS	GENERAL LOCATION	EXPECTED CONTAMINANTS
Existing Sources (Current Scenario)				
S-1A	Digester Waste Gas Burner #1	No	Waste Gas Burner Complex	NO_X
S-1B	Digester Waste Gas Burner #2	No	Waste Gas Burner Complex	NO_X
S-1C	New digester Waste Gas Burner #3	No	Waste Gas Burner Complex	NO_X
S-1D	New Digester Waste Gas Burner #4	No	Waste Gas Burner Complex	NO_X
S-2	Existing Boilers #1	No	Near existing Digestion Tank Nos. 1&2	NO_X
S-3	Existing Boilers #2	No	Boiler Building	NO_X
S-4A	New cogeneration Unit #1	No	Southeast of Waste Burner Complex	NO_X
S-4B	New cogeneration Unit #2	No	Southeast of Waste Burner Complex	NO_X
S-5*	Standby diesel generator set No. 1(450 kW)	No	Near Headworks / Screening / Degritting Building	NO_X
S-6	Heaters	No	Engineering Office	NO_X
S-7	Infrared Heaters	No	Garage/Workshop/Main Shop	NO_X
S-8	Heater	No	Oil Storage Room	NO_X
S-9*	Standby diesel generator set No. 2 (230 kW)	No	Near new sewage pumping station (outdoors)	NO_X
S-10	Biosolids Truck Loading	Scrubber	Biosolids Truck Loading Area	TRS, Odour, and NH_3
S-11*	Headworks	Scrubber	Headworks Building	TRS, Odour, and NH_3
S-12	Stack for exhaust of inlet channels to existing primary tanks (untreated) & Biofilter (for existing weirs) exhaust	Biofilter	Inlet	TRS and Odour
S-13*	Stack for exhaust of inlet channels to proposed primary tanks (untreated) & Biofilter (for proposed weirs) exhaust	Biofilter	Inlet	TRS and Odour
S14_BTK	Stack for biotrickling filter for the new PSTF	Biotrickling filter	Stack on the roof of the new Odour Control Building for New Thickening Building	TRS, Odour, and NH_3
SCREEN	Screen Room	No	Headworks	TRS, Odour, and NH_3
GOOSE1	Gooseneck 1	No	Pumping station	TRS and Odour
GOOSE2	Gooseneck 2	No	Pumping station	TRS and Odour
PRIM1	Primary Tank #1 Surface	No	Primary treatment plant 1	TRS and Odour
PRIM2	Primary Tank #2 Surface	No	Primary treatment plant 1	TRS and Odour

SOURCE ID	DESCRIPTION	EMISSION CONTROLS	GENERAL LOCATION	EXPECTED CONTAMINANTS
PRIM3	Primary Tank #3 Surface	No	Primary treatment plant 1	TRS and Odour
PRIM4	Primary Tank #4 Surface	No	Primary treatment plant 2	TRS and Odour
PRIM5	Primary Tank #5 Surface	No	Primary treatment plant 2	TRS and Odour
PRIM6	Primary Tank #6 Surface	No	Primary treatment plant 2	TRS and Odour
Proposed Sources (Project A Additional Sources)				
Stack 1A	Standby diesel generator (2.5MW)	No	New energy center	NO_X
Stack 1B	Standby diesel generator (2.5MW)	No	New energy center	NO_X
Stack 1C	Standby diesel generator (2.5MW)	No	New energy center	NO_X
Stack 1D	Standby diesel generator (2.5MW)	No	New energy center	NO_X
Stack 2	Screening Channels/Grit Removal	Carbon adsorption	Screening Channels/Grit Removal Facilities	TRS, Odour, and NH_3
Stack 3	Proposed Expanded Plant 3 Clarifiers Influent and Effluent Channels	Radial Flow Dry Media	Proposed Expanded Plant 3 Clarifiers Influent and Effluent Channels	TRS and Odour
Stack 4	Direct thermal drying	RTO	New dryer building	TRS, Odour, NO_X, SO_2, $PM_{2.5}$ and NH_3
Stack 5	Dried product loading bay	No	New dryer building	Odour
PRIM7	Primary Tank #7 Surface	No	Primary treatment plant 3	TRS and Odour
PRIM8	Primary Tank #8 Surface	No	Primary treatment plant 3	TRS and Odour
PRIM9	Primary Tank #9 Surface	No	Primary treatment plant 3	TRS and Odour
PRIM10	Primary Tank #10 Surface	No	Primary treatment plant 3	TRS and Odour

Notes:* - Sources S-11 (Scrubber – Headworks), S-13 (inlet – abatement stack), S-5 (standby diesel generator) ,and S-9 (standby diesel generator) will be decommissioned when Project A is implemented.

5.2 EMISSION RATE QUANTIFICATION

5.2.1 COMBUSTION SOURCES

The facility in the current configuration has four (4) waste gas burners, two (2) boilers, two (2) emergency generators (450 kW, and 230 kW), and comfort heaters at the engineering office, Garage/Workshop/Main Shop.

Project A includes the replacement of existing backup generators with four (4) new units in a centralized energy center as part of the proposed expansion, each having a capacity of 2.5 MW.

The NO_X emission rates were calculated using emission factors for natural gas combustion published in the USEPA AP-42 emission factor compilation.

5.2.2 COGENERATION UNITS

The facility is approved for two (2) cogeneration units fired by natural gas or digester gas, per the existing ECA.

Nitrogen oxides emission rates from the cogeneration units were calculated using manufacturer's emission factors.

5.2.3 TOTAL REDUCED SULPHUR, AMMONIA AND ODOUR SOURCES

The following wastewater treatment processes at the WRRF have the potential to release H_2S, NH_3 and odour:

- Existing and proposed new headworks building;
- Screening channels and grit removal units;
- Existing primary clarifiers (Plants 1 and 2);
- Proposed primary clarifiers (Plant 3);
- Proposed expanded Plant 3 clarifiers influent and effluent channels;
- New primary sludge thickening unit;
- New dryer unit; and
- Biosolids truck loading area.

The facility implemented the following odour control measures:

- Scrubber for headworks buildings;
- Biofilter for inlet channels to existing/proposed primary tanks;
- Biotrickling filter for the new primary sludge thickening facility;
- Carbon adsorption units related to screening channels/grit removal facilities;
- Radial flow dry media unit for proposed expanded Plant 3 clarifiers influent and effluent channels; and
- Scrubber for biosolids truck loading.

Emission rates of these air contaminants were calculated based on the manufacturer emission factors or source testing at a comparable facility. Odour emission rates were prorated from source testing data at a similar facility provided to the WSP air quality team by engineering design group of the project.

6 DISPERSION MODELLING

All sources at the Clarkson WRRF were modelled using the US EPA AERMOD dispersion modelling program (AERMOD version 19191 and AERMET version 19191). The air dispersion was conducted in accordance with *Guideline A-11: Air Dispersion Modelling Guideline for Ontario* (ADMGO), Version 3.0.

The location of the maximum offsite effects for a given pollutant is termed the maximum Point of Impingement (POI) concentration.

Following the conservative approach plume depletion, or NO_X chemical transformation were not assumed in the current modelling assessment. This means, the NO_2 emissions were modelled as full NO_X conversion, and so predicted NO_2 point of impingement (POI) concentrations from fossil fuel combustion equipment at the facility will be lower than predicted by the air dispersion modelling in support of the current AQIA report. The approach was selected in agreement with previous dispersion modelling performed for the facility in support of the ECA submissions, which require to model NO_X using the full atmospheric conversion method.

The source parameters modelled are provided in Appendix C.

A total of 2,890 discrete Cartesian receptors were modelled around the Clarkson WRRF, including 255 receptors along the WRRF boundary. The intermediate fenceline receptors were placed at 10 meters intervals around the property line. A nested grid of receptors in accordance with O. Reg. 419/05 requirements was generated, covering the whole area of 10.0 km by 10.0 km around the facility.

For the TRS (10-min average) and Odour the dispersion modelling was done in accordance with the "Methodology for Modelling Assessments of Contaminants with 10-minute Average Standards and Guidelines under O. Reg. 419/05" considering eight sensitive receptors in the vicinity of the plant.

7 MODELLING RESULTS

The modelled POI concentrations (with, and without, inclusion of background concentrations) are compared to the AAQCs and air quality standards in Tables 7-1, 7-2, and 7-3 for the Current Scenario and for Project A.

All predicted air concentrations were below the ambient air quality criteria for all averaging times.

For the Current Scenario (Table 7-1), the maximum percent of current criteria is 80% for the NO_X 1-hour criteria modelled on assumption of concurrent operation of all sources potentially generating NO_X emissions.

Air dispersion modeling for the Project A scenario identified total reduced sulphur as the air contaminant that had the highest effect (i.e., POI concentration) relative to it's AAQC at 84.1% of the 24-hour AAQC; TRS was modelled assuming the concurrent operation of all sources potentially generating TRS emissions.

There were minor increases in the other key air contaminants when the Project A modelled concentrations were compared to those of the Current Scenario.

The modelled concentrations of NO_2 during emergency generator testing decreased notably for the Project A scenario as the new units is mainly attributed to relocation of these units to the new Energy Centre has a greater setback from the property line than the current emergency generator.

The air dispersion modelling output is also presented graphically as isopleths plots showing lines of equal air concentrations (Figures A-1, A-2 and A-3, Appendix A). For TRS, the isopleth illustrates how localized the affected areas are and how quickly the concentrations decrease with distance from the WRRF.

Table 7-1: Predicted Air Quality Effects (Current Scenario)

CONTAMINANT	CAS NUMBER	SITE-WIDE EMISSION RATE (g/s)	MAXIMUM OFF-SITE CONCENTRATION (µg/m³)	AVERAGING PERIOD (HOURS)	AIR QUALITY CRITERION (µg/m³)	LIMITING EFFECT	REFERENCE FOR CRITERION	PERCENTAGE OF CRITERION (%)
Nitrogen Oxides, NO_X as NO_2	10102-44-0	2.87	160.0	24	200	Health	AAQC, Standard	80.0%
			284.6	1	400	Health	AAQC, Standard	71.1%
Nitrogen Oxides, NO_X as NO_2 - with emergency generators	10102-44-0	7.28	1251.1	0.5	1,880	N/A	MECP Screening Level (PIBS 7976e)	66.6%
Total Reduced Sulphur (TRS)	N/A	0.035	3.50	24	7	Health	AAQC, Standard	50.0%
			5.30	10-minute	13	Odour	AAQC, Standard	40.7%
Ammonia (NH_3)	7664-41-7	0.017	0.50	24	100	Health	AAQC, Standard	0.5%

Table 7-2: Predicted Air Quality Effects (Current Scenario + Project A)

CONTAMINANT	CAS NUMBER	SITE-WIDE EMISSION RATE (g/s)	MAXIMUM OFF-SITE CONCENTRATION (µg/m³)	AVERAGING PERIOD (HOURS)	AIR QUALITY CRITERION (µg/m³)	LIMITING EFFECT	REFERENCE FOR CRITERION	PERCENTAGE OF CRITERION (%)
Nitrogen Oxides, NO_X as NO_2	10102-44-0	3.13	161.1	24	200	Health	AAQC, Standard	80.5%
			284.5	1	400	Health	AAQC, Standard	71.1%
Nitrogen Oxides, NO_X as NO_2 - with emergency generators	10102-44-0	8.08	462.4	0.5	1,880	N/A	MECP Screening Level (PIBS 7976e)	24.6%
Sulphur Dioxide (SO_2)	7446-09-5	0.04	0.34	Annual	10	Ecological	AAQC, Standard	3.4%
			4.46	1	100	Health	AAQC, Standard	4.6%

CONTAMINANT	CAS NUMBER	SITE-WIDE EMISSION RATE (g/s)	MAXIMUM OFF-SITE CONCENTRATION (µg/m³)	AVERAGING PERIOD (HOURS)	AIR QUALITY CRITERION (µg/m³)	LIMITING EFFECT	REFERENCE FOR CRITERION	PERCENTAGE OF CRITERION (%)
$PM_{2.5}$	N/A	0.23	0.81	Annual	8.8	Health	AAQC, Standard	9.25%
			5.89	24	27	Health	AAQC, Standard	21.81%
Total Reduced Sulphur (TRS)	N/A	0.045	5.90	24	7	Health	AAQC, Standard	84.2%
			7.64	10-minute	13	Odour	AAQC, Standard	58.7%
Ammonia (NH_3)	7664-41-7	0.056	2.18	24	100	Health	AAQC, Standard	2.2%

Table 7-3: Cumulative Effect of Project A and Background Air Concentrations

CONTAMINANT	CAS NUMBER	SITE-WIDE EMISSION RATE (g/s)	AVERAGING PERIOD	AIR QUALITY CRITERION (µg/m³)	MAXIMUM OFF-SITE CONCENTRATION (µg/m³)			PERCENTAGE OF CRITERION (%)
					PROJECT (µg/m³)	BACKGROUND (µg/m³)	PROJECT + BACKGROUND (µg/m³)	
Nitrogen Oxides, NO_X as NO_2	10102-44-0	3.13	24-hour	200	161.1	25.7	186.8	93.4%
			1-hour	400	284.5	32.0	316.5	79.1%
Nitrogen Oxides, NO_X as NO_2 - with emergency generators	10102-44-0	8.08	0.5-hour	1,880	462.4	32.0	494.4	26.3%
Sulphur Dioxide (SO_2)	7446-09-5	0.04	Annual	10	0.34	1.0	1.34	13.4%
			1-hour	100	4.46	2.3	6.76	6.8%
$PM_{2.5}$	N/A	0.23	Annual	8.8	0.81	7.0	7.81	88.8

Note: Background concentrations for TRS and ammonia, in the absence of the Clarkson WRRF, were not available and assumed to be negligible in comparison to those from WRRF.

7.1 ODOUR EFFECTS

The results of the air dispersion modelling for odour are presented in Tables 7-4 and 7-5 for the Current Scenario and the Project A Scenario, respectively.

There were modelled odour concentrations (the ‘intensity’) at all eight receptors that were higher than the 1 odour unit per cubic meter benchmark. One odour unit is the odour concentration where 50% of the panelists on a trained odour panel can detect a difference between a blank sample and an odour sample. Exceeding 1OU identifies the potential for odour effects and the need for effective management but is not a strong indicator of the likelihood of nuisance effects or complaints.

For odour assessments, the frequency of exceedance together with the intensity together help to inform decision-making. Based upon the air dispersion modelling, no sensitive receptor is predicted to have an odour concentration above 1OU for more than 3.2% in a given year.

The location receptor with the highest modelled odour concentration for the Current Scenario and the Project A Scenario is located to the west of the WRRF.

There is an increase in the maximum odour concentration modelled, and in the number of hours per year that the odour concentration at each sensitive receptor is higher than 1OU, when the Project A scenario is compared to the Current Scenario.

Based upon the results of the air dispersion modelling for odour, and with consideration of the characteristics of odours from wastewater treatment, there is the potential for odour effects from the Clarkson WRRF under both the Current Scenario and the Project A Scenario. Effective odour control at the point of odour release, as well as the implementation of Odour Mitigation and Management Plan (OMMP), have been considered for Project A to minimize or prevent nuisance effects associated with the odour.

Table 7-4: Odour Effects Summary (Current Scenario)

RECEPTOR	DESCRIPTION	UTM COORDINATE (1)		DISTANCE FROM CLARKSON WRRF (M,DIRECTION)	MAXIMUM CONCENTRATION(2) (OU,10-MINUTE AVERAGE)	FREQUENCY ODOUR PREDICTED ABOVE 1OU	
		X(M)	Y(M)			NUMBER OF HOURS PER YEAR	%
R1	House on Southdown Rd.	611357	4817907	670m, North	4.21	181	2.1%
R2	House on Winston Churchill Blvd.	610292	4816131	1,216m, West	3.01	254	2.9%
R3	House on Hazelhurst Rd.	611080	4816193	580m, West	6.06	94	1.1%
R4	House on Winston Churchill Blvd.	610512	4815899	1,185m, West	2.05	251	2.9%
R5	House on Winston Churchill Blvd.	610953	4815673	1,030m, West	2.30	272	3.1%
R6	House on Lakeshore Road W.	611148	4815443	1,120m, West	1.74	93	1.1%
R7	House on Meadow Wood Rd.	612813	4818091	1,415m, East	2.51	79	0.9%
R8	House on Bromsgrove Rd	609721	4817808	1,825m, North	1.00	93	1.1%

Table 7-5: Odour Effect Summary (Project A)

RECEPTOR	DESCRIPTION	UTM COORDINATE(1)		DISTANCE FROM CLARKSON WRRF (M, DIRECTION)	MAXIMUM CONCENTRATION(2) (OU,10-MINUTE AVERAGE)	FREQUENCY ODOUR CONCENTRATION PREDICTED ABOVE 1OU	
		X(M)	Y(M)			NUMBER OF HOURS PER YEAR	%
R1	House on Southdown Rd.	611357	4817907	670m, North	6.27	228	2.6%
R2	House on Winston Churchill Blvd.	610292	4816131	1,200m, West	3.54	253	2.9%
R3	House on Hazelhurst Rd.	611080	4816193	580m, West	7.94	278	3.2%
R4	House on Winston Churchill Blvd.	610512	4815899	1,185m, West	2.62	264	3.0%
R5	House on Winston Churchill Blvd.	610953	4815673	1,030m, West	2.45	283	3.2%
R6	House on Lakeshore Rd. W.	611148	4815443	1,120m, West	1.78	106	1.2%
R7	House on Meadow Wood Rd.	612813	4818091	1,415m, East	2.82	84	1.0%
R8	House on Bromsgrove Rd.	609721	4817808	1,825m, North	1.49	108	1.2%

Notes:

(1) UTM Coordinates per NAD-83, Zone 17

(2) The maximum odour concentration cited is the 44th highest modelled value; this approach is prescribed by the MECP to present a maximum odour concentration that is not unduly influenced by meteorological anomalies.

7.2 CRITERIA CONTAMINANTS IMPACT AT RECEPTORS

At the MECP request in their letter of April 14, 2023 (see Appendix D) additional analysis was undertaken to show the incremental differences reported between air quality impacts at the sensitive receptors for the preferred alternative (Project A and the current scenario).

The sensitive receptors are located further away from the facility than the property line receptors used in the AERMOD modelling. The facility is demonstrating compliance with all applicable MECP criteria limits at the property line. The tables below are demonstrating changes of concentrations (baseline vs. project A) at the same set of receptors used for the odour impact assessment. It should be noted that regardless that the concentrations increase from the baseline to expanded facility they are still well below the applicable MECP limits.

NOx 1-hr Average (MECP criteria 400µg/m³)

Receptor	Description	UTM Coordinate		Distance from the facility	Baseline POI Conc.	Expanded facility POI Conc.	% of Changes
		X(m)	Y(m)	(m)	µg/m³ (1-hr Avg.)	µg/m³ (1-hr Avg.)	(+/-)
R1	House on Southdown Road	611357	4817907	670m North	43.00	45.83	+6.58%
R2	House on Winston Churchill Blvd	610292	4816131	1,216m West	39.34	39.80	+1.17%
R3	House on Hazelhurst Rd	611080	4816193	580m West	57.09	58.45	+2.38%
R4	House on Winston Churchill Blvd	610512	4815899	1,185m West	36.01	37.57	+4.33%
R5	House on Winston Churchill Blvd	610953	4815673	1,030m West	26.53	28.46	+7.27%
R6	House on Lakeshore Road W	611148	4815443	1,120m West	22.42	24.17	+7.81%
R7	House on Meadow Wood Ln	612813	4818091	1,415m East	21.16	21.42	+1.23%
R8	House on Bromsgrove Rd	609721	4817808	1,825 North	35.18	36.89	+4.86%

NOx 24-hr Average (MECP criteria 200µg/m³)

Receptor	Description	UTM Coordinate		Distance from the facility	Baseline POI Conc.	Expanded facility POI Conc.	% of Changes
		X(m)	Y(m)	(m)	µg/m³ (24-hr Avg.)	µg/m³ (24-hr Avg.)	(+/-)
R1	House on Southdown Road	611357	4817907	670m North	6.47	7.67	+18.55%
R2	House on Winston Churchill Blvd	610292	4816131	1,216m West	7.68	7.87	+2.47%
R3	House on Hazelhurst Rd	611080	4816193	580m West	18.43	19.04	+3.31%
R4	House on Winston Churchill Blvd	610512	4815899	1,185m West	9.51	9.84	+3.47%
R5	House on Winston Churchill Blvd	610953	4815673	1,030m West	6.22	6.53	+4.98%
R6	House on Lakeshore Road W	611148	4815443	1,120m West	4.50	4.80	+6.67%
R7	House on Meadow Wood Ln	612813	4818091	1,415m East	6.16	6.85	+11.20%
R8	House on Bromsgrove Rd	609721	4817808	1,825 North	5.44	5.59	+2.76%

TRS 10-min Average (MECP criteria 13µg/m³)

Receptor	Description	UTM Coordinate		Distance from the facility	Baseline POI Conc.	Expanded facility POI Conc.	% of Changes
		X(m)	Y(m)	(m)	µg/m³ (10-min Avg.)	µg/m³ (10-min Avg.)	(+/-)
R1	House on Southdown Road	611357	4817907	670m North	5.16	7.64	+47.92%
R2	House on Winston Churchill Blvd	610292	4816131	1,216m West	2.85	3.50	+22.54%
R3	House on Hazelhurst Rd	611080	4816193	580m West	5.30	6.91	+30.53%
R4	House on Winston Churchill Blvd	610512	4815899	1,185m West	2.34	3.22	+37.32%
R5	House on Winston Churchill Blvd	610953	4815673	1,030m West	2.59	2.89	+11.46%
R6	House on Lakeshore Road W	611148	4815443	1,120m West	1.19	1.63	+37.50%
R7	House on Meadow Wood Ln	612813	4818091	1,415m East	1.47	2.03	+38.20%
R8	House on Bromsgrove Rd	609721	4817808	1,825 North	1.53	2.23	+45.16%

TRS 24-hr Average (MECP criteria 7µg/m³)

Receptor	Description	UTM Coordinate		Distance from the facility	Baseline	Expanded facility	% of Changes
		X(m)	Y(m)	(m)	µg/m³ (24-hr Avg.)	µg/m³ (24-hr Avg.)	(+/-)
R1	House on Southdown Road	611357	4817907	670m North	0.49	0.70	+42.86%
R2	House on Winston Churchill Blvd	610292	4816131	1,216m West	0.31	0.37	+19.35%
R3	House on Hazelhurst Rd	611080	4816193	580m West	0.89	0.98	+10.11%
R4	House on Winston Churchill Blvd	610512	4815899	1,185m West	0.25	0.40	+60.00%
R5	House on Winston Churchill Blvd	610953	4815673	1,030m West	0.19	0.22	+15.79%
R6	House on Lakeshore Road W	611148	4815443	1,120m West	0.12	0.16	+33.33%
R7	House on Meadow Wood Ln	612813	4818091	1,415m East	0.16	0.22	+37.50%
R8	House on Bromsgrove Rd	609721	4817808	1,825 North	0.13	0.19	+46.15%

NH_3 24-hr Average (MECP criteria 100µg/m^3)

Receptor	Description	UTM Coordinate		Distance from the facility	Baseline POI Conc.	Expanded facility POI Conc.	% of Changes
		X(m)	Y(m)	(m)	µg/m^3 (24-hr avg.)	µg/m^3 (24-hr avg.)	(+/-)
R1	House on Southdown Road	611357	4817907	670m North	0.11	0.25	+127.27%
R2	House on Winston Churchill Blvd	610292	4816131	1,216m West	0.08	0.15	+87.50%
R3	House on Hazelhurst Rd	611080	4816193	580m West	0.18	0.33	+83.33%
R4	House on Winston Churchill Blvd	610512	4815899	1,185m West	0.09	0.20	+122.22%
R5	House on Winston Churchill Blvd	610953	4815673	1,030m West	0.09	0.13	+44.44%
R6	House on Lakeshore Road W	611148	4815443	1,120m West	0.07	0.12	+71.43%
R7	House on Meadow Wood Ln	612813	4818091	1,415m East	0.12	0.22	+83.33%
R8	House on Bromsgrove Rd	609721	4817808	1,825 North	0.06	0.13	+116.67%

8 ASSESSMENT FINDINGS

This Air Quality Assessment Report has been prepared as a Technical Support Document for the Environmental Assessment for the proposed upgrade at Clarkson WRRF. The facility will be operated in accordance with all regulatory requirements, which include the requirements of a provincial ECA (Air).

The cumulative effect for this assessment, considered to be the combined effect of the background concentrations established for the Project and the effects predicted by the modelling, were considered for each key parameter.

The findings of the air quality assessment were as follows:

- Criteria air contaminants emitted to the atmosphere from combustion processes at the WRRF include oxides of nitrogen (NO_X), conservatively assumed all to be in nitrogen dioxide (NO_2) form, and sulphur dioxide;
- Sulphur dioxide, total reduced sulphur compounds and ammonia are released to the air from the treatment processes;
- The operational upgrade of Clarkson WRRF (Project A) is expected to emit to the atmosphere the same contaminants as at the current conditions plus additional sulphur dioxide and $PM_{2.5}$ emissions from the proposed sludge drying facility, and additional nitrogen oxides from the standby diesel generators when these are operating;
- The assessment determined that the modelled concentrations of all air pollutants were below the respective ambient air quality criteria, even with consideration of the existing background air concentrations; the contaminant with the highest level of air quality impact from the current configuration of the facility is nitrogen dioxide (NO_2) at 71% and 80% of the ambient air quality criteria for 1-hour and 24-hours averaging periods, respectively;
- For the upgraded facility (Project A), the total reduced sulphur emissions (TRS) were predicted at concentrations of 59% and 84% of applicable criteria for 10-minutes and 24-hr averaging period respectively;
- Sulphur dioxide emissions to the atmosphere from the proposed Direct Thermal Drying unit is expected to be at 4.5% and 3.4% of applicable criteria for 1-hour and annual averaging periods, respectively;
- For the upgraded facility (Project A) it is expected that the modelled effects of NO_2 will increase to 81% of criteria for 24-hours averaging time. There is no change to the modelled 1-hour average NO_2 concentrations, which remain at 71% of applicable criterion;
- For all air pollutants assessed, the predicted cumulative concentrations (ambient air concentrations plus Project A emissions) were found to be less than the respective criteria at all locations beyond the Clarkson WRRF property boundary and at all sensitive receptors;
- The current facility and Project A both have sources of odour emissions that require effective mitigation and management to prevent, or minimize, off-site effects. The odour impacts at identified sensitive receptors proximate to the plant are not expected to change appreciably as a result of the planned upgrades; and
- Compliance with O. Reg. 419/05 applicable standards and criteria for the proposed Project A demonstrates that the Project A potentially meets the air quality requirements for obtaining a provincial Environmental Compliance Approval for air.

A series of mitigation measures, including air emission control systems, were included in the project design to avoid and minimize adverse effects. In addition to these controls, the Clarkson WRRF will implement best management practices for the mitigation of air emissions and odour.

The proposed expansion of the Clarkson WRRF will result in increased air emissions for criteria air contaminants, odour, total reduced sulphur, and ammonia; however, the air dispersion modelling assessment predicts that the ambient air concentrations in the vicinity of the WRRF will continue to be lower than the ambient air quality criteria for all of the pollutants.

9 MITIGATION MEASURES

The Clarkson WRRF Project A design incorporates a number of mitigation measures to prevent, or minimize, the potential effects on air quality associated with air emissions, including air emission and odour controls.

A preventive maintenance program is ongoing now and will continue to be employed at the facility that encompasses all pollution control equipment, diesel-fired engines (vehicle, equipment, and standby power generating), and all processes with the potential for meaningful environmental effects.

During operational phase of the Project A the existing emissions control equipment and proposed new control measures will be implemented.

Based on the assessment, primary clarifiers are found to be one of the major sources for odour impacts. The odour assessment methodology uses very conservative values associated with primary clarifiers' emissions and its characteristics. From the odour management and operational perspective, the following mitigations will be or have been implemented:

1. The primary clarifier influent and effluent channels are aerated and covered to maintain dissolved oxygen in the wastewater and minimize settling. The air from the channels will be collected and treated with the existing odour control system prior to being discharged into the atmosphere.
2. The primary clarifiers at the Clarkson WRRF have been operated very efficiently with a sludge blanket depth of up to 2.5 ft. This operational approach minimizes the septic potential at the primary sludge hoppers, resulting in minimal odour emissions.
3. The Clarkson WRRF has a waste activated sludge (WAS) thickening facility. Currently the waste activated sludges from the secondary clarifiers are thickened by the WAS thickened facility. The raw sludge from the primary clarifiers is blended with the thickened WAS and blended sludge is send to the anaerobic digesters for digestion. The Region is in the process of designing and constructing a primary sludge thickening facility. With these two thickening facilities, the Clarkson WRRF will not pump WAS into the primary clarifiers for co-thickening under normal operation. This will further minimize odour generation potential from the primary clarifiers.

With the above mitigation measures, the primary clarifiers' emissions are expected to lower than the values used in the dispersion model. This will result in a reduction of the anticipated odour exceedances at the sensitive receptors.

Construction activities during facility upgrade will contribute to a temporary increase in air emission levels at the Project A site typical of any industrial site development. For the most part this is unavoidable but is relatively short lived for any individual receptor such as residences near the site. Activities that could result in increased dust levels will be limited to a short period of the initial construction stage, as required by construction procedures to construct new industrial buildings and to install required process equipment. To prevent excessive dust levels during extended dry weather periods, watering will be undertaken on the construction unpaved roads (if any) at the Clarkson WRRF. The construction site entrance will be wet swept periodically to minimize the build up of dirt. An Environmental Management Plan will be in place and ensure environmental supervision and implementation of the mitigation measures, which is beyond the scope of the current AQIA report assessment.

10 GREENHOUSE GAS (GHG) EMISSIONS

A key objective of the Class EA is energy efficiency and the reduction of greenhouse gas (GHG) emissions at the Clarkson WRRF, specifically through supporting Peel's stated GHG Reduction Goals.

Peel Region recently issued their Climate Change Master Plan (CCMP, 2020) which identified a goal of reducing corporate GHG emissions by 45% by 2031 relative to 2010 levels. In order to ensure that the Class EA supported the Region's GHG Reduction Goals, the study included screening criteria for technologies related to meeting the stated goals. In addition, a detailed evaluation of the GHG emissions was completed for the project as a whole which included Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased electricity, heating, etc.), and Scope 3 (other indirect emissions from materials required for the facilities such as chemicals, equipment, etc.). Each design alternative was evaluated based on the total GHG emissions.

The preferred design concept for expansion of the Clarkson WRRF offers opportunities to GHG emissions and increase energy recovery through implementation of the following processes:

- Ammonia-Based Aeration Control (ABAC) will reduce electricity consumption by the aeration system.
- Primary Sludge Thickening reduces anaerobic digestion heating requirements by increasing the solids concentrations prior to digestion.
- Biological Phosphorus Removal (BPR) process results in reduced chemical usage and lower aeration requirements.
- Sidestream Centrate Treatment reduces aeration needs and energy savings.
- Anaerobic Digestion generates electricity and heat for process operations.
- Cogeneration (Cooling and Heating Process -CHP) Expansion will maximize the use of biogas and to reduce electricity purchase from the grid.

In addition, beneficial use of the biosolids generated at the Clarkson WRRF provides the opportunity for Peel to receive carbon credits from beneficial use on land. Carbon sequestration and synthetic fertilizer replacement credits can be received from biosolids beneficial use on land.

Further details are presented in the Environmental Study Report (ESR.) for the capacity expansion of Clarkson WRRF.

11 CLOSING

This Air Quality Impact Assessment Report was prepared for Regional Municipality of Peel by WSP E&I Canada Limited. The quality of information, conclusions and environmental impact estimates contained herein is consistent with the level of effort involved in WSP's services and based on i) information available at the time of preparation; ii) data supplied by outside sources; and iii) the assumptions, conditions and qualifications set forth in this report.

12 REFERENCES

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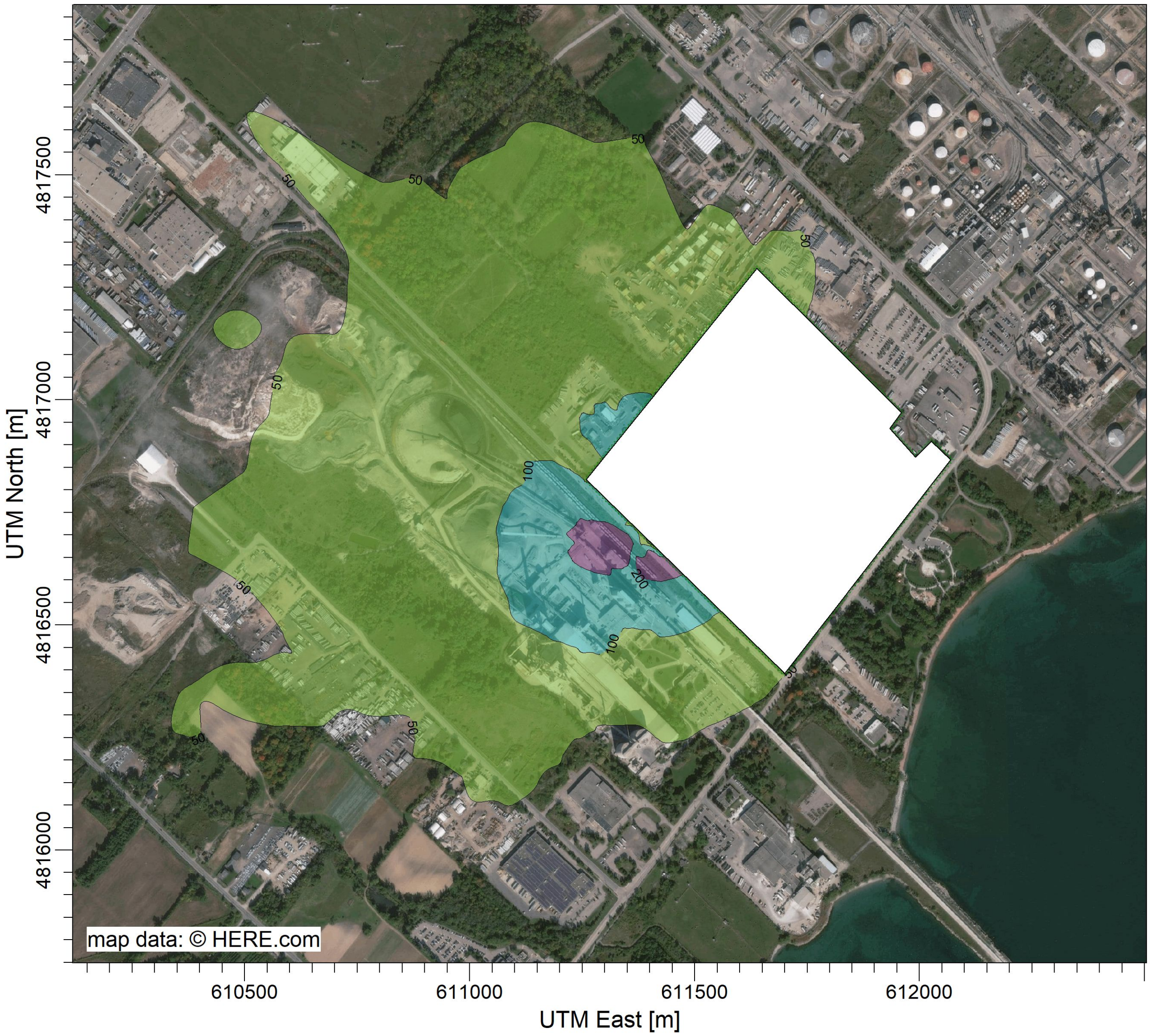
Appendix A

Figures

Project Title:

Clarkson WRRF
Current Scenario - NOx (1hr average)



PLOT FILE OF HIGH 1-HR VALUES NOx

µg/m³

50	100	200

Comments: ON AAQC = 400 µg/m³	Sources: **13**		
	Receptors: **2890**		
	Output Type: **Concentration**	SCALE: 1:15,000 0 — 0.5 km	
		Date: **11-Oct-22**	Figure Number: **A-1**

Project Title:

Clarkson WRRF
Future Scenario (Current + Project A) - NOx (1hr average)

PLOT FILE OF 1ST HIGH 1-HR: NOx

μg/m³

50 | 100 | 200

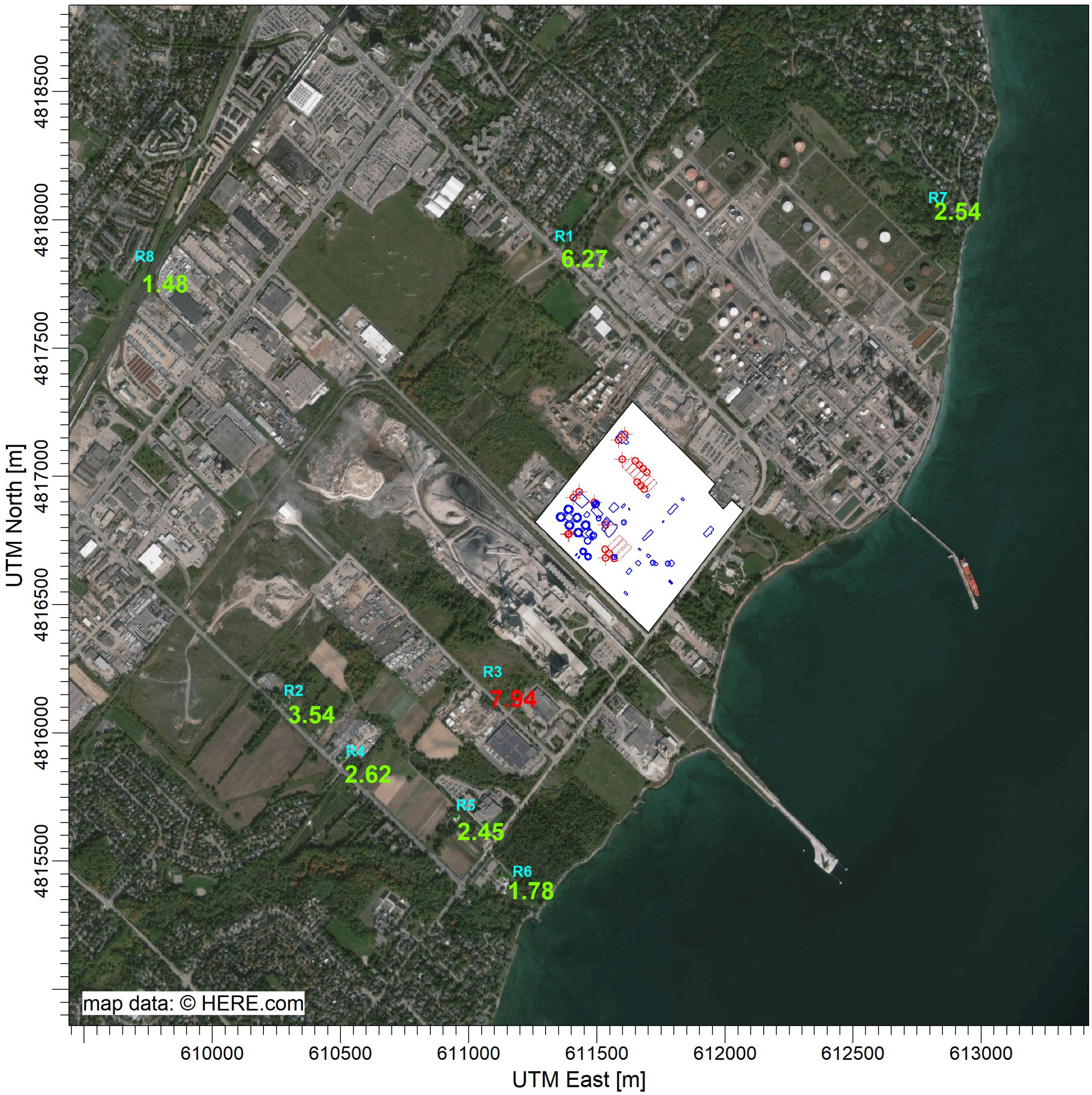
Comments: ON AAQC = 400 μg/m³	Sources: **16**	
	Receptors: **2890**	
	Output Type: **Concentration**	SCALE: 1:20,000 0 — 0.5 km
		Date: **11-Oct-22**

Figure Number:

A-2

Project Title:

Clarkson WRRF
Future Scenario (Current + Project A) - Odour Model (10-min average)



Comments:	Sources:		
Only the max year (2018) modelled is shown as the example.	**20**		
	Receptors: **8**		wsp
	Output Type: **Concentration**	SCALE: 1:25,000 (0 — 1 km)	
		Date: **11-Oct-22**	Figure Number: **A-3**

Appendix B

Source and Emission Rate Summary Tables

TABLE B-1: SOURCE DATA

SOURCE ID	DESCRIPTION		SOURCE DATA						
	PROCESS/MATERIAL	BUILDING/AREA	FLOWRATE (m^3/s)	VELOCITY (m/s)	TEMP (DEG. C)	DIAMETER (m)	HEIGHT ABOVE GRADE (m)	HEIGHT ABOVE ROOF (m)	SOURCE COORDINATES (X,Y) (m)
Existing Sources									
S-1A	Digester Waste Gas Burner #1	Waste Gas Burner Complex	16.9	17.8	1000	1.10	15.00	11.7	611402.42, 4816711.67
S-1B	Digester Waste Gas Burner #2	Waste Gas Burner Complex	16.9	17.8	1000	1.10	15.00	11.7	611394.74 , 4816718.73
S-1C	New digester Waste Gas Burner #3	Waste Gas Burner Complex	16.9	17.8	1000	1.10	15.00	11.7	611391.36, 4816720.70
S-1D	New Digester Waste Gas Burner #4	Waste Gas Burner Complex	16.9	17.8	1000	1.10	15.00	11.7	611387.62, 4816723.94
S-2	Existing Boilers #1	Near existing Digestion Tank Nos. 1&2	1.0	3.5	221	0.60	23.20	12.5	611492.37, 4816743.70
S-3	Existing Boilers #2	Boiler Building	8.50	5.52	107	1.40	20.00	11.6	611484.59, 4816794.37
S-4A	New cogeneration Unit #1	Southeast of Waste Burner Complex	1.75	2.37	470	0.97	10.00	7.9	611416.56, 4816694.78
S-4B	New cogeneration Unit #2	Southeast of Waste Burner Complex	1.75	2.37	470	0.97	10.00	7.9	611427.49, 4816684.22
S-5	Standby diesel generator set No. 1(450 kW)	Near Headworks / Screening / Degritting Building	1.50	47.75	463	0.20	2.00	-	611583.68, 4816967.89
S-6	Heaters	Engineering Office	N/A	N/A	N/A	N/A	N/A	N/A	611647.48, 4816667.05
S-7	Infrared Heaters	Garage/Workshop/Main Shop	N/A	N/A	N/A	N/A	N/A	N/A	611611.82, 4816629.16
S-8	Heater	Oil Storage Room	N/A	N/A	N/A	N/A	N/A	N/A	611627.02, 4816642.81
S-9	Standby diesel generator set No. 2 (230 kW)	Near new sewage pumping station (outdoors)	0.90	28.65	518	0.20	3.20	1.2	611392.41 , 4816749.61
S-10	Scrubber	Biosolids Truck Loading	16.50	21.01	21	1.00	29.60	18.60	611533.31, 4816811.42
S-11	Scrubber	Headworks	8.00	19.65	21	0.72	11.75	1	611534.42, 4816965.30
S-12	Abatement stack for exhaust of inlet channels to existing primary tanks (untreated) & Biofilter (for existing weirs) exhaust	Inlet	2.14	16.35	21	0.45	30.00	N/A	611533.76, 4816683.18
S-13	Abatement stack for exhaust of inlet channels to proposed primary tanks (untreated) & Biofilter (for proposed weirs) exhaust	Inlet	4.96	17.54	21	0.60	30.00	N/A	611665.51, 4817011.18
S14_BTK	Stack for biotrickling filter for the new PSTF	Stack on the roof of the new Odour Control Building for New Thickening Building	1.00	15.92	21	0.40	25.00	N/A	611488.19, 4816899.13
SCREEN	Screen Room exhaust	Headworks	25.96	1.32	21	5.00	12.75	2.0	611556.19, 4816936.13
GOOSE1	Gooseneck 1	Pumping station	0.05	0.12	21	0.75	0.60	N/A	611387.66, 4816774.72
GOOSE2	Gooseneck 2	Pumping station	0.05	0.12	21	0.75	0.60	N/A	611390.39, 4816776.27
PRIM1	Primary Tank #1 Surface	Primary treatment plant 1	N/A	N/A	N/A	N/A	N/A	N/A	611532.19, 4816716.02
PRIM2	Primary Tank #2 Surface	Primary treatment plant 1	N/A	N/A	N/A	N/A	N/A	N/A	611547.98, 4816700.31
PRIM3	Primary Tank #3 Surface	Primary treatment plant 1	N/A	N/A	N/A	N/A	N/A	N/A	611566.92, 4816682.34
PRIM4	Primary Tank #4 Surface	Primary treatment plant 2	N/A	N/A	N/A	N/A	N/A	N/A	611684.76, 4816951.65
PRIM5	Primary Tank #5 Surface	Primary treatment plant 2	N/A	N/A	N/A	N/A	N/A	N/A	611670.97, 4816964.95
PRIM6	Primary Tank #6 Surface	Primary treatment plant 2	N/A	N/A	N/A	N/A	N/A	N/A	611657.28, 4816978.46
Proposed Sources (Project A additional sources)									
Stacks 1A, 1B, 1C, and 1D	Standby diesel generators (total 4, capacity 2.5MW each)	New energy center	9.24	24.01	490.7	0.70	7.00	4	611789.16, 4816581.05
Stack 2	Carbon adsorption units	Screening Channels/Grit Removal Facilities	7.37	8.51	21	1.05	30.00	N/A	611608.23, 4817164.94
Stack 3	Radial Flow Dry Media Unit	Proposed Expanded Plant 3 Clarifiers Influent and Effluent Channels	5.00	17.68	21	0.60	30.00	N/A	611598.67, 4817067.20
Stack 4	Direct thermal drying	New dryer building	3.87	6.08	102	0.90	30.00	10.0	611430.75, 4816940.52
Stack 5	Dried product loading bay	New dryer building	1.51	5.34	21	0.60	30.00	10.0	611408.07, 4816918.47
PRIM7	Primary Tank #7 Surface	Primary treatment plant 3	N/A	N/A	N/A	N/A	N/A	N/A	611694.19, 4817016.38
PRIM8	Primary Tank #8 Surface	Primary treatment plant 3	N/A	N/A	N/A	N/A	N/A	N/A	611679.38, 4817031.18
PRIM9	Primary Tank #9 Surface	Primary treatment plant 3	N/A	N/A	N/A	N/A	N/A	N/A	611664.60, 4817045.95
PRIM10	Primary Tank #10 Surface	Primary treatment plant 3	N/A	N/A	N/A	N/A	N/A	N/A	611649.87, 4817060.69

Notes:
N/A - Not available
Sources S-11 (Scrubber - Headworks), S-13 (inlet - abatement stack), S-5 (standby diesel generator) ,and S-9 (standby diesel generator) will be decommissioned when Project A is implemented

TABLE B-2: EMISSION DATA

SOURCE ID	EMISSION DATA						
	CONTAMINANTS	CAS #	EMISSION RATE (g/s)	AVERAGING PERIOD (HOURS)	ESTIMATION TECHNIQUE	DATA QUALITY	% OF OVERALL EMISSION
Existing Sources							
S-1A	Nitrogen Oxides, NO_X as NO_2	10102-44-0	1.50E-01	1	EF	Above Average	2.06%
S-1B	Nitrogen Oxides, NO_X as NO_2	10102-44-0	1.50E-01	1	EF	Above Average	2.06%
S-1C	Nitrogen Oxides, NO_X as NO_2	10102-44-0	1.50E-01	1	EF	Above Average	2.06%
S-1D	Nitrogen Oxides, NO_X as NO_2	10102-44-0	1.50E-01	1	EF	Above Average	2.06%
S-2	Nitrogen Oxides, NO_X as NO_2	10102-44-0	9.22E-02	1	EF	Above Average	1.27%
S-3	Nitrogen Oxides, NO_X as NO_2	10102-44-0	4.22E-01	1	EF	Marginal	5.80%
S-4A	Nitrogen Oxides, NO_X as NO_2	10102-44-0	8.74E-01	1	EF	Above Average	12.01%
S-4B	Nitrogen Oxides, NO_X as NO_2	10102-44-1	8.74E-01	1	EF	Above Average	12.01%
S-5	Nitrogen Oxides, NO_X as NO_2	10102-44-2	2.93E+00	1	EF	Marginal	40.25%
S-6	Nitrogen Oxides, NO_X as NO_2	10102-44-3	3.55E-03	1	EF	Above Average	0.05%
S-7	Nitrogen Oxides, NO_X as NO_2	10102-44-4	3.80E-03	1	EF	Above Average	0.05%
S-8	Nitrogen Oxides, NO_X as NO_2	10102-44-5	7.12E-04	1	EF	Above Average	0.01%
S-9	Nitrogen Oxides, NO_X as NO_2	10102-44-5	1.48E+00	1	EF	Marginal	20.33%
S-10	TRS	N/A	1.10E-02	1	EC	Average	23.80%
	Odour (OU)	N/A	39600	10-min	EC	Average	33.89%
	Ammonia (NH_3)	7664-41-7	1.56E-02	1	EC	Average	20.18%
S-11	TRS	N/A	3.29E-04	1	EC	Average	0.71%
	Odour (OU)	N/A	1600	10-min	EC	Average	1.37%
	Ammonia (NH_3)	7664-41-7	3.16E-04	1	EC	Average	0.41%
S-12	TRS	N/A	3.62E-05	1	EC	Average	0.08%
	Odour (OU)	N/A	428	10-min	EC	Average	0.37%
S-13	TRS	N/A	6.80E-04	1	EC	Average	1.47%
	Odour (OU)	N/A	6111	10-min	EC	Average	5.23%
S14_BTK	TRS	N/A	7.14E-04	1	EC	Average	1.55%
	Odour (OU)	N/A	2600	10-min	EC	Average	2.23%
	Ammonia (NH_3)	7664-41-7	2.12E-02	1	EC	Average	27.42%
SCREEN	TRS	N/A	8.38E-03	1	EC	Average	18.13%
	Odour (OU)	N/A	2600	10-min	EC	Average	2.23%
	Ammonia (NH_3)	7664-41-7	1.01E-03	1	EC	Average	1.31%
GOOSE1	TRS	N/A	3.49E-04	1	EC	Average	0.76%
	Odour (OU)		53	10-min	EC	Average	0.05%
GOOSE2	TRS	N/A	3.49E-04	1	EC	Average	0.76%
	Odour (OU)	N/A	53	10-min	EC	Average	0.05%
PRIM1	TRS	N/A	2.67E-03	1	EC	Average	5.78%
	Odour (OU)	N/A	7808	10-min	EC	Average	6.68%
PRIM2	TRS	N/A	2.67E-03	1	EC	Average	5.78%
	Odour (OU)	N/A	7808	10-min	EC	Average	6.68%
PRIM3	TRS	N/A	2.67E-03	1	EC	Average	5.78%
	Odour (OU)	N/A	7808	10-min	EC	Average	6.68%
PRIM4	TRS	N/A	1.74E-03	1	EC	Average	3.77%
	Odour (OU)	N/A	5105	10-min	EC	Average	4.37%
PRIM5	TRS	N/A	1.74E-03	1	EC	Average	3.77%
	Odour (OU)	N/A	5105	10-min	EC	Average	4.37%
PRIM6	TRS	N/A	1.74E-03	1	EC	Average	3.77%
	Odour (OU)	N/A	5105	10-min	EC	Average	4.37%
Proposed Sources (Project A additional sources)							
Stacks 1A, 1B, 1C, and 1D	Nitrogen Oxides, NO_X as NO_2	10102-44-0	4.95E+00	1	EF	Average	68.05%
Stack 2	TRS	N/A	2.08E-03	1	EC	Average	4.49%
	Odour (OU)	N/A	1473	10-min	EC	Average	1.26%
	Ammonia (NH_3)	7664-41-7	2.91E-04	1	EC	Average	0.38%
Stack 3	TRS	N/A	1.41E-03	1	EC	Average	3.05%
	Odour (OU)	N/A	1000	10-min	EC	Average	0.86%
Stack 4	TRS	N/A	6.54E-05	1	EC	Average	0.14%
	Odour (OU)	N/A	174	10-min	EC	Average	0.15%
	Ammonia (NH_3)	7664-41-7	3.89E-02	1	EC	Average	50.31%
	Nitrogen Oxides, NO_X as NO_2	10102-44-0	2.56E-01	1	EC	Average	3.51%
	$PM_{2.5}$	N/A	2.28E-01	1	EC	Average	100.00%
	SO_2	7446-09-5	4.17E-02	1	EC	Average	100.00%
Stack 5	Odour (OU)	N/A	121	10-min	EC	Average	0.10%
PRIM7	TRS	N/A	1.90E-03	1	EC	Average	4.11%
	Odour (OU)	N/A	5571	10-min	EC	Average	4.77%
PRIM8	TRS	N/A	1.90E-03	1	EC	Average	4.11%
	Odour (OU)	N/A	5571	10-min	EC	Average	4.77%
PRIM9	TRS	N/A	1.90E-03	1	EC	Average	4.11%
	Odour (OU)	N/A	5571	10-min	EC	Average	4.77%
PRIM10	TRS	N/A	1.90E-03	1	EC	Average	4.11%
	Odour (OU)	N/A	5571	10-min	EC	Average	4.77%

NA - Not available
TEQ – Toxicity Equivalent
TRS - Total Reduced Sulphur

Appendix C

Emission Rate Calculations and Supporting Information

NOx emission rate calculations for new standby diesel generators (capacity 2.5MW each) (Source IDs: Stacks 1A, 1B, 1C, and 1D)

Nitrogen Oxides (NOx) Emissions:

NOx emission rate was calculated based on the manufacturer emission factor (see attached specifications).

Given a Rated capacity of 2,500 KW or 3,353 HP

Emission factor = 5.32 g/hp-hr (as per the specifications)

Emission Rate = 5.32 g/hp-hr x 3,353 hp x 1hr/3600 s

= 4.95 g/s

TRS emission rate calculations for Carbon adsorption units - Screening Channels/Grit Removal Facilities (source ID: Stack 2), and Radial Flow Dry Media Unit - Proposed Expanded Plant 2 Clarifiers Influent and Effluent Channels (source ID: Stack 3)

Sample calculations for H_2S:

Inlet H_2S maximum concentration =	20	ppm
Removal efficiency =	99	%
Outlet H_2S concentration =	0.20	ppm

Exhaust flow rate = 7.37 m^3/s (for Stack 2)

Contaminants	CAS No.	Max. exhaust gas concentration, ppm	Molecular Weight	Concentration, mg/m3	Emissions, g/s
H_2S	7783-06-4	0.20	34	0.2817	0.00208

To convert concentrations in air (at 25 °C) from ppm to mg/m³: mg/m³ = (ppm) × (molecular weight of the compound)/(24.45)

Molar volume at temperature 21^{O}C

For Molar Volume at temperature t, other than 273^{O} K (0^{O}C)

V2 = V1/T1 * T2

Where

V2 = Molar volume at temperature 21^{O}C

= Molar volume at temperature $294^{O}K$
V1 = Molar volume at temperature $0^{O}C$
= Molar volume at temperature $273^{O}K$
= 22.414 L/mole

V2 = (22.414*294)/273 L/mole
= 24.23 L/mole

TRS emission rate calculations for Direct thermal drying Stack (source ID: Stack 4)

Sample calculations for H_2S:

Outlet H_2S concentration = 0.012 ppm

Exhaust flow rate = 3.87 m^3/s

Contaminants	CAS No.	Max. exhaust gas concentration, ppm	Molecular Weight	Concentration, mg/m3	Emissions, g/s
H_2S	7783-06-4	0.012	34	0.0169	0.000065

To convert concentrations in air (at 25 °C) from ppm to mg/m^3: mg/m^3 = (ppm) × (molecular weight of the compound)/(24.45)

Molar volume at temperature $21^{O}C$

For Molar Volume at temperature t, other than 273^{O} K ($0^{O}C$)

V2 = V1/T1 * T2

Where
V2 = Molar volume at temperature $21^{O}C$
= Molar volume at temperature $294^{O}K$
V1 = Molar volume at temperature $0^{O}C$
= Molar volume at temperature $273^{O}K$
= 22.414 L/mole

V2 = (22.414*294)/273 L/mole
= 24.23 L/mole

Odour emission rate calculations for Primary Tanks #7, #8, #9, and #9 for Primary treatment plant 3

Odour emission rates for primary clarifiers are calculated based on the odour testing on similar facility.

Odour intensity rate = 5.07 OU/m2/s

Surface area of each primary tank = 1098.81m^2

Odour emission rate = 5.07 OU/m2/s x 1098.81m2
= 5,571 OU/s

Emission rates for the current sources are based on the Emission Summary and Dispersion Modelling (ESDM) Report prepared in February 2013.

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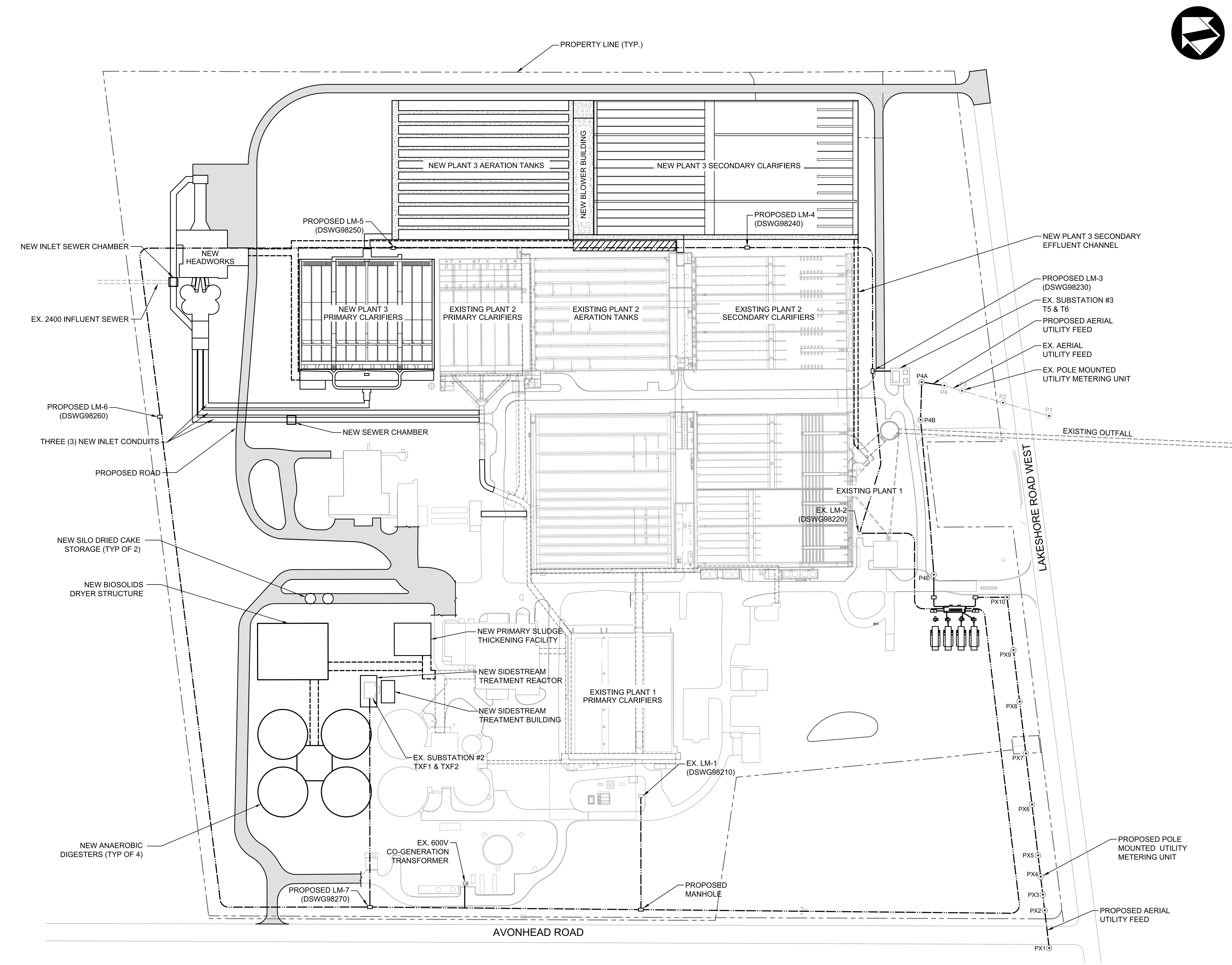
REVISIONS

NO.	DATE	DESCRIPTION	BY	APVD

LEGEND

PROPERTY LINE
EXISTING CHANNEL
PROPOSED CHANNEL
PROPOSED OVERHEAD HYDRO
PROPOSED UNDERGROUND HYDRO



SITE PLAN - PROPOSED

SCALE: 1:1500

BluePlan ENGINEERING

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Region of Peel
working with you

CLARKSON WWTP
CONTRACT 5 - NEW PLANT 3
GENERAL
SITE PLAN
PROPOSED

Dwg No.	XXX-XX-C-000X	Area	Z-01	Project No.	T001381A
Checked by	ML	Drawn by	HW	Plan No.	
Date	AUGUST 2022	Sheet	of		

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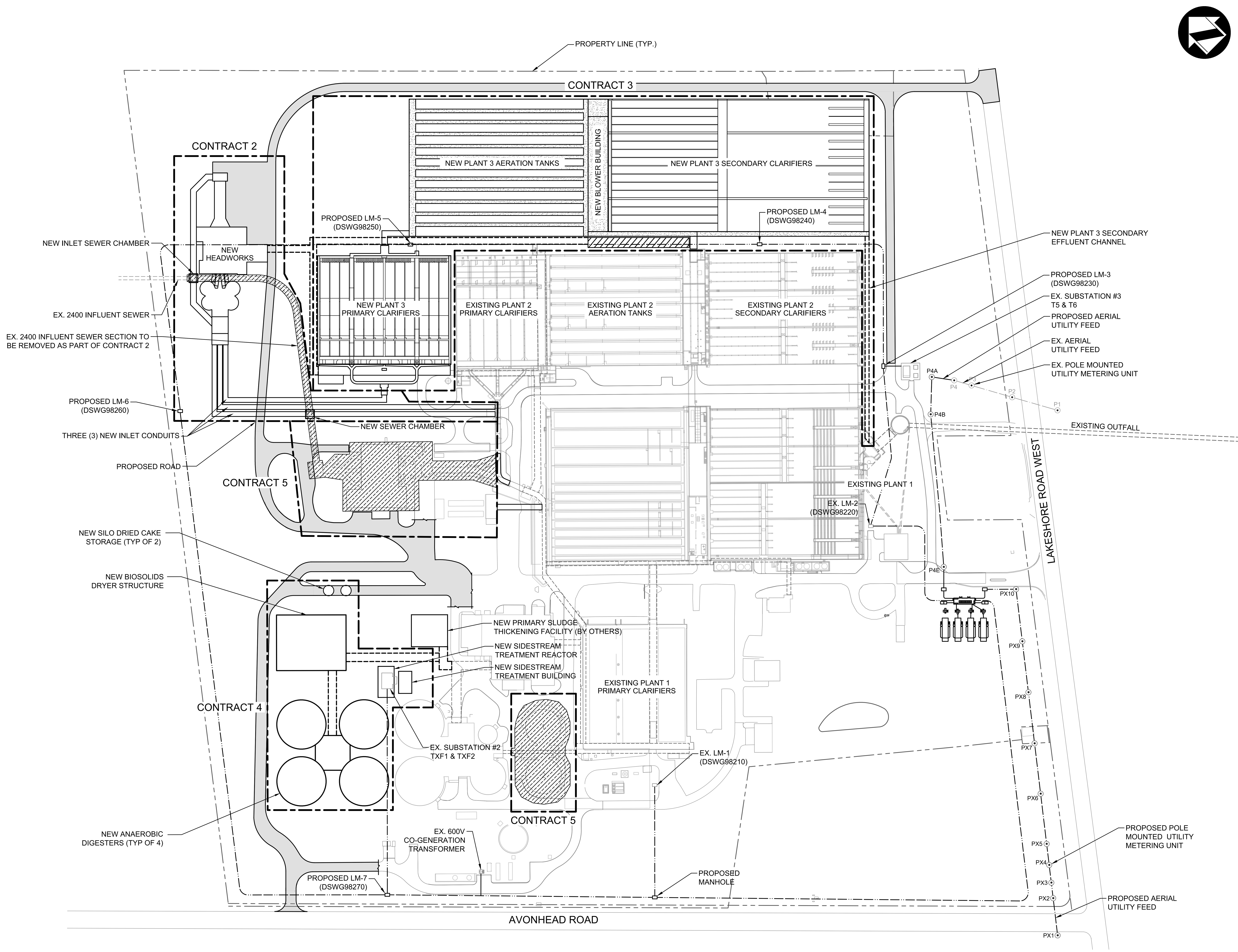
REVISIONS				
NO.	DATE	DESCRIPTION	BY	APVD



LEGEND

- PROPERTY LINE
- EXISTING CHANNEL
- PROPOSED CHANNEL
- PROPOSED OVERHEAD HYDRO
- PROPOSED UNDERGROUND HYDRO
- CONTRACTOR LIMITS
- REMOVALS

CONTRACT 1 - SITE PREPARATION AND ELECTRICAL UPGRADES
CONTRACT 2 - HEADWORKS AND INFLUENT SEWER MODIFICATIONS
CONTRACT 3 - NEW PLANT 3
CONTRACT 4 - BIOSOLIDS UPGRADES
CONTRACT 5 - DEMOLITION AND SITE CLEAN-UP

NOTES:

1. REMOVALS SHOWN ARE MAJOR SITE DEMOLITIONS AND REMOVALS AND DO NOT INCLUDE ALL SITE REMOVALS THAT WILL BE REQUIRED.
2. CONTRACT 5 LIMITS SHOWN ARE TO DEPICT MAJOR DEMOLITION AND DOSE NOT INCLUDE ALL SITE CLEAN-UP REQUIRED. ACTUAL CONTRACT LIMITS WILL INCLUDE THE WHOLE SITE FOR SITE CLEAN-UP.

STAGING AND REMOVALS PLAN

SCALE: 1:1500

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GM BluePlan ENGINEERING

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RV

Region of Peel
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CLARKSON WWTP
CONTRACT 5 - NEW PLANT 3
GENERAL
STAGING AND REMOVALS PLAN

Dwg No.	XXX-XX-C-000X	Area	Z-01	Project No.	T001381A
Checked by	ML	Drawn by	HW	Plan No.	
Date	AUGUST 2022	Sheet	of		

Table 1: Odour Control Facilities and Design Air Flow

Treatment Process	Odour Control/Treatment Technology	Stack ID	Design Air Flow
Existing Plant 1 Primary Influent and Effluent Channels	Biofilter	1	7,700 m^3/hr
Screening Channels/Grit Removal Facilities	2 carbon adsorption units	2	26,520 m^3/hr (13,260 m^3/hr per unit)
Headworks Building Ventilation (Summer – 6 ACH)	Supply and Exhaust Fans	-	55,000 m^3/hr
Headworks Building Ventilation (Winter – 3 ACH)	Supply and Exhaust Fans	-	22,000 m^3/hr
Proposed Expanded Plant 2 Clarifiers Influent and Effluent Channels	Radial Flow Dry Media Unit	3	18,000 m^3/hr

Table 2: Stack Details

Stack	Height	Diameter
1	30 m	600 mm
2	30 m	1050 mm
3	30 m	900 mm

Table 3: Design Inlet Air Stream Characteristics

Parameter	Value
H_2S Concentration	10 ppm average, 20 ppm peak Range: 1-20 ppm
Odour Concentration	Range: 1,000 – 5,000 OU/m^3

Clarkson WWTP Thermal Drying Improvement Odour Control Facilities

- Direct Thermal Drying Facility
    - Based on two Andritz DDS 80 Units in operation.
        - Operating 120 hr/ week Average annual operation
        - Evaporating 6,520 kg H2O /hr/unit (13,040 Kg H2O/hr total)
        - Anticipate Regenerative Thermal Oxidizers (RTO).
            - Air flow rate; 14,000 m3/hr (8,200 cfm)
            - Stack Height 30 m [**Stack 4**]
            - Stack Diameter 900 mm
            - RTO discharge
                - Odor Detection Threshold Units 45
                - Odor Recognition Threshold Units 25
                - H2S 0.012 ppm
                - NH3; 0.14 Kg/hr
                - NOx as NO2; 0.92 Kg/hr
                - SOx as SO2; 0.15 Kg/hr

- Dried product loading bay:
    - Radial flow dry media activated carbon system
        - Estimated air flow rate; 5,600 m3/hr (3,200 cfm)
        - Stack Height 30 m [**Stack 5**]
        - Stack Diameter 600 mm
        - Ambient air at system discharge.
            - Odor Detection Threshold Units 45
            - Odor Recognition Threshold Units 25
            - H2S 0 ppm

- The drying facility building

    - The drying system would be enclosed and designed to maintain negative pressure in the process area. The drying structure will not be a significant source of odours. Odor treatment is not anticipated to be required. If desired a biofiltration or carbon system could be considered.

Cat® 3516C

Diesel Generator Sets

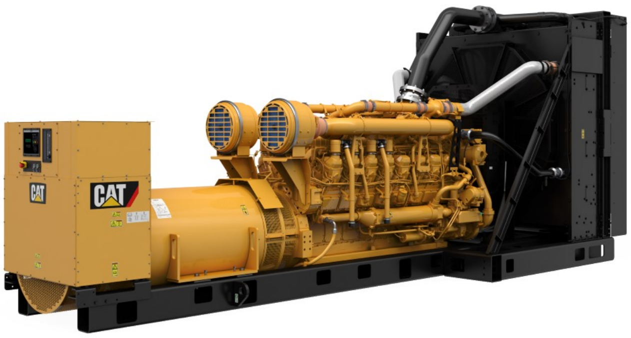


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in³)	78 (4764.73)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Continuous 60 Hz ekW (kVA)	Emissions Performance
2500 (3125)	2500 (3125)	2250 (2812)	2050 (2562)	U.S. EPA Stationary Emergency Use Only (Tier 2)

Standard Features

Cat® Diesel Engine
- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package
- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

EMCP 4 Control Panels
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Optional Equipment

Engine

Air Cleaner

❑ Single element
❑ Dual element

Muffler

❑ Industrial grade (15 dB)

Starting

❑ Standard batteries
❑ Oversized batteries
❑ Standard electric starter(s)
❑ Heavy duty electric starter(s)
❑ Air starter(s)
❑ Jacket water heater

Alternator

Output voltage

❑ 380V ❑ 6300V
❑ 440V ❑ 6600V
❑ 480V ❑ 6900V
❑ 600V ❑ 12470V
❑ 2400V ❑ 13200V
❑ 4160V ❑ 13800V

Temperature Rise (over 40°C ambient)

❑ 150°C
❑ 125°C/130°C
❑ 105°C
❑ 80°C

Winding type

❑ Random wound
❑ Form wound

Excitation

❑ Internal excitation (IE)
❑ Permanent magnet (PM)

Attachments

❑ Anti-condensation heater
❑ Stator and bearing temperature monitoring and protection

Power Termination

Type

❑ Bus bar
❑ Circuit breaker
❑ 1600A ❑ 2000A
❑ 2500A ❑ 3000A
❑ 3200A ❑ 4000A
❑ 5000A
❑ IEC ❑ UL
❑ 3-pole ❑ 4-pole
❑ Manually operated
❑ Electrically operated

Trip Unit

❑ LSI ❑ LSI-G
❑ LSIG-P

Control System

Controller

❑ EMCP 4.2B
❑ EMCP 4.3
❑ EMCP 4.4

Attachments

❑ Local annunciator module
❑ Remote annunciator module
❑ Expansion I/O module
❑ Remote monitoring software

Charging

❑ Battery charger – 10A
❑ Battery charger – 20A
❑ Battery charger – 35A

Vibration Isolators

❑ Rubber
❑ Spring
❑ Seismic rated

Cat Connect

Connectivity

❑ Ethernet
❑ Cellular
❑ Satellite

Extended Service Options

Terms

❑ 2 year (prime)
❑ 3 year
❑ 5 year
❑ 10 year

Coverage

❑ Silver
❑ Gold
❑ Platinum
❑ Platinum Plus

Ancillary Equipment

❑ Automatic transfer switch (ATS)
❑ Uninterruptible power supply (UPS)
❑ Paralleling switchgear
❑ Paralleling controls

Certifications

❑ UL2200
❑ CSA
❑ IBC seismic certification
❑ OSHPD pre-approval

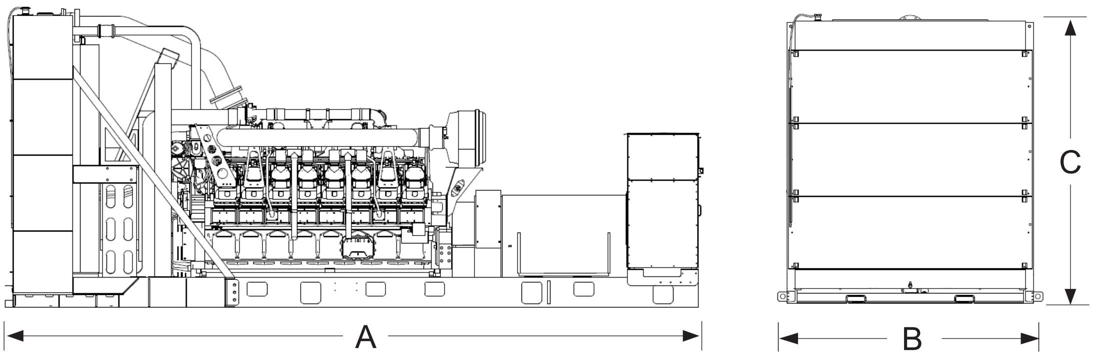
Note: *Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.*

Package Performance

Performance	Standby		Mission Critical		Prime		Continuous	
Frequency	60 Hz		60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	2500 ekW		2500 ekW		2250 ekW		2050 ekW	
Gen set power rating with fan @ 0.8 power factor	3125 kVA		3125 kVA		2812 kVA		2562 kVA	
Emissions	EPA ESE (TIER 2)		EPA ESE (TIER 2)		EPA ESE (TIER 2)		EPA ESE (TIER 2)	
Performance number	EM1894-01		EM1895-02		DM8447-04		DM8268-03	
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	656.8	(175.3)	656.8	(175.3)	593.0	(156.6)	549.3	(145.1)
75% load with fan – L/hr (gal/hr)	510.8	(134.9)	510.8	(134.9)	467.8	(123.6)	435.6	(115.1)
50% load with fan – L/hr (gal/hr)	372.4	(98.4)	372.4	(98.4)	341.9	(90.3)	316.8	(83.7)
25% load with fan – L/hr (gal/hr)	219.3	(57.9)	219.3	(57.9)	203.0	(53.6)	188.9	(49.9)
Cooling System								
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	2800.0	(98881)	2800.0	(98881)	2800.0	(98881)	2800.0	(98881)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	268.8	(71.0)	268.8	(71.0)	268.8	(71.0)	268.8	(71.0)
Total coolant capacity – L (gal)	501.8	(132.6)	501.8	(132.6)	501.8	(132.6)	501.8	(132.6)
Inlet Air								
Combustion air inlet flow rate – m^3/min (cfm)	242.2	(7212.2)	242.2	(7212.2)	193.1	(6819.8)	183.8	(6491.7)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	490.7	(915.2)	490.7	(915.2)	471.3	(880.4)	463.6	(866.5)
Exhaust gas flow rate – m^3/min (cfm)	554.5	(19578.8)	554.5	(19578.8)	507.9	(17935.1)	476.5	(16826.7)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection								
Heat rejection to jacket water – kW (Btu/min)	826	(46992)	826	(46992)	777	(44160)	739	(42021)
Heat rejection to exhaust (total) – kW (Btu/min)	2502	(142265)	2502	(142265)	2243	(127532)	2092	(118949)
Heat rejection to aftercooler – kW (Btu/min)	786	(44723)	786	(44723)	690	(39224)	619	(35176)
Heat rejection to atmosphere from engine – kW (Btu/min)	161	(9146)	161	(9146)	150	(8542)	145	(8229)
Heat rejection from alternator – kW (Btu/min)	121	(6853)	121	(6853)	99	(5607)	94	(5368)
Emissions* (Nominal)								
NOx mg/Nm^3 (g/hp-h)	2349.1	(5.32)	2349.1	(5.32)	2206.7	(4.95)	2038.1	(4.62)
CO mg/Nm^3 (g/hp-h)	195.4	(0.42)	195.4	(0.42)	141.2	(0.30)	124.8	(0.27)
HC mg/Nm^3 (g/hp-h)	42.1	(0.10)	42.1	(0.10)	44.4	(0.11)	49.2	(0.12)
PM mg/Nm^3 (g/hp-h)	14.1	(0.04)	14.1	(0.04)	10.9	(0.03)	11.0	(0.03)
Emissions* (Potential Site Variation)								
NOx mg/Nm^3 (g/hp-h)	2818.9	(6.38)	2818.9	(6.38)	2648.0	(5.94)	2445.8	(5.55)
CO mg/Nm^3 (g/hp-h)	351.8	(0.76)	351.8	(0.76)	254.2	(0.55)	224.6	(0.49)
HC mg/Nm^3 (g/hp-h)	55.9	(0.14)	55.9	(0.14)	59.1	(0.15)	65.5	(0.16)
PM mg/Nm^3 (g/hp-h)	19.7	(0.05)	19.7	(0.05)	15.2	(0.04)	15.3	(0.04)

**mg/Nm^3 levels are corrected to 5% O_2. Contact your local Cat dealer for further information.*

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
7033 (276.9)	2766 (108.9)	3018 (118.8)	17 590 (38,780)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

Standby
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of rated power for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Continuous
Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated kW for 100% of the operating hours.

Applicable Codes and Standards
AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications
Tier III/Tier IV compliant per Uptime Institute requirements. ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel rates are based on fuel oil of 35º API [16°C (60ºF)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 29ºC (85ºF) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.)

Appendix D

MECP Comments and Project Team’s Responses

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

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Toronto ON M4V 1P5
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Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. :   416 314-8001
Téléc. : 416 314-8452

December 20, 2022

Cindy Kambeitz
Project Manager
Region of Peel
cindy.kambeitz@peelregion.ca

BY EMAIL ONLY

Re: **Clarkson Water Resource Recovery Facility**
Region of Peel
Schedule C Municipal Class Environmental Assessment
Draft Environmental Study Report

Dear Ms. Kambeitz,

The Ministry of the Environment, Conservation and Parks (ministry) has reviewed the draft Environmental Study Report (report) prepared by GM BluePlan Engineering, dated November 2022, for the above noted Schedule C Municipal Class Environmental Assessment in the City of Mississauga.

The purpose of the study was to identify a preferred regional solution for meeting wastewater treatment capacity requirements and managing biosolids in the Peel lake-based system, and to develop a preferred design concept for expanding the Clarkson Water Resource Recovery Facility (WRRF).

We understand the preferred alternative includes the following works:

- Diversion of flows through the East-to-West Trunk sewer to alleviate current capacity challenges at the G.E. Booth WRRF, while taking advantage of surplus capacity at the Clarkson WRRF.
- Expanding the existing Clarkson WRRF from a rated capacity of 350 MLD to 500 MLD by the year 2029. The expansion will include providing additional preliminary treatment, primary treatment, and disinfection capacity by using the same existing technologies at the plant and providing additional secondary treatment capacity through the implementation of Biological Nutrient Removal.
- Digested/dewatered sludge produced at the Clarkson WRRF will no longer be trucked to the G.E. Booth WRRF for incineration. Additional solids treatment capacity will be provided at the Clarkson WRRF through the construction of additional digesters and a drying facility.
- Biosolids produced through the new solids treatment processes at the Clarkson WRRF will be a digested/dewatered cake product and a dried product that will be collected and distributed for beneficial land use by third-parties.
- The digested/dewatered cake can be applied directly on agricultural lands, or further treated by third-party management firms for use as a fertilizer.
- The dried product can be used directly as a fertilizer.

The ministry is generally satisfied with the report, and that with the implementation of mitigation measures, any adverse environmental effects will be avoided, or where avoidance is not possible, minimized. The ministry supports the preferred solutions for the Clarkson WRRF, which should result in positive environmental impacts by implementing processes and technologies that reduce reliance on the transportation and incineration of sludge, reduce greenhouse gas emissions, and provide beneficial products for land application.

We offer the following comments and information requests:

Air Quality

1. Please clarify why $PM_{2.5}$, H_2S, and Methyl Mercaptans were not assessed in the Air Quality Assessment (AQA) report, since these are possible contaminants of concern from wastewater treatment plants.

2. Project A proposes a Regenerative Thermal Oxidizer (RTO) for the new drying building. Please clarify if other contaminants could be released from this process in addition to the contaminants listed in the AQA report.

3. The ministry recommends speciating TRS (Dimethyl disulphide, Dimethyl sulphide, Hydrogen sulphide, and Mercaptans) for the proposed undertaking. The final AQA Report should elaborate how these individual contaminants will comply with O.Reg. 409/05 Schedule 3 air standards.

4. Please clarify if Project A modelling scenario in the AQA report represents the preferred alternative solution 3, as defined in the ESR.

5. The proponent should consider adding more detail in the Final AQA Report regarding the incremental differences reported between air quality impacts at the sensitive receptors for the preferred alternative, Project A and current scenario.

6. The project description details in the Executive Summary of the ESR should also be summarized in the AQA Report. Please update the AQA accordingly.

7. Currently, the tallest stack height is 30 metres and the distance from the lake to this source is less than 1 kilometre. Due to the proximity to the lake, please confirm whether shoreline fumigation was considered using a Screen 3 dispersion model as a screening tool. In addition, please confirm whether these stack heights will remain the in the future build scenario scenario.

8. Based on the dispersion modelling and frequency of odour exceedances reported, there are eight (8) receptors with odour levels greater than 1 odour unit (ou) for 3.2% of the time in a given year (Section 8 of the AQA Report). This is above the ministry's odour guidance recommendation of 0.5%. Please clarify what odour control equipment will be used for the future proposed undertaking and whether these controls are adequate.

9. The ministry recommends assessing the impacts at proposed future sensitive receptors so that sufficient odour mitigation measures are in place for these areas.

10. What was the maximum capacity rate (e.g., 500 MLD) applied to the odour emission estimates for the current scenario (250 MLD) and Project A? Also, how were the odour emission estimates prorated?

11. The AQA report did not discuss how the proposed undertaking will comply with Guideline A-9

– *NOx Emissions from Boilers and Heaters*. The Final AQA Report should address this by including a brief discussion on how the proposed future preferred alternative scenario will comply with Guideline A-9.

12. Although noted in the draft ESR, the AQA Report did not include a section on climate change and its impacts with respect to the proposed Clarkson WRRF operations. The ministry recommends estimating the greenhouse gases from the existing scenario versus the proposed preferred future scenario. This comparison of greenhouse emissions should be discussed in the Final AQA Report.

13. Please provide all inputs and outputs from modelling files for the existing and proposed future NOx modelling scenarios for the Clarkson WRRF.

14. An odour assessment was conducted by using the methodology recommended in the ministry's Technical Bulletin "How to assess 10-minute odour guidelines". The guidance documentation provided below should also be considered when discussing the odour mitigation measures that are proposed to minimize off-site odour impacts:

    I. Draft Guideline to Address Odour Mixtures in Ontario (MECP, May 2021) https://ero.ontario.ca/notice/019-2768
    II. Draft Technical Bulletin Methodology for Completing an Odour Assessment for Odour Mixtures (MECP, March 2021) https://prod-environmental-registry.s3.amazonaws.com/2021-03/Draft%20Odour%20Assessment%20Technical%20Bulletin%202021.pdf
    III. Best management practices for industrial sources of odour, Section 5.5 - https://www.ontario.ca/page/best-management-practices-industrial-sources-odour

Surface Water

15. All of our comments on the Receiving Water Impact Assessment have been addressed, thank you. To maintain consistency with the existing ECA, we recommend the following parameters to be included in compliance limits after expansion of the Clarkson WRRF to 500 MLD:

    - Total Phosphorus: 350 kilograms per day (Annual average daily loading).
    - pH range 6.5-9.0, inclusive, at all times.

Consultation with Indigenous Communities

16. The report indicates in Section 12.8 that four Indigenous communities were consulted throughout the study, but consultation activities are described for only two communities, the Mississaugas of the Credit First Nation, and the Huron-Wendat First Nation.

    If no responses were received from other Indigenous communities identified as potentially interested in the project, attempts to follow-up should be made by the project team to ensure they are aware of their opportunity to participate in consultation activities. Please document any attempts to follow-up with Indigenous communities in the record of consultation.

Thank you for the opportunity to review the report. Please feel free to contact me directly at (437) 770-3731 or trevor.bell@ontario.ca with any questions you may have.

Sincerely,

Trevor Bell
Regional Environmental Planner
Project Review Unit

Cc: Gavin Battarino, Supervisor (A), Project Coordination Unit, EAB, MECP
Tina Dufresne, Manager, Halton-Peel District Office, MECP
Marinha Antunes, Air Quality Analyst, Technical Support Section, Central Region, MECP
Lisai Shen, Surface Water Specialist, Technical Support Section, Central Region, MECP
Laurie Boyce, Strategic Planning and Project Advisor, GM BluePlan Engineering
Benjamin Peachman, Project Engineer, GM BluePlan Engineering

TO:	Trevor Bell Regional Environmental Planner Project Review Unit
FROM:	Akhter Iqbal, P.Eng.; Alex Breido, P.Eng., WSP E&I Canada Limited
DATE:	March 13, 2023
PROJECT NO.:	OAQC2166A
SUBJECT:	Air Quality Assessment Report Clarkson Water Resource Recovery Facility Region of Peel Schedule C Municipal Class Environmental Assessment

On behalf of Region of Peel, please accept the following responses to your questions concerning the air quality assessment report in support of Municipal Class Environmental Assessment for the Clarkson WRRF.

1. Please clarify why $PM_{2.5}$, H_2S, and Methyl Mercaptans were not assessed in the Air Quality Assessment (AQA) report, since these are possible contaminants of concern from wastewater treatment plants.

Response: The wastewater treatment facilities emit emissions of fossil fuel combustion and mainly sulphur-based emissions associated with the wastewater treatment operations.

In our AQA report the air quality impacts caused by combustion sources was assessed using NOx criteria. This is considered to be the only significant contaminant associated with the natural gas combustion and so NOx emissions were calculated and modelled. The other contaminants ($PM_{2.5}$, CO, SO_2, VOCs etc.) from these types of sources are considered negligible as per the Procedure for Preparing an Emission Summary and Dispersion Modelling Report, guideline A-10, Ontario (published by MECP, March 2018).

$PM_{2.5}$ emissions from the proposed direct thermal drying stack were calculated based on additional information provided by the equipment supplier and modelled accordingly for all applicable averaging periods. The AERMOD modelling demonstrates compliance with applicable $PM_{2.5}$ limits. The report is revised accordingly.

The most significant wastewater treatment contaminants are H_2S and Methyl Mercaptans. These two contaminants, as well as dimethyl disulphide and dimethyl sulphide, are major TRS compounds.

As per subsection 20.1 and 20.2 of O. Reg. 419/05, if a facility emits more than one species of the four major components of TRS, then the values for TRS apply, and individual components of TRS will not apply.

Clarkson facility emits all four above mentioned major TRS compounds, so TRS was assessed instead of individual compounds.

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2. Project A proposes a Regenerative Thermal Oxidizer (RTO) for the new drying building. Please clarify if other contaminants could be released from this process in addition to the contaminants listed in the AQA report.

Response: All contaminants associated with the RTO operations as provided by the design team are included in the AQA report.

3. The Ministry recommends speciating TRS (Dimethyl disulphide, Dimethyl sulphide, Hydrogen sulphide, and Mercaptans) for the proposed undertaking. The final AQA Report should elaborate how these individual contaminants will comply with O.Reg. 409/05 Schedule 3 air standards.

Response: For the Clarkson facility, the assessment of individual TRS component will not apply. TRS emissions combined all major TRS compounds and modelled.
Here are the criteria for the TRS compounds:

Compounds	CAS #	MECP Criteria ($\mu g/m^3$)	Averaging Period (hours)	Limiting Effect	Category (source) (as per ACB list)
TRS	N/A	7	24	Health	B1 (Standard)
		13	10-min	Odour	B1 (Standard)
Hydrogen sulphide (H_2S)	7783-06-4	7	24	Health	B1 (Standard)
		13	10-min	Odour	B1 (Standard)
Dimethyl disulphide	624-92-0	56	10-min	Odour	B1 (Guideline)
Dimethyl sulphide	75-18-3	30	10-min	Odour	B1 (Guideline)

As can be seen from the above table, TRS standards are the same as H_2S standards. Compounds Dimethyl disulphide and Dimethyl sulphide standards are higher than TRS or H_2S standards.

If the facility is in compliance with the TRS standards, it is also in compliance with the standards for individual sulphur compounds presented in the above table.

4. Please clarify if Project A modelling scenario in the AQA report represents the preferred alternative solution 3, as defined in the ESR.

Response: Yes, all air sources related to preferred alternative solution 3 are included in the model.

5. The proponent should consider adding more detail in the Final AQA Report regarding the incremental differences reported between air quality impacts at the sensitive receptors for the preferred alternative, Project A and current scenario.

Response: As far as the facility demonstrating compliance of criteria contaminants at the property boundary, impacts at the sensitive receptors (including incremental differences) are of less importance. All sensitive receptors are located further away from the facility than modelling receptors placed on the property line.

6. The project description details in the Executive Summary of the ESR should also be summarized in the AQA Report. Please update the AQA accordingly.

Response: Refer to Section 1.2 of the AQA report which has been updated to include additional project description details for the Clarkson WRRF expansion, as further outlined in the Executive Summary of the ESR. Specifically, the project description now reads as follows:

The Clarkson WRRF Schedule C Class EA has developed a preferred regional solution for managing flows within the lake-based Peel wastewater collection system and a design concept for expanding the Clarkson WRRF to meet future wastewater treatment needs to the year 2041. The preferred design concept will help the Region respond to changing regulations and needs well into the future.

The preferred alternative includes:

- *Diversion of flows through the East-to-West Trunk sewer to alleviate current capacity challenges at the G.E. Booth WRRF, while taking advantage of surplus capacity at the Clarkson WRRF.*
- *Expanding the existing Clarkson WRRF from a rated capacity of 350 MLD to 500 MLD by the year 2029. The expansion includes additional preliminary treatment, primary treatment, and disinfection capacity by using the same technologies as the existing and providing additional secondary treatment capacity through the implementation of a Biological Nutrient Removal (BNR) facility.*
- *Digested/dewatered sludge produced at the Clarkson WRRF will no longer be trucked to the G.E. Booth WRRF for incineration. Additional solids treatment capacity will be provided at the Clarkson WRRF through the construction of additional digesters and a drying facility.*
- *Biosolids produced through the new solids treatment processes include a digested/dewatered cake product and a dried product for collection and distribution for beneficial land use by third-party firms.*
    - *The digested/dewatered cake can be applied directly on agricultural lands, or further treated off-site by third-party vendors for use as a fertilizer.*
    - *The dried product can be used directly as a fertilizer.*

7. Currently, the tallest stack height is 30 metres and the distance from the lake to this source is less than 1 kilometre. Due to the proximity to the lake, please confirm whether shoreline fumigation was considered using a Screen 3 dispersion model as a screening tool. In addition, please confirm whether these stack heights will remain the in the future build scenario.

Response: The same heights of the stacks (not taller than 30 m) will remain in the future build scenario. Based on the Air Dispersion Modelling Guideline Ontario (ADMGO), 30m stacks (the tallest stack at the facility) do not require the shoreline fumigation assessment. Furthermore, there are no sensitive receptors between the shoreline and the facility, which potentially could be affected by the fumigation effect.

Quote from ADMGO:
"…facilities located within approximately 1 km of the shoreline of a larger lake or water body, that emit contaminants from taller stack sources greater than 50 metres in height, need assess the potential for shoreline fumigation…"

8. Based on the dispersion modelling and frequency of odour exceedances reported, there are eight (8) receptors with odour levels greater than 1 odour unit (ou) for 3.2% of the time in a given year (Section 8 of the AQA Report). This is above the ministry's odour guidance recommendation of 0.5%. Please clarify what odour control equipment will be used for the future proposed undertaking and whether these controls are adequate.

Response: Based on the assessment, primary clarifier emissions are one of the major sources for odour impacts. Please note that the odour assessment uses very conservative values associated with primary clarifiers' emissions and its characteristics. From the odour management and operational perspective, the following mitigations will be or have been implemented:

1. The primary clarifier influent and effluent channels are aerated and covered to maintain dissolved oxygen in the wastewater and minimize settling. The air from the channels will be collected for treatment prior to being discharged into the atmosphere.
2. The primary clarifiers at the Clarkson WRRF have been operated very efficiently with a sludge blanket depth of 2.5 ft or less. This operational approach minimizes the septic potential at the primary sludge hoppers, resulting in minimal odour emissions.
3. The Clarkson WRRF has a waste activated sludge (WAS) thickening facility. The Region is in the process of designing and constructing a primary sludge thickening facility. With these two thickening facilities, the Clarkson WRRF will not apply WAS co-thickening in the primary clarifiers. This will further minimize odour generation potential from the primary clarifiers.

With the above mitigation measures, the primary clarifiers' emissions are better than the values used in the model. This will result in a reduction of the anticipated odour exceedances.

For the other potential odour sources on the site, the air will be collected and treated prior to discharge, as shown in the model.

9. The Ministry recommends assessing the impacts at proposed future sensitive receptors so that sufficient odour mitigation measures are in place for these areas.

Response: The area surrounding the facility is zoned industrial/commercial. The project team is not aware of changes, like rezoned to "residential", to the land use and about any future sensitive receptors in the vicinity of the Clarkson WRRF. The proposed odour mitigation measures are deemed sufficient for the project.

10. What was the maximum capacity rate (e.g., 500 MLD) applied to the odour emission estimates for the current scenario (250 MLD) and Project A? Also, how were the odour emission estimates prorated?

Response: Odour emission rates were prorated based on the increased capacity of the facility, based on exhaust flows for point sources and intensity rate (OU/m^2) for area sources. All additional odour sources proposed for the increased production capacity of the plant are included in the dispersion modelling.

11. The AQA report did not discuss how the proposed undertaking will comply with Guideline A-9

– NOx Emissions from Boilers and Heaters. The Final AQA Report should address this by including a brief discussion on how the proposed future preferred alternative scenario will comply with Guideline A-9.

Response: No new boilers and heaters (thermal input greater than 10 million Btu/h or 10.5 GJ/h) are added to the proposed expansion of the Clarkson WRRF facility, so guideline A-9 is not applicable. The existing boilers and heater are approved by the current ECA.

12. Although noted in the draft ESR, the AQA Report did not include a section on climate change and its impacts with respect to the proposed Clarkson WRRF operations. The Ministry recommends estimating the greenhouse gases from the existing scenario versus the proposed preferred future scenario. This comparison of greenhouse emissions should be discussed in the Final AQA Report.

Response: As outlined in the Draft Clarkson ESR, a key objective of the Class EA is energy efficiency and the reduction of greenhouse gas (GHG) emissions at the Clarkson WRRF, specifically through supporting Peel's stated GHG Reduction Goals.

Peel Region recently issued their Climate Change Master Plan (CCMP, 2020) which identified a goal of reducing corporate GHG emissions by 45% by 2031 relative to 2010 levels. In order to ensure that the Class EA supported the Region's GHG Reduction Goals, the study included screening criteria for technologies related to meeting the stated goals. In addition, a detailed evaluation of the GHG emissions was completed for the project as a whole which included Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased electricity, heating, etc.), and Scope 3 (other indirect emissions from materials required for the facilities such as chemicals, equipment, etc.). Each design alternative was evaluated based on the total GHG emissions. The results are presented in the ESR.

Further to the efforts outlined above for the Class EA, Peel Region is completing a separate study which evaluates the GHG emissions and energy profiles from the Clarkson WRRF as a whole, including the updates from the proposed expansion. Therefore, the requested modelling for the existing vs proposed future scenario is being completed under separate cover and will be provided to the MECP once available.

13. Please provide all inputs and outputs from modelling files for the existing and proposed future NOx modelling scenarios for the Clarkson WRRF.

Response: Modelling files for NOx will be provided.

14. An odour assessment was conducted by using the methodology recommended in the ministry's Technical Bulletin "How to assess 10-minute odour guidelines". The guidance documentation provided below should also be considered when discussing the odour mitigation measures that are proposed to minimize off-site odour impacts:

    I. Draft Guideline to Address Odour Mixtures in Ontario (MECP, May 2021) https://ero.ontario.ca/notice/019-2768

    II. Draft Technical Bulletin Methodology for Completing an Odour Assessment for Odour Mixtures (MECP, March 2021) https://prod-environmental- registry.s3.amazonaws.com/2021-03/Draft%20Odour%20Assessment%20Technical%20Bulletin%202021.pdf

    III. Best management practices for industrial sources of odour, Section 5.5 - https://www.ontario.ca/page/best-management-practices-industrial-sources-odour

Response: The Clarkson WRRF does not have any history of odour complaints. If it's required, the Odour Action Plan (OAP) or the Best Management Practice (BMP) plan for odour will be prepared using recommendations stipulated in all above mentioned MECP guidance documents.

Sincerely,
WSP E&I Canada Limited

Prepared by:

Akhter Iqbal, P.Eng.
Senior Engineer, Air Quality

Reviewed by:

Alex Breido, Ph.D., P.Eng.
Senior Associate Engineer, Air Quality

Ministry of the Environment, Conservation and Parks

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April 14, 2023

Cindy Kambeitz
Project Manager
Region of Peel
cindy.kambeitz@peelregion.ca

BY EMAIL ONLY

Re: **Clarkson Water Resource Recovery Facility**
Region of Peel
Schedule C Municipal Class Environmental Assessment
Air Quality Assessment

Dear Ms. Kambeitz,

Central Region Technical Support Section (TSS) of the Ministry of the Environment, Conservation and Parks (MECP) reviewed the technical memorandum prepared by WSP E&I Canada Limited (WSP) dated March 13, 2023, in support of the *Schedule C Municipal Environmental Assessment (MCEA) for the Clarkson Water Resource Recovery Facility* (WRRF) in Mississauga, Ontario.

All responses provided by the proponent addressed the ministry's comments and questions except comment no. 5 as shown below:

MECP Comment #5: The proponent should consider adding more detail in the Final AQA Report regarding the incremental differences reported between air quality impacts at the sensitive receptors for the preferred alternative, Project A and current scenario.

Proponent Response: As far as the facility demonstrating compliance of criteria contaminants at the property boundary, impacts at the sensitive receptors (including incremental differences) are of less importance. All sensitive receptors are located further away from the facility than modelling receptors placed on the property line.

MECP Comments on Proponent Response: Typically, the incremental differences between the current and the future scenarios at the most impacted sensitive receptor(s) are discussed in the air quality impact assessment (AQIA) report. This information is beneficial for public awareness during the Class EA process. For this reason, a statement in the final AQIA report noting the incremental differences in terms of odour impacts is advisable for transparency purposes.

The following comments are provided as suggestions when updating the final AQIA report:

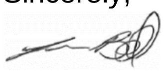
1. As stated in the WSP's technical memorandum, the responses to comment no. 6 and no. 13 will be integrated into the final AQIA report, which is acceptable.

2. Based on the responses to comment no. 10 and 14, the ministry recommends ensuring an odour mitigation and management plan is in place so that off-site odour impacts are minimized. Although there is no history of odour complaints presently, a complaint response protocol should also be considered in case future odour complaints from the proposed expansion are received.

3. Further, the ministry also suggests integrating the proposed odour mitigation measures, as noted in the comment no. 8 response, and discussing Peel Region's initiatives in reducing greenhouse gases (comment no. 12) in the final AQIA report.

Thank you for this opportunity to comment. If you have any questions or concerns regarding the comments above, please do not hesitate to contact me at trevor.bell@ontario.ca.

Sincerely,



Trevor Bell
Regional Environmental Planner
Project Review Unit

Cc: Gavin Battarino, Supervisor (A), Project Coordination Unit, EAB, MECP
Tina Dufresne, Manager, Halton-Peel District Office, MECP
Marinha Antunes, Air Quality Analyst, Technical Support Section, Central Region, MECP
Paul Martin, Manager, Technical Support Section, Central Region, MECP
Laurie Boyce, Strategic Planning and Project Advisor, GM BluePlan Engineering
Benjamin Peachman, Project Engineer, GM BluePlan Engineering

Limitations

Limitations

- The work performed in the preparation of this report and the conclusions presented herein are subject to the following:
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    b. Any and all time, budgetary, access and/or site disturbance, risk management preferences, constraints or restrictions as described in the contract, in this report, or in any subsequent communication sent by WSP to the Client in connection to the Contract; and
    c. The limitations stated herein.

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Appendix D:

Acoustic Assessment Report

Acoustic Assessment Report

Clarkson Water Resource Recovery Facility
Mississauga, ON, L5J 4B1
Project # CA02694

Prepared for:

Regional Municipality of Peel

GM BluePlan Engineering Limited

May 2023

Wood Group Asset Integrity Solutions, Inc.
Vibration, Dynamics and Noise (VDN)
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May 5, 2023

Wood Reference No. CA02694

Cindy Kambeitz, Project Manager
Water & Wastewater Operations & Optimization
Region of Peel

Laurie Boyce, Strategic Planning and Project Advisor
GM BluePlan Engineering Limited
3300 Highway 7, Suite 402
Vaughan, Ontario
L4K 4M3

Dear Ms. Kambeitz & Ms. Boyce,

Re: Acoustic Assessment Report in Support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF) for Regional Municipality of Peel

Wood's Vibration Dynamics and Noise (Wood VDN) team is pleased to provide the attached Acoustic Assessment Report to be used in support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF). This report specifically addresses the noise impacts of the proposed capacity expansion of the Clarkson WRRF which requires the completion of Schedule C Municipal Class Environmental Assessments in accordance with the Municipal Engineers Association (MEA) Municipal Class EA (October 2000, as amended in 2007, 2011 and 2015), to meet Ontario EA Act requirements.

Should you have any questions regarding the study or its findings, please do not hesitate to contact us.

Sincerely,

Wood Group Asset Integrity Solutions, Inc.

Vibration, Dynamics and Noise (VDN)

Prepared by:	**Reviewed by:**
Anmol Bhardwaj, P.Eng. Acoustics and Vibration Analyst	Henrik Olsen, M.Sc., INCE Bd. Cert. Principal Consultant – Noise & Vibration

Acoustic Assessment Report

Clarkson Water Resource Recovery Facility
Mississauga, ON, L5J 4B1
Project # CA02694

Prepared for:

Regional Municipality of Peel
GM BluePlan Engineering Limited

Prepared by:

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May 5, 2023

Executive Summary

The Regional Municipality of Peel (Region of Peel) lake-based wastewater system consists of two Water Resource Recovery Facility (WRRFs): the Clarkson WRRF and the G.E. Booth WRRF, and two major interconnected trunk sewer systems (East and West) which convey flows through sewage pumping stations, force mains, trunk sewers, and local gravity sanitary sewers, to the treatment plants for final treatment and discharge to Lake Ontario. The WRRFs were formerly known as the Clarkson Wastewater Treatment Plant and the G.E. Booth Wastewater Treatment Plant. With the envisioned population and employment growth to year 2041 and vision for growth beyond 2041, the WRRFs together will not have the capacity to meet the needs of Peel's citizens and to continue to protect the environment, even with the East-to-West Trunk Sewer Diversion in place. Additional treatment capacity will therefore be required at the G.E. Booth and Clarkson WRRFs.

Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited (Wood) who leveraged Wood's Vibration Dynamics and Noise (Wood VDN) team was retained by GM BluePlan Engineering Limited (GM BluePlan) to prepare an Acoustic Assessment Report (AAR) in support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF) located at 2307 Lakeshore Road W, Mississauga, Ontario (the "Facility") for the Region of Peel.

The Clarkson WRRF processes wastewater from residential, commercial, institutional, and industrial users in the Region of Peel through a network of sewers and pumping stations. The current wastewater processing design capacity of the Facility is 350 million litres per day (MLD). The proposed expansion is projected to increase this capacity to 500 MLD by providing additional wastewater treatment capacity within the site boundaries.

This Acoustic Assessment Report (AAR) assesses the compliance of the existing condition of the Facility and also evaluates the cumulative impact from existing noise sources with the source additions envisioned from the proposed capacity expansion against the applicable MECP NPC300 limits. Seven (7) representative Points of Reception (PORs) were identified and considered for this assessment which included three (3) accessible vacant lot receptors. Points of reception considered in this assessment are described in Section 5.0 of this report. The Facility is located in a property zoned as "U – Utility", which is surrounded by areas zoned for industrial use to the north, east and the west. Based on zoning and the Facility's proximity to other industrial facilities, the area is best described as a Class 1 area (urban) in accordance with the area classifications defined within NPC-300.

The receptor noise impacts associated with daily operations with the inclusion of additional sources part of the proposed capacity expansion were assesed through predictive acoustic modelling. The MECP exclusionary sound level limits were used as the criteria to assess the compliance of the Facility. The sound levels at the receptors reported represent the worst-case impact assuming all significant sound sources are operating simultaneously during daytime/evening and night time hours.

Under the predicable worst-case noise emission scenario's, the Clarkson WRRF is expected to be compliant with the MECP NPC-300 limits both in its existing condition and also after the proposed capacity expansion given that the noise specifications measures specified are implemented by the Region of Peel throughout the development phase of the expansion.

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1.0 Introduction

1.1 Project Description

The Regional Municipality of Peel (Region of Peel) lake-based wastewater system consists of two Water Resource Recovery Facility (WRRFs): the Clarkson WRRF and the G.E. Booth WRRF, and two major interconnected trunk sewer systems (East and West) which convey flows through sewage pumping stations, force mains, trunk sewers, and local gravity sanitary sewers, to the treatment plants for final treatment and discharge to Lake Ontario. The WRRFs were formerly known as the Clarkson Wastewater Treatment Plant and the G.E. Booth Wastewater Treatment Plant.

Both the Clarkson and G.E. Booth WRRFs are conventional activated sludge facilities, with rated capacities of 350 million litres per day (MLD) and 518 MLD, respectively. The G.E. Booth WRRF is currently approaching its capacity limits, as the 5-year average day flow (ADF) to the G.E. Booth WRRF is approximately 450 MLD. Currently, the ADF to the Clarkson WRRF is approximately 220 MLD.

The East and West trunk sewer systems are approximately divided by the watershed boundary between the Etobicoke Creek and the Credit River. The two systems are currently connected via the West-to-East Sanitary Trunk Sewer, which can be used to divert some wastewater flows by gravity from the west trunk system to the east trunk system at Highway 407. In addition, an East-to-West Sanitary Trunk Sewer Diversion is currently being constructed, to help alleviate capacity challenges at the G.E. Booth WRRF, and allow the Region to better optimize wastewater flows and loading in their systems. The diversion is a deep gravity tunnelled trunk sewer of 2400 mm diameter that extends 11 km between Spring Creek and the Credit River, aligned primarily along Derry Road. Construction of the gravity trunk sewer diversion is expected to be completed by 2026.

The Region's Growth Management process and 2020 Water and Wastewater Master Plan identified that there will be significant population and employment growth across the Region of Peel. With this approved growth to year 2041 and vision for growth beyond 2041, the WRRFs together will not have the capacity to meet the needs of Peel's citizens and to continue to protect the environment, even with the East-to-West Trunk Sewer Diversion in place. Additional treatment capacity will therefore be required at the G.E. Booth and Clarkson WRRFs.

Biosolids are the organic materials resulting from the physical, chemical and biological treatment of sewage sludge generated at Water Resource Recovery Facility. Currently, digested sludge generated at Clarkson WRRF is dewatered and hauled by truck approximately 18 km to the G.E. Booth WRRF for incineration. The residual ash slurry from the incineration process is transferred to two on-site settling lagoons which are dredged regularly and stored on-site in the ash ponds and berms. The existing biosolids management program has challenges related to its capacity, long-term sustainability, cost effectiveness, and reliability.

Increases in wastewater treatment capacity and management of biosolids require the completion of Schedule C Municipal Class Environmental Assessments in accordance with the Municipal Engineers Association (MEA) Municipal Class EA (October 2000, as amended in 2007, 2011, 2015 and 2023), to meet Ontario EA Act requirements.

1.2 Purpose and Requirements of the Acoustic Assessment Report

Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited (Wood) who leveraged Wood's Vibration Dynamics and Noise (Wood VDN) team was retained by GM BluePlan Engineering Limited (GM BluePlan) to prepare an Acoustic Assessment Report (AAR) in support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF) located at 2307 Lakeshore Road W, Mississauga, Ontario (the "Facility") for the Region of Peel.

This AAR has been completed and documented in accordance with the guidance provided in the following Ministry of the Environment, Conservation and Parks (MECP) documents:

1. NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October 1995 [1]; and,
2. NPC-300 "'Noise Assessment Criteria for Stationary Sources and for Land Use Planning", August 2013 [2].

The purpose of this AAR was to establish baseline conditions i.e. assess existing operations of the facility at nearest receptor locations against the applicable NPC-300 limits and evaluate the compliance of the Facility with the inclusion of the source additions identified as part of the proposed capacity expansion. The draft of this AAR was provided to the MECP as part of the overall Environmental Study Report (ESR) for review in November 2022. No comments on the Draft AAR were received. The MECP indicated their satisfaction with the ESR report, and that with the implementation of appropriate mitigation measures, any adverse environmental effects will be avoided, or where avoidance is not possible, the impact would be minimized.

2.0 Facility Background

The Clarkson WRRF processes wastewater from residential, commercial, institutional, and industrial users in the Region of Peel through a network of sewers and pumping stations. The existing treatment processes include screening, grit removal, primary clarification, aeration, secondary clarification and chlorine disinfection and de-chlorination prior to discharge to Lake Ontario through the plant outfall. The current wastewater processing design capacity of the Facility is 350 million litres per day (MLD). The proposed expansion is projected to increase this capacity to 500 MLD by providing additional wastewater treatment capacity within the site boundaries.

Two North American Industry Classification System (NAICS) codes are applicable to the Facility: 221320 - described as "Sewage Treatment Facilities" and 562210 - described as "Waste Treatment and Disposal", which covers the incineration operations.

A complete description of the Facility and its operations, including process flow diagrams, etc., can be found as part of the Emission Summary and Dispersion Modelling (ESDM) Report, provided under a separate cover. The Facility operates continuously 24 hours per day, 7 days per week.

The following figure and appendices contain information on the Facility and the points of reception as well as the surrounding land uses:

- Figure 1: Aerial Map of the Facility with Points of Receptions;

- Appendix A: Zoning Map of the Site and Surrounding Areas; and
- Appendix B: Facility Site Plan

3.0 Noise Source Summary

3.1 Baseline Conditions

Noise sources identified as significant i.e. as emitting noise at a level where their cumulative impacts could be of concern, currently at the Facility have been categorized as per their locations on the existing structures or landmarks as shown in Figure 1. The source IDs were kept consistent with ID tags of equipment, if applicable. These noise sources are summarized below:

- **P2 Blower Building:** The only significant source identified in this building is an air handling unit (AHU_96601) located on the east end of the building. The air handling unit has a total of 3 exhaust louvers, with one at the south side and the other two on the east side of the unit. There is a five metre high above roof parapet covering the north, east and south of the unit extending all the way up from the building's façade.
- **Existing Adminstration Building:** The newly constructed admin building's roof was inaccessible and therefore the outdoor noise sources on this building were extracted through the building schedule drawings provided by the Region of Peel. The drawings identified two outdoor condensing units (ACCU-101 and ACCU-201), two air handling units (AHU-101 and AHU-201), and one exhaust fan (EF-201). The two outdoor condensing units were observed to be similar to the Mitsubishi units located at the Biosolids Complex and are therefore modelled using the same measured spectrum data. The sound power level of the two air handling units and the exhaust fan were predicted from the data provided in the building schedule drawings.
- **Disinfection Chemical Building:** There are four significant noise sources identified at this building, including one bay door (DCB_BD), one supply air fan (DCB_FAN99710) and one exhaust louver (DCB_L) on the west wall of the building. There is also an outdoor condensing unit located directly west of the building which was observed to be non-operational during the site visit. This unit was identified to be similar to the Mitsubishi unit located at the Biosolids Complex and is therefore modelled using the same measured spectrum data.
- **Plant 1 (P1) Blower Building:** There are two types of significant noise sources associated with this building. The north, east, south and west walls of the building have exhaust louvers (P1B_NL, P1B_EL, P1B_SL and P1B_EL) stretching across the entire length of the building façade. The louvres have been modelled as vertical area sources in the noise model. The roof of the building has a total of four (4) hood exhaust fans (P1B_EF1 thru 4). There is also an outdoor condensing unit located directly west of the building observed as non-operational during the site visit and also deemed insignificant.
- **P1 Channel Air Blower Building:** There are two significant noise sources identified at this building location. The blower (P1C_BB_EX1) exhaust is located west on the north facing wall of the building. The blower was identified having a cyclic characteristic. The other source is an air handling unit (AHU_99300) located directly west of the building.

- **Existing Headworks Building:** The existing headworks building consists of eight significant noise sources. On the ground, directly south of the building are two supply air fans (HB_FAN98770 and HB_FAN98710) and two grit vortex units (HB_MX12203 and HB_MX12303). A small louver (HB_WL) on the west wall was also identified. The roof had three sources, two supply air fans (HB_FAN98620 and HB_FAN98610) and one makeup air unit (HB_MAU). Three exhaust fans, one Mitsubishi split system heat pump and an ambient elbow stack were identified to be insignificant.
- **Biosolids Complex:** The Biosolids Complex has eight significant noise sources on the roof, including five twin city & blower exhausts (BC_F97610, BC_F97620, BC_F97630, BC_F97640 and BC_F97650), two outdoor condensing units (BC_RTU1 and CAN97903) and one makeup air unit (BC_RTU2). There are two sources identified on the west and south walls of the building, one bay door (BC_BDw) and one exhaust louver (BC_SL), respectively. Both are modelled as vertical area sources in the assessment. On the ground, south of the building, is an HVAC unit (BC_HVAC) and with compressor units (BC_C) directly underneath. A three-metre-high noise barrier covers the HVAC unit from the east and west side.
- **Operations Building:** The only significant noise source at this building is a HVAC unit on the roof which was inaccessible during the site visit. Based on aerial imagery, the unit is assumed to be a Carrier 48TCDA06 packaged rooftop unit. The sound power level was extracted from manufacturer's specifications provided in Appendix C.
- **Office Building:** The roof is equipped with two HVAC units and found to be inaccessible during the site visit. Based on aerial imagery, the units are assumed to be Carrier 48TCDA06 packaged rooftop unit. The sound power level was extracted from manufacturer's specifications provided in Appendix C.
- **Digesters 1 and 2:** Both Digesters 1 and 2 are equipped with four sludge mixer motors each (D1_46001 thru D1_46004 and D2_45001 thru D2_45004). The building attaching these digesters only has one significant noise, an exhaust louver (D1_2_L) on the west wall.
- **Digesters 3, 4 and 5:** Digester 3 has four sludge mixer motors (D3_47001 thru D3_47004). Digesters 4 and 5 have five sludge mixer motors each (D4_48001 thru D4_48005 and D5_49001 thru D5_49005). The control building connects these three digesters has a total of six exhaust air fans (CB_FAN95650, CB_FAN95630, CB_FAN95490, CB_FAN95480, CB_FAN95430 and CB_FAN95710). Four exhaust fans and one Mitsubishi split system heat pump were identified as insignificant. The comprehensive list of all insignificant sources is provided in Appendix D.
- **Methane Bubble:** There are a total of eight significant noise sources identified in this area. The Bubble itself has three wall mounted exhausts (MB_EX1 thru MB_EX3). There are also two blowers (BL64110 and BL64120) located west of the bubble. A siloxane blower (BSP64670) was also identified west of the bubble along with co-gen unit with a roof exhaust and a wall exhaust louver (JEN_C_19068_EF and JEN_C_19068_EL).

Along with noise sources associated with each structure/landmark specified above, there is a supply air fan (PRC_FAN) located on the ground at the PRC containment area and four odour control fans (FAN23750, FAN23740, FAN23520 and FAN23510) directly west of the existing Plant 1 (P1) primary clarifiers.

Sound levels associated with the noise sources currently at the Facility were measured by Wood on July 28, 2022 and August 23, 2022. Sound power level (PWL) calculations along with measurement details of these sources are provided in Appendix C. Sound power levels for the sources that were not operational or inaccessible during the site visits was either taken from manufacturer's data or extracted from similar measured sources at GE Booth WRRF and other industrial facilities. Details on these sources are also provided and highlighted separately in Appendix C.

For the purposes of this acoustic assessment, stationary noise sources were assumed to operate 24 hours per day. Currently, there are three standby diesel generators located at the Facility. The operation of the three generators was assessed separately and only during daytime for half hour of non-emergency testing as per the NPC-300 guideline. There are no impulsive sources of sound expected at Facility.

There are two types of truck movements expected at the Facility which includes blower trucks and tanker trucks. Blower trucks are used at the Facility for the delivery of polymer adjacent to the PRC tanks at the Phosphorus Removal Building. The movement of tanker trucks is expected to be between the Facility's entrance and Biosolids Complex. Typically, a total of three trucks are predicted at the Facility per day.

To account for the worst-case predictable operational scenario, movement of three trucks is predicted during the worst-case hour for both daytime/eveing (7:00am to 11:00pm) and nighttime (11:00pm to 7:00am) periods. Only one blower truck delivery is expected to occur at a time and therefore, one blower truck per hour and a total of two tanker trucks are modelled in the worst-case operational scenario during the daytime/evening period. The blower truck delivery is expected to take a full hour to complete which accounts for an idling truck engine and a mounted pump's operation. The movement of the blower truck is not modelled since the worst-case operational hour considers the truck to be idling with the mounted pump's operation for the entire hour. Blower truck deliveries are not assumed to occur during nighttime. Truck movement during the nighttime periods is only expected to be from three tanker trucks in the worst-case predictable hour.

The MECP NPC-104 [5] noise guideline prescribes adjustments for sources with special qualities of sound. These are punitive adjustments, which apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (sounds with cyclically varying amplitudes). A tonality assessment was carried out in accordance with Annex K of ISO-1996-2; 2017 [6] and select sources currently at the Facility were identified to exhibit tonal and cyclic characteristics. As such, a 5 dB penalty was applied to these sources and are identified in Table 1.

Details of the existing noise sources can be found in the following table, figure and appendices:

- Table 1: Existing - Noise Source Summary
- Figure 2: Facility Structures
- Figure 3-5: Exisitng - Significant Noise Source Locations
- Appendix D: List of Insignificant Noise Sources.

3.2 Proposed Capacity Expansion

The proposed capacity expansion is expected to add a total of six (6) new structures at the Facility:

- New Headworks Building;
- New Blower Building;
- New Primary Sludge Thickening Facility;

- New Biosolids Dryer Structure;
- Four (4) new Anaerobic Digesters; and
- New Sidestream Treatment Building;

The expansion will include the demolition of the existing Headworks Building and Digesters 1 and 2 along with their control building. The noise additions envisioned from the new structures is as follows:

New Headworks Building: The New Headworks Building is assumed to be equipped with noise sources similar to the headworks building currently operational at the GE Booth WRRF. The proposed capacity expansion considers the impact of five exhaust fans and two carbon unit stacks.

New Blower Building: The New Blower Building is assumed to have similar noise sources to the existing P2 Blower Building which only includes one air handling unit on the east end of the new building.

New Primary Sludge Thickening Facility: The New Primary Sludge Thickening Facility is envisioned to be equipped with a biotrickling filter stack on the roof. Along with the stack, four odour control fans are also assumed to be significant noise source additions on the roof.

New Biosolids Dryer Structure: The New Biosolids Dryer Structure is assumed to be equipped with two stacks, one Radial Flow Dry Media Activated Carbon System Stack and a Regenerative Thermal Oxidizer Stack. The building is predicted to have four exhaust fans on the roof.

Four (4) New Anaerobic Digesters: The four new digesters are assumed to have a similar configuration to the existing digesters, Digester 4 and 5, which assumes an operation of five sludge mixer motors on each digester. The control building connecting the new four digesters is predicted to have four exhaust air fans similar to the existing digester control building.

New Sidestream Treatment Building: The New Sidestream Treatment Building is envisioned to be equipped with two exhaust fans on the roof.

The proposed capacity expansion is also envisioned to add a 30 metre stack, Radial Flow Dry Media Unit Stack, north of the proposed New Plant 3 Primary Clarifiers. Truck traffic is predicted to double at the Facility with the movement of six trucks predicted during the worst-case hour for both daytime/evening (7:00am to 11:00pm) and nighttime (11:00pm to 7:00am) periods. The existing three diesel generators will be replaced with four new 2.5 MW units in a centralized energy center. The sound power level of these units was estimated using the procedure documented in Chapter 11.12 of Engineering Noise Control, Theory and Practice by Bies and Hansen [7]. The sound power level calculation is provided in Appendix C. The procedure considered the unmuffled engine exhaust noise as well as the engine casing noise.

Details of noise sources can be found in the following table, figure and appendices:

- Figure 6: New Source Additions - Proposed Capacity Expansion
- Appendix B: Site Plan

4.0 Existing Mitigation Measures

The existing mitigation measures at the Facility consists of enclosures, acoustic hood and barriers. The air supply fans located on the Facility ground have partial enclosures installed that extend approx. one (1) metre above the exhaust opening. The makeup air units on the roof of both the Existing Headworks Building and the Biosolids Complex are equipped with acoustic enclosures. The blower located on the north wall of the P1 Channel Air Blower Building has an acoustic hood installed to mitigate the noise. There are two noise barriers currently installed at the Facility, one directly south of the Biosolids Complex shielding the Carrier HVAC and compressors and the other on the roof of the P2 Blower Building shielding the air handling unit. The barrier south of the Biosolids complex (EB1) is approximately 3m high above grade. The barrier on the roof of the P2 Blower Building (EB2) is approximately 5m high above roof and is placed directly south and east edges of the building. The locations of the barriers are displayed in Figure 3 and 4. Table 1 identifies the mitigation measures associated with each significant noise source identified at the Facility.

5.0 Point of Reception Summary

Noise sensitive receptors of interest as defined in the NPC-300 guideline include the following noise sensitive land uses:

- Permanent, seasonal, or rental residences;
- Hotels, motels and campgrounds;
- Schools, universities, libraries and daycare centres;
- Hospitals and clinics, nursing / retirement homes; and,
- Churches and places of worship.

A brief description of representative receptors (Points of Reception; POR) considered in this assessment is listed below and summarized in Table 3:

- Point of Reception 1 – **POR1** is a two-storey residential dwelling located approximately 775m north-east of the Facility. The address of the receptor is 762 Embassy Avenue.
- Point of Reception 2 – **POR2** is a two-storey building serving as Children's Palace Montessori, Preschool and Daycare located approximately 970m north-east of the Facility. The address of the receptor is 820 Southdown Road.
- Point of Reception 3 – **POR3** is a four-storey building serving as Peel Condominium Corporation No 105 located approximately 1085m north-east of the facility. The address of the receptor is 2001 Bonnymede Drive.
- Point of Reception 4 – **POR4** is a two-storey residential dwelling located approximately 1395m east of the Facility. The address of the receptor is 332 Watersedge Road.
- Point of Reception 5 – **POR5** is a vacant located approximately 660m south-west of the Facility.
- Point of Reception 6 – **POR6** is a vacant located approximately 720 m south-west of the Facility.

- Point of Reception 7 – **POR7** is a vacant located approximately 1015m west of the Facility.

The typical physical receptor locations considered for the dwellings are described below:

- For the Plane of Window PORs, the receptor location is located at 1.5 m, 4.5 m and 10.5 m above ground for single, two and four storey dwellings respectively; and,
- For the Outdoor PORs, the receptor location is an outdoor amenity area within 30 m from a facade or at the property line whichever is closer to the facade. The receptor height is 1.5 m above ground.

The representative and physical receptors assessed and reported here in this report are the worst-impacted receptor locations only. The location of the modeled receptors with respect to the Facility location is shown in Figure 1.

6.0 Applicable Noise Guidelines

The applicable noise guideline used to assess the Facility and proposed expansion is the MECP Environmental Noise Guideline NPC-300, *Noise Assessment Criteria for Stationary Sources and for Land Use Planning*. The guideline establishes four classes of acoustical environments based on the ambient background sound environments and establishes class specific sound level limit criteria. The MECP classes as per NPC-300 are described below:

- Class 1 Area: an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.
- Class 2 Area: an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas. Class 2 areas are characterized by the absence of urban hum, they have a relatively low ambient sound level, during early evening (i.e., between 19:00 and 23:00 hours) which is typically present within Class 1 Areas during the same time period.
- Class 3 Area: a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. Examples are small communities with populations of less than 1,000, agricultural areas, rural recreational areas, such as a cottage or a resort area, and wilderness areas.
- Class 4 Area: an area that would otherwise be defined as Class 1 (urban) or Class 2 (suburban) which has relaxed sound level criteria compared to any other Class. This Class is intended to allow new sound-sensitive developments within or adjacent to industrial areas and to promote urban intensification. In contrast to the other classes this one must be implemented by the local land use planning authority to be recognized by the MECP.

The Facility is located in a property with zoning regulations of "U – Utility", "U-5 – Utility Exception" and "G2-Greenlands". The area immediately adjacent to the Facility is zoned for industrial use to the north, east and west. The area directly south of the Facility is zoned under open space and natural hazards. Areas zoned under "D-Development" were also identified west and south-west of the Facility which are designated as vacant lands under the zoning by-law. Based on zoning and the Facility's proximity to other industrial facilities, the area is best described as a Class 1 area (urban) in accordance with the area classifications defined within NPC-300. A copy of the NPC-300 document can be found at the MECP website:

https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-sources-approval-and-planning#section-8

NPC-300 states that steady one-hour sound levels (L_{eq-1hr}) from stationary noise sources in Class 1 areas shall meet the following sound level limits:

- The higher of the 50 dBA MECP exclusionary sound level limit or the existing background sound level at ***both outdoor and plane of window receptor locations*** during daytime hours (0:700 to 19:00).
- The higher of the 50 dBA MECP exclusionary sound level limit or the existing background sound level at ***both outdoor and plane of window receptor locations*** during early evening hours (19:00 to 23:00).
- The higher of the 45 dBA MECP exclusionary sound level limit or the existing background sound level at the ***plane of window receptor locations*** during night-time hours (23:00 to 07:00).

Non-emergency operation of emergency equipment was assessed separately from the continuous regular operations of the Facility and is assessed with 55 dBA criterion limit as they are expected during daytime/evening hours only.

The NPC-300 guideline also stipulates that the assessment consider the potential sound impact during a predictable worse case hour of operation, which is defined as a situation when the normally busy activity of the sources coincides with a low hourly background sound level. The MECP exclusionary sound limits were used for this assessment.

7.0 Impact Assessment

The following sections of the report describes the noise impact modelling methodology and the associated modelling results.

7.1 Methodology

The noise assessment for the Facility was completed using a sound prediction software package, Cadna/A, published by Datakustik GmbH, which was configured to implement the ISO 9613-2 [6] environmental sound propagation algorithms. The Cadna/A noise modelling software is widely accepted by the consulting industry and the MECP. All steady noise sources were assumed to operate simultaneously to model the predictable worst-case scenario in their respective operational time periods. Sound levels from delivery trucks were distributed along the transportation route within the property boundary.

In order to provide an accurate prediction of sound levels at the receptors due to noise emissions from a specific source(s), the model took into account the following factors:

- Source sound power level and directivity;
- Distance attenuation;
- Source-receptor geometry, including heights and elevations;
- Barrier effects of buildings and tanks within the site perimeter; and,
- Ground and air (atmospheric) attenuation.

All building structures, excluding the digesters, for both existing conditions as well as structures proposed as part of the capacity expansion were modelled as buildings in the noise model. These were assigned a reflection type of a smooth façade. The digesters were considered as a curved surface and were modelled with no reflection as a conservative approach. The heights of the structures summarized in Section 3.0 were extracted from the building elevation drawings provided by the Region of Peel. The remaining building structures' heights were extracted from the topographical data available on Google Earth. The elevations of the building structures additions envisioned from the expansions are assumed to be the same as the similar existing buildings currently at the Facility and the GE Booth WRRF. For a conservative approach towards the assessment, the industrial properties adjacent to the Facility were not modelled as buildings and therefore, shielding provided by these properties is not accounted for in the noise model.

All noise sources were modelled to be simultaneously operational for the entire hour of the worst-case predictable hour of operation for a conservative assessment. The truck movements were modelled as line sources and their impact was considered only within the property footprint. Trucks were considered a part of the general traffic while moving along Lakeshore Road West and Southdown Road to and from the Facility. The stationary sources were modelled as point sources. Bay doors were modelled as vertical area sources and assumed to be open for the entire hour in the worst-case predictable hour of operation for all time periods of the day.

The HVAC sources were modelled with two noise emission points, the intake on the side and exhaust fans on the top. The following sources were identified with emission points at a few or in some cases all cardinal directions: makeup air units located on the roof of both the existing Headworks Building and Biosolids Complex; the standby generator located southwest of the existing Headworks Building; and the hood exhausts located on the roof of the P1 Blower Building. The ambient noise level was identified to be dominated by the noise equipment summarized in Tables 1 and therefore the noise emitted from the water channels associated with clarifiers and aeration tanks was assumed as insignificant in this assessment. This assumption was also applied to the proposed new plant 3 clarifiers and aeration tanks.

7.2 Modelling Results

7.2.1 Baseline Conditions

The combined steady sound levels ($L_{Aeq\text{-}1hr}$) for the predictable worst-case operations were calculated for the existing noise sources at the Facility. The cumulative impact of the simultaneous operation of all sources summarized in Table 1 was assessed at identified point of receptions, PORs 1 through 7.

The Facility was assessed for daytime/evening and nighttime periods. An acoustic assessment summary for baseline conditions is provided in Table 10. The noise contours for both the predictable worst-case operational scenarios for daytime/evening and nighttime were developed and are shown in Figure 7 and Figure 8, respectively.

The noise levels at the receptors reported as part of this acoustic assessment represent the predictable worst-case operational impact. A point of reception impact summary for daytime/evening and nighttime periods are presented in Table 4 and Table 5 respectively. The values provided in Tables 4 and Table 5 represent individual contributions at the receptor from each of the existing sources identified in Table 1.

Under the predicable worst-case noise emission scenario, the Facility is currently complaint with the MECP NPC-300 limits at all PORs. The noise levels at the receptors reported as part of this acoustic assessment represent the predictable worst-case operational impact. Key parameters included in the model and sample calculations are provided in Appendix E.

The three (3) identified standby generators in the building were assessed separately under the operational scenario of non-emergency testing, which assumed a simultaneous operation of all generators for 30 minutes in a worst-case predictable hour of operation. The sound levels (L_{eq-1hr}) in dBA values for the Facility's non-emergency testing operations were calculated at all the identified points of reception, POR1 through POR7. A point of reception impact summary for emergency testing operations is provided in Table 6.

Under the non-emergency testing operational scenario, the Facility is expected to operate in compliance with the applicable MECP NPC-300 limits at all PORs.

7.2.2 Proposed Capacity Expansion

Since the expansion is still in the design and planning stage, the equipment additions envisioned from the proposed capacity expansion have been assigned noise specifications i.e. recommended allowable sound power levels for each source, for the Facility to stay compliant with the NPC-300 limits, and consistent with existing source levels.

New Headworks Building: The five exhaust fans envisioned to be installed on the roof should not exceed a resultant sound power level of **100 dBA**. The two carbon unit stacks should not exceed a resultant sound power level of **95 dBA**.

New Blower Building: The air handling unit on the roof should not exceed a resultant sound power level of **105 dBA**.

New Primary Sludge Thickening Facility: The biotrickling stack should not exceed a resultant sound power level of **95 dBA.** The four odour control fans envisioned on the roof should not exceed a resultant sound power level of **100 dBA**.

New Biosolids Dryer Structure: The two stacks, Radial Flow Dry Media Activated Carbon System Stack and a Regenerative Thermal Oxidizer Stack should not exceed a resultant sound power level of **100 dBA**. The four exhaust fans envisioned on the roof should not exceed a resultant sound power level of **100 dBA**.

Four (4) New Anaerobic Digesters: The five sludge mixer motors on each of the four new digesters should not exceed a resultant sound power level of **80 dBA**. The four exhaust air fans envisioned on the control building should not exceed a resultant sound power level of **90 dBA**.

New Sidestream Treatment Building: The two exhaust air fans envisioned on the control building should not exceed a resultant sound power level of **90 dBA**.
The Radial Flow Dry Media Unit Stack, north of the proposed New Plant 3 Primary Clarifiers must not exceed a resultant sound power level of **100 dBA**.

The four (4) proposed 2.5 MW diesel generators need to be equipped with low pressure-drop combustion exhaust mufflers, casing mitigation, and combustion air inlet silencing to ensure that the maximum allowable sound power level does not exceed **120 dBA** for the diesel generator packages.

A summary of the noise source additions with proposed specifications is provided in Table 2. If these specifications are identified to be unfeasible during the equipment selection phase of the design, specific mitigation measures will need to be investigated and applied to the equipment additions to ensure the sound power level does not exceed the stipulated maximum resultant sound power levels. During this stage, a noise consultant is recommended to be consulted to select appropriate mitigation options for each piece of equipment. Noise measurements of all new equipment should be conducted after execution of the proposed capacity expansion to verify sound power levels and reevaluate impacts at the identified PORs.

The combined steady sound levels ($L_{Aeq\text{-}1hr}$) for the predictable worst-case operations were calculated for all sources envisioned after the proposed capacity expansion which includes existing noise sources at the Facility and new noise source additions. The cumulative impact of the simultaneous operation of all sources summarized in Table 1 and 2 was assessed at identified point of receptions, PORs 1 through 7.

The Facility was assessed for daytime/evening and nighttime periods. An acoustic assessment summary for proposed capacity expansion is provided in Table 11. The noise contours for both the predictable worst-case operational scenarios for daytime/evening and nighttime were developed and are shown in Figure 9 and Figure 10, respectively. A point of reception impact summary for daytime/evening and nighttime periods are presented in Table 7 and Table 8 respectively. The values provided in Tables 6 and Table 7 represent individual contributions at the receptor from each of the existing sources identified in Tables 1 and 2.

Under the predicable worst-case noise emission scenario for the proposed capacity expansion, the Facility is expected to be complaint with the MECP NPC-300 limits at all PORs with the stipulated noise specifications for the noise source additions.

The four (4) proposed 2.5 MW diesel generators envisioned to replace the existing three (3) generators at the Facility were assessed separately under the operational scenario of non-emergency testing, which assumed a simultaneous operation of all generators for 30 minutes in a worst-case predictable hour of operation. The sound levels ($L_{eq\text{-}1hr}$) in dBA values for the Facility's non-emergency testing operations were calculated at all the identified points of reception, POR1 through POR7. A point of reception impact summary for emergency testing operations is provided in Table 9.

Under the non-emergency testing operational scenario, the Facility is expected to operate in compliance with the applicable MECP NPC-300 limits at all PORs for the proposed capacity expansion.

8.0 Conclusions

An acoustic assessment report has been completed for The Region of Peel in support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF) located at 2307 Lakeshore Road W, Mississauga, Ontario. Seven (7) representative points of reception were identified in the vicinity of the Facility and considered for this assessment.

The receptor noise impacts associated with exisitng operations (baseline conditions) and the proposed capacity expansion were assesed through predictive acoustic modelling. The MECP exclusionary sound level limits were used as the criteria to assess the compliance of the Facility for its existing condition and after the proposed capacity expansion. The sound levels at the receptors reported represent the worst-case impact assuming all significant sound sources are operating simultaneously during all periods of the day.

The Clarkson WRRF is expected to be compliant with the MECP NPC-300 limits at all PORs for its baselines condition and after the proposed capacity expansion adhering to the noise specifications stipulated for the noise source additions in Section 7.2.2.

9.0 Closure

This Acoustic Assessment Report was prepared by Wood for the sole benefit of GM BluePlan and Region of Peel in support of a Schedule "C" Class Environmental Assessment of Clarkson Water Resource Recovery Facility (WRRF) located at 2307 Lakeshore Road W, Mississauga, Ontario. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Wood's services and based on: i) information available and conditions of the Facility at the time of preparation of this report, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by GM BluePlan and Region of Peel. only, and its nominated representatives, subject to the terms and conditions of its contract with Wood. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

10.0 References

[1] Ontario Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-233, *Information to be Submitted for Approval of Stationary Sources of Sound*, October 1995.

[2] Ontario Ministry of the Environment, Conservation and Parks (MECP), *Guide for Applying for Approval (Air & Noise) s.9 EPA*, February 2005.

[3] Ontario Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300, *Noise Assessment Criteria for Stationary Sources and for Land Use Planning*, August 2013.

[4] AHRAE, Handbook of Fundamentals, Chapter 42, 1991.

[5] Ontario Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-104, *Sound Level Adjustments*, published under the Model Municipal Noise Control Bylaw, 1977.

[6] ISO-9613-2. *Acoustics – Attenuation of Sound during propagation outdoors*. *Part 2 – General method of calculation.*

[7] Engineering Noise Control, Theory and Practice., *David A. Bies and Colin H. Hansen*, published by Spon Press, 2003.

Table 1: Existing - Noise Source Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Source ID	Source Description	Sound Power Level [1] (dBA)	Sound Power Level Adjustment [2] (+dB)	Source Location [3] (I or O)	Sound Characteristics [4] (S,Q,I,B,T,C)	Noise Control Measures [5] (S,A,B,L,E,O,U)
MB_EX1	Methane bubble exhaust 1	95	0	O	S	U
MB_EX2	Methane bubble exhaust 2	78	0	O	S	U
BL64110	Methane bubble blower 1	88	0	O	S	U
BL64120	Methane bubble blower 2	88	0	O	S	U
MB_EX3	Methane bubble exhaust 3	95	0	O	S	U
BSP64670	Siloxane blower	83	5	O	S,T	U
JEN_C_19068_EF	Co-gen engine roof exhaust	93	0	O	S	U
JEN_C_19068_EL	Co-gen engine side intake louver	82	0	O	S	U
G1	Headworks emergency diesel generator	99	0	O	S	U
BC_RTU1	Biosolids complex roof mitsubishi outdoor unit	79	0	O	S	U
BC_F97620	Biosolids complex roof twin city fan & blower 1	72	0	O	S	U
BC_F97640	Biosolids complex roof twin city fan & blower 2	73	0	O	S	U
BC_F97650	Biosolids complex roof twin city fan & blower 3	79	0	O	S	U
CAN97903	Biosolids complex roof Mitsubishi Electric mr slim condensing unit	72	0	O	S	U
BTI	Biosolids truck idling	94	0	O	S	U
BC_HVAC_I	Biosolids complex carrier HVAC intake	97	0	O	S	U
BC_HVAC_T	Biosolids complex carrier HVAC top fans	97	0	O	S	U
BC_C	Biosolids complex compressor units	98	0	O	S	U
D1_2_L	Digester 1&2 building west wall louvre	95	0	O	S	U
D2_45001	Digester 2 sludge mixer motor 1	78	0	O	S	U
D2_45002	Digester 2 sludge mixer motor 2	74	0	O	S	U
D2_45003	Digester 2 sludge mixer motor 3	81	0	O	S	U
D2_45004	Digester 2 sludge mixer motor 4	81	0	O	S	U
D1_46002	Digester 1 sludge mixer motor 2	74	0	O	S	U
D1_46001	Digester 1 sludge mixer motor 1	78	0	O	S	U
D1_46003	Digester 1 sludge mixer motor 3	81	0	O	S	U
D1_46004	Digester 1 sludge mixer motor 4	81	0	O	S	U
G2	Pump station emergency diesel generator	101	0	O	S	U
D3_47001	Digester 3 sludge mixer motor 1	77	0	O	S	U
D3_47002	Digester 3 sludge mixer motor 2	77	0	O	S	U
D3_47003	Digester 3 sludge mixer motor 3	83	5	O	S,T	U
D3_47004	Digester 3 sludge mixer motor 4	78	0	O	S	U
CB_FAN95650	Control building exhaust air fan 1	87	0	O	S	U
CB_FAN95490	Control building exhaust air fan 2	81	0	O	S	U
CB_FAN95630	Control building exhaust air fan 3	77	0	O	S	U
CB_FAN95480	Control building exhaust air fan 4	80	0	O	S	U
CB_FAN95430	Control building exhaust air fan 5	83	0	O	S	U
CB_FAN95710	Control building exhaust air fan 6	76	0	O	S	U
D4_48001	Digester 4 sludge mixer motor 1	81	0	O	S	U
D4_48002	Digester 4 sludge mixer motor 2	80	5	O	S,T	U
D4_48003	Digester 4 sludge mixer motor 3	79	0	O	S	U
D4_48004	Digester 4 sludge mixer motor 4	72	0	O	S	U
D4_48004	Digester 4 sludge mixer motor 5	76	0	O	S	U
D5_49001	Digester 5 sludge mixer motor 1	73	5	O	S,T	U
D5_49002	Digester 5 sludge mixer motor 2	71	0	O	S	U

Table 1: Existing - Noise Source Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Source ID	Source Description	Sound Power Level [1] (dBA)	Sound Power Level Adjustment [2] (+dB)	Source Location [3] (I or O)	Sound Characteristics [4] (S,Q,I,B,T,C)	Noise Control Measures [5] (S,A,B,L,E,O,U)
D5_49003	Digester 5 sludge mixer motor 3	69	0	O	S	U
D5_49004	Digester 5 sludge mixer motor 4	74	5	O	S,T	U
D5_49005	Digester 5 sludge mixer motor 5	74	0	O	S	U
HB_FAN98770	Headworks building supply air fan 1	81	0	O	S	U
HB_MX12203	Headworks building grit vortex 1	72	0	O	S	U
HB_MX12303	Headworks building grit vortex 2	72	0	O	S	U
HB_FAN98710	Headworks building supply air fan 4	76	0	O	S	U
P1C_BB_EX1	P1 channel air blower building exhaust	104	5	O	C	U
AHU99300	Air Handling Unit	92	0	O	S	U
HB_WL	Headworks building west wall louvre	77	0	O	S	U
HB_FAN98620	Headworks building supply air fan 2	75	0	O	S	U
HB_FAN98610	Headworks building supply air fan 3	83	0	O	S	U
G3	Cummins Diesel Generator	97	0	O	S	U
DCB_FAN99710	Disinfection chemical building supply air fan	76	0	O	S	U
PRC_FAN	PRC tank containment area 4 supply air fan	78	0	O	S	U
FAN23740	Odour control fan 2	100	5	O	S,T	U
FAN23750	Odour control fan 1	100	5	O	S,T	U
FAN23520	Odour control fan 3	83	0	O	S	U
FAN23510	Odour control fan 4	83	0	O	S	U
KTI	Kemira Truck idling	97	0	O	S	U
KTP	Kemira truck mounted pump	99	0	O	S	U
AHU_101	New Admin Building Air Handling Unit 1	107	0	O	S	U
AHU_201	New Admin Building Air Handling Unit 2	107	0	O	S	U
BC_F97630	Biosolids complex roof twin city fan & blower 4	79	0	O	S	U
BC_F97610	Biosolids complex roof twin city fan & blower 5	79	0	O	S	U
OB_HVAC1	Operations Building HVAC 48TCDA06	78	0	O	S	U
OB_HVAC3	Office Building HVAC 48TCDA06	78	0	O	S	U
OB_HVAC2	Office Building HVAC 48TCDA06	78	0	O	S	U
AC99720	Disinfection chemical building condensing unit	72	0	O	S	U
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	72	0	O	S	U
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	79	0	O	S	U
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	72	0	O	S	U
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	72	0	O	S	U
P1B_EX1	P1 Blower Building hood exhuast 1	88	0	O	S	U
P1B_EX2	P1 Blower Building hood exhuast 2	88	0	O	S	U
P1B_EX3	P1 Blower Building hood exhuast 3	88	0	O	S	U
P1B_EX4	P1 Blower Building hood exhuast 4	88	0	O	S	U
EF_201	New Admin Building Greenheck Exhaust Fan	90	0	O	S	U
BTM1	Biosolids Truck Movement 1	84	0	O	S	U
BTM2	Biosolids Truck Movement 2	83	0	O	S	U
P1B_EL1	P1 Blower building east wall louvre 1	84	0	O	S	U

Table 1: Existing - Noise Source Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Source ID	Source Description	Sound Power Level [1] (dBA)	Sound Power Level Adjustment [2] (+dB)	Source Location [3] (I or O)	Sound Characteristics [4] (S,Q,I,B,T,C)	Noise Control Measures [5] (S,A,B,L,E,O,U)
P1B_EL2	P1 Blower building east wall louvre 2	84	0	O	S	U
P1B_EL3	P1 Blower building east wall louvre 3	86	2	O	S	U
P1B_SL	P1 Blower building south wall louvre	95	11	O	S	U
P1B_WL	P1 Blower building west wall louvre	86	2	O	S	U
P1B_NL1	P1 Blower building north wall louvre 1	84	0	O	S	U
P1B_NL2	P1 Blower building north wall louvre 2	94	10	O	S	U
BC_BDw	Biolsolids complex west bay door	80	0	O	S	U
BC_SL	Biosolids complex south wall louvre	88	0	O	S	U
AHU96601_1	P2 blower building air handling unit exhaust 1	105	0	O	S	U
AHU96601_2	P2 blower building air handling unit exhaust 2	91	0	O	S	U
AHU96601_3	P2 blower building air handling unit exhaust 3	92	0	O	S	U
DCB_BD	Disinfection chemical building north bay door	73	0	O	S	U
DCB_L	Disinfection chemical building east wall louvre	85	0	O	S	U
BC_MAUw	Biosolids Complex makeup air unit (west)	77	5	O	S,T	U
BC_MAUn	Biosolids Complex makeup air unit (north)	78	5	O	S,T	U
BC_MAUe	Biosolids Complex makeup air unit (east)	75	5	O	S,T	U
BC_MAUs	Biosolids Complex makeup air unit (south)	78	5	O	S,T	U
HB_MAUw	Headworks Building makeup air unit (west)	84	0	O	S	U
HB_MAUs	Headworks Building makeup air unit (south)	83	0	O	S	U
HB_MAUe	Headworks Building makeup air unit (east)	84	0	O	S	U
HB_MAU	Headworks Building makeup air unit (north)	82	0	O	S	U

Notes on Table:

1. Sound Power Level of Source, in dBA, without sound characteristic adjustment per NPC-104.
2. Sound characteristic adjustment (addition to sound power level), as applicable to the source, per NPC-104.
3. Source Location: O = Outside of building, including the roof, I = Inside of building
4. Sound Characteristic, per NPC-104
   - S = Steady
   - I = Impulsive
   - T = Tonal
   - Q = Quasi-Steady Impulsive
   - B = Buzzing
   - C = Cyclic
5. Noise Control Measures Included
   - S = Silencer/Muffler
   - L = Lagging
   - O = Other
   - A = Acoustic lining, plenum
   - E = acoustic enclosure
   - U = uncontrolled
   - B = Barrier

Table 2: Proposed Capacity Expansion - Noise Source Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Source ID	Source Description	Sound Power Level [1] (dBA)	Sound Power Level Adjustment [2] (+dB)	Source Location [3] (I or O)	Sound Characteristics [4] (S,Q,I,B,T,C)	Noise Control Measures [5] (S,A,B,L,E,O,U)
QSK95_1C	Cummins Diesel Gen Set 1 Casing	120	0	O	S	S
QSK95_1E	Cummins Diesel Gen Set 1 Exhaust	120	0	O	S	S
QSK95_2E	Cummins Diesel Gen Set 2 Exhaust	120	0	O	S	S
QSK95_2C	Cummins Diesel Gen Set 2 Casing	120	0	O	S	S
QSK95_3E	Cummins Diesel Gen Set 3 Exhaust	120	0	O	S	S
QSK95_3C	Cummins Diesel Gen Set 3 Casing	120	0	O	S	S
QSK95_4E	Cummins Diesel Gen Set 4 Exhaust	120	0	O	S	S
QSK95_4C	Cummins Diesel Gen Set 4 Casing	120	0	O	S	S
HW_EF2	New Headworks Building Exhaust Fan 2	100	0	O	S	S
HW_EF1	New Headworks Building Exhaust Fan 1	100	0	O	S	S
HW_EF3	New Headworks Building Exhaust Fan 3	100	0	O	S	S
HW_EF4	New Headworks Building Exhaust Fan 4	100	0	O	S	S
HW_EF5	New Headworks Building Exhaust Fan 5	100	0	O	S	S
HW_CUS1	New Headworks Building Carbon Unit Stack 1	95	0	O	S	S
HW_CUS2	New Headworks Building Carbon Unit Stack 2	95	0	O	S	S
D6_M1	Digester 6 sludge mixer motor 1	80	0	O	S	S
D6_M2	Digester 6 sludge mixer motor 2	80	0	O	S	S
D6_M3	Digester 6 sludge mixer motor 3	80	0	O	S	S
D6_M4	Digester 6 sludge mixer motor 4	80	0	O	S	S
D6_M5	Digester 6 sludge mixer motor 5	80	0	O	S	S
D7_M1	Digester 7 sludge mixer motor 1	80	0	O	S	S
D7_M2	Digester 7 sludge mixer motor 2	80	0	O	S	S
D7_M3	Digester 7 sludge mixer motor 3	80	0	O	S	S
D7_M4	Digester 7 sludge mixer motor 4	80	0	O	S	S
D7_M5	Digester 7 sludge mixer motor 5	80	0	O	S	S
D8_M1	Digester 8 sludge mixer motor 1	80	0	O	S	S
D8_M2	Digester 8 sludge mixer motor 2	80	0	O	S	S
D8_M3	Digester 8 sludge mixer motor 3	80	0	O	S	S
D8_M4	Digester 8 sludge mixer motor 4	80	0	O	S	S
D8_M5	Digester 8 sludge mixer motor 5	80	0	O	S	S
D9_M1	Digester 9 sludge mixer motor 1	80	0	O	S	S
D9_M2	Digester 9 sludge mixer motor 2	80	0	O	S	S
D9_M3	Digester 9 sludge mixer motor 3	80	0	O	S	S
D9_M4	Digester 9 sludge mixer motor 4	80	0	O	S	S
D9_M5	Digester 9 sludge mixer motor 5	80	0	O	S	S
DC_EF1	New Digester Control Building exhaust air fan 1	90	0	O	S	S
DC_EF2	New Digester Control Building exhaust air fan 2	90	0	O	S	S
DC_EF3	New Digester Control Building exhaust air fan 3	90	0	O	S	S
DC_EF4	New Digester Control Building exhaust air fan 4	90	0	O	S	S
S1	New Primary Thickening Facility stack for biotrickling filter	95	0	O	S	S

Table 2: Proposed Capacity Expansion - Noise Source Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Source ID	Source Description	Sound Power Level [1] (dBA)	Sound Power Level Adjustment [2] (+dB)	Source Location [3] (I or O)	Sound Characteristics [4] (S,Q,I,B,T,C)	Noise Control Measures [5] (S,A,B,L,E,O,U)
ODC_F1	New Primary Thickening Facility odour control fan 1	100	0	O	S	S
ODC_F2	New Primary Thickening Facility odour control fan 2	100	0	O	S	S
ODC_F3	New Primary Thickening Facility odour control fan 3	100	0	O	S	S
ODC_F4	New Primary Thickening Facility odour control fan 4	100	0	O	S	S
S3	Radial Flow Dry Media Unit Stack	100	0	O	S	S
S5	Radial Flow Dry Media Activated Carbon System Stack	100	0	O	S	S
S4	Regenerative Thermal Oxidizer Stack	100	0	O	S	S
DS_CF1	New Biosolids Dryer Structure exhaust fan 1	100	0	O	S	S
DS_CF2	New Biosolids Dryer Structure exhaust fan 2	100	0	O	S	S
DS_CF3	New Biosolids Dryer Structure exhaust fan 3	100	0	O	S	S
DS_CF4	New Biosolids Dryer Structure exhaust fan 4	100	0	O	S	S
BB_AHU	New Blower Building AHU	105	0	O	S	S
ST_EF2	New Sidestream Treatment Building exhaust air fan 2	90	0	O	S	S
ST_EF1	New Sidestream Treatment Building exhaust air fan 1	90	0	O	S	S
ME_1	Biosolids Truck Movement 1 (after expansion)	88	0	O	S	S

Notes on Table:

1. Sound power level of source, in dBA, without sound characteristic adjustment per NPC-104.
2. Sound characteristic adjustment (addition to sound power level), as applicable to the source, per NPC-104.
3. Source location: O = Outside of building, including the roof, I = Inside of building
4. Sound characteristic of sound power level reference, per NPC-104
   S = Steady | I = Impulsive | T = Tonal
   Q = Quasi-Steady Impulsive | B = Buzzing | C = Cyclic
5. Noise Control Measures Included
   S = Silencer/Muffler | L = Lagging | O = Other
   A = Acoustic lining, plenum | E = acoustic enclosure | U = uncontrolled
   B = Barrier

Table 3: Points of Reception (PORs) Summary

Project: Clarkson WRRF
Location: Mississauga, ON

Point of Reception ID	Point of Reception Description	UTM Coordinates		Height Above Ground
		X	Y	(m)
POR1	762 Embassy Ave	611283	4817993	4.5
POR2	Children's Palace Montessori, Preschool and Dayca	611070	4818083	4.5
POR3	Peel Condominium Corporation No 105	611039	4818222	10.5
POR4	332 Watersedge Road	612916	4818005	4.5
POR5	Vacant Lot 1	611340	4815815	4.5
POR6	Vacant Lot 2	611324	4815758	4.5
POR7	Vacant Lot 3	610655	4815867	4.5

wood.

Table 4: Point of Reception Noise Impact (Daytime/Evening, Baseline Conditions)

Project: Clarkson WRRF
Location: Mississauga, ON

	POR01			POR02			POR03			POR04			POR05			POR06			POR07		
Point of Reception Description	762 Embassy Ave			Children's Palace Montessori, Preschool and Daycare			Peel Condominium Corporation No 105			332 Watersedge Road			Vacant Lot 2			Vacant Lot 1			Vacant Lot 3		
Point of reception coordinates	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]
	611283	4817993	4.5	611070	4818083	4.5	611039	4818222	10.5	612916	4818005	5	611340	4815815	4.5	611324	4815758	4.5	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	Methane bubble exhaust 1	1293	14	dBA	1425	12	dBA	1567	11	dBA	1954	8	dBA	903	23	dBA	961	22	dBA	1162	19	dBA
MB_EX2	Methane bubble exhaust 2	1289	-4	dBA	1418	-5	dBA	1560	-6	dBA	1965	-9	dBA	904	5	dBA	962	4	dBA	1152	2	dBA
BL64110	Methane bubble blower 1	1293	7	dBA	1421	6	dBA	1563	5	dBA	1972	2	dBA	898	15	dBA	956	14	dBA	1144	12	dBA
BL64120	Methane bubble blower 2	1295	7	dBA	1423	6	dBA	1565	5	dBA	1974	2	dBA	896	15	dBA	954	15	dBA	1143	12	dBA
MB_EX3	Methane bubble exhaust 3	1304	13	dBA	1434	12	dBA	1576	11	dBA	1969	8	dBA	890	23	dBA	948	22	dBA	1147	20	dBA
BSP64670	Siloxane blower	1307	6	dBA	1434	9	dBA	1576	8	dBA	1987	0	dBA	883	15	dBA	941	15	dBA	1129	12	dBA
JEN_C_19068_EF	Co-gen engine roof exhaust	1300	14	dBA	1426	18	dBA	1569	17	dBA	1986	9	dBA	889	22	dBA	947	22	dBA	1131	20	dBA
JEN_C_19068_EL	Co-gen engine side intake louver	1306	2	dBA	1432	5	dBA	1574	5	dBA	1992	-2	dBA	883	10	dBA	941	10	dBA	1124	8	dBA
G1	Headworks emergency diesel generator	1095	0	dBA	1255	0	dBA	1394	0	dBA	1693	0	dBA	1158	0	dBA	1217	0	dBA	1431	0	dBA
BC_RTU1	Biosolids complex roof mitsubishi outdoor unit	1206	-18	dBA	1353	-19	dBA	1494	-19	dBA	1820	-2	dBA	1020	-1	dBA	1079	-1	dBA	1297	-4	dBA
BC_F97620	Biosolids complex roof twin city fan & blower 1	1196	-15	dBA	1344	-17	dBA	1485	-17	dBA	1810	-5	dBA	1031	1	dBA	1090	0	dBA	1308	-8	dBA
BC_F97640	Biosolids complex roof twin city fan & blower 2	1247	-10	dBA	1393	-9	dBA	1534	-9	dBA	1844	-5	dBA	980	1	dBA	1039	1	dBA	1270	-6	dBA
BC_F97650	Biosolids complex roof twin city fan & blower 3	1247	-1	dBA	1392	0	dBA	1534	-1	dBA	1849	2	dBA	978	8	dBA	1037	8	dBA	1266	1	dBA
CAN97903	Biosolids complex roof Mitsubishi Electric mr slim condensing unit	1240	-8	dBA	1387	-10	dBA	1528	-10	dBA	1832	-5	dBA	991	1	dBA	1050	1	dBA	1282	-6	dBA
BTI	Biosolids truck idling	1202	-5	dBA	1346	-6	dBA	1487	-7	dBA	1833	-10	dBA	1017	-3	dBA	1076	-3	dBA	1285	13	dBA
BC_HVAC_I	Biosolids complex carrier HVAC intake	1234	2	dBA	1384	2	dBA	1525	3	dBA	1813	10	dBA	1004	27	dBA	1063	26	dBA	1301	19	dBA
BC_HVAC_T	Biosolids complex carrier HVAC top fans	1234	2	dBA	1383	2	dBA	1524	5	dBA	1812	17	dBA	1005	24	dBA	1064	24	dBA	1302	16	dBA
BC_C	Biosolids complex compressor units	1233	-2	dBA	1383	-2	dBA	1524	-1	dBA	1811	0	dBA	1006	9	dBA	1065	9	dBA	1303	1	dBA
D1_2_L	Digester 1&2 building west wall louvre	1264	3	dBA	1401	2	dBA	1543	2	dBA	1903	-3	dBA	943	19	dBA	1002	19	dBA	1212	24	dBA
D2_45001	Digester 2 sludge mixer motor 1	1277	-3	dBA	1414	-5	dBA	1556	-6	dBA	1911	-10	dBA	930	8	dBA	989	7	dBA	1204	2	dBA
D2_45002	Digester 2 sludge mixer motor 2	1286	-6	dBA	1424	-6	dBA	1566	-6	dBA	1910	-12	dBA	924	4	dBA	983	3	dBA	1204	1	dBA
D2_45003	Digester 2 sludge mixer motor 3	1292	-2	dBA	1429	-3	dBA	1571	-4	dBA	1921	-8	dBA	916	7	dBA	974	6	dBA	1193	4	dBA
D2_45004	Digester 2 sludge mixer motor 4	1283	-2	dBA	1419	-3	dBA	1561	-4	dBA	1921	-7	dBA	922	7	dBA	980	6	dBA	1193	4	dBA
D1_46002	Digester 1 sludge mixer motor 2	1271	0	dBA	1412	-1	dBA	1554	-2	dBA	1885	-8	dBA	945	3	dBA	1004	3	dBA	1229	-12	dBA
D1_46001	Digester 1 sludge mixer motor 1	1263	2	dBA	1403	0	dBA	1545	-1	dBA	1886	-8	dBA	951	-5	dBA	1009	-6	dBA	1229	-8	dBA
D1_46003	Digester 1 sludge mixer motor 3	1265	-2	dBA	1408	2	dBA	1549	1	dBA	1875	-7	dBA	954	7	dBA	1012	6	dBA	1239	-6	dBA
D1_46004	Digester 1 sludge mixer motor 4	1256	3	dBA	1398	2	dBA	1539	1	dBA	1876	-7	dBA	960	0	dBA	1018	-3	dBA	1239	-2	dBA
G2	Pump station emergency diesel generator	1231	0	dBA	1354	0	dBA	1496	0	dBA	1974	0	dBA	952	0	dBA	1009	0	dBA	1155	0	dBA
D3_47001	Digester 3 sludge mixer motor 1	1245	-3	dBA	1379	-4	dBA	1522	-5	dBA	1914	-8	dBA	954	5	dBA	1012	4	dBA	1204	3	dBA
D3_47002	Digester 3 sludge mixer motor 2	1254	-3	dBA	1389	-4	dBA	1531	-5	dBA	1913	-8	dBA	947	6	dBA	1006	4	dBA	1204	2	dBA
D3_47003	Digester 3 sludge mixer motor 3	1260	8	dBA	1394	7	dBA	1536	6	dBA	1924	3	dBA	939	16	dBA	997	16	dBA	1193	14	dBA
D3_47004	Digester 3 sludge mixer motor 4	1252	-1	dBA	1385	2	dBA	1527	2	dBA	1925	-6	dBA	945	7	dBA	1003	6	dBA	1194	4	dBA
CB_FAN95650	Control building exhaust air fan 1	1234	-7	dBA	1369	-7	dBA	1511	-4	dBA	1900	2	dBA	967	18	dBA	1026	15	dBA	1219	13	dBA
CB_FAN95490	Control building exhaust air fan 2	1234	3	dBA	1366	2	dBA	1508	6	dBA	1919	-7	dBA	961	12	dBA	1020	10	dBA	1202	8	dBA
CB_FAN95630	Control building exhaust air fan 3	1236	-13	dBA	1370	-12	dBA	1512	-10	dBA	1910	-20	dBA	962	8	dBA	1021	5	dBA	1210	3	dBA
CB_FAN95480	Control building exhaust air fan 4	1223	6	dBA	1356	4	dBA	1498	3	dBA	1914	-5	dBA	971	11	dBA	1030	8	dBA	1208	6	dBA
CB_FAN95430	Control building exhaust air fan 5	1213	9	dBA	1346	8	dBA	1488	7	dBA	1906	-1	dBA	982	11	dBA	1040	11	dBA	1218	9	dBA
CB_FAN95710	Control building exhaust air fan 6	1210	-2	dBA	1344	-4	dBA	1486	-4	dBA	1898	-7	dBA	987	-1	dBA	1046	-3	dBA	1225	-2	dBA
D4_48001	Digester 4 sludge mixer motor 1	1215	8	dBA	1345	7	dBA	1487	6	dBA	1927	3	dBA	975	11	dBA	1033	10	dBA	1199	8	dBA
D4_48002	Digester 4 sludge mixer motor 2	1228	10	dBA	1357	9	dBA	1500	7	dBA	1934	-1	dBA	962	15	dBA	1020	12	dBA	1190	10	dBA
D4_48003	Digester 4 sludge mixer motor 3	1216	2	dBA	1343	1	dBA	1485	-1	dBA	1937	-4	dBA	972	5	dBA	1030	4	dBA	1190	3	dBA
D4_48004	Digester 4 sludge mixer motor 4	1204	-3	dBA	1333	-4	dBA	1475	-5	dBA	1920	-8	dBA	986	1	dBA	1044	-1	dBA	1207	-3	dBA
D4_48004	Digester 4 sludge mixer motor 5	1216	-3	dBA	1347	-4	dBA	1489	-5	dBA	1918	-8	dBA	976	1	dBA	1034	-1	dBA	1206	-3	dBA
D5_49001	Digester 5 sludge mixer motor 1	1190	4	dBA	1325	3	dBA	1467	2	dBA	1886	-1	dBA	1007	6	dBA	1065	5	dBA	1239	4	dBA
D5_49002	Digester 5 sludge mixer motor 2	1203	-3	dBA	1338	-4	dBA	1480	-5	dBA	1895	-12	dBA	993	-1	dBA	1052	-6	dBA	1229	-3	dBA
D5_49003	Digester 5 sludge mixer motor 3	1193	-4	dBA	1329	-6	dBA	1471	-6	dBA	1878	-14	dBA	1007	-7	dBA	1065	-8	dBA	1246	-5	dBA
D5_49004	Digester 5 sludge mixer motor 4	1178	3	dBA	1313	2	dBA	1455	1	dBA	1879	-3	dBA	1018	5	dBA	1077	4	dBA	1249	3	dBA
D5_49005	Digester 5 sludge mixer motor 5	1189	0	dBA	1321	-1	dBA	1463	-3	dBA	1896	-6	dBA	1005	2	dBA	1063	1	dBA	1231	-1	dBA
HB_FAN98770	Headworks building supply air fan 1	1083	-14	dBA	1239	-15	dBA	1379	-16	dBA	1716	2	dBA	1155	-16	dBA	1214	-17	dBA	1413	-17	dBA
HB_MX12203	Headworks building grit vortex 1	1081	-22	dBA	1239	-24	dBA	1379	-24	dBA	1701	-14	dBA	1164	-10	dBA	1222	-10	dBA	1427	-12	dBA
HB_MX12303	Headworks building grit vortex 2	1086	-23	dBA	1243	-24	dBA	1383	-24	dBA	1712	-14	dBA	1155	-10	dBA	1214	-11	dBA	1416	-12	dBA
HB_FAN98710	Headworks building supply air fan 4	1094	-9	dBA	1252	-10	dBA	1392	-10	dBA	1709	-2	dBA	1151	-2	dBA	1210	-2	dBA	1417	-5	dBA
P1C_BB_EX1	P1 channel air blower building exhaust	1148	32	dBA	1304	31	dBA	1444	31	dBA	1733	20	dBA	1102	18	dBA	1161	17	dBA	1385	29	dBA
AHU99300	Air Handling Unit	1157	-6	dBA	1314	-6	dBA	1454	-7	dBA	1736	9	dBA	1094	11	dBA	1153	10	dBA	1381	8	dBA
HB_WL	Headworks building west wall louvre	1091	-14	dBA	1245	-15	dBA	1385	-15	dBA	1733	-16	dBA	1141	1	dBA	1200	1	dBA	1396	1	dBA
HB_FAN98620	Headworks building supply air fan 2	1078	1	dBA	1233	0	dBA	1373	-1	dBA	1718	-11	dBA	1158	-16	dBA	1216	-16	dBA	1413	-2	dBA
HB_FAN98610	Headworks building supply air fan 3	1068	10	dBA	1225	9	dBA	1365	8	dBA	1702	5	dBA	1173	4	dBA	1232	4	dBA	1429	7	dBA
G3	Cummins Diesel Generator	1372	0	dBA	1556	0	dBA	1691	0	dBA	1597	0	dBA	1109	0	dBA	1166	0	dBA	1541	0	dBA
DCB_FAN99710	Disinfection chemical building supply air fan	1416	0	dBA	1583	-6	dBA	1722	-7	dBA	1762	-3	dBA	954	4	dBA	1012	3	dBA	1374	-1	dBA
PRC_FAN	PRC tank containment area 4 supply air fan	1382	-5	dBA	1547	-7	dBA	1686	-8	dBA	1759	-4	dBA	967	0	dBA	1025	-2	dBA	1368	-6	dBA
FAN23740	Odour control fan 2	1336	19	dBA	1478	17	dBA	1620	16	dBA	1911	18	dBA	889	29	dBA	948	28	dBA	1201	25	dBA
FAN23750	Odour control fan 1	1338	19	dBA	1480	17	dBA	1621	16	dBA	1911	18	dBA	888	29	dBA	947	28	dBA	1201	25	dBA
FAN23520	Odour control fan 3	1328	0	dBA	1469	-1	dBA	1610	-2	dBA	1912	-1	dBA	894	9	dBA	953	9	dBA	1200	4	dBA
FAN23510	Odour control fan 4	1327	0	dBA	1467	-11	dBA	1609	-11	dBA	1912	-1	dBA	895	9	dBA	954	9	dBA	1200	4	dBA
KTI	Kemira Truck idling	1386	16	dBA	1551	14	dBA	1690	13	dBA	1772	18	dBA	955	20	dBA	1013	19	dBA	1356	16	dBA
KTP	Kemira truck mounted pump	1384	12	dBA	1549	8	dBA	1688	8	dBA	1771	14	dBA	957	16	dBA	1015	16	dBA	1356	16	dBA

wood.

Table 4: Point of Reception Noise Impact (Daytime/Evening, Baseline Conditions)

Project: Clarkson WRRF

Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Point of reception coordinates Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Point of reception coordinates Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1 Distance (m)	Point of Reception 1 Sound Level at PoR	Point of Reception 1 Units [1] (dBA)	Point of Reception 2 Distance (m)	Point of Reception 2 Sound Level at PoR	Point of Reception 2 Units [1] (dBA)	Point of Reception 3 Distance (m)	Point of Reception 3 Sound Level at PoR	Point of Reception 3 Units [1] (dBA)	Point of Reception 4 Distance (m)	Point of Reception 4 Sound Level at PoR	Point of Reception 4 Units [1] (dBA)
AHU_101	New Admin Building Air Handling Unit 1	1370	32	dBA	1558	30	dBA	1691	30	dBA	1556	30	dBA
AHU_201	New Admin Building Air Handling Unit 2	1373	32	dBA	1560	31	dBA	1694	30	dBA	1573	30	dBA
BC_F97630	Biosolids complex roof twin city fan & blower 4	1242	-1	dBA	1387	0	dBA	1529	0	dBA	1848	-3	dBA
BC_F97610	Biosolids complex roof twin city fan & blower 5	1249	-1	dBA	1394	-1	dBA	1536	-1	dBA	1848	3	dBA
OB_HVAC1	Operations Building HVAC 48TCDA06	1368	-2	dBA	1529	-4	dBA	1668	-4	dBA	1789	-1	dBA
OB_HVAC3	Office Building HVAC 48TCDA06	1376	-3	dBA	1532	-4	dBA	1672	-5	dBA	1832	-1	dBA
OB_HVAC2	Office Building HVAC 48TCDA06	1378	-3	dBA	1534	-4	dBA	1674	-5	dBA	1838	-1	dBA
AC99720	Disinfection chemical building condensing unit	1410	-9	dBA	1579	-6	dBA	1717	-11	dBA	1742	-8	dBA
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	1358	-5	dBA	1545	-6	dBA	1678	-7	dBA	1562	-6	dBA
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	1368	1	dBA	1555	0	dBA	1689	-1	dBA	1567	-1	dBA
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	1394	-9	dBA	1545	-10	dBA	1686	-11	dBA	1874	-12	dBA
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	1350	-9	dBA	1513	-10	dBA	1652	-11	dBA	1764	-7	dBA
P1B_EX1	P1 Blower Building hood exhuast 1	1295	4	dBA	1457	2	dBA	1596	2	dBA	1752	4	dBA
P1B_EX2	P1 Blower Building hood exhuast 2	1290	13	dBA	1453	11	dBA	1592	10	dBA	1741	4	dBA
P1B_EX3	P1 Blower Building hood exhuast 3	1285	13	dBA	1450	11	dBA	1589	10	dBA	1731	4	dBA
P1B_EX4	P1 Blower Building hood exhuast 4	1281	13	dBA	1446	11	dBA	1585	10	dBA	1721	4	dBA
EF_201	New Admin Building Greenheck Exhaust Fan	1368	14	dBA	1555	13	dBA	1689	12	dBA	1566	13	dBA
BTM1	Biosolids Truck Movement 1	-	6	dBA	-	4	dBA	-	3	dBA	-	5	dBA
BTM2	Biosolids Truck Movement 2	-	5	dBA	-	2	dBA	-	1	dBA	-	4	dBA
P1B_EL1	P1 Blower building east wall louvre 1	-	10	dBA	-	8	dBA	-	7	dBA	-	2	dBA
P1B_EL2	P1 Blower building east wall louvre 2	-	9	dBA	-	8	dBA	-	7	dBA	-	3	dBA
P1B_EL3	P1 Blower building east wall louvre 3	-	11	dBA	-	10	dBA	-	9	dBA	-	3	dBA
P1B_SL	P1 Blower building south wall louvre	-	0	dBA	-	-1	dBA	-	-2	dBA	-	16	dBA
P1B_WL	P1 Blower building west wall louvre	-	-8	dBA	-	-12	dBA	-	-13	dBA	-	-15	dBA
P1B_NL1	P1 Blower building north wall louvre 1	-	9	dBA	-	3	dBA	-	7	dBA	-	-13	dBA
P1B_NL2	P1 Blower building north wall louvre 2	-	20	dBA	-	18	dBA	-	17	dBA	-	3	dBA
BC_BDw	Biolsolids complex west bay door	-	-15	dBA	-	-16	dBA	-	-16	dBA	-	-18	dBA
BC_SL	Biosolids complex south wall louvre	-	-5	dBA	-	-7	dBA	-	-8	dBA	-	9	dBA
AHU96601_1	P2 blower building air handling unit exhaust 1	-	12	dBA	-	11	dBA	-	11	dBA	-	17	dBA
AHU96601_2	P2 blower building air handling unit exhaust 2	-	5	dBA	-	5	dBA	-	5	dBA	-	2	dBA
AHU96601_3	P2 blower building air handling unit exhaust 3	-	5	dBA	-	4	dBA	-	4	dBA	-	1	dBA
DCB_BD	Disinfection chemical building north bay door	-	-1	dBA	-	-2	dBA	-	-3	dBA	-	-5	dBA
DCB_L	Disinfection chemical building east wall louvre	-	8	dBA	-	12	dBA	-	11	dBA	-	9	dBA
BC_MAUw	Biosolids Complex makeup air unit (west)	-	-3	dBA	-	-7	dBA	-	-6	dBA	-	-6	dBA
BC_MAUn	Biosolids Complex makeup air unit (north)	-	11	dBA	-	5	dBA	-	4	dBA	-	2	dBA
BC_MAUe	Biosolids Complex makeup air unit (east)	-	9	dBA	-	6	dBA	-	7	dBA	-	5	dBA
BC_MAUs	Biosolids Complex makeup air unit (south)	-	-1	dBA	-	-4	dBA	-	-4	dBA	-	8	dBA
HB_MAUw	Headworks Building makeup air unit (west)	-	4	dBA	-	3	dBA	-	2	dBA	-	0	dBA
HB_MAUs	Headworks Building makeup air unit (south)	-	3	dBA	-	2	dBA	-	1	dBA	-	9	dBA
HB_MAUe	Headworks Building makeup air unit (east)	-	15	dBA	-	13	dBA	-	13	dBA	-	10	dBA
HB_MAU	Headworks Building makeup air unit (north)	-	13	dBA	-	11	dBA	-	11	dBA	-	-1	dBA

Source ID	Source Description	Point of Reception 5 Distance (m)	Point of Reception 5 Sound Level at PoR	Point of Reception 5 Units [1] (dBA)	Point of Reception 6 Distance (m)	Point of Reception 6 Sound Level at PoR	Point of Reception 6 Units [1] (dBA)	Point of Reception 7 Distance (m)	Point of Reception 7 Sound Level at PoR	Point of Reception 7 Units [1] (dBA)
AHU_101	New Admin Building Air Handling Unit 1	1148	34	dBA	1205	33	dBA	1585	30	dBA
AHU_201	New Admin Building Air Handling Unit 2	1132	34	dBA	1189	33	dBA	1568	30	dBA
BC_F97630	Biosolids complex roof twin city fan & blower 4	982	8	dBA	1040	8	dBA	1266	1	dBA
BC_F97610	Biosolids complex roof twin city fan & blower 5	977	8	dBA	1036	8	dBA	1266	1	dBA
OB_HVAC1	Operations Building HVAC 48TCDA06	949	6	dBA	1007	5	dBA	1333	3	dBA
OB_HVAC3	Office Building HVAC 48TCDA06	915	7	dBA	973	7	dBA	1289	-2	dBA
OB_HVAC2	Office Building HVAC 48TCDA06	909	7	dBA	968	6	dBA	1283	-2	dBA
AC99720	Disinfection chemical building condensing unit	973	-12	dBA	1031	-18	dBA	1394	-20	dBA
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	1144	-16	dBA	1201	-16	dBA	1575	-7	dBA
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	1138	3	dBA	1195	3	dBA	1573	-1	dBA
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	877	-9	dBA	936	-10	dBA	1246	-16	dBA
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	975	-13	dBA	1033	-15	dBA	1357	-10	dBA
P1B_EX1	P1 Blower Building hood exhuast 1	1007	15	dBA	1066	14	dBA	1363	12	dBA
P1B_EX2	P1 Blower Building hood exhuast 2	1017	15	dBA	1076	14	dBA	1374	12	dBA
P1B_EX3	P1 Blower Building hood exhuast 3	1026	15	dBA	1085	14	dBA	1384	12	dBA
P1B_EX4	P1 Blower Building hood exhuast 4	1035	15	dBA	1094	14	dBA	1394	12	dBA
EF_201	New Admin Building Greenheck Exhaust Fan	1139	16	dBA	1196	16	dBA	1574	13	dBA
BTM1	Biosolids Truck Movement 1	-	12	dBA	-	11	dBA	-	8	dBA
BTM2	Biosolids Truck Movement 2	-	11	dBA	-	10	dBA	-	7	dBA
P1B_EL1	P1 Blower building east wall louvre 1	-	-11	dBA	-	-11	dBA	-	-16	dBA
P1B_EL2	P1 Blower building east wall louvre 2	-	-9	dBA	-	-9	dBA	-	-14	dBA
P1B_EL3	P1 Blower building east wall louvre 3	-	-8	dBA	-	-9	dBA	-	-11	dBA
P1B_SL	P1 Blower building south wall louvre	-	23	dBA	-	23	dBA	-	-1	dBA
P1B_WL	P1 Blower building west wall louvre	-	14	dBA	-	13	dBA	-	10	dBA
P1B_NL1	P1 Blower building north wall louvre 1	-	-8	dBA	-	-9	dBA	-	8	dBA
P1B_NL2	P1 Blower building north wall louvre 2	-	0	dBA	-	0	dBA	-	19	dBA
BC_BDw	Biolsolids complex west bay door	-	5	dBA	-	3	dBA	-	2	dBA
BC_SL	Biosolids complex south wall louvre	-	18	dBA	-	17	dBA	-	-5	dBA
AHU96601_1	P2 blower building air handling unit exhaust 1	-	25	dBA	-	24	dBA	-	11	dBA
AHU96601_2	P2 blower building air handling unit exhaust 2	-	6	dBA	-	6	dBA	-	1	dBA
AHU96601_3	P2 blower building air handling unit exhaust 3	-	4	dBA	-	4	dBA	-	1	dBA
DCB_BD	Disinfection chemical building north bay door	-	-7	dBA	-	-18	dBA	-	-2	dBA
DCB_L	Disinfection chemical building east wall louvre	-	-1	dBA	-	-5	dBA	-	-8	dBA
BC_MAUw	Biosolids Complex makeup air unit (west)	-	13	dBA	-	13	dBA	-	6	dBA
BC_MAUn	Biosolids Complex makeup air unit (north)	-	1	dBA	-	1	dBA	-	5	dBA
BC_MAUe	Biosolids Complex makeup air unit (east)	-	-1	dBA	-	-1	dBA	-	-6	dBA
BC_MAUs	Biosolids Complex makeup air unit (south)	-	14	dBA	-	13	dBA	-	6	dBA
HB_MAUw	Headworks Building makeup air unit (west)	-	9	dBA	-	9	dBA	-	12	dBA
HB_MAUs	Headworks Building makeup air unit (south)	-	9	dBA	-	8	dBA	-	11	dBA
HB_MAUe	Headworks Building makeup air unit (east)	-	-1	dBA	-	-1	dBA	-	1	dBA
HB_MAU	Headworks Building makeup air unit (north)	-	-2	dBA	-	-2	dBA	-	5	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))
2. Height above local grade

Table 5: Point of Reception Noise Impact (Night, Baseline Conditions)

Project: Clarkson WRRF
Location: Mississauga, ON

	POR01			POR02			POR03			POR04			POR05			POR06			POR07		
Point of Reception Description	762 Embassy Ave			Children's Palace Montessori, Preschool and Daycare			Peel Condominium Corporation No 105			332 Watersedge Road			Vacant Lot 2			Vacant Lot 1			Vacant Lot 3		
Point of reception coordinates	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]
	611283	4817993	4.5	611070	4818083	4.5	611039	4818222	10.5	612916	4818005	5	611340	4815815	4.5	611324	4815758	4.5	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	Methane bubble exhaust 1	1293	14	dBA	1425	12	dBA	1567	11	dBA	1954	8	dBA	903	23	dBA	961	22	dBA	1162	19	dBA
MB_EX2	Methane bubble exhaust 2	1289	-4	dBA	1418	-5	dBA	1560	-6	dBA	1965	-9	dBA	904	5	dBA	962	4	dBA	1152	2	dBA
BL64110	Methane bubble blower 1	1293	7	dBA	1421	6	dBA	1563	5	dBA	1972	2	dBA	898	15	dBA	956	14	dBA	1144	12	dBA
BL64120	Methane bubble blower 2	1295	7	dBA	1423	6	dBA	1565	5	dBA	1974	2	dBA	896	15	dBA	954	15	dBA	1143	12	dBA
MB_EX3	Methane bubble exhaust 3	1304	13	dBA	1434	12	dBA	1576	11	dBA	1969	8	dBA	890	23	dBA	948	22	dBA	1147	20	dBA
BSP64670	Siloxane blower	1307	6	dBA	1434	9	dBA	1576	8	dBA	1987	0	dBA	883	15	dBA	941	15	dBA	1129	12	dBA
JEN_C_19068_EF	Co-gen engine roof exhaust	1300	14	dBA	1426	18	dBA	1569	17	dBA	1986	9	dBA	889	22	dBA	947	22	dBA	1131	20	dBA
JEN_C_19068_EL	Co-gen engine side intake louver	1306	2	dBA	1432	5	dBA	1574	5	dBA	1992	-2	dBA	883	10	dBA	941	10	dBA	1124	8	dBA
G1	Headworks emergency diesel generator	1095	0	dBA	1255	0	dBA	1394	0	dBA	1693	0	dBA	1158	0	dBA	1217	0	dBA	1431	0	dBA
BC_RTU1	Biosolids complex roof mitsubishi outdoor unit	1206	-18	dBA	1353	-19	dBA	1494	-19	dBA	1820	-2	dBA	1020	-1	dBA	1079	-1	dBA	1297	-4	dBA
BC_F97620	Biosolids complex roof twin city fan & blower 1	1196	-15	dBA	1344	-17	dBA	1485	-17	dBA	1810	-5	dBA	1031	1	dBA	1090	0	dBA	1308	-8	dBA
BC_F97640	Biosolids complex roof twin city fan & blower 2	1247	-10	dBA	1393	-9	dBA	1534	-9	dBA	1844	-5	dBA	980	1	dBA	1039	1	dBA	1270	-6	dBA
BC_F97650	Biosolids complex roof twin city fan & blower 3	1247	-1	dBA	1392	0	dBA	1534	-1	dBA	1849	2	dBA	978	8	dBA	1037	8	dBA	1266	1	dBA
CAN97903	Biosolids complex roof Mitsubishi Electric mr slim condensing unit	1240	-8	dBA	1387	-10	dBA	1528	-10	dBA	1832	-5	dBA	991	1	dBA	1050	1	dBA	1282	-6	dBA
BTI	Biosolids truck idling	1202	-5	dBA	1346	-6	dBA	1487	-7	dBA	1833	-10	dBA	1017	-3	dBA	1076	-3	dBA	1285	13	dBA
BC_HVAC_I	Biosolids complex carrier HVAC intake	1234	2	dBA	1384	2	dBA	1525	3	dBA	1813	10	dBA	1004	27	dBA	1063	26	dBA	1301	19	dBA
BC_HVAC_T	Biosolids complex carrier HVAC top fans	1234	2	dBA	1383	2	dBA	1524	5	dBA	1812	17	dBA	1005	24	dBA	1064	24	dBA	1302	16	dBA
BC_C	Biosolids complex compressor units	1233	-2	dBA	1383	-2	dBA	1524	-1	dBA	1811	0	dBA	1006	9	dBA	1065	9	dBA	1303	1	dBA
D1_2_L	Digester 1&2 building west wall louvre	1264	3	dBA	1401	2	dBA	1543	2	dBA	1903	-3	dBA	943	19	dBA	1002	19	dBA	1212	24	dBA
D2_45001	Digester 2 sludge mixer motor 1	1277	-3	dBA	1414	-5	dBA	1556	-6	dBA	1911	-10	dBA	930	8	dBA	989	7	dBA	1204	2	dBA
D2_45002	Digester 2 sludge mixer motor 2	1286	-6	dBA	1424	-6	dBA	1566	-6	dBA	1910	-12	dBA	924	4	dBA	983	3	dBA	1204	1	dBA
D2_45003	Digester 2 sludge mixer motor 3	1292	-2	dBA	1429	-3	dBA	1571	-4	dBA	1921	-8	dBA	916	7	dBA	974	6	dBA	1193	4	dBA
D2_45004	Digester 2 sludge mixer motor 4	1283	-2	dBA	1419	-3	dBA	1561	-4	dBA	1921	-7	dBA	922	7	dBA	980	6	dBA	1193	4	dBA
D1_46002	Digester 1 sludge mixer motor 2	1271	0	dBA	1412	-1	dBA	1554	-2	dBA	1885	-8	dBA	945	3	dBA	1004	3	dBA	1229	-12	dBA
D1_46001	Digester 1 sludge mixer motor 1	1263	2	dBA	1403	0	dBA	1545	-1	dBA	1886	-8	dBA	951	-5	dBA	1009	-6	dBA	1229	-8	dBA
D1_46003	Digester 1 sludge mixer motor 3	1265	-2	dBA	1408	2	dBA	1549	1	dBA	1875	-7	dBA	954	7	dBA	1012	6	dBA	1239	-6	dBA
D1_46004	Digester 1 sludge mixer motor 4	1256	3	dBA	1398	2	dBA	1539	1	dBA	1876	-7	dBA	960	0	dBA	1018	-3	dBA	1239	-2	dBA
G2	Pump station emergency diesel generator	1231	0	dBA	1354	0	dBA	1496	0	dBA	1974	0	dBA	952	0	dBA	1009	0	dBA	1155	0	dBA
D3_47001	Digester 3 sludge mixer motor 1	1245	-3	dBA	1379	-4	dBA	1522	-5	dBA	1914	-8	dBA	954	5	dBA	1012	4	dBA	1204	3	dBA
D3_47002	Digester 3 sludge mixer motor 2	1254	-3	dBA	1389	-4	dBA	1531	-5	dBA	1913	-8	dBA	947	6	dBA	1006	4	dBA	1204	2	dBA
D3_47003	Digester 3 sludge mixer motor 3	1260	8	dBA	1394	7	dBA	1536	6	dBA	1924	3	dBA	939	16	dBA	997	16	dBA	1193	14	dBA
D3_47004	Digester 3 sludge mixer motor 4	1252	-1	dBA	1385	2	dBA	1527	2	dBA	1925	-6	dBA	945	7	dBA	1003	6	dBA	1194	4	dBA
CB_FAN95650	Control building exhaust air fan 1	1234	-7	dBA	1369	-7	dBA	1511	-4	dBA	1900	2	dBA	967	18	dBA	1026	15	dBA	1219	13	dBA
CB_FAN95490	Control building exhaust air fan 2	1234	3	dBA	1366	2	dBA	1508	6	dBA	1919	-7	dBA	961	12	dBA	1020	10	dBA	1202	8	dBA
CB_FAN95630	Control building exhaust air fan 3	1236	-13	dBA	1370	-12	dBA	1512	-10	dBA	1910	-20	dBA	962	8	dBA	1021	5	dBA	1210	3	dBA
CB_FAN95480	Control building exhaust air fan 4	1223	6	dBA	1356	4	dBA	1498	3	dBA	1914	-5	dBA	971	11	dBA	1030	8	dBA	1208	6	dBA
CB_FAN95430	Control building exhaust air fan 5	1213	9	dBA	1346	8	dBA	1488	7	dBA	1906	-1	dBA	982	11	dBA	1040	11	dBA	1218	9	dBA
CB_FAN95710	Control building exhaust air fan 6	1210	-2	dBA	1344	-4	dBA	1486	-4	dBA	1898	-7	dBA	987	-1	dBA	1046	-3	dBA	1225	-2	dBA
D4_48001	Digester 4 sludge mixer motor 1	1215	8	dBA	1345	7	dBA	1487	6	dBA	1927	3	dBA	975	11	dBA	1033	10	dBA	1199	8	dBA
D4_48002	Digester 4 sludge mixer motor 2	1228	10	dBA	1357	9	dBA	1500	7	dBA	1934	-1	dBA	962	15	dBA	1020	12	dBA	1190	10	dBA
D4_48003	Digester 4 sludge mixer motor 3	1216	2	dBA	1343	1	dBA	1485	-1	dBA	1937	-4	dBA	972	5	dBA	1030	4	dBA	1190	3	dBA
D4_48004	Digester 4 sludge mixer motor 4	1204	-3	dBA	1333	-4	dBA	1475	-5	dBA	1920	-8	dBA	986	1	dBA	1044	-1	dBA	1207	-3	dBA
D4_48004	Digester 4 sludge mixer motor 5	1216	-3	dBA	1347	-4	dBA	1489	-5	dBA	1918	-8	dBA	976	1	dBA	1034	-1	dBA	1206	-3	dBA
D5_49001	Digester 5 sludge mixer motor 1	1190	4	dBA	1325	3	dBA	1467	2	dBA	1886	-1	dBA	1007	6	dBA	1065	5	dBA	1239	4	dBA
D5_49002	Digester 5 sludge mixer motor 2	1203	-3	dBA	1338	-4	dBA	1480	-5	dBA	1895	-12	dBA	993	-1	dBA	1052	-6	dBA	1229	-3	dBA
D5_49003	Digester 5 sludge mixer motor 3	1193	-4	dBA	1329	-6	dBA	1471	-6	dBA	1878	-14	dBA	1007	-7	dBA	1065	-8	dBA	1246	-5	dBA
D5_49004	Digester 5 sludge mixer motor 4	1178	3	dBA	1313	2	dBA	1455	1	dBA	1879	-3	dBA	1018	5	dBA	1077	4	dBA	1249	3	dBA
D5_49005	Digester 5 sludge mixer motor 5	1189	0	dBA	1321	-1	dBA	1463	-3	dBA	1896	-6	dBA	1005	2	dBA	1063	1	dBA	1231	-1	dBA
HB_FAN98770	Headworks building supply air fan 1	1083	-14	dBA	1239	-15	dBA	1379	-16	dBA	1716	2	dBA	1155	-16	dBA	1214	-17	dBA	1413	-17	dBA
HB_MX12203	Headworks building grit vortex 1	1081	-22	dBA	1239	-24	dBA	1379	-24	dBA	1701	-14	dBA	1164	-10	dBA	1222	-10	dBA	1427	-12	dBA
HB_MX12303	Headworks building grit vortex 2	1086	-23	dBA	1243	-24	dBA	1383	-24	dBA	1712	-14	dBA	1155	-10	dBA	1214	-11	dBA	1416	-12	dBA
HB_FAN98710	Headworks building supply air fan 4	1094	-9	dBA	1252	-10	dBA	1392	-10	dBA	1709	-2	dBA	1151	-2	dBA	1210	-2	dBA	1417	-5	dBA
P1C_BB_EX1	P1 channel air blower building exhaust	1148	32	dBA	1304	31	dBA	1444	31	dBA	1733	20	dBA	1102	18	dBA	1161	17	dBA	1385	29	dBA
AHU99300	Air Handling Unit	1157	-6	dBA	1314	-6	dBA	1454	-7	dBA	1736	9	dBA	1094	11	dBA	1153	10	dBA	1381	8	dBA
HB_WL	Headworks building west wall louvre	1091	-14	dBA	1245	-15	dBA	1385	-15	dBA	1733	-16	dBA	1141	1	dBA	1200	1	dBA	1396	1	dBA
HB_FAN98620	Headworks building supply air fan 2	1078	1	dBA	1233	0	dBA	1373	-1	dBA	1718	-11	dBA	1158	-16	dBA	1216	-16	dBA	1413	-2	dBA
HB_FAN98610	Headworks building supply air fan 3	1068	10	dBA	1225	9	dBA	1365	8	dBA	1702	5	dBA	1173	4	dBA	1232	4	dBA	1429	7	dBA
G3	Cummins Diesel Generator	1372	0	dBA	1556	0	dBA	1691	0	dBA	1597	0	dBA	1109	0	dBA	1166	0	dBA	1541	0	dBA
DCB_FAN99710	Disinfection chemical building supply air fan	1416	0	dBA	1583	-6	dBA	1722	-7	dBA	1762	-3	dBA	954	4	dBA	1012	3	dBA	1374	-1	dBA
PRC_FAN	PRC tank containment area 4 supply air fan	1382	-5	dBA	1547	-7	dBA	1686	-8	dBA	1759	-4	dBA	967	0	dBA	1025	-2	dBA	1368	-6	dBA
FAN23740	Odour control fan 2	1336	19	dBA	1478	17	dBA	1620	16	dBA	1911	18	dBA	889	29	dBA	948	28	dBA	1201	25	dBA
FAN23750	Odour control fan 1	1338	19	dBA	1480	17	dBA	1621	16	dBA	1911	18	dBA	888	29	dBA	947	28	dBA	1201	25	dBA
FAN23520	Odour control fan 3	1328	0	dBA	1469	-1	dBA	1610	-2	dBA	1912	-1	dBA	894	9	dBA	953	9	dBA	1200	4	dBA
FAN23510	Odour control fan 4	1327	0	dBA	1467	-11	dBA	1609	-11	dBA	1912	-1	dBA	895	9	dBA	954	9	dBA	1200	4	dBA
KTI	Kemira Truck idling	1386	0	dBA	1551	0	dBA	1690	0	dBA	1772	0	dBA	955	0	dBA	1013	0	dBA	1356	0	dBA
KTP	Kemira truck mounted pump	1384	0	dBA	1549	0	dBA	1688	0	dBA	1771	0	dBA	957	0	dBA	1015	0	dBA	1356	0	dBA

wood.

Table 5: Point of Reception Noise Impact (Night, Baseline Conditions)

Project: Clarkson WRRF

Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Point of reception coordinates Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Point of reception coordinates Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
AHU_101	New Admin Building Air Handling Unit 1	1370	32	dBA	1558	30	dBA	1691	30	dBA	1556	30	dBA	1148	34	dBA	1205	33	dBA	1585	30	dBA
AHU_201	New Admin Building Air Handling Unit 2	1373	32	dBA	1560	31	dBA	1694	30	dBA	1573	30	dBA	1132	34	dBA	1189	33	dBA	1568	30	dBA
BC_F97630	Biosolids complex roof twin city fan & blower 4	1242	-1	dBA	1387	0	dBA	1529	0	dBA	1848	-3	dBA	982	8	dBA	1040	8	dBA	1266	1	dBA
BC_F97610	Biosolids complex roof twin city fan & blower 5	1249	-1	dBA	1394	-1	dBA	1536	-1	dBA	1848	3	dBA	977	8	dBA	1036	8	dBA	1266	1	dBA
OB_HVAC1	Operations Building HVAC 48TCDA06	1368	-2	dBA	1529	-4	dBA	1668	-4	dBA	1789	-1	dBA	949	6	dBA	1007	5	dBA	1333	3	dBA
OB_HVAC3	Office Building HVAC 48TCDA06	1376	-3	dBA	1532	-4	dBA	1672	-5	dBA	1832	-1	dBA	915	7	dBA	973	7	dBA	1289	-2	dBA
OB_HVAC2	Office Building HVAC 48TCDA06	1378	-3	dBA	1534	-4	dBA	1674	-5	dBA	1838	-1	dBA	909	7	dBA	968	6	dBA	1283	-2	dBA
AC99720	Disinfection chemical building condensing unit	1410	-9	dBA	1579	-6	dBA	1717	-11	dBA	1742	-8	dBA	973	-12	dBA	1031	-18	dBA	1394	-20	dBA
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	1358	-5	dBA	1545	-6	dBA	1678	-7	dBA	1562	-6	dBA	1144	-16	dBA	1201	-16	dBA	1575	-7	dBA
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	1368	1	dBA	1555	0	dBA	1689	-1	dBA	1567	-1	dBA	1138	3	dBA	1195	3	dBA	1573	-1	dBA
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	1394	-9	dBA	1545	-10	dBA	1686	-11	dBA	1874	-12	dBA	877	-9	dBA	936	-10	dBA	1246	-16	dBA
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	1350	-9	dBA	1513	-10	dBA	1652	-11	dBA	1764	-7	dBA	975	-13	dBA	1033	-15	dBA	1357	-10	dBA
P1B_EX1	P1 Blower Building hood exhuast 1	1295	4	dBA	1457	2	dBA	1596	2	dBA	1752	4	dBA	1007	15	dBA	1066	14	dBA	1363	12	dBA
P1B_EX2	P1 Blower Building hood exhuast 2	1290	13	dBA	1453	11	dBA	1592	10	dBA	1741	4	dBA	1017	15	dBA	1076	14	dBA	1374	12	dBA
P1B_EX3	P1 Blower Building hood exhuast 3	1285	13	dBA	1450	11	dBA	1589	10	dBA	1731	4	dBA	1026	15	dBA	1085	14	dBA	1384	12	dBA
P1B_EX4	P1 Blower Building hood exhuast 4	1281	13	dBA	1446	11	dBA	1585	10	dBA	1721	4	dBA	1035	15	dBA	1094	14	dBA	1394	12	dBA
EF_201	New Admin Building Greenheck Exhaust Fan	1368	14	dBA	1555	13	dBA	1689	12	dBA	1566	13	dBA	1139	16	dBA	1196	16	dBA	1574	13	dBA
BTM1	Biosolids Truck Movement 1	-	8	dBA	-	5	dBA	-	4	dBA	-	6	dBA	-	14	dBA	-	12	dBA	-	10	dBA
BTM2	Biosolids Truck Movement 2	-	7	dBA	-	4	dBA	-	3	dBA	-	6	dBA	-	13	dBA	-	12	dBA	-	8	dBA
P1B_EL1	P1 Blower building east wall louvre 1	-	10	dBA	-	8	dBA	-	7	dBA	-	2	dBA	-	-11	dBA	-	-11	dBA	-	-16	dBA
P1B_EL2	P1 Blower building east wall louvre 2	-	9	dBA	-	8	dBA	-	7	dBA	-	3	dBA	-	-9	dBA	-	-9	dBA	-	-14	dBA
P1B_EL3	P1 Blower building east wall louvre 3	-	9	dBA	-	8	dBA	-	7	dBA	-	1	dBA	-	-10	dBA	-	-11	dBA	-	-13	dBA
P1B_SL	P1 Blower building south wall louvre	-	-12	dBA	-	-13	dBA	-	-13	dBA	-	5	dBA	-	12	dBA	-	11	dBA	-	-13	dBA
P1B_WL	P1 Blower building west wall louvre	-	-10	dBA	-	-14	dBA	-	-15	dBA	-	-17	dBA	-	12	dBA	-	11	dBA	-	8	dBA
P1B_NL1	P1 Blower building north wall louvre 1	-	9	dBA	-	3	dBA	-	7	dBA	-	-13	dBA	-	-8	dBA	-	-9	dBA	-	8	dBA
P1B_NL2	P1 Blower building north wall louvre 2	-	9	dBA	-	8	dBA	-	7	dBA	-	-7	dBA	-	-10	dBA	-	-11	dBA	-	8	dBA
BC_BDw	Biolsolids complex west bay door	-	-15	dBA	-	-16	dBA	-	-16	dBA	-	-18	dBA	-	5	dBA	-	3	dBA	-	2	dBA
BC_SL	Biosolids complex south wall louvre	-	-5	dBA	-	-7	dBA	-	-8	dBA	-	9	dBA	-	18	dBA	-	17	dBA	-	-5	dBA
AHU96601_1	P2 blower building air handling unit exhaust 1	-	12	dBA	-	11	dBA	-	11	dBA	-	17	dBA	-	25	dBA	-	24	dBA	-	11	dBA
AHU96601_2	P2 blower building air handling unit exhaust 2	-	5	dBA	-	5	dBA	-	5	dBA	-	2	dBA	-	6	dBA	-	6	dBA	-	1	dBA
AHU96601_3	P2 blower building air handling unit exhaust 3	-	5	dBA	-	4	dBA	-	4	dBA	-	1	dBA	-	4	dBA	-	4	dBA	-	1	dBA
DCB_BD	Disinfection chemical building north bay door	-	-1	dBA	-	-2	dBA	-	-3	dBA	-	-5	dBA	-	-7	dBA	-	-18	dBA	-	-2	dBA
DCB_L	Disinfection chemical building east wall louvre	-	8	dBA	-	12	dBA	-	11	dBA	-	9	dBA	-	-1	dBA	-	-5	dBA	-	-8	dBA
BC_MAUw	Biosolids Complex makeup air unit (west)	-	-3	dBA	-	-7	dBA	-	-6	dBA	-	-6	dBA	-	13	dBA	-	13	dBA	-	6	dBA
BC_MAUn	Biosolids Complex makeup air unit (north)	-	11	dBA	-	5	dBA	-	4	dBA	-	2	dBA	-	1	dBA	-	1	dBA	-	5	dBA
BC_MAUe	Biosolids Complex makeup air unit (east)	-	9	dBA	-	6	dBA	-	7	dBA	-	5	dBA	-	-1	dBA	-	-1	dBA	-	-6	dBA
BC_MAUs	Biosolids Complex makeup air unit (south)	-	-1	dBA	-	-4	dBA	-	-4	dBA	-	8	dBA	-	14	dBA	-	13	dBA	-	6	dBA
HB_MAUw	Headworks Building makeup air unit (west)	-	4	dBA	-	3	dBA	-	2	dBA	-	0	dBA	-	9	dBA	-	9	dBA	-	12	dBA
HB_MAUs	Headworks Building makeup air unit (south)	-	3	dBA	-	2	dBA	-	1	dBA	-	9	dBA	-	9	dBA	-	8	dBA	-	11	dBA
HB_MAUe	Headworks Building makeup air unit (east)	-	15	dBA	-	13	dBA	-	13	dBA	-	10	dBA	-	-1	dBA	-	-1	dBA	-	1	dBA
HB_MAU	Headworks Building makeup air unit (north)	-	13	dBA	-	11	dBA	-	11	dBA	-	-1	dBA	-	-2	dBA	-	-2	dBA	-	5	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))
2. Height above local grade

Table 6: Point of Reception Noise Impact (Non-Emergency Testing, Baseline)

Project: Clarkson WRRF

Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Point of reception coordinates Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Point of reception coordinates Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
G1	Headworks emergency diesel generator	1293	22	dBA	1425	21	dBA	1567	20	dBA	1954	17	dBA
G2	Pump station emergency diesel generator	1289	23	dBA	1418	22	dBA	1560	20	dBA	1965	12	dBA
G3	Cummins Diesel Generator	1293	18	dBA	1421	17	dBA	1563	16	dBA	1972	4	dBA

Source ID	Source Description	Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
G1	Headworks emergency diesel generator	903	17	dBA	961	17	dBA	1162	15	dBA
G2	Pump station emergency diesel generator	904	26	dBA	962	25	dBA	1152	24	dBA
G3	Cummins Diesel Generator	898	20	dBA	956	20	dBA	1144	17	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))
2. Height above local grade

wood.

Table 7: Point of Reception Noise Impact (Daytime/Evening, Proposed Capacity Expansion)

Project: Clarkson WRRF
Location: Mississauga, ON

POR	Point of Reception Description	X	Y	Z [2]
POR01	762 Embassy Ave	611283	4817993	4.5
POR02	Children's Palace Montessori, Preschool and Daycare	611070	4818083	4.5
POR03	Peel Condominium Corporation No 105	611039	4818222	10.5
POR04	332 Watersedge Road	612916	4818005	5
POR05	Vacant Lot 2	611340	4815815	4.5
POR06	Vacant Lot 1	611324	4815758	4.5
POR07	Vacant Lot 3	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	Methane bubble exhaust 1	1293	14	dBA	1425	12	dBA	1567	11	dBA
MB_EX2	Methane bubble exhaust 2	1289	-4	dBA	1418	-5	dBA	1560	-6	dBA
BL64110	Methane bubble blower 1	1293	7	dBA	1421	6	dBA	1563	5	dBA
BL64120	Methane bubble blower 2	1295	7	dBA	1423	6	dBA	1565	5	dBA
MB_EX3	Methane bubble exhaust 3	1304	14	dBA	1434	12	dBA	1576	11	dBA
BSP64670	Siloxane blower	1307	6	dBA	1434	5	dBA	1576	3	dBA
JEN_C_19068_EF	Co-gen engine roof exhaust	1300	14	dBA	1426	13	dBA	1569	12	dBA
JEN_C_19068_EL	Co-gen engine side intake louver	1306	2	dBA	1432	1	dBA	1574	0	dBA
G1	Headworks emergency diesel generator	1095	0	dBA	1255	0	dBA	1394	0	dBA
BC_RTU1	Biosolids complex roof mitsubishi outdoor unit	1206	-18	dBA	1353	-19	dBA	1494	-19	dBA
BC_F97620	Biosolids complex roof twin city fan & blower 1	1196	-15	dBA	1344	-17	dBA	1485	-17	dBA
BC_F97640	Biosolids complex roof twin city fan & blower 2	1247	-10	dBA	1393	-9	dBA	1534	-9	dBA
BC_F97650	Biosolids complex roof twin city fan & blower 3	1247	-1	dBA	1392	0	dBA	1534	-1	dBA
CAN97903	Biosolids complex roof Mitsubishi Electric mr slim condensing unit	1240	-8	dBA	1387	-10	dBA	1528	-10	dBA
BTI	Biosolids truck idling	1202	-5	dBA	1346	-5	dBA	1487	-6	dBA
BC_HVAC_I	Biosolids complex carrier HVAC intake	1234	3	dBA	1384	2	dBA	1525	3	dBA
BC_HVAC_T	Biosolids complex carrier HVAC top fans	1234	3	dBA	1383	2	dBA	1524	5	dBA
BC_C	Biosolids complex compressor units	1233	-1	dBA	1383	-2	dBA	1524	-1	dBA
D1_2_L	Digester 1&2 building west wall louvre	1264	0	dBA	1401	0	dBA	1543	0	dBA
D2_45001	Digester 2 sludge mixer motor 1	1277	0	dBA	1414	0	dBA	1556	0	dBA
D2_45002	Digester 2 sludge mixer motor 2	1286	0	dBA	1424	0	dBA	1566	0	dBA
D2_45003	Digester 2 sludge mixer motor 3	1292	0	dBA	1429	0	dBA	1571	0	dBA
D2_45004	Digester 2 sludge mixer motor 4	1283	0	dBA	1419	0	dBA	1561	0	dBA
D1_46002	Digester 1 sludge mixer motor 2	1271	0	dBA	1412	0	dBA	1554	0	dBA
D1_46001	Digester 1 sludge mixer motor 1	1263	0	dBA	1403	0	dBA	1545	0	dBA
D1_46003	Digester 1 sludge mixer motor 3	1265	0	dBA	1408	0	dBA	1549	0	dBA
D1_46004	Digester 1 sludge mixer motor 4	1256	0	dBA	1398	0	dBA	1539	0	dBA
G2	Pump station emergency diesel generator	1231	0	dBA	1354	0	dBA	1496	0	dBA
D3_47001	Digester 3 sludge mixer motor 1	1245	-3	dBA	1379	-4	dBA	1522	-5	dBA
D3_47002	Digester 3 sludge mixer motor 2	1254	-3	dBA	1389	-4	dBA	1531	-5	dBA
D3_47003	Digester 3 sludge mixer motor 3	1260	9	dBA	1394	7	dBA	1536	6	dBA
D3_47004	Digester 3 sludge mixer motor 4	1252	-1	dBA	1385	-3	dBA	1527	-3	dBA
CB_FAN95650	Control building exhaust air fan 1	1234	-6	dBA	1369	-8	dBA	1511	-8	dBA
CB_FAN95490	Control building exhaust air fan 2	1234	3	dBA	1366	2	dBA	1508	1	dBA
CB_FAN95630	Control building exhaust air fan 3	1236	-14	dBA	1370	-13	dBA	1512	-14	dBA
CB_FAN95480	Control building exhaust air fan 4	1223	1	dBA	1356	0	dBA	1498	-1	dBA
CB_FAN95430	Control building exhaust air fan 5	1213	5	dBA	1346	3	dBA	1488	2	dBA
CB_FAN95710	Control building exhaust air fan 6	1210	-6	dBA	1344	-6	dBA	1486	-6	dBA
D4_48001	Digester 4 sludge mixer motor 1	1215	3	dBA	1345	7	dBA	1487	6	dBA
D4_48002	Digester 4 sludge mixer motor 2	1228	5	dBA	1357	9	dBA	1500	7	dBA
D4_48003	Digester 4 sludge mixer motor 3	1216	2	dBA	1343	1	dBA	1485	0	dBA
D4_48004	Digester 4 sludge mixer motor 4	1204	-7	dBA	1333	-4	dBA	1475	-5	dBA
D4_48004	Digester 4 sludge mixer motor 5	1216	-7	dBA	1347	-4	dBA	1489	-5	dBA
D5_49001	Digester 5 sludge mixer motor 1	1190	0	dBA	1325	-2	dBA	1467	-3	dBA
D5_49002	Digester 5 sludge mixer motor 2	1203	-7	dBA	1338	-8	dBA	1480	-9	dBA
D5_49003	Digester 5 sludge mixer motor 3	1193	-9	dBA	1329	-10	dBA	1471	-11	dBA
D5_49004	Digester 5 sludge mixer motor 4	1178	-1	dBA	1313	-3	dBA	1455	-4	dBA
D5_49005	Digester 5 sludge mixer motor 5	1189	-5	dBA	1321	-6	dBA	1463	-7	dBA
HB_FAN98770	Headworks building supply air fan 1	1083	0	dBA	1239	0	dBA	1379	0	dBA
HB_MX12203	Headworks building grit vortex 1	1081	0	dBA	1239	0	dBA	1379	0	dBA
HB_MX12303	Headworks building grit vortex 2	1086	0	dBA	1243	0	dBA	1383	0	dBA
HB_FAN98710	Headworks building supply air fan 4	1094	0	dBA	1252	0	dBA	1392	0	dBA
P1C_BB_EX1	P1 channel air blower building exhaust	1148	37	dBA	1304	35	dBA	1444	35	dBA
AHU99300	Air Handling Unit	1157	-3	dBA	1314	-1	dBA	1454	-1	dBA
HB_WL	Headworks building west wall louvre	1091	0	dBA	1245	0	dBA	1385	0	dBA
HB_FAN98620	Headworks building supply air fan 2	1078	0	dBA	1233	0	dBA	1373	0	dBA
HB_FAN98610	Headworks building supply air fan 3	1068	0	dBA	1225	0	dBA	1365	0	dBA
G3	Cummins Diesel Generator	1372	0	dBA	1556	0	dBA	1691	0	dBA
DCB_FAN99710	Disinfection chemical building supply air fan	1416	-4	dBA	1583	-6	dBA	1722	-7	dBA
PRC_FAN	PRC tank containment area 4 supply air fan	1382	-5	dBA	1547	-7	dBA	1686	-8	dBA
FAN23740	Odour control fan 2	1336	19	dBA	1478	17	dBA	1620	16	dBA
FAN23750	Odour control fan 1	1338	19	dBA	1480	17	dBA	1621	16	dBA
FAN23520	Odour control fan 3	1328	0	dBA	1469	-1	dBA	1610	-2	dBA
FAN23510	Odour control fan 4	1327	0	dBA	1467	-11	dBA	1609	-12	dBA
KTI	Kemira Truck idling	1386	16	dBA	1551	14	dBA	1690	13	dBA
KTP	Kemira truck mounted pump	1384	11	dBA	1549	8	dBA	1688	8	dBA

Source ID	Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	1954	8	dBA	903	23	dBA	961	22	dBA	1162	19	dBA
MB_EX2	1965	-9	dBA	904	5	dBA	962	4	dBA	1152	2	dBA
BL64110	1972	2	dBA	898	15	dBA	956	14	dBA	1144	12	dBA
BL64120	1974	2	dBA	896	15	dBA	954	15	dBA	1143	12	dBA
MB_EX3	1969	8	dBA	890	23	dBA	948	22	dBA	1147	20	dBA
BSP64670	1987	0	dBA	883	15	dBA	941	15	dBA	1129	12	dBA
JEN_C_19068_EF	1986	9	dBA	889	22	dBA	947	22	dBA	1131	20	dBA
JEN_C_19068_EL	1992	-2	dBA	883	10	dBA	941	10	dBA	1124	8	dBA
G1	1693	0	dBA	1158	0	dBA	1217	0	dBA	1431	0	dBA
BC_RTU1	1820	-2	dBA	1020	-1	dBA	1079	-1	dBA	1297	-4	dBA
BC_F97620	1810	-5	dBA	1031	1	dBA	1090	0	dBA	1308	-8	dBA
BC_F97640	1844	-5	dBA	980	1	dBA	1039	1	dBA	1270	-2	dBA
BC_F97650	1849	2	dBA	978	8	dBA	1037	8	dBA	1266	6	dBA
CAN97903	1832	-5	dBA	991	1	dBA	1050	1	dBA	1282	-2	dBA
BTI	1833	-10	dBA	1017	-2	dBA	1076	-3	dBA	1285	13	dBA
BC_HVAC_I	1813	5	dBA	1004	27	dBA	1063	26	dBA	1301	24	dBA
BC_HVAC_T	1812	12	dBA	1005	24	dBA	1064	24	dBA	1302	21	dBA
BC_C	1811	-4	dBA	1006	9	dBA	1065	9	dBA	1303	6	dBA
D1_2_L	1903	0	dBA	943	0	dBA	1002	0	dBA	1212	0	dBA
D2_45001	1911	0	dBA	930	0	dBA	989	0	dBA	1204	0	dBA
D2_45002	1910	0	dBA	924	0	dBA	983	0	dBA	1204	0	dBA
D2_45003	1921	0	dBA	916	0	dBA	974	0	dBA	1193	0	dBA
D2_45004	1921	0	dBA	922	0	dBA	980	0	dBA	1193	0	dBA
D1_46002	1885	0	dBA	945	0	dBA	1004	0	dBA	1229	0	dBA
D1_46001	1886	0	dBA	951	0	dBA	1009	0	dBA	1229	0	dBA
D1_46003	1875	0	dBA	954	0	dBA	1012	0	dBA	1239	0	dBA
D1_46004	1876	0	dBA	960	0	dBA	1018	0	dBA	1239	0	dBA
G2	1974	0	dBA	952	0	dBA	1009	0	dBA	1155	0	dBA
D3_47001	1914	-8	dBA	954	5	dBA	1012	4	dBA	1204	3	dBA
D3_47002	1913	-8	dBA	947	6	dBA	1006	4	dBA	1204	2	dBA
D3_47003	1924	3	dBA	939	16	dBA	997	16	dBA	1193	14	dBA
D3_47004	1925	-6	dBA	945	7	dBA	1003	6	dBA	1194	4	dBA
CB_FAN95650	1900	2	dBA	967	18	dBA	1026	15	dBA	1219	13	dBA
CB_FAN95490	1919	-7	dBA	961	12	dBA	1020	10	dBA	1202	8	dBA
CB_FAN95630	1910	-20	dBA	962	8	dBA	1021	5	dBA	1210	3	dBA
CB_FAN95480	1914	-5	dBA	971	11	dBA	1030	8	dBA	1208	6	dBA
CB_FAN95430	1906	-1	dBA	982	11	dBA	1040	11	dBA	1218	9	dBA
CB_FAN95710	1898	-7	dBA	987	-1	dBA	1046	-3	dBA	1225	-2	dBA
D4_48001	1927	-2	dBA	975	11	dBA	1033	10	dBA	1199	8	dBA
D4_48002	1934	-1	dBA	962	15	dBA	1020	12	dBA	1190	10	dBA
D4_48003	1937	-9	dBA	972	5	dBA	1030	4	dBA	1190	3	dBA
D4_48004	1920	-13	dBA	986	1	dBA	1044	-1	dBA	1207	-3	dBA
D4_48004	1918	-13	dBA	976	1	dBA	1034	-1	dBA	1206	-3	dBA
D5_49001	1886	-6	dBA	1007	6	dBA	1065	5	dBA	1239	4	dBA
D5_49002	1895	-12	dBA	993	-1	dBA	1052	-6	dBA	1229	-3	dBA
D5_49003	1878	-14	dBA	1007	-7	dBA	1065	-8	dBA	1246	-5	dBA
D5_49004	1879	-7	dBA	1018	5	dBA	1077	4	dBA	1249	3	dBA
D5_49005	1896	-10	dBA	1005	2	dBA	1063	1	dBA	1231	-1	dBA
HB_FAN98770	1716	0	dBA	1155	0	dBA	1214	0	dBA	1413	0	dBA
HB_MX12203	1701	0	dBA	1164	0	dBA	1222	0	dBA	1427	0	dBA
HB_MX12303	1712	0	dBA	1155	0	dBA	1214	0	dBA	1416	0	dBA
HB_FAN98710	1709	0	dBA	1151	0	dBA	1210	0	dBA	1417	0	dBA
P1C_BB_EX1	1733	20	dBA	1102	18	dBA	1161	17	dBA	1385	29	dBA
AHU99300	1736	9	dBA	1094	11	dBA	1153	10	dBA	1381	8	dBA
HB_WL	1733	0	dBA	1141	0	dBA	1200	0	dBA	1396	0	dBA
HB_FAN98620	1718	0	dBA	1158	0	dBA	1216	0	dBA	1413	0	dBA
HB_FAN98610	1702	0	dBA	1173	0	dBA	1232	0	dBA	1429	0	dBA
G3	1597	0	dBA	1109	0	dBA	1166	0	dBA	1541	0	dBA
DCB_FAN99710	1762	-3	dBA	954	4	dBA	1012	3	dBA	1374	-1	dBA
PRC_FAN	1759	-4	dBA	967	0	dBA	1025	-2	dBA	1368	-6	dBA
FAN23740	1911	18	dBA	889	29	dBA	948	28	dBA	1201	25	dBA
FAN23750	1911	18	dBA	888	29	dBA	947	28	dBA	1201	25	dBA
FAN23520	1912	-1	dBA	894	9	dBA	953	9	dBA	1200	4	dBA
FAN23510	1912	-1	dBA	895	9	dBA	954	9	dBA	1200	4	dBA
KTI	1772	18	dBA	955	20	dBA	1013	19	dBA	1356	16	dBA
KTP	1771	14	dBA	957	16	dBA	1015	16	dBA	1356	16	dBA

Table 7: Point of Reception Noise Impact (Daytime/Evening, Proposed Capacity Expansion)

Project: Clarkson WRRF
Location: Mississauga, ON

	POR01			POR02			POR03			POR04			POR05			POR06			POR07		
Point of Reception Description	762 Embassy Ave			Children's Palace Montessori, Preschool and Daycare			Peel Condominium Corporation No 105			332 Watersedge Road			Vacant Lot 2			Vacant Lot 1			Vacant Lot 3		
Point of reception coordinates	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]	X	Y	Z [2]
	611283	4817993	4.5	611070	4818083	4.5	611039	4818222	10.5	612916	4818005	5	611340	4815815	4.5	611324	4815758	4.5	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
AHU_101	New Admin Building Air Handling Unit 1	1370	27	dBA	1558	26	dBA	1691	25	dBA	1556	30	dBA	1148	34	dBA	1205	33	dBA	1585	30	dBA
AHU_201	New Admin Building Air Handling Unit 2	1373	27	dBA	1560	26	dBA	1694	25	dBA	1573	30	dBA	1132	34	dBA	1189	33	dBA	1568	30	dBA
BC_F97630	Biosolids complex roof twin city fan & blower 4	1242	-1	dBA	1387	0	dBA	1529	0	dBA	1848	-3	dBA	982	8	dBA	1040	8	dBA	1266	6	dBA
BC_F97610	Biosolids complex roof twin city fan & blower 5	1249	-1	dBA	1394	0	dBA	1536	-1	dBA	1848	3	dBA	977	8	dBA	1036	8	dBA	1266	6	dBA
OB_HVAC1	Operations Building HVAC 48TCDA06	1368	-2	dBA	1529	1	dBA	1668	0	dBA	1789	-1	dBA	949	6	dBA	1007	5	dBA	1333	3	dBA
OB_HVAC3	Office Building HVAC 48TCDA06	1376	-3	dBA	1532	-4	dBA	1672	-5	dBA	1832	-1	dBA	915	7	dBA	973	7	dBA	1289	-2	dBA
OB_HVAC2	Office Building HVAC 48TCDA06	1378	-3	dBA	1534	-4	dBA	1674	-5	dBA	1838	-1	dBA	909	7	dBA	968	6	dBA	1283	-2	dBA
AC99720	Disinfection chemical building condensing unit	1410	-9	dBA	1579	-6	dBA	1717	-11	dBA	1742	-8	dBA	973	-12	dBA	1031	-18	dBA	1394	-20	dBA
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	1358	-8	dBA	1545	-10	dBA	1678	-11	dBA	1562	-6	dBA	1144	-16	dBA	1201	-16	dBA	1575	-7	dBA
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	1368	-4	dBA	1555	-5	dBA	1689	-6	dBA	1567	-1	dBA	1138	3	dBA	1195	3	dBA	1573	-1	dBA
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	1394	-9	dBA	1545	-10	dBA	1686	-11	dBA	1874	-12	dBA	877	-9	dBA	936	-10	dBA	1246	-16	dBA
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	1350	-9	dBA	1513	-10	dBA	1652	-11	dBA	1764	-7	dBA	975	-13	dBA	1033	-15	dBA	1357	-10	dBA
P1B_EX1	P1 Blower Building hood exhuast 1	1295	4	dBA	1457	2	dBA	1596	2	dBA	1752	4	dBA	1007	15	dBA	1066	14	dBA	1363	12	dBA
P1B_EX2	P1 Blower Building hood exhuast 2	1290	13	dBA	1453	11	dBA	1592	10	dBA	1741	4	dBA	1017	15	dBA	1076	14	dBA	1374	12	dBA
P1B_EX3	P1 Blower Building hood exhuast 3	1285	8	dBA	1450	11	dBA	1589	10	dBA	1731	4	dBA	1026	15	dBA	1085	14	dBA	1384	12	dBA
P1B_EX4	P1 Blower Building hood exhuast 4	1281	8	dBA	1446	11	dBA	1585	10	dBA	1721	4	dBA	1035	15	dBA	1094	14	dBA	1394	12	dBA
EF_201	New Admin Building Greenheck Exhaust Fan	1368	10	dBA	1555	8	dBA	1689	7	dBA	1566	13	dBA	1139	16	dBA	1196	16	dBA	1574	13	dBA
BTM1	Biosolids Truck Movement 1	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
BTM2	Biosolids Truck Movement 2	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
P1B_EL1	P1 Blower building east wall louvre 1	-	5	dBA	-	8	dBA	-	7	dBA	-	2	dBA	-	-11	dBA	-	-11	dBA	-	-16	dBA
P1B_EL2	P1 Blower building east wall louvre 2	-	5	dBA	-	8	dBA	-	7	dBA	-	3	dBA	-	-9	dBA	-	-9	dBA	-	-14	dBA
P1B_EL3	P1 Blower building east wall louvre 3	-	7	dBA	-	10	dBA	-	9	dBA	-	3	dBA	-	-8	dBA	-	-9	dBA	-	-11	dBA
P1B_SL	P1 Blower building south wall louvre	-	-2	dBA	-	-1	dBA	-	-2	dBA	-	16	dBA	-	23	dBA	-	23	dBA	-	-1	dBA
P1B_WL	P1 Blower building west wall louvre	-	-8	dBA	-	-9	dBA	-	-9	dBA	-	-15	dBA	-	14	dBA	-	13	dBA	-	10	dBA
P1B_NL1	P1 Blower building north wall louvre 1	-	9	dBA	-	8	dBA	-	7	dBA	-	-13	dBA	-	-8	dBA	-	-9	dBA	-	8	dBA
P1B_NL2	P1 Blower building north wall louvre 2	-	20	dBA	-	18	dBA	-	17	dBA	-	3	dBA	-	0	dBA	-	0	dBA	-	19	dBA
BC_BDw	Biolsolids complex west bay door	-	-15	dBA	-	-16	dBA	-	-16	dBA	-	-18	dBA	-	9	dBA	-	8	dBA	-	8	dBA
BC_SL	Biosolids complex south wall louvre	-	-5	dBA	-	-7	dBA	-	-8	dBA	-	6	dBA	-	18	dBA	-	17	dBA	-	-4	dBA
AHU96601_1	P2 blower building air handling unit exhaust 1	-	12	dBA	-	11	dBA	-	11	dBA	-	17	dBA	-	25	dBA	-	24	dBA	-	11	dBA
AHU96601_2	P2 blower building air handling unit exhaust 2	-	5	dBA	-	5	dBA	-	5	dBA	-	2	dBA	-	6	dBA	-	6	dBA	-	1	dBA
AHU96601_3	P2 blower building air handling unit exhaust 3	-	5	dBA	-	4	dBA	-	4	dBA	-	1	dBA	-	4	dBA	-	4	dBA	-	1	dBA
DCB_BD	Disinfection chemical building north bay door	-	-5	dBA	-	-2	dBA	-	-3	dBA	-	-5	dBA	-	-7	dBA	-	-18	dBA	-	-2	dBA
DCB_L	Disinfection chemical building east wall louvre	-	8	dBA	-	12	dBA	-	11	dBA	-	9	dBA	-	-1	dBA	-	-5	dBA	-	-8	dBA
BC_MAUw	Biosolids Complex makeup air unit (west)	-	-3	dBA	-	-7	dBA	-	-6	dBA	-	-6	dBA	-	13	dBA	-	13	dBA	-	11	dBA
BC_MAUn	Biosolids Complex makeup air unit (north)	-	11	dBA	-	5	dBA	-	4	dBA	-	2	dBA	-	1	dBA	-	1	dBA	-	8	dBA
BC_MAUe	Biosolids Complex makeup air unit (east)	-	9	dBA	-	6	dBA	-	7	dBA	-	5	dBA	-	-1	dBA	-	-1	dBA	-	-4	dBA
BC_MAUs	Biosolids Complex makeup air unit (south)	-	-1	dBA	-	-4	dBA	-	-4	dBA	-	8	dBA	-	14	dBA	-	13	dBA	-	11	dBA
HB_MAUw	Headworks Building makeup air unit (west)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAUs	Headworks Building makeup air unit (south)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAUe	Headworks Building makeup air unit (east)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAU	Headworks Building makeup air unit (north)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
QSK95_1C	Cummins Diesel Gen Set 1 Casing	1477	0	dBA	1642	0	dBA	1781	0	dBA	1814	0	dBA	894	0	dBA	952	0	dBA	1335	0	dBA
QSK95_1E	Cummins Diesel Gen Set 1 Exhaust	1477	0	dBA	1642	0	dBA	1781	0	dBA	1814	0	dBA	894	0	dBA	952	0	dBA	1335	0	dBA
QSK95_2E	Cummins Diesel Gen Set 2 Exhaust	1486	0	dBA	1651	0	dBA	1790	0	dBA	1816	0	dBA	892	0	dBA	949	0	dBA	1336	0	dBA
QSK95_2C	Cummins Diesel Gen Set 2 Casing	1486	0	dBA	1651	0	dBA	1790	0	dBA	1816	0	dBA	892	0	dBA	949	0	dBA	1336	0	dBA
QSK95_3E	Cummins Diesel Gen Set 3 Exhaust	1494	0	dBA	1659	0	dBA	1798	0	dBA	1816	0	dBA	889	0	dBA	947	0	dBA	1338	0	dBA
QSK95_3C	Cummins Diesel Gen Set 3 Casing	1494	0	dBA	1659	0	dBA	1798	0	dBA	1816	0	dBA	889	0	dBA	947	0	dBA	1338	0	dBA
QSK95_4E	Cummins Diesel Gen Set 4 Exhaust	1503	0	dBA	1668	0	dBA	1807	0	dBA	1818	0	dBA	887	0	dBA	944	0	dBA	1340	0	dBA
QSK95_4C	Cummins Diesel Gen Set 4 Casing	1503	0	dBA	1668	0	dBA	1807	0	dBA	1818	0	dBA	887	0	dBA	944	0	dBA	1340	0	dBA
HW_EF2	New Headworks Building Exhaust Fan 2	916	29	dBA	1089	28	dBA	1225	26	dBA	1570	24	dBA	1349	25	dBA	1408	25	dBA	1588	23	dBA
HW_EF1	New Headworks Building Exhaust Fan 1	885	30	dBA	1055	28	dBA	1192	27	dBA	1588	23	dBA	1362	25	dBA	1421	25	dBA	1584	23	dBA
HW_EF3	New Headworks Building Exhaust Fan 3	899	30	dBA	1071	28	dBA	1208	27	dBA	1573	24	dBA	1360	21	dBA	1419	20	dBA	1592	24	dBA
HW_EF4	New Headworks Building Exhaust Fan 4	881	30	dBA	1052	28	dBA	1189	27	dBA	1576	24	dBA	1372	21	dBA	1430	20	dBA	1596	24	dBA
HW_EF5	New Headworks Building Exhaust Fan 5	874	29	dBA	1047	28	dBA	1183	26	dBA	1565	23	dBA	1383	20	dBA	1441	20	dBA	1608	23	dBA
HW_CUS1	New Headworks Building Carbon Unit Stack 1	893	24	dBA	1066	22	dBA	1203	22	dBA	1564	19	dBA	1369	20	dBA	1428	20	dBA	1602	19	dBA
HW_CUS2	New Headworks Building Carbon Unit Stack 2	878	24	dBA	1050	22	dBA	1187	22	dBA	1567	19	dBA	1379	20	dBA	1438	20	dBA	1605	19	dBA
D6_M1	Digester 6 sludge mixer motor 1	1185	6	dBA	1311	5	dBA	1453	4	dBA	1932	0	dBA	1000	8	dBA	1058	7	dBA	1202	6	dBA
D6_M2	Digester 6 sludge mixer motor 2	1197	6	dBA	1323	5	dBA	1465	4	dBA	1939	0	dBA	988	8	dBA	1046	8	dBA	1193	6	dBA
D6_M3	Digester 6 sludge mixer motor 3	1182	6	dBA	1306	5	dBA	1448	4	dBA	1941	0	dBA	1001	8	dBA	1059	7	dBA	1195	6	dBA
D6_M4	Digester 6 sludge mixer motor 4	1172	6	dBA	1298	5	dBA	1440	4	dBA	1924	0	dBA	1014	8	dBA	1071	7	dBA	1212	6	dBA
D6_M5	Digester 6 sludge mixer motor 5	1186	6	dBA	1314	5	dBA	1456	4	dBA	1922	0	dBA	1001	8	dBA	1059	7	dBA	1210	6	dBA
D7_M1	Digester 7 sludge mixer motor 1	1160	2	dBA	1291	5	dBA	1433	4	dBA	1892	1	dBA	1031	8	dBA	1089	7	dBA	1242	6	dBA
D7_M2	Digester 7 sludge mixer motor 2	1172	2	dBA	1303	5	dBA	1445	4	dBA	1899	1	dBA	1018	8	dBA	1076	7	dBA	1233	6	dBA
D7_M3	Digester 7 sludge mixer motor 3	1160	2	dBA	1293	1	dBA	1435	-1	dBA	1882	1	dBA	1033	8	dBA	1091	7	dBA	1251	6	dBA
D7_M4	Digester 7 sludge mixer motor 4	1147	2	dBA	1278	5	dBA	1420	-1	dBA	1885	1	dBA	1043	8	dBA	1101	7	dBA	1252	6	dBA
D7_M5	Digester 7 sludge mixer motor 5	1157	6	dBA	1287	5	dBA	1429	4	dBA	1901	1	dBA	1031	8	dBA	1088	7	dBA	1235	6	dBA

wood.

Table 7: Point of Reception Noise Impact (Daytime/Evening, Proposed Capacity Expansion)

Project: Clarkson WRRF

Location: Mississauga, ON

POR	Point of Reception Description	X	Y	Z [2]
POR01	762 Embassy Ave	611283	4817993	4.5
POR02	Children's Palace Montessori, Preschool and Daycare	611070	4818083	4.5
POR03	Peel Condominium Corporation No 105	611039	4818222	10.5
POR04	332 Watersedge Road	612916	4818005	5
POR05	Vacant Lot 2	611340	4815815	4.5
POR06	Vacant Lot 1	611324	4815758	4.5
POR07	Vacant Lot 3	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1 Distance (m)	PoR 1 Sound Level at PoR	PoR 1 Units [1] (dBA)	Point of Reception 2 Distance (m)	PoR 2 Sound Level at PoR	PoR 2 Units [1] (dBA)	Point of Reception 3 Distance (m)	PoR 3 Sound Level at PoR	PoR 3 Units [1] (dBA)	Point of Reception 4 Distance (m)	PoR 4 Sound Level at PoR	PoR 4 Units [1] (dBA)
D8_M1	Digester 8 sludge mixer motor 1	1151	6	dBA	1273	5	dBA	1415	4	dBA	1938	-4	dBA
D8_M2	Digester 8 sludge mixer motor 2	1163	6	dBA	1284	5	dBA	1426	4	dBA	1945	-4	dBA
D8_M3	Digester 8 sludge mixer motor 3	1148	7	dBA	1267	5	dBA	1410	4	dBA	1947	-4	dBA
D8_M4	Digester 8 sludge mixer motor 4	1138	7	dBA	1260	5	dBA	1403	4	dBA	1932	-4	dBA
D8_M5	Digester 8 sludge mixer motor 5	1152	6	dBA	1275	5	dBA	1417	4	dBA	1930	-4	dBA
D9_M1	Digester 9 sludge mixer motor 1	1124	7	dBA	1251	6	dBA	1393	4	dBA	1898	-4	dBA
D9_M2	Digester 9 sludge mixer motor 2	1136	7	dBA	1263	5	dBA	1405	4	dBA	1905	-4	dBA
D9_M3	Digester 9 sludge mixer motor 3	1125	7	dBA	1254	6	dBA	1396	4	dBA	1888	-4	dBA
D9_M4	Digester 9 sludge mixer motor 4	1112	7	dBA	1239	6	dBA	1382	4	dBA	1892	-4	dBA
D9_M5	Digester 9 sludge mixer motor 5	1121	7	dBA	1246	6	dBA	1388	4	dBA	1906	-4	dBA
DC_EF1	New Digester Control Building exhaust air fan 1	1157	16	dBA	1285	15	dBA	1428	14	dBA	1908	10	dBA
DC_EF2	New Digester Control Building exhaust air fan 2	1164	16	dBA	1290	15	dBA	1432	14	dBA	1920	10	dBA
DC_EF3	New Digester Control Building exhaust air fan 3	1153	16	dBA	1278	15	dBA	1420	14	dBA	1922	6	dBA
DC_EF4	New Digester Control Building exhaust air fan 4	1146	16	dBA	1273	15	dBA	1415	14	dBA	1910	6	dBA
S1	New Primary Thickening Facility stack for biotrickling filter	1153	22	dBA	1298	21	dBA	1439	20	dBA	1811	17	dBA
ODC_F1	New Primary Thickening Facility odour control fan 1	1160	22	dBA	1305	21	dBA	1446	19	dBA	1811	16	dBA
ODC_F2	New Primary Thickening Facility odour control fan 2	1158	22	dBA	1303	21	dBA	1444	19	dBA	1811	16	dBA
ODC_F3	New Primary Thickening Facility odour control fan 3	1149	22	dBA	1293	21	dBA	1435	19	dBA	1811	16	dBA
ODC_F4	New Primary Thickening Facility odour control fan 4	1146	22	dBA	1290	21	dBA	1431	19	dBA	1812	16	dBA
S3	Radial Flow Dry Media Unit Stack	962	28	dBA	1123	27	dBA	1262	26	dBA	1648	23	dBA
S5	Radial Flow Dry Media Activated Carbon System Stack	1082	27	dBA	1213	26	dBA	1355	26	dBA	1859	22	dBA
S4	Regenerative Thermal Oxidizer Stack	1063	27	dBA	1198	26	dBA	1340	26	dBA	1828	22	dBA
DS_CF1	New Biosolids Dryer Structure exhaust fan 1	1073	23	dBA	1210	22	dBA	1351	20	dBA	1828	16	dBA
DS_CF2	New Biosolids Dryer Structure exhaust fan 2	1097	23	dBA	1236	21	dBA	1378	20	dBA	1824	16	dBA
DS_CF3	New Biosolids Dryer Structure exhaust fan 3	1113	23	dBA	1248	21	dBA	1390	20	dBA	1849	16	dBA
DS_CF4	New Biosolids Dryer Structure exhaust fan 4	1088	23	dBA	1220	22	dBA	1362	20	dBA	1854	16	dBA
BB_AHU	New Blower Building AHU	1110	32	dBA	1305	30	dBA	1435	29	dBA	1432	29	dBA
ST_EF2	New Sidestream Treatment Building exhaust air fan 2	1167	12	dBA	1304	10	dBA	1446	9	dBA	1863	6	dBA
ST_EF1	New Sidestream Treatment Building exhaust air fan 1	-	11	dBA	-	10	dBA	-	9	dBA	-	6	dBA
ME_1	Biosolids Truck Movement 1 (after expansion)	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA

Source ID	Point of Reception 5 Distance (m)	PoR 5 Sound Level at PoR	PoR 5 Units [1] (dBA)	Point of Reception 6 Distance (m)	PoR 6 Sound Level at PoR	PoR 6 Units [1] (dBA)	Point of Reception 7 Distance (m)	PoR 7 Sound Level at PoR	PoR 7 Units [1] (dBA)
D8_M1	1030	8	dBA	1087	7	dBA	1208	6	dBA
D8_M2	1019	8	dBA	1076	7	dBA	1199	6	dBA
D8_M3	1032	8	dBA	1090	7	dBA	1203	6	dBA
D8_M4	1043	8	dBA	1100	7	dBA	1218	6	dBA
D8_M5	1031	8	dBA	1088	7	dBA	1214	6	dBA
D9_M1	1061	7	dBA	1118	7	dBA	1248	6	dBA
D9_M2	1049	8	dBA	1106	7	dBA	1239	6	dBA
D9_M3	1061	7	dBA	1119	7	dBA	1256	6	dBA
D9_M4	1072	7	dBA	1130	7	dBA	1257	5	dBA
D9_M5	1062	7	dBA	1120	7	dBA	1243	6	dBA
DC_EF1	1029	18	dBA	1087	17	dBA	1230	16	dBA
DC_EF2	1021	18	dBA	1079	17	dBA	1218	16	dBA
DC_EF3	1030	18	dBA	1088	17	dBA	1220	16	dBA
DC_EF4	1039	18	dBA	1096	17	dBA	1232	16	dBA
S1	1062	22	dBA	1121	22	dBA	1313	20	dBA
ODC_F1	1057	24	dBA	1116	23	dBA	1313	16	dBA
ODC_F2	1059	23	dBA	1117	23	dBA	1313	21	dBA
ODC_F3	1065	23	dBA	1123	23	dBA	1314	21	dBA
ODC_F4	1067	23	dBA	1126	23	dBA	1314	21	dBA
S3	1276	26	dBA	1335	25	dBA	1506	24	dBA
S5	1106	27	dBA	1164	27	dBA	1294	26	dBA
S4	1130	27	dBA	1188	26	dBA	1325	25	dBA
DS_CF1	1120	23	dBA	1178	22	dBA	1321	20	dBA
DS_CF2	1101	23	dBA	1159	22	dBA	1316	21	dBA
DS_CF3	1081	23	dBA	1139	22	dBA	1291	21	dBA
DS_CF4	1101	23	dBA	1159	22	dBA	1295	21	dBA
BB_AHU	1332	19	dBA	1391	19	dBA	1681	18	dBA
ST_EF2	1033	13	dBA	1091	12	dBA	1265	15	dBA
ST_EF1	-	13	dBA	-	12	dBA	-	15	dBA
ME_1	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))

2. Height above local grade

Table 8: Point of Reception Noise Impact (Night, Proposed Capacity Expansion)

Project: Clarkson WRRF
Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	Methane bubble exhaust 1	1293	14	dBA	1425	12	dBA	1567	11	dBA
MB_EX2	Methane bubble exhaust 2	1289	-4	dBA	1418	-5	dBA	1560	-6	dBA
BL64110	Methane bubble blower 1	1293	7	dBA	1421	6	dBA	1563	5	dBA
BL64120	Methane bubble blower 2	1295	7	dBA	1423	6	dBA	1565	5	dBA
MB_EX3	Methane bubble exhaust 3	1304	14	dBA	1434	12	dBA	1576	11	dBA
BSP64670	Siloxane blower	1307	6	dBA	1434	5	dBA	1576	3	dBA
JEN_C_19068_EF	Co-gen engine roof exhaust	1300	14	dBA	1426	13	dBA	1569	12	dBA
JEN_C_19068_EL	Co-gen engine side intake louver	1306	2	dBA	1432	1	dBA	1574	0	dBA
G1	Headworks emergency diesel generator	1095	0	dBA	1255	0	dBA	1394	0	dBA
BC_RTU1	Biosolids complex roof mitsubishi outdoor unit	1206	-18	dBA	1353	-19	dBA	1494	-19	dBA
BC_F97620	Biosolids complex roof twin city fan & blower 1	1196	-15	dBA	1344	-17	dBA	1485	-17	dBA
BC_F97640	Biosolids complex roof twin city fan & blower 2	1247	-10	dBA	1393	-9	dBA	1534	-9	dBA
BC_F97650	Biosolids complex roof twin city fan & blower 3	1247	-1	dBA	1392	0	dBA	1534	-1	dBA
CAN97903	Biosolids complex roof Mitsubishi Electric mr slim condensing unit	1240	-8	dBA	1387	-10	dBA	1528	-10	dBA
BTI	Biosolids truck idling	1202	-5	dBA	1346	-5	dBA	1487	-6	dBA
BC_HVAC_I	Biosolids complex carrier HVAC intake	1234	3	dBA	1384	2	dBA	1525	3	dBA
BC_HVAC_T	Biosolids complex carrier HVAC top fans	1234	3	dBA	1383	2	dBA	1524	5	dBA
BC_C	Biosolids complex compressor units	1233	-1	dBA	1383	-2	dBA	1524	-1	dBA
D1_2_L	Digester 1&2 building west wall louvre	1264	0	dBA	1401	0	dBA	1543	0	dBA
D2_45001	Digester 2 sludge mixer motor 1	1277	0	dBA	1414	0	dBA	1556	0	dBA
D2_45002	Digester 2 sludge mixer motor 2	1286	0	dBA	1424	0	dBA	1566	0	dBA
D2_45003	Digester 2 sludge mixer motor 3	1292	0	dBA	1429	0	dBA	1571	0	dBA
D2_45004	Digester 2 sludge mixer motor 4	1283	0	dBA	1419	0	dBA	1561	0	dBA
D1_46002	Digester 1 sludge mixer motor 2	1271	0	dBA	1412	0	dBA	1554	0	dBA
D1_46001	Digester 1 sludge mixer motor 1	1263	0	dBA	1403	0	dBA	1545	0	dBA
D1_46003	Digester 1 sludge mixer motor 3	1265	0	dBA	1408	0	dBA	1549	0	dBA
D1_46004	Digester 1 sludge mixer motor 4	1256	0	dBA	1398	0	dBA	1539	0	dBA
G2	Pump station emergency diesel generator	1231	0	dBA	1354	0	dBA	1496	0	dBA
D3_47001	Digester 3 sludge mixer motor 1	1245	-3	dBA	1379	-4	dBA	1522	-5	dBA
D3_47002	Digester 3 sludge mixer motor 2	1254	-3	dBA	1389	-4	dBA	1531	-5	dBA
D3_47003	Digester 3 sludge mixer motor 3	1260	9	dBA	1394	7	dBA	1536	6	dBA
D3_47004	Digester 3 sludge mixer motor 4	1252	-1	dBA	1385	-3	dBA	1527	-3	dBA
CB_FAN95650	Control building exhaust air fan 1	1234	-6	dBA	1369	-8	dBA	1511	-8	dBA
CB_FAN95490	Control building exhaust air fan 2	1234	3	dBA	1366	2	dBA	1508	1	dBA
CB_FAN95630	Control building exhaust air fan 3	1236	-14	dBA	1370	-13	dBA	1512	-14	dBA
CB_FAN95480	Control building exhaust air fan 4	1223	1	dBA	1356	0	dBA	1498	-1	dBA
CB_FAN95430	Control building exhaust air fan 5	1213	5	dBA	1346	3	dBA	1488	2	dBA
CB_FAN95710	Control building exhaust air fan 6	1210	-6	dBA	1344	-6	dBA	1486	-6	dBA
D4_48001	Digester 4 sludge mixer motor 1	1215	3	dBA	1345	7	dBA	1487	6	dBA
D4_48002	Digester 4 sludge mixer motor 2	1228	5	dBA	1357	9	dBA	1500	7	dBA
D4_48003	Digester 4 sludge mixer motor 3	1216	2	dBA	1343	1	dBA	1485	0	dBA
D4_48004	Digester 4 sludge mixer motor 4	1204	-7	dBA	1333	-4	dBA	1475	-5	dBA
D4_48004	Digester 4 sludge mixer motor 5	1216	-7	dBA	1347	-4	dBA	1489	-5	dBA
D5_49001	Digester 5 sludge mixer motor 1	1190	0	dBA	1325	-2	dBA	1467	-3	dBA
D5_49002	Digester 5 sludge mixer motor 2	1203	-7	dBA	1338	-8	dBA	1480	-9	dBA
D5_49003	Digester 5 sludge mixer motor 3	1193	-9	dBA	1329	-10	dBA	1471	-11	dBA
D5_49004	Digester 5 sludge mixer motor 4	1178	-1	dBA	1313	-3	dBA	1455	-4	dBA
D5_49005	Digester 5 sludge mixer motor 5	1189	-5	dBA	1321	-6	dBA	1463	-7	dBA
HB_FAN98770	Headworks building supply air fan 1	1083	0	dBA	1239	0	dBA	1379	0	dBA
HB_MX12203	Headworks building grit vortex 1	1081	0	dBA	1239	0	dBA	1379	0	dBA
HB_MX12303	Headworks building grit vortex 2	1086	0	dBA	1243	0	dBA	1383	0	dBA
HB_FAN98710	Headworks building supply air fan 4	1094	0	dBA	1252	0	dBA	1392	0	dBA
P1C_BB_EX1	P1 channel air blower building exhaust	1148	37	dBA	1304	35	dBA	1444	35	dBA
AHU99300	Air Handling Unit	1157	-3	dBA	1314	-1	dBA	1454	-1	dBA
HB_WL	Headworks building west wall louvre	1091	0	dBA	1245	0	dBA	1385	0	dBA
HB_FAN98620	Headworks building supply air fan 2	1078	0	dBA	1233	0	dBA	1373	0	dBA
HB_FAN98610	Headworks building supply air fan 3	1068	0	dBA	1225	0	dBA	1365	0	dBA
G3	Cummins Diesel Generator	1372	0	dBA	1556	0	dBA	1691	0	dBA
DCB_FAN99710	Disinfection chemical building supply air fan	1416	-4	dBA	1583	-6	dBA	1722	-7	dBA
PRC_FAN	PRC tank containment area 4 supply air fan	1382	-5	dBA	1547	-7	dBA	1686	-8	dBA
FAN23740	Odour control fan 2	1336	19	dBA	1478	17	dBA	1620	16	dBA
FAN23750	Odour control fan 1	1338	19	dBA	1480	17	dBA	1621	16	dBA
FAN23520	Odour control fan 3	1328	0	dBA	1469	-1	dBA	1610	-2	dBA
FAN23510	Odour control fan 4	1327	0	dBA	1467	-11	dBA	1609	-12	dBA
KTI	Kemira Truck idling	1386	0	dBA	1551	0	dBA	1690	0	dBA
KTP	Kemira truck mounted pump	1384	0	dBA	1549	0	dBA	1688	0	dBA

Source ID	Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
MB_EX1	1954	8	dBA	903	23	dBA	961	22	dBA	1162	19	dBA
MB_EX2	1965	-9	dBA	904	5	dBA	962	4	dBA	1152	2	dBA
BL64110	1972	2	dBA	898	15	dBA	956	14	dBA	1144	12	dBA
BL64120	1974	2	dBA	896	15	dBA	954	15	dBA	1143	12	dBA
MB_EX3	1969	8	dBA	890	23	dBA	948	22	dBA	1147	20	dBA
BSP64670	1987	0	dBA	883	15	dBA	941	15	dBA	1129	12	dBA
JEN_C_19068_EF	1986	9	dBA	889	22	dBA	947	22	dBA	1131	20	dBA
JEN_C_19068_EL	1992	-2	dBA	883	10	dBA	941	10	dBA	1124	8	dBA
G1	1693	0	dBA	1158	0	dBA	1217	0	dBA	1431	0	dBA
BC_RTU1	1820	-2	dBA	1020	-1	dBA	1079	-1	dBA	1297	-4	dBA
BC_F97620	1810	-5	dBA	1031	1	dBA	1090	0	dBA	1308	-8	dBA
BC_F97640	1844	-5	dBA	980	1	dBA	1039	1	dBA	1270	-2	dBA
BC_F97650	1849	2	dBA	978	8	dBA	1037	8	dBA	1266	6	dBA
CAN97903	1832	-5	dBA	991	1	dBA	1050	1	dBA	1282	-2	dBA
BTI	1833	-10	dBA	1017	-2	dBA	1076	-3	dBA	1285	13	dBA
BC_HVAC_I	1813	5	dBA	1004	27	dBA	1063	26	dBA	1301	24	dBA
BC_HVAC_T	1812	12	dBA	1005	24	dBA	1064	24	dBA	1302	21	dBA
BC_C	1811	-4	dBA	1006	9	dBA	1065	9	dBA	1303	6	dBA
D1_2_L	1903	0	dBA	943	0	dBA	1002	0	dBA	1212	0	dBA
D2_45001	1911	0	dBA	930	0	dBA	989	0	dBA	1204	0	dBA
D2_45002	1910	0	dBA	924	0	dBA	983	0	dBA	1204	0	dBA
D2_45003	1921	0	dBA	916	0	dBA	974	0	dBA	1193	0	dBA
D2_45004	1921	0	dBA	922	0	dBA	980	0	dBA	1193	0	dBA
D1_46002	1885	0	dBA	945	0	dBA	1004	0	dBA	1229	0	dBA
D1_46001	1886	0	dBA	951	0	dBA	1009	0	dBA	1229	0	dBA
D1_46003	1875	0	dBA	954	0	dBA	1012	0	dBA	1239	0	dBA
D1_46004	1876	0	dBA	960	0	dBA	1018	0	dBA	1239	0	dBA
G2	1974	0	dBA	952	0	dBA	1009	0	dBA	1155	0	dBA
D3_47001	1914	-8	dBA	954	5	dBA	1012	4	dBA	1204	3	dBA
D3_47002	1913	-8	dBA	947	6	dBA	1006	4	dBA	1204	2	dBA
D3_47003	1924	3	dBA	939	16	dBA	997	16	dBA	1193	14	dBA
D3_47004	1925	-6	dBA	945	7	dBA	1003	6	dBA	1194	4	dBA
CB_FAN95650	1900	2	dBA	967	18	dBA	1026	15	dBA	1219	13	dBA
CB_FAN95490	1919	-7	dBA	961	12	dBA	1020	10	dBA	1202	8	dBA
CB_FAN95630	1910	-20	dBA	962	8	dBA	1021	5	dBA	1210	3	dBA
CB_FAN95480	1914	-5	dBA	971	11	dBA	1030	8	dBA	1208	6	dBA
CB_FAN95430	1906	-1	dBA	982	11	dBA	1040	11	dBA	1218	9	dBA
CB_FAN95710	1898	-7	dBA	987	-1	dBA	1046	-3	dBA	1225	-2	dBA
D4_48001	1927	-2	dBA	975	11	dBA	1033	10	dBA	1199	8	dBA
D4_48002	1934	-1	dBA	962	15	dBA	1020	12	dBA	1190	10	dBA
D4_48003	1937	-9	dBA	972	5	dBA	1030	4	dBA	1190	3	dBA
D4_48004	1920	-13	dBA	986	1	dBA	1044	-1	dBA	1207	-3	dBA
D4_48004	1918	-13	dBA	976	1	dBA	1034	-1	dBA	1206	-3	dBA
D5_49001	1886	-6	dBA	1007	6	dBA	1065	5	dBA	1239	4	dBA
D5_49002	1895	-12	dBA	993	-1	dBA	1052	-6	dBA	1229	-3	dBA
D5_49003	1878	-14	dBA	1007	-7	dBA	1065	-8	dBA	1246	-5	dBA
D5_49004	1879	-7	dBA	1018	5	dBA	1077	4	dBA	1249	3	dBA
D5_49005	1896	-10	dBA	1005	2	dBA	1063	1	dBA	1231	-1	dBA
HB_FAN98770	1716	0	dBA	1155	0	dBA	1214	0	dBA	1413	0	dBA
HB_MX12203	1701	0	dBA	1164	0	dBA	1222	0	dBA	1427	0	dBA
HB_MX12303	1712	0	dBA	1155	0	dBA	1214	0	dBA	1416	0	dBA
HB_FAN98710	1709	0	dBA	1151	0	dBA	1210	0	dBA	1417	0	dBA
P1C_BB_EX1	1733	20	dBA	1102	18	dBA	1161	17	dBA	1385	29	dBA
AHU99300	1736	9	dBA	1094	11	dBA	1153	10	dBA	1381	8	dBA
HB_WL	1733	0	dBA	1141	0	dBA	1200	0	dBA	1396	0	dBA
HB_FAN98620	1718	0	dBA	1158	0	dBA	1216	0	dBA	1413	0	dBA
HB_FAN98610	1702	0	dBA	1173	0	dBA	1232	0	dBA	1429	0	dBA
G3	1597	0	dBA	1109	0	dBA	1166	0	dBA	1541	0	dBA
DCB_FAN99710	1762	-3	dBA	954	4	dBA	1012	3	dBA	1374	-1	dBA
PRC_FAN	1759	-4	dBA	967	0	dBA	1025	-2	dBA	1368	-6	dBA
FAN23740	1911	18	dBA	889	29	dBA	948	28	dBA	1201	25	dBA
FAN23750	1911	18	dBA	888	29	dBA	947	28	dBA	1201	25	dBA
FAN23520	1912	-1	dBA	894	9	dBA	953	9	dBA	1200	4	dBA
FAN23510	1912	-1	dBA	895	9	dBA	954	9	dBA	1200	4	dBA
KTI	1772	0	dBA	955	0	dBA	1013	0	dBA	1356	0	dBA
KTP	1771	0	dBA	957	0	dBA	1015	0	dBA	1356	0	dBA

wood.

Table 8: Point of Reception Noise Impact (Night, Proposed Capacity Expansion)

Project: Clarkson WRRF

Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
AHU_101	New Admin Building Air Handling Unit 1	1370	27	dBA	1558	26	dBA	1691	25	dBA	1556	30	dBA	1148	34	dBA	1205	33	dBA	1585	30	dBA
AHU_201	New Admin Building Air Handling Unit 2	1373	27	dBA	1560	26	dBA	1694	25	dBA	1573	30	dBA	1132	34	dBA	1189	33	dBA	1568	30	dBA
BC_F97630	Biosolids complex roof twin city fan & blower 4	1242	-1	dBA	1387	0	dBA	1529	0	dBA	1848	-3	dBA	982	8	dBA	1040	8	dBA	1266	6	dBA
BC_F97610	Biosolids complex roof twin city fan & blower 5	1249	-1	dBA	1394	0	dBA	1536	-1	dBA	1848	3	dBA	977	8	dBA	1036	8	dBA	1266	6	dBA
OB_HVAC1	Operations Building HVAC 48TCDA06	1368	-2	dBA	1529	1	dBA	1668	0	dBA	1789	-1	dBA	949	6	dBA	1007	5	dBA	1333	3	dBA
OB_HVAC3	Office Building HVAC 48TCDA06	1376	-3	dBA	1532	-4	dBA	1672	-5	dBA	1832	-1	dBA	915	7	dBA	973	7	dBA	1289	-2	dBA
OB_HVAC2	Office Building HVAC 48TCDA06	1378	-3	dBA	1534	-4	dBA	1674	-5	dBA	1838	-1	dBA	909	7	dBA	968	6	dBA	1283	-2	dBA
AC99720	Disinfection chemical building condensing unit	1410	-9	dBA	1579	-6	dBA	1717	-11	dBA	1742	-8	dBA	973	-12	dBA	1031	-18	dBA	1394	-20	dBA
ACCU_101	Admin Building Mitsubishi Electric condensing unit 1	1358	-8	dBA	1545	-10	dBA	1678	-11	dBA	1562	-6	dBA	1144	-16	dBA	1201	-16	dBA	1575	-7	dBA
ACCU_201	New Admin Building Mitsubishi Electric condensing unit 2	1368	-4	dBA	1555	-5	dBA	1689	-6	dBA	1567	-1	dBA	1138	3	dBA	1195	3	dBA	1573	-1	dBA
A/C_1	Workshop Mitsubishi Electric mr slim condensing unit	1394	-9	dBA	1545	-10	dBA	1686	-11	dBA	1874	-12	dBA	877	-9	dBA	936	-10	dBA	1246	-16	dBA
CU96701	Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit	1350	-9	dBA	1513	-10	dBA	1652	-11	dBA	1764	-7	dBA	975	-13	dBA	1033	-15	dBA	1357	-10	dBA
P1B_EX1	P1 Blower Building hood exhuast 1	1295	4	dBA	1457	2	dBA	1596	2	dBA	1752	4	dBA	1007	15	dBA	1066	14	dBA	1363	12	dBA
P1B_EX2	P1 Blower Building hood exhuast 2	1290	13	dBA	1453	11	dBA	1592	10	dBA	1741	4	dBA	1017	15	dBA	1076	14	dBA	1374	12	dBA
P1B_EX3	P1 Blower Building hood exhuast 3	1285	8	dBA	1450	11	dBA	1589	10	dBA	1731	4	dBA	1026	15	dBA	1085	14	dBA	1384	12	dBA
P1B_EX4	P1 Blower Building hood exhuast 4	1281	8	dBA	1446	11	dBA	1585	10	dBA	1721	4	dBA	1035	15	dBA	1094	14	dBA	1394	12	dBA
EF_201	New Admin Building Greenheck Exhaust Fan	1368	10	dBA	1555	8	dBA	1689	7	dBA	1566	13	dBA	1139	16	dBA	1196	16	dBA	1574	13	dBA
BTM1	Biosolids Truck Movement 1	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
BTM2	Biosolids Truck Movement 2	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
P1B_EL1	P1 Blower building east wall louvre 1	-	5	dBA	-	8	dBA	-	7	dBA	-	2	dBA	-	-11	dBA	-	-11	dBA	-	-16	dBA
P1B_EL2	P1 Blower building east wall louvre 2	-	5	dBA	-	8	dBA	-	7	dBA	-	3	dBA	-	-9	dBA	-	-9	dBA	-	-14	dBA
P1B_EL3	P1 Blower building east wall louvre 3	-	7	dBA	-	10	dBA	-	9	dBA	-	3	dBA	-	-8	dBA	-	-9	dBA	-	-11	dBA
P1B_SL	P1 Blower building south wall louvre	-	-2	dBA	-	-1	dBA	-	-2	dBA	-	16	dBA	-	23	dBA	-	23	dBA	-	-1	dBA
P1B_WL	P1 Blower building west wall louvre	-	-8	dBA	-	-9	dBA	-	-9	dBA	-	-15	dBA	-	14	dBA	-	13	dBA	-	10	dBA
P1B_NL1	P1 Blower building north wall louvre 1	-	9	dBA	-	8	dBA	-	7	dBA	-	-13	dBA	-	-8	dBA	-	-9	dBA	-	8	dBA
P1B_NL2	P1 Blower building north wall louvre 2	-	20	dBA	-	18	dBA	-	17	dBA	-	3	dBA	-	0	dBA	-	0	dBA	-	19	dBA
BC_BDw	Biolsolids complex west bay door	-	-15	dBA	-	-16	dBA	-	-16	dBA	-	-18	dBA	-	9	dBA	-	8	dBA	-	8	dBA
BC_SL	Biosolids complex south wall louvre	-	-5	dBA	-	-7	dBA	-	-8	dBA	-	6	dBA	-	18	dBA	-	17	dBA	-	-4	dBA
AHU96601_1	P2 blower building air handling unit exhaust 1	-	12	dBA	-	11	dBA	-	11	dBA	-	17	dBA	-	25	dBA	-	24	dBA	-	11	dBA
AHU96601_2	P2 blower building air handling unit exhaust 2	-	5	dBA	-	5	dBA	-	5	dBA	-	2	dBA	-	6	dBA	-	6	dBA	-	1	dBA
AHU96601_3	P2 blower building air handling unit exhaust 3	-	5	dBA	-	4	dBA	-	4	dBA	-	1	dBA	-	4	dBA	-	4	dBA	-	1	dBA
DCB_BD	Disinfection chemical building north bay door	-	-5	dBA	-	-2	dBA	-	-3	dBA	-	-5	dBA	-	-7	dBA	-	-18	dBA	-	-2	dBA
DCB_L	Disinfection chemical building east wall louvre	-	8	dBA	-	12	dBA	-	11	dBA	-	9	dBA	-	-1	dBA	-	-5	dBA	-	-8	dBA
BC_MAUw	Biosolids Complex makeup air unit (west)	-	-3	dBA	-	-7	dBA	-	-6	dBA	-	-6	dBA	-	13	dBA	-	13	dBA	-	11	dBA
BC_MAUn	Biosolids Complex makeup air unit (north)	-	11	dBA	-	5	dBA	-	4	dBA	-	2	dBA	-	1	dBA	-	1	dBA	-	8	dBA
BC_MAUe	Biosolids Complex makeup air unit (east)	-	9	dBA	-	6	dBA	-	7	dBA	-	5	dBA	-	-1	dBA	-	-1	dBA	-	-4	dBA
BC_MAUs	Biosolids Complex makeup air unit (south)	-	-1	dBA	-	-4	dBA	-	-4	dBA	-	8	dBA	-	14	dBA	-	13	dBA	-	11	dBA
HB_MAUw	Headworks Building makeup air unit (west)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAUs	Headworks Building makeup air unit (south)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAUe	Headworks Building makeup air unit (east)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
HB_MAU	Headworks Building makeup air unit (north)	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA	-	0	dBA
QSK95_1C	Cummins Diesel Gen Set 1 Casing	1477	0	dBA	1642	0	dBA	1781	0	dBA	1814	0	dBA	894	0	dBA	952	0	dBA	1335	0	dBA
QSK95_1E	Cummins Diesel Gen Set 1 Exhaust	1477	0	dBA	1642	0	dBA	1781	0	dBA	1814	0	dBA	894	0	dBA	952	0	dBA	1335	0	dBA
QSK95_2E	Cummins Diesel Gen Set 2 Exhaust	1486	0	dBA	1651	0	dBA	1790	0	dBA	1816	0	dBA	892	0	dBA	949	0	dBA	1336	0	dBA
QSK95_2C	Cummins Diesel Gen Set 2 Casing	1486	0	dBA	1651	0	dBA	1790	0	dBA	1816	0	dBA	892	0	dBA	949	0	dBA	1336	0	dBA
QSK95_3E	Cummins Diesel Gen Set 3 Exhaust	1494	0	dBA	1659	0	dBA	1798	0	dBA	1816	0	dBA	889	0	dBA	947	0	dBA	1338	0	dBA
QSK95_3C	Cummins Diesel Gen Set 3 Casing	1494	0	dBA	1659	0	dBA	1798	0	dBA	1816	0	dBA	889	0	dBA	947	0	dBA	1338	0	dBA
QSK95_4E	Cummins Diesel Gen Set 4 Exhaust	1503	0	dBA	1668	0	dBA	1807	0	dBA	1818	0	dBA	887	0	dBA	944	0	dBA	1340	0	dBA
QSK95_4C	Cummins Diesel Gen Set 4 Casing	1503	0	dBA	1668	0	dBA	1807	0	dBA	1818	0	dBA	887	0	dBA	944	0	dBA	1340	0	dBA
HW_EF2	New Headworks Building Exhaust Fan 2	916	29	dBA	1089	28	dBA	1225	26	dBA	1570	24	dBA	1349	25	dBA	1408	25	dBA	1588	23	dBA
HW_EF1	New Headworks Building Exhaust Fan 1	885	30	dBA	1055	28	dBA	1192	27	dBA	1588	23	dBA	1362	25	dBA	1421	25	dBA	1584	23	dBA
HW_EF3	New Headworks Building Exhaust Fan 3	899	30	dBA	1071	28	dBA	1208	27	dBA	1573	24	dBA	1360	21	dBA	1419	20	dBA	1592	24	dBA
HW_EF4	New Headworks Building Exhaust Fan 4	881	30	dBA	1052	28	dBA	1189	27	dBA	1576	24	dBA	1372	21	dBA	1430	20	dBA	1596	24	dBA
HW_EF5	New Headworks Building Exhaust Fan 5	874	29	dBA	1047	28	dBA	1183	26	dBA	1565	23	dBA	1383	20	dBA	1441	20	dBA	1608	23	dBA
HW_CUS1	New Headworks Building Carbon Unit Stack 1	893	24	dBA	1066	22	dBA	1203	22	dBA	1564	19	dBA	1369	20	dBA	1428	20	dBA	1602	19	dBA
HW_CUS2	New Headworks Building Carbon Unit Stack 2	878	24	dBA	1050	22	dBA	1187	22	dBA	1567	19	dBA	1379	20	dBA	1438	20	dBA	1605	19	dBA
D6_M1	Digester 6 sludge mixer motor 1	1185	6	dBA	1311	5	dBA	1453	4	dBA	1932	0	dBA	1000	8	dBA	1058	7	dBA	1202	6	dBA
D6_M2	Digester 6 sludge mixer motor 2	1197	6	dBA	1323	5	dBA	1465	4	dBA	1939	0	dBA	988	8	dBA	1046	8	dBA	1193	6	dBA
D6_M3	Digester 6 sludge mixer motor 3	1182	6	dBA	1306	5	dBA	1448	4	dBA	1941	0	dBA	1001	8	dBA	1059	7	dBA	1195	6	dBA
D6_M4	Digester 6 sludge mixer motor 4	1172	6	dBA	1298	5	dBA	1440	4	dBA	1924	0	dBA	1014	8	dBA	1071	7	dBA	1212	6	dBA
D6_M5	Digester 6 sludge mixer motor 5	1186	6	dBA	1314	5	dBA	1456	4	dBA	1922	0	dBA	1001	8	dBA	1059	7	dBA	1210	6	dBA
D7_M1	Digester 7 sludge mixer motor 1	1160	2	dBA	1291	5	dBA	1433	4	dBA	1892	1	dBA	1031	8	dBA	1089	7	dBA	1242	6	dBA
D7_M2	Digester 7 sludge mixer motor 2	1172	2	dBA	1303	5	dBA	1445	4	dBA	1899	1	dBA	1018	8	dBA	1076	7	dBA	1233	6	dBA
D7_M3	Digester 7 sludge mixer motor 3	1160	2	dBA	1293	1	dBA	1435	-1	dBA	1882	1	dBA	1033	8	dBA	1091	7	dBA	1251	6	dBA
D7_M4	Digester 7 sludge mixer motor 4	1147	2	dBA	1278	5	dBA	1420	-1	dBA	1885	1	dBA	1043	8	dBA	1101	7	dBA	1252	6	dBA
D7_M5	Digester 7 sludge mixer motor 5	1157	6	dBA	1287	5	dBA	1429	4	dBA	1901	1	dBA	1031	8	dBA	1088	7	dBA	1235	6	dBA

Table 8: Point of Reception Noise Impact (Night, Proposed Capacity Expansion)

Project: Clarkson WRRF

Location: Mississauga, ON

	POR01	POR02	POR03	POR04	POR05	POR06	POR07
Point of Reception Description	762 Embassy Ave	Children's Palace Montessori, Preschool and Daycare	Peel Condominium Corporation No 105	332 Watersedge Road	Vacant Lot 2	Vacant Lot 1	Vacant Lot 3
Point of reception coordinates X	611283	611070	611039	612916	611340	611324	610655
Point of reception coordinates Y	4817993	4818083	4818222	4818005	4815815	4815758	4815867
Point of reception coordinates Z [2]	4.5	4.5	10.5	5	4.5	4.5	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
D8_M1	Digester 8 sludge mixer motor 1	1151	6	dBA	1273	5	dBA	1415	4	dBA	1938	-4	dBA
D8_M2	Digester 8 sludge mixer motor 2	1163	6	dBA	1284	5	dBA	1426	4	dBA	1945	-4	dBA
D8_M3	Digester 8 sludge mixer motor 3	1148	7	dBA	1267	5	dBA	1410	4	dBA	1947	-4	dBA
D8_M4	Digester 8 sludge mixer motor 4	1138	7	dBA	1260	5	dBA	1403	4	dBA	1932	-4	dBA
D8_M5	Digester 8 sludge mixer motor 5	1152	6	dBA	1275	5	dBA	1417	4	dBA	1930	-4	dBA
D9_M1	Digester 9 sludge mixer motor 1	1124	7	dBA	1251	6	dBA	1393	4	dBA	1898	-4	dBA
D9_M2	Digester 9 sludge mixer motor 2	1136	7	dBA	1263	5	dBA	1405	4	dBA	1905	-4	dBA
D9_M3	Digester 9 sludge mixer motor 3	1125	7	dBA	1254	6	dBA	1396	4	dBA	1888	-4	dBA
D9_M4	Digester 9 sludge mixer motor 4	1112	7	dBA	1239	6	dBA	1382	4	dBA	1892	-4	dBA
D9_M5	Digester 9 sludge mixer motor 5	1121	7	dBA	1246	6	dBA	1388	4	dBA	1906	-4	dBA
DC_EF1	New Digester Control Building exhaust air fan 1	1157	16	dBA	1285	15	dBA	1428	14	dBA	1908	10	dBA
DC_EF2	New Digester Control Building exhaust air fan 2	1164	16	dBA	1290	15	dBA	1432	14	dBA	1920	10	dBA
DC_EF3	New Digester Control Building exhaust air fan 3	1153	16	dBA	1278	15	dBA	1420	14	dBA	1922	6	dBA
DC_EF4	New Digester Control Building exhaust air fan 4	1146	16	dBA	1273	15	dBA	1415	14	dBA	1910	6	dBA
S1	New Primary Thickening Facility stack for biotrickling filter	1153	22	dBA	1298	21	dBA	1439	20	dBA	1811	17	dBA
ODC_F1	New Primary Thickening Facility odour control fan 1	1160	22	dBA	1305	21	dBA	1446	19	dBA	1811	16	dBA
ODC_F2	New Primary Thickening Facility odour control fan 2	1158	22	dBA	1303	21	dBA	1444	19	dBA	1811	16	dBA
ODC_F3	New Primary Thickening Facility odour control fan 3	1149	22	dBA	1293	21	dBA	1435	19	dBA	1811	16	dBA
ODC_F4	New Primary Thickening Facility odour control fan 4	1146	22	dBA	1290	21	dBA	1431	19	dBA	1812	16	dBA
S3	Radial Flow Dry Media Unit Stack	962	28	dBA	1123	27	dBA	1262	26	dBA	1648	23	dBA
S5	Radial Flow Dry Media Activated Carbon System Stack	1082	27	dBA	1213	26	dBA	1355	26	dBA	1859	22	dBA
S4	Regenerative Thermal Oxidizer Stack	1063	27	dBA	1198	26	dBA	1340	26	dBA	1828	22	dBA
DS_CF1	New Biosolids Dryer Structure exhaust fan 1	1073	23	dBA	1210	22	dBA	1351	20	dBA	1828	16	dBA
DS_CF2	New Biosolids Dryer Structure exhaust fan 2	1097	23	dBA	1236	21	dBA	1378	20	dBA	1824	16	dBA
DS_CF3	New Biosolids Dryer Structure exhaust fan 3	1113	23	dBA	1248	21	dBA	1390	20	dBA	1849	16	dBA
DS_CF4	New Biosolids Dryer Structure exhaust fan 4	1088	23	dBA	1220	22	dBA	1362	20	dBA	1854	16	dBA
BB_AHU	New Blower Building AHU	1110	32	dBA	1305	30	dBA	1435	29	dBA	1432	29	dBA
ST_EF2	New Sidestream Treatment Building exhaust air fan 2	1167	12	dBA	1304	10	dBA	1446	9	dBA	1863	6	dBA
ST_EF1	New Sidestream Treatment Building exhaust air fan 1	-	11	dBA	-	10	dBA	-	9	dBA	-	6	dBA
ME_1	Biosolids Truck Movement 1 (after expansion)	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA

Source ID	Source Description	Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
D8_M1	Digester 8 sludge mixer motor 1	1030	8	dBA	1087	7	dBA	1208	6	dBA
D8_M2	Digester 8 sludge mixer motor 2	1019	8	dBA	1076	7	dBA	1199	6	dBA
D8_M3	Digester 8 sludge mixer motor 3	1032	8	dBA	1090	7	dBA	1203	6	dBA
D8_M4	Digester 8 sludge mixer motor 4	1043	8	dBA	1100	7	dBA	1218	6	dBA
D8_M5	Digester 8 sludge mixer motor 5	1031	8	dBA	1088	7	dBA	1214	6	dBA
D9_M1	Digester 9 sludge mixer motor 1	1061	7	dBA	1118	7	dBA	1248	6	dBA
D9_M2	Digester 9 sludge mixer motor 2	1049	8	dBA	1106	7	dBA	1239	6	dBA
D9_M3	Digester 9 sludge mixer motor 3	1061	7	dBA	1119	7	dBA	1256	6	dBA
D9_M4	Digester 9 sludge mixer motor 4	1072	7	dBA	1130	7	dBA	1257	5	dBA
D9_M5	Digester 9 sludge mixer motor 5	1062	7	dBA	1120	7	dBA	1243	6	dBA
DC_EF1	New Digester Control Building exhaust air fan 1	1029	18	dBA	1087	17	dBA	1230	16	dBA
DC_EF2	New Digester Control Building exhaust air fan 2	1021	18	dBA	1079	17	dBA	1218	16	dBA
DC_EF3	New Digester Control Building exhaust air fan 3	1030	18	dBA	1088	17	dBA	1220	16	dBA
DC_EF4	New Digester Control Building exhaust air fan 4	1039	18	dBA	1096	17	dBA	1232	16	dBA
S1	New Primary Thickening Facility stack for biotrickling filter	1062	22	dBA	1121	22	dBA	1313	20	dBA
ODC_F1	New Primary Thickening Facility odour control fan 1	1057	24	dBA	1116	23	dBA	1313	16	dBA
ODC_F2	New Primary Thickening Facility odour control fan 2	1059	23	dBA	1117	23	dBA	1313	21	dBA
ODC_F3	New Primary Thickening Facility odour control fan 3	1065	23	dBA	1123	23	dBA	1314	21	dBA
ODC_F4	New Primary Thickening Facility odour control fan 4	1067	23	dBA	1126	23	dBA	1314	21	dBA
S3	Radial Flow Dry Media Unit Stack	1276	26	dBA	1335	25	dBA	1506	24	dBA
S5	Radial Flow Dry Media Activated Carbon System Stack	1106	27	dBA	1164	27	dBA	1294	26	dBA
S4	Regenerative Thermal Oxidizer Stack	1130	27	dBA	1188	26	dBA	1325	25	dBA
DS_CF1	New Biosolids Dryer Structure exhaust fan 1	1120	23	dBA	1178	22	dBA	1321	20	dBA
DS_CF2	New Biosolids Dryer Structure exhaust fan 2	1101	23	dBA	1159	22	dBA	1316	21	dBA
DS_CF3	New Biosolids Dryer Structure exhaust fan 3	1081	23	dBA	1139	22	dBA	1291	21	dBA
DS_CF4	New Biosolids Dryer Structure exhaust fan 4	1101	23	dBA	1159	22	dBA	1295	21	dBA
BB_AHU	New Blower Building AHU	1332	19	dBA	1391	19	dBA	1681	18	dBA
ST_EF2	New Sidestream Treatment Building exhaust air fan 2	1033	13	dBA	1091	12	dBA	1265	15	dBA
ST_EF1	New Sidestream Treatment Building exhaust air fan 1	-	13	dBA	-	12	dBA	-	15	dBA
ME_1	Biosolids Truck Movement 1 (after expansion)	-	#N/A	dBA	-	#N/A	dBA	-	#N/A	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))
2. Height above local grade

Table 9: Point of Reception Noise Impact (Non-Emergency Testing, Proposed Capacity Expansion)

Project: Clarkson WRRF

Location: Mississauga, ON

POR	Point of Reception Description	X	Y	Z [2]
POR01	762 Embassy Ave	611283	4817993	4.5
POR02	Children's Palace Montessori, Preschool and Daycare	611070	4818083	4.5
POR03	Peel Condominium Corporation No 105	611039	4818222	10.5
POR04	332 Watersedge Road	612916	4818005	5
POR05	Vacant Lot 2	611340	4815815	4.5
POR06	Vacant Lot 1	611324	4815758	4.5
POR07	Vacant Lot 3	610655	4815867	4.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
QSK95_1C	Cummins Diesel Gen Set 1 Casing	1293	34	dBA	1425	32	dBA	1567	31	dBA	1954	31	dBA
QSK95_1E	Cummins Diesel Gen Set 1 Exhaust	1289	37	dBA	1418	36	dBA	1560	35	dBA	1965	35	dBA
QSK95_2E	Cummins Diesel Gen Set 2 Exhaust	1293	37	dBA	1421	36	dBA	1563	35	dBA	1972	35	dBA
QSK95_2C	Cummins Diesel Gen Set 2 Casing	1295	34	dBA	1423	32	dBA	1565	31	dBA	1974	31	dBA
QSK95_3E	Cummins Diesel Gen Set 3 Exhaust	1304	37	dBA	1434	36	dBA	1576	35	dBA	1969	39	dBA
QSK95_3C	Cummins Diesel Gen Set 3 Casing	1307	34	dBA	1434	32	dBA	1576	31	dBA	1987	36	dBA
QSK95_4E	Cummins Diesel Gen Set 4 Exhaust	1300	37	dBA	1426	36	dBA	1569	35	dBA	1986	39	dBA
QSK95_4C	Cummins Diesel Gen Set 4 Casing	1306	34	dBA	1432	32	dBA	1574	31	dBA	1992	35	dBA

Source ID	Source Description	Point of Reception 5			Point of Reception 6			Point of Reception 7		
		Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)	Distance (m)	Sound Level at PoR	Units [1] (dBA)
QSK95_1C	Cummins Diesel Gen Set 1 Casing	903	45	dBA	961	44	dBA	1162	40	dBA
QSK95_1E	Cummins Diesel Gen Set 1 Exhaust	904	47	dBA	962	46	dBA	1152	42	dBA
QSK95_2E	Cummins Diesel Gen Set 2 Exhaust	898	47	dBA	956	46	dBA	1144	42	dBA
QSK95_2C	Cummins Diesel Gen Set 2 Casing	896	45	dBA	954	44	dBA	1143	40	dBA
QSK95_3E	Cummins Diesel Gen Set 3 Exhaust	890	47	dBA	948	46	dBA	1147	42	dBA
QSK95_3C	Cummins Diesel Gen Set 3 Casing	883	45	dBA	941	44	dBA	1129	40	dBA
QSK95_4E	Cummins Diesel Gen Set 4 Exhaust	889	47	dBA	947	46	dBA	1131	42	dBA
QSK95_4C	Cummins Diesel Gen Set 4 Casing	883	45	dBA	941	44	dBA	1124	40	dBA

Notes on Table:

1. dBA = 1-hour energy equivalent sound (L_{eq} (1-hr))
2. Height above local grade

Table 10: Acoustic Assessment Summary - Baseline Conditions

Project: Clarkson WRRF
Location: Mississauga, ON

Point of Reception ID	Point of Reception Description	Time Period [1]	Total Sound Level at POR [2] (dBA)	Verified by Acoustic Audit [3] (Yes/No)	Performance Limit [4] (dBA)	Performance Limit Source [5] (C / M/ D)	Compliance with Performance Limit (Yes/No)
POR1	762 Embassy Ave	Daytime	37	No	50	D	Yes
		Evening	37	No	50	D	Yes
		Nighttime	37	No	45	D	Yes
		Non-emergency Testing	26	No	55	D	Yes
POR2	Children's Palace Montessori, Preschool and Daycare	Daytime	36	No	50	D	Yes
		Evening	36	No	50	D	Yes
		Nighttime	36	No	45	D	Yes
		Non-emergency Testing	25	No	55	D	Yes
POR3	Peel Condominium Corporation No 105	Daytime	35	No	50	D	Yes
		Evening	35	No	50	D	Yes
		Nighttime	35	No	45	D	Yes
		Non-emergency Testing	24	No	55	D	Yes
POR4	332 Watersedge Road	Daytime	34	No	50	D	Yes
		Evening	34	No	50	D	Yes
		Nighttime	34	No	45	D	Yes
		Non-emergency Testing	19	No	55	D	Yes
POR5	Vacant Lot 1	Daytime	40	No	50	D	Yes
		Evening	40	No	50	D	Yes
		Nighttime	40	No	45	D	Yes
		Non-emergency Testing	28	No	55	D	Yes
POR6	Vacant Lot 2	Daytime	39	No	50	D	Yes
		Evening	39	No	50	D	Yes
		Nighttime	39	No	45	D	Yes
		Non-emergency Testing	27	No	55	D	Yes
POR7	Vacant Lot 3	Daytime	37	No	50	D	Yes
		Evening	37	No	50	D	Yes
		Nighttime	37	No	45	D	Yes
		Non-emergency Testing	25	No	55	D	Yes

Notes on Table:

1 Daytime occurs from 07:00 to 19:00. Evening occurs from 19:00 to 23:00. Nighttime occurs from 23:00 to 07:00.

2 Worst-case cumulative sound level from all applicable sources operating.

3 Has an acoustic audit (as defined in Publication NPC-233) been conducted with the source in place and operating?

4 Applicable NPC-300 sound level limit.

5 Performance limit (aka guideline limit) based on following:

C = Calculated based on road traffic volumes in compliance with NPC-206 requirements.

M = Measured based on monitoring for a minimum 48 hour period, in accordance with NPC-233 requirements.

D = Default guideline minima per NPC-300, as applicable (e.g., 50 dBA daytime for Class 2 Area)

Table 11: Acoustic Assessment Summary - Proposed Capacity Expansion

Project: Clarkson WRRF
Location: Mississauga, ON

Point of Reception ID	Point of Reception Description	Time Period [1]	Total Sound Level at POR [2] (dBA)	Verified by Acoustic Audit [3] (Yes/No)	Performance Limit [4] (dBA)	Performance Limit Source [5] (C / M/ D)	Compliance with Performance Limit (Yes/No)
POR1	762 Embassy Ave	Daytime	42	No	50	D	Yes
		Evening	42	No	50	D	Yes
		Nighttime	42	No	45	D	Yes
		Non-emergency Testing	45	No	55	D	Yes
POR2	Children's Palace Montessori, Preschool and Daycare	Daytime	41	No	50	D	Yes
		Evening	41	No	50	D	Yes
		Nighttime	41	No	45	D	Yes
		Non-emergency Testing	43	No	55	D	Yes
POR3	Peel Condominium Corporation No 105	Daytime	40	No	50	D	Yes
		Evening	40	No	50	D	Yes
		Nighttime	40	No	45	D	Yes
		Non-emergency Testing	43	No	55	D	Yes
POR4	332 Watersedge Road	Daytime	38	No	50	D	Yes
		Evening	38	No	50	D	Yes
		Nighttime	38	No	45	D	Yes
		Non-emergency Testing	45	No	55	D	Yes
POR5	Vacant Lot 1	Daytime	42	No	50	D	Yes
		Evening	42	No	50	D	Yes
		Nighttime	42	No	45	D	Yes
		Non-emergency Testing	55	No	55	D	Yes
POR6	Vacant Lot 2	Daytime	41	No	50	D	Yes
		Evening	41	No	50	D	Yes
		Nighttime	41	No	45	D	Yes
		Non-emergency Testing	54	No	55	D	Yes
POR7	Vacant Lot 3	Daytime	39	No	50	D	Yes
		Evening	39	No	50	D	Yes
		Nighttime	39	No	45	D	Yes
		Non-emergency Testing	50	No	55	D	Yes

Notes on Table:

1 Daytime occurs from 07:00 to 19:00. Evening occurs from 19:00 to 23:00. Nighttime occurs from 23:00 to 07:00.

2 Worst-case cumulative sound level from all applicable sources operating.

3 Has an acoustic audit (as defined in Publication NPC-233) been conducted with the source in place and operating?

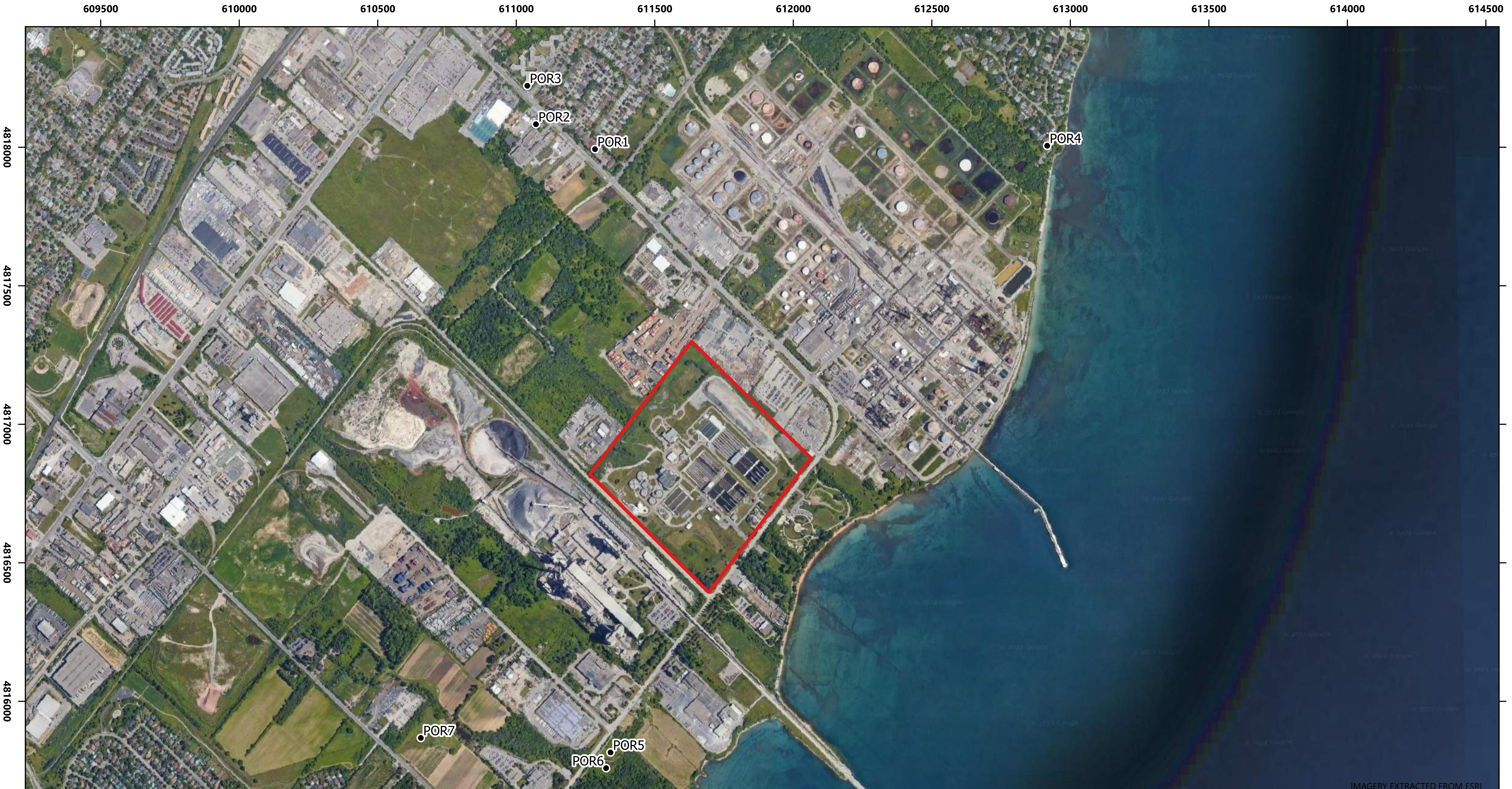
4 Applicable NPC-300 sound level limit.

5 Performance limit (aka guideline limit) based on following:

C = Calculated based on road traffic volumes in compliance with NPC-206 requirements.

M = Measured based on monitoring for a minimum 48 hour period, in accordance with NPC-233 requirements.

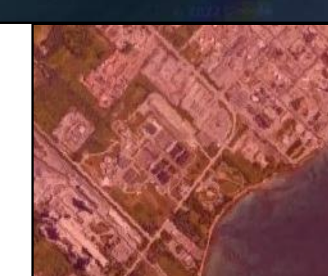
D = Default guideline minima per NPC-300, as applicable (e.g., 50 dBA daytime for Class 2 Area)



LEGEND

- Property Line
- PORs

0 20 40 60 80 Metres



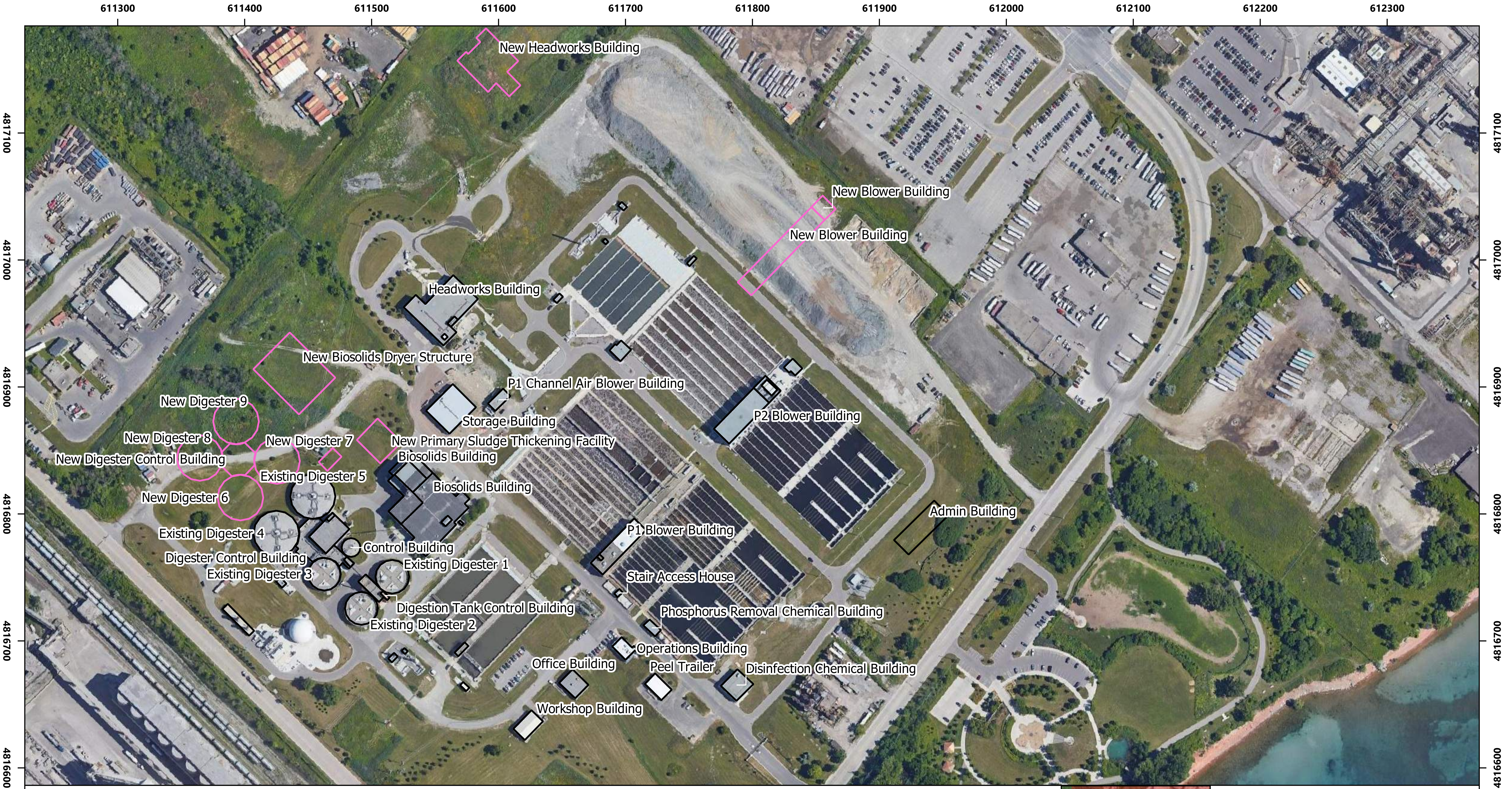
Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Aerial Map with Point of Reception Locations

PROJECT NO: CA02694	FIGURE: 1
NOT TO SCALE	DATE: October 2022



LEGEND

- Existing Facility Structures
- Proposed New Facility Structures

0 20 40 60 80 Metres

Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Facility Structures

PROJECT NO: CA02694	FIGURE: 2
NOT TO SCALE	DATE: October 2022

LEGEND

- Existing Point Sources
- Existing Line Sources
- Existing Barriers

0 20 40 60 80 Metres

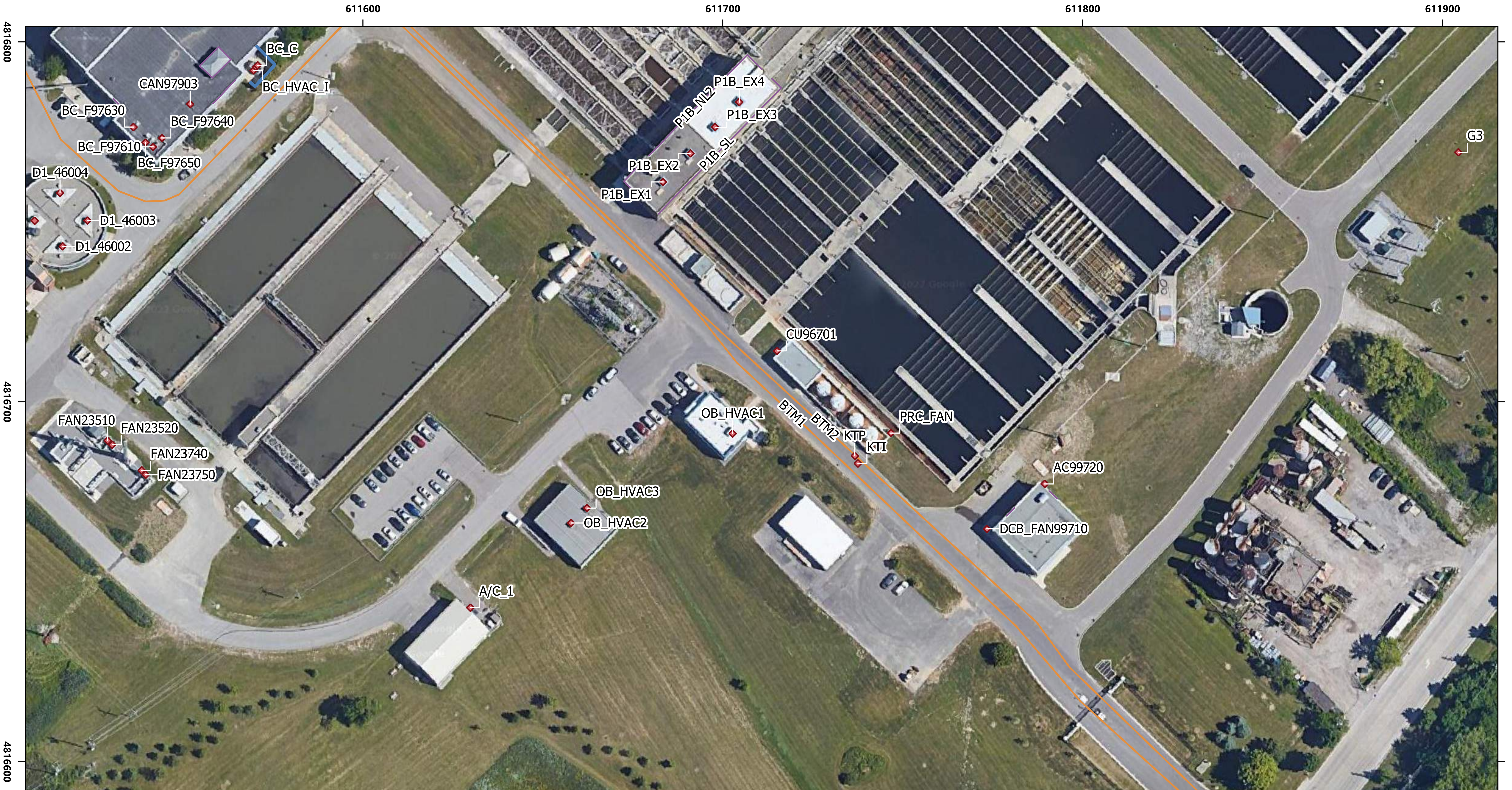
Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Significant Noise Source Locations (Partial)

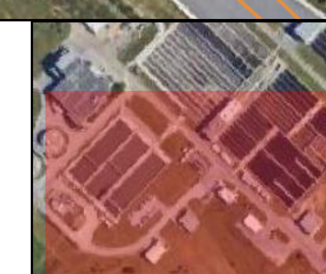
PROJECT NO: CA02694	FIGURE: 3
NOT TO SCALE	DATE: October 2022



LEGEND

- Existing Point Sources
- Existing Line Sources
- Existing Vert Area Sources

0 20 40 60 80 Metres



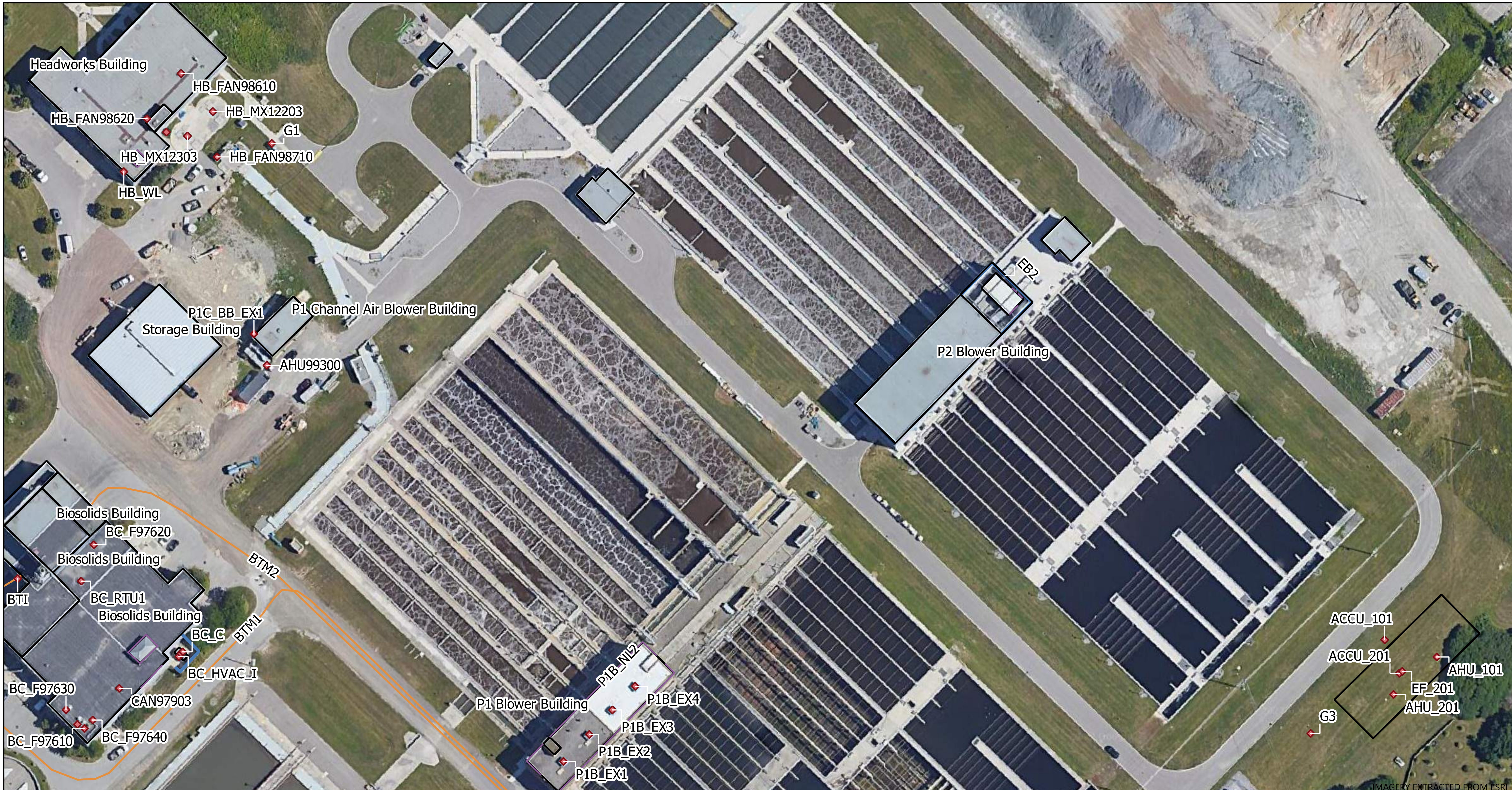
Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Significant Noise Source Locations (Partial)

PROJECT NO: CA02694	FIGURE: 4
NOT TO SCALE	DATE: October 2022



LEGEND

- Existing Barriers
- Existing Line Sources
- Existing Point Sources
- Existing Vert Area Sources

0 20 40 60 80 Metres

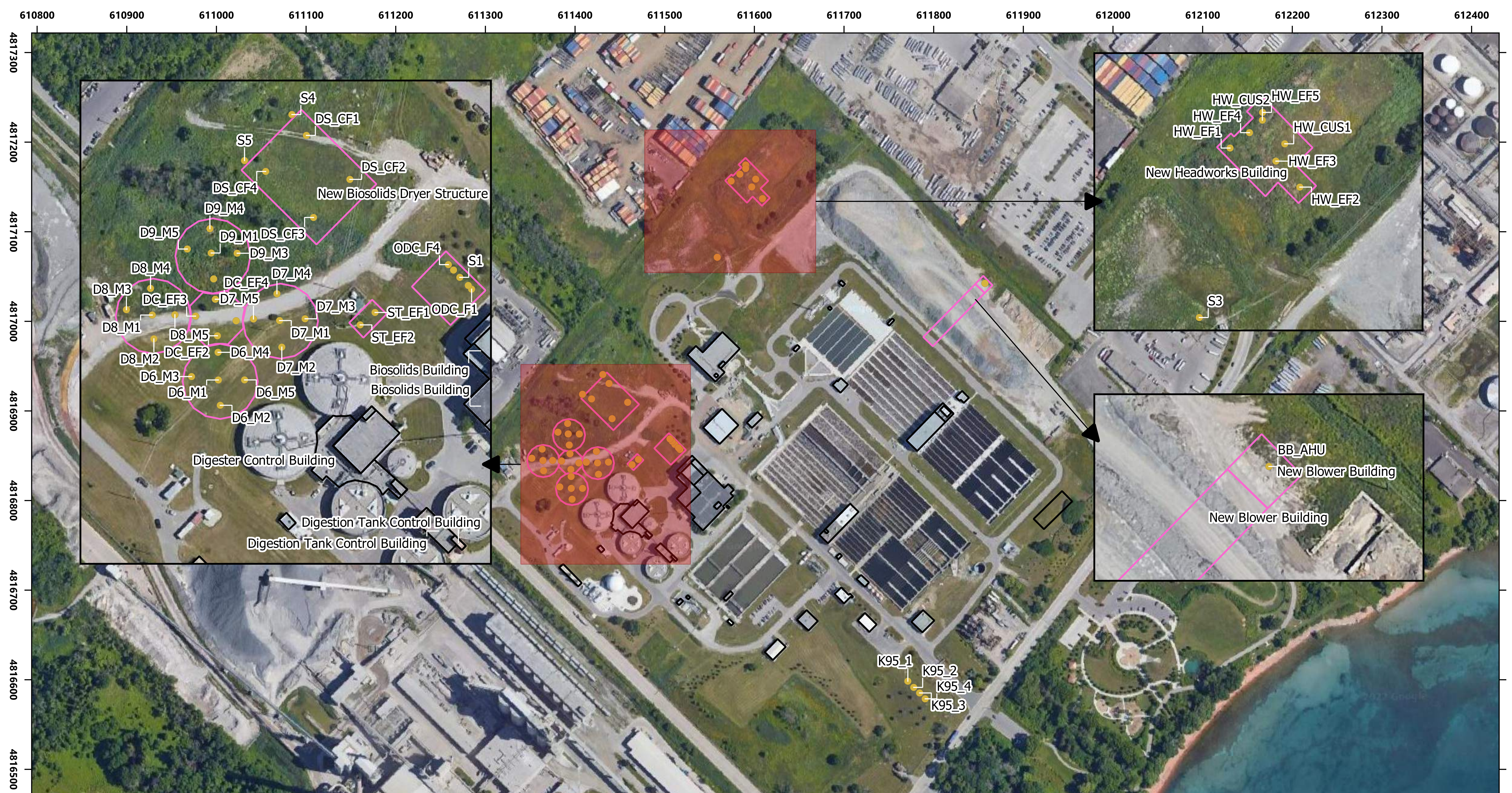
Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Significant Noise Source Locations (Partial)

PROJECT NO: CA02694	FIGURE: 5
NOT TO SCALE	DATE: November 2022



LEGEND

- New Sources - Proposed Expansion
- Proposed New Facility Structures

0 20 40 60 80 Metres

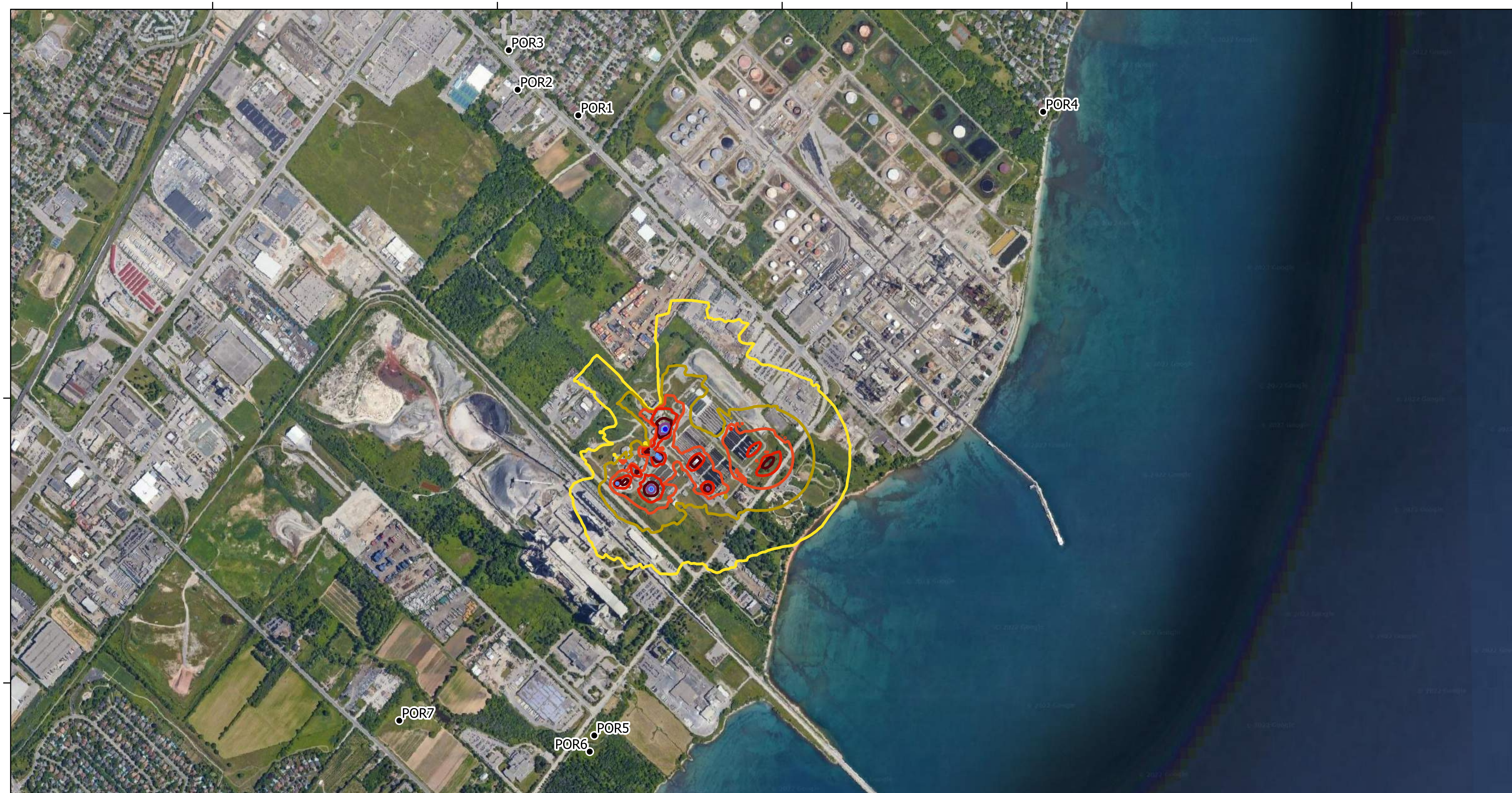
Datum & Projection:
NAD83 / UTM zone 17N

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

New Source Additions – Proposed Capacity Expansion

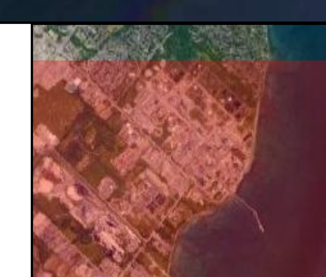
PROJECT NO: CA02694	FIGURE: 6
NOT TO SCALE	DATE: November 2022



LEGEND

50	65	80
55	70	85
60	75	90

0 20 40 60 80 Metres



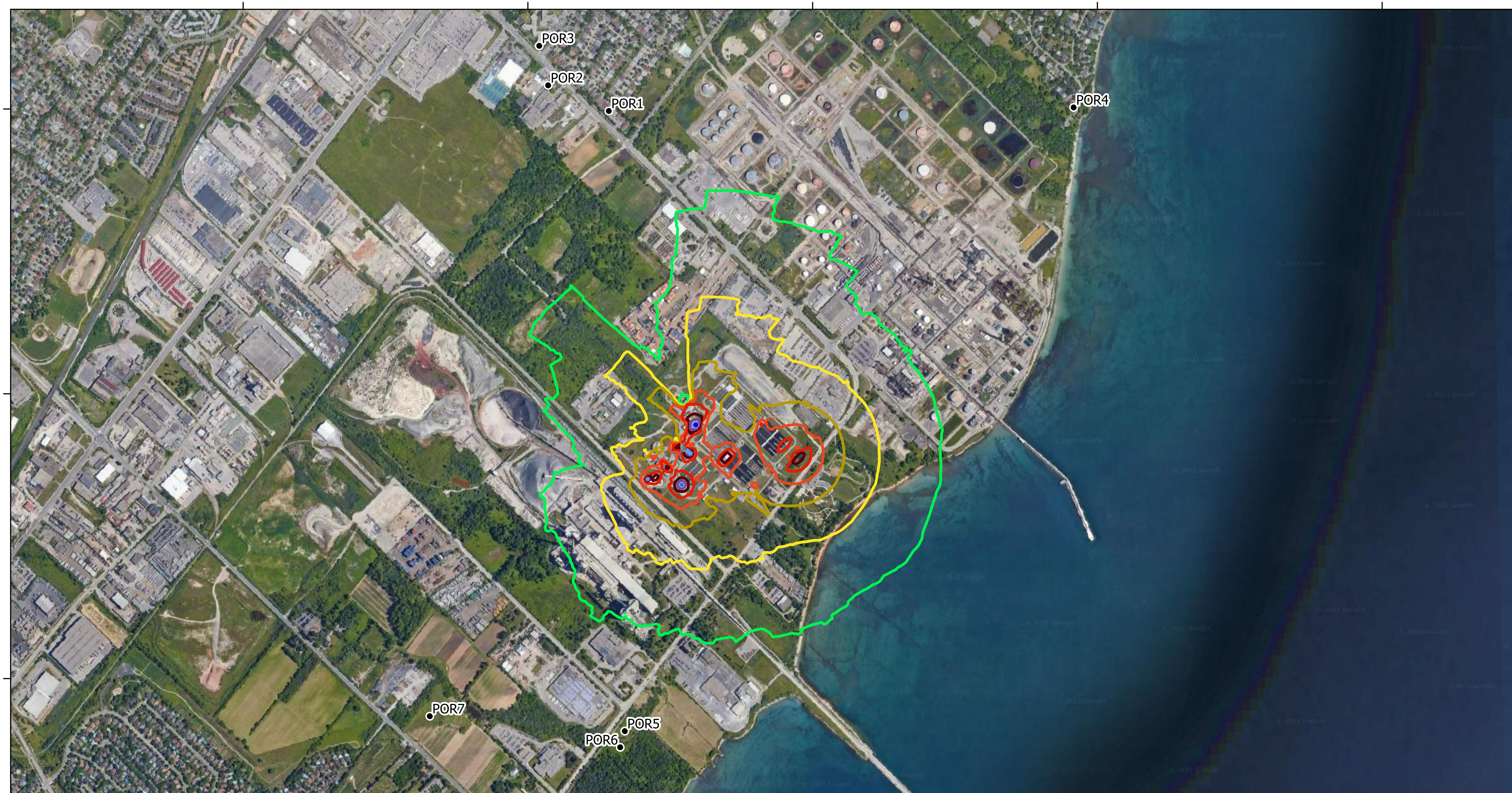
Datum & Projection: NAD83 / UTM zone 17N
Contour Height: 4.5m above grade

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Noise Contours for Existing Predictable Worst-Case Operations - Daytime/Evening

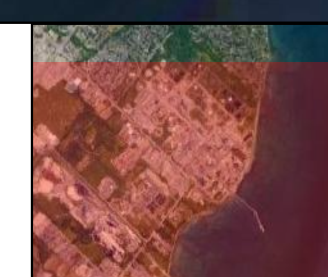
PROJECT NO: CA02694	FIGURE: 7
NOT TO SCALE	DATE: November 2022



LEGEND

45, 50, 55, 60, 65, 70, 75, 80, 85

0 20 40 60 80 Metres

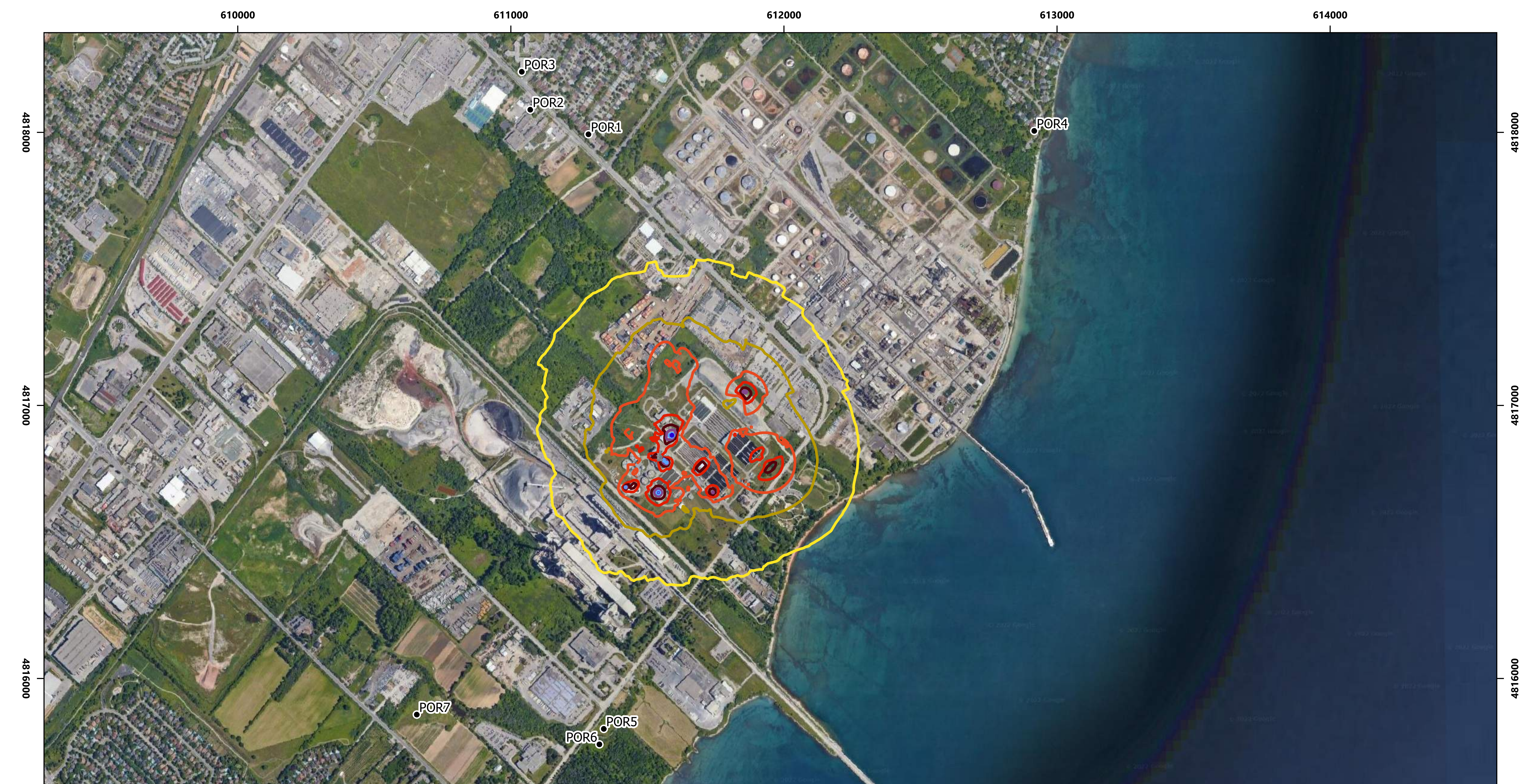


Datum & Projection: NAD83 / UTM zone 17N
Contour Height: 4.5m above grade

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Noise Contours for Existing Predictable Worst-Case Operations - Night

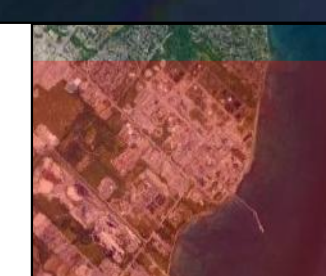
PROJECT NO: CA02694	FIGURE: 8
NOT TO SCALE	DATE: November 2022



LEGEND

50	65	80
55	70	85
60	75	90

0 20 40 60 80 Metres



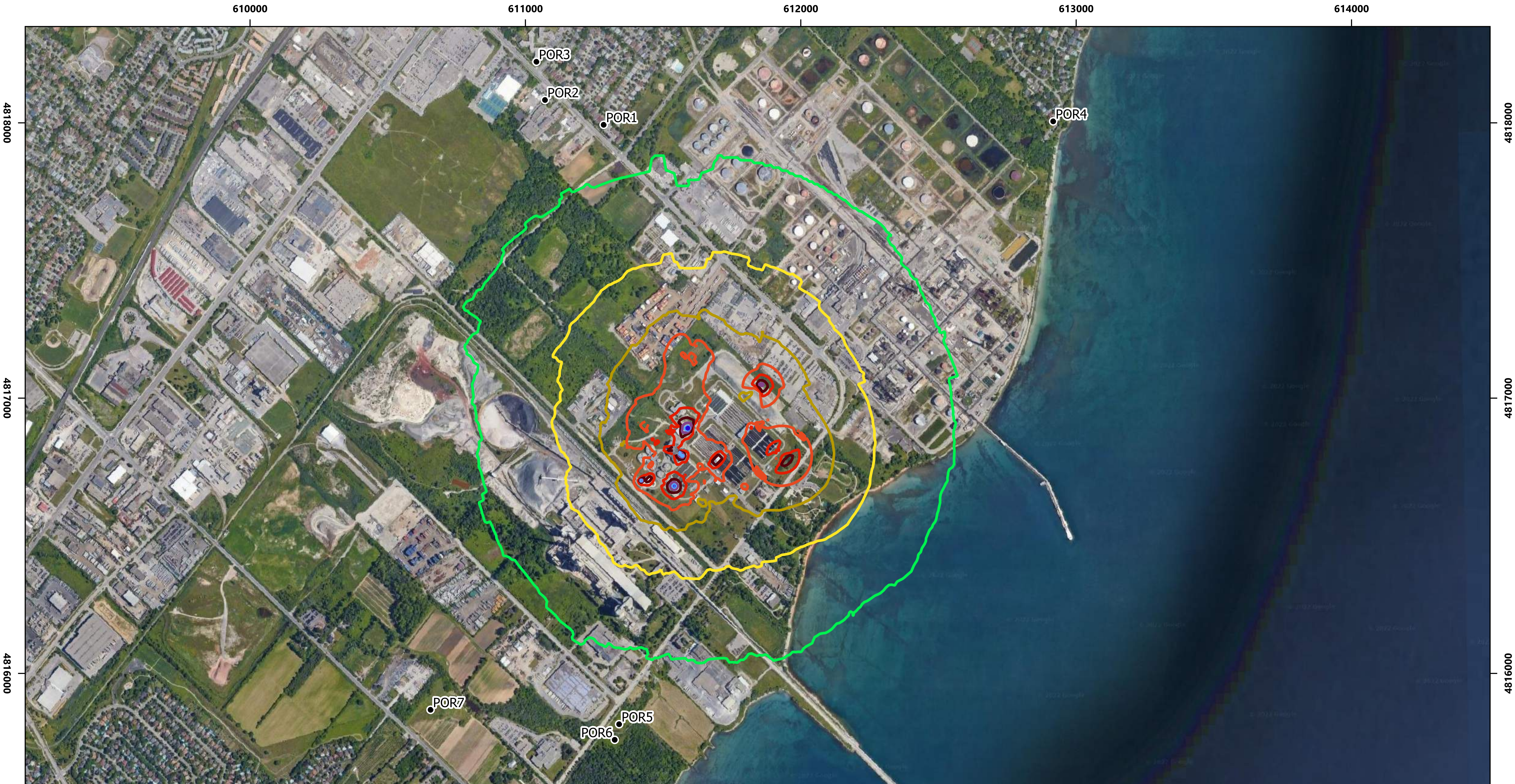
Datum & Projection: NAD83 / UTM zone 17N
Contour Height: 4.5m above grade

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Noise Contours for Future Predictable Worst-Case Operations - Daytime/Evening

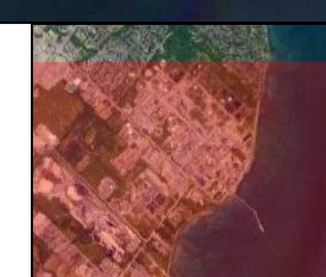
PROJECT NO: CA02694	FIGURE: 9
NOT TO SCALE	DATE: November 2022



LEGEND

45	60	75
50	65	80
55	70	85

0 20 40 60 80 Metres



Datum & Projection: NAD83 / UTM zone 17N
Contour Height: 4.5m above grade

wood.

ACOUSTIC ASSESSMENT REPORT
CLARKSON WRRF

Noise Contours for Future Predictable Worst-Case Operations - Night

PROJECT NO: CA02694	FIGURE: 10
NOT TO SCALE	DATE: November 2022

Appendix A

Zoning Map of the Site and Surrounding Areas

MISSISSAUGA

Zoning By-law

1: 6,659

Legend

Road Names
Parcel
Zoning Labels
Zoning Shapes

- A Agricultural (By-law 5500)
- AP Lester B. Pearson International
- B Buffer, Berm, Fence
- C1 Convenience Commercial
- C2 Neighbourhood Commercial
- C3 General Commercial
- C4 Mainstreet Commercial
- C5 Motor Vehicle Commercial
- CC1 Core Commercial
- CC2, CC4 Mixed Use
- CC3 Mixed Use - Transition Area
- CCO Office
- CCOS Open Space
- D Existing Use
- E1 Employment in Nodes
- E2 Employment
- E3 Industrial
- G1 Natural Hazards
- G2 Natural Features
- I Hospital and University / College
- O Office
- OS1 Community Park

Notes

338.3 0 169.13 338.3 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

9-28-2022

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS IS NOT A PLAN OF SURVEY

Property information

2307 LAKESHORE RD W
Roll number: 05-02-0-025-05100-0000
Legal description: CON 3 SDS PT LTS 31, 32, 43R-441 PART PTS 5, 12 AND PTS 6, 7, 8, 10

View Map

Zoning information

To view the zoning regulations for this property, click on the zone(s) in the table below. Click here to access the entire Zoning By-law.

You can also use the zoning information map to view the surrounding zoning information. If you have any questions, please call 311 (905-615-4311 outside City limits).

Learn more about Zoning.

Zone	Master by-law	Enacting by-law	OMB Case/File No.	Status
U	0225-2007	N/A	PL100096	BOARD ORDER
U-5	0225-2007	N/A	PL100096	BOARD ORDER
G2	0225-2007	N/A	PL100096	BOARD ORDER

There are no building permits related to the selected property.

MISSISSAUGA

12.1.2 U Zone Permitted Uses and Zone Regulations

All **buildings** and **structures** shall comply with the provisions contained in Parts 1 to 3 and Section 12.1.1 of this By-law, and the **uses** and zone regulations specified within the applicable zone column contained in Table 12.1.2 - U Zone Permitted Uses and Zone Regulations.

Table 12.1.2 - U Zone Permitted Uses and Zone Regulations

ColumnA		**B**
Line 1.0	**ZONE**	**U**
PERMITTED USES		
2.0	UTILITY	
2.1	**Utility Building**	✓
2.2	**Water Treatment Facility**	✓
2.3	**Sewage Treatment Plant**	✓
2.4	**Electric Transformer and Distribution Facility**	✓
ZONE REGULATIONS		
3.0	MINIMUM **FRONT YARD**	7.5 m (1)
4.0	MINIMUM **EXTERIOR SIDE YARD**	6.0 m (1)
5.0	MINIMUM **INTERIOR SIDE YARD**	6.0 m (1)
6.0	MINIMUM **REAR YARD**	7.5 m (1)
7.0	MINIMUM **LANDSCAPED BUFFER**	
7.1	Minimum depth of a **landscaped buffer** measured from a **lot line** that abuts a Residential Zone	6.0 m (2)
7.2	Minimum depth of a **landscaped buffer** measured from a **lot line** that is a **street line**	4.5 m (2)
7.3	Minimum depth of a landscaped buffer measured from a lot line where the lot line abuts an Institutional, Office, Commercial, Downtown Core or Buffer Zone, or any combination of zones thereof (0050-2013/LPAT Order 2020 June 08)	3.0 m (2)

7.4	Minimum depth of a **landscaped buffer** measured from a **lot line** that abuts an Employment, Utility or Airport Zone, or any combination of zones thereof	0.0 m
7.5	Minimum depth of a **landscaped buffer** measured from any other **lot line**	4.5 m (2)

NOTES:(1)See also Subsection 2.1.17 of this By-law.
(2)See also Subsection 2.1.25 of this By-law.

MISSISSAUGA

12.1.3.5 Exception: U-5

12.1.3.5	Exception: U-5	Map # 04	By-law:
In an U-5 zone the permitted **uses** and applicable regulations shall be as specified for an U zone except that the following **uses**/regulations shall apply:			
Additional Permitted Uses			
12.1.3.5.1	(1)Community Recycling Centre (2)**Outdoor Storage**		
Regulations			
12.1.3.5.2	Minimum depth of a **landscaped buffer** abutting Lakeshore Road West		8.0 m
12.1.3.5.3	Minimum **front yard**		8.0 m
12.1.3.5.4	A stairway shall be permitted within the **landscaped buffer**		
12.1.3.5.5	"Community Recycling Centre" means a waste transfer and processing facility where reusable, recyclable and non-recyclable goods are dropped off by households and small businesses, sorted or processed and shipped off-site for final disposal and may include the retail sale of reusable goods and accessory administrative **offices**. No food waste shall be received, sorted, processed or stored on site.		

MISSISSAUGA

10.1 General Provisions For Greenlands Zones

In addition to the zone provisions contained in Parts 1 and 2 of this By-law, the following General Provisions for Greenlands Zones shall also apply:

10.1.1 Accessory Uses in G1 and G2 Zones

10.2.1 G1 and G2 Permitted Uses

All **buildings** and **structures** shall comply with the provisions contained in Parts 1 and 2 and Section 10.1 of this By-law, and the **uses** specified within the applicable zone column contained in Table 10.2.1 - G1 and G2 Permitted Uses.

Table 10.2.1 - G1 and G2 Permitted Uses

ColumnA		B	C
Line 1.0	**ZONES**(0379-2009)	**G1 Greenlands - Natural Hazards**	**G2 Greenlands - Natural Features**
PERMITTED USES			
2.0	GREENLANDS		
2.1	**Flood Control**	✓	
2.2	**Stormwater Management**	✓	
2.3	**Erosion Management**	✓	
2.4	**Natural Protection Area**		✓
2.5	**Natural Heritage Features and Areas Conservation**	✓	✓

MISSISSAUGA

12.3 D Zone (Development)

The purpose of this Section is to provide a D zone (Development), that recognizes vacant lands not yet developed and/or to permit the use that legally existed on the date of passing of this By-law, until such time as the lands are rezoned in conformity with Mississauga Official Plan, in appropriate locations throughout the City.

12.3.3 D Exception Zones

Refer to Article 1.1.2.3 - Exception Zones and Exception Zone Schedules

12.3.3.1 Exception: D-1

12.3.3.1	Exception: D-1	Map # 03, 07, 14, 15, 19, 22	By-law: 0297-2013, 0085-2018, 0166-2018, 0173-2018, 0128-2021
In a D-1 zone the applicable regulations shall be as specified for a D zone except that the following **uses**/regulations shall apply:			
Permitted Uses			
12.3.3.1.1	Lands zoned D-1 shall only be used for the following: (1)**Detached dwelling** legally **existing** on the date of passing of this By-law (2)**Accessory buildings** and **structures**		
Regulations			
12.3.3.1.2	The enlargement of an **existing** **detached dwelling**, **existing** **buildings** and **structures**, new **accessory uses** and new **accessory buildings** and **structures** shall be permitted in compliance with the following: (1)a **detached dwelling** on a **lot** with a **lot frontage** equal to or greater than 22.5 m shall comply with the R1 zone provisions contained in Section 4.1 and Subsection 4.2.1 of this By-law (2)a **detached dwelling** on a **lot** with a minimum **lot frontage** equal to or greater than 18.0 m and less than 22.5 m shall comply with the R2 zone provisions contained in Section 4.1 and Subsection 4.2.1 of this By-law (3)a **detached dwelling** on a **lot** with a minimum **lot frontage** equal to or greater than 15.0 m and less than 18.0 m shall comply with the R3 zone provisions contained in Section 4.1 and Subsection 4.2.1 of this By-law (4)a **detached dwelling** on a **lot** with a minimum **lot frontage** equal to or greater than 12.0 m and less than 15.0 m shall comply with the R4 zone provisions contained in Section 4.1 and Subsection 4.2.1 of this By-law (5)**accessory buildings** and **structures** on all **lots** zoned D-1 shall comply with the regulations contained in Subsection 4.1.2 of this By-law		

Appendix B

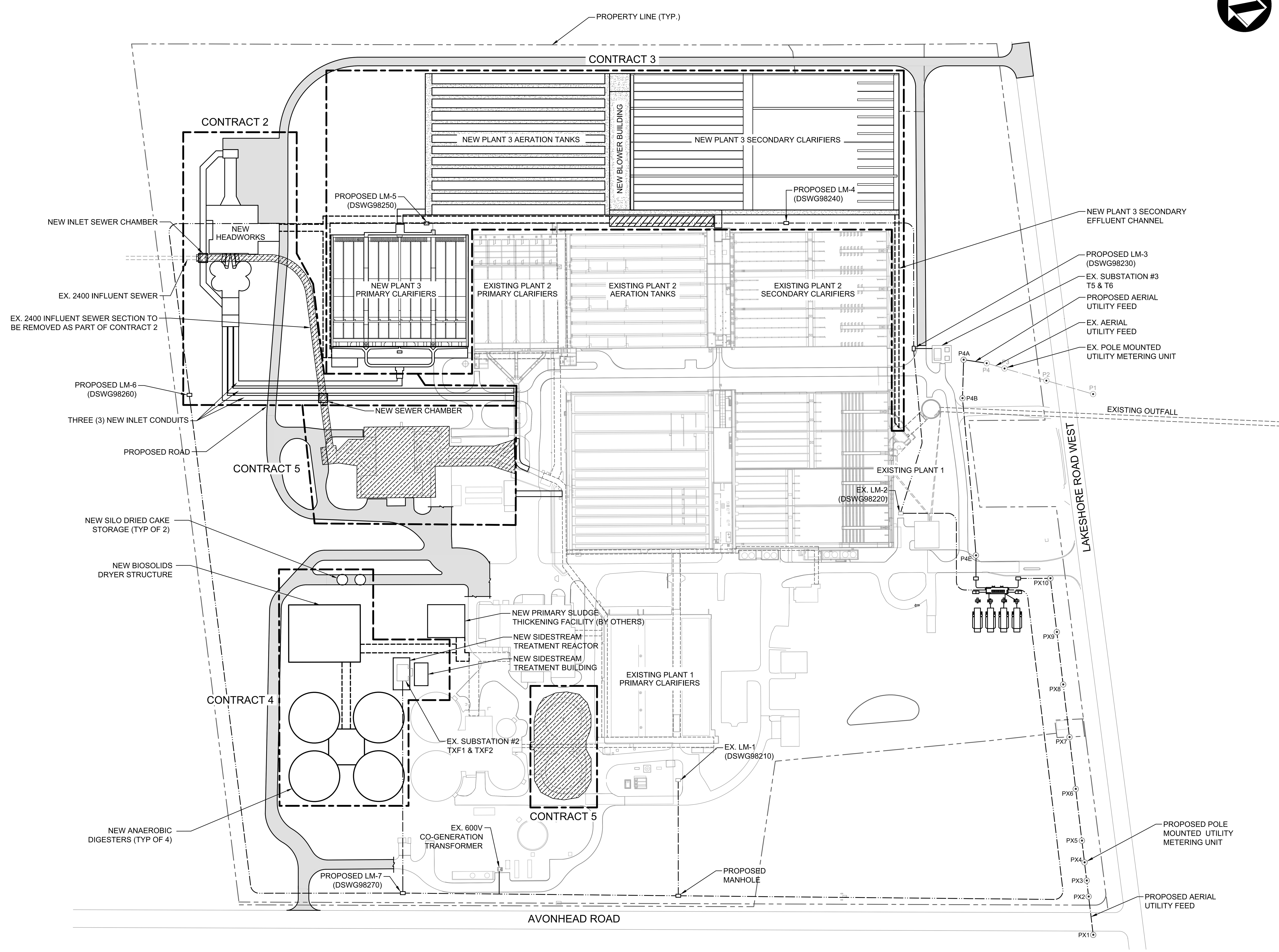
Facility Site Plan

TTLB v2020.05.29

9/12/2022 2:08:24 PM

C:\USERS\HENRY.WANG\ONEDRIVE - CIMA+\DESKTOP\CLARKSON EA\CLARKSON_SITE PLAN-RM.DWG

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APVD



STAGING AND REMOVALS PLAN

SCALE: 1:1500

LEGEND

- PROPERTY LINE
- EXISTING CHANNEL
- PROPOSED CHANNEL
- PROPOSED OVERHEAD HYDRO
- PROPOSED UNDERGROUND HYDRO
- CONTRACTOR LIMITS
- REMOVALS

CONTRACT 1 - SITE PREPARATION AND ELECTRICAL UPGRADES
CONTRACT 2 - HEADWORKS AND INFLUENT SEWER MODIFICATIONS
CONTRACT 3 - NEW PLANT 3
CONTRACT 4 - BIOSOLIDS UPGRADES
CONTRACT 5 - DEMOLITION AND SITE CLEAN-UP

NOTES:

1. REMOVALS SHOWN ARE MAJOR SITE DEMOLITIONS AND REMOVALS AND DO NOT INCLUDE ALL SITE REMOVALS THAT WILL BE REQUIRED.
2. CONTRACT 5 LIMITS SHOWN ARE TO DEPICT MAJOR DEMOLITION AND DOSE NOT INCLUDE ALL SITE CLEAN-UP REQUIRED. ACTUAL CONTRACT LIMITS WILL INCLUDE THE WHOLE SITE FOR SITE CLEAN-UP.

GM BluePlan ENGINEERING

CIMA+

RV

Region of Peel
working with you

CLARKSON WWTP
CONTRACT 5 - NEW PLANT 3
GENERAL
STAGING AND
REMOVALS PLAN

Dwg No.	XXX-XX-C-000X	Area	Z-01	Project No.	T001381A
Checked by	ML	Drawn by	HW	Plan No.	
Date	AUGUST 2022	Sheet	of		

Appendix C

Noise Calculations and Measurement Details

Sound Level Measurement Instrumentation

Equipment sound level measurements at the Facility were conducted by Wood on July 28, 2022 and August 23, 2022. A Larson Davis 831 Type 1 sound level meter, equipped with a windscreen, was used for the measurements. The meter uses a PCB 377B02 precision air-condenser microphone and a Larson Davis PRM831 preamplifier. The meter meets IEC 61672-1 Type 1 requirements and was field calibrated with a Larson Davis CA200 precision acoustic calibrator before and after the set of measurements.

All measurements were conducted in accordance with Ontario's NPC-103 measurement protocols. The sound level meter was programmed to record 1-second L_{eq}, L_{min} and L_{max}.

CONVERSION OF SOUND PRESSURE LEVELS TO SOUND POWER LEVELS

Project Name: Clarkson EA
Project Number: CA02694
Location: Mississauga, ON

A-WEIGHTING (dB) - Applied to total PWL								
-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1

1/4 WAVELENGTH CRITERION (m)								
2.72	1.36	0.69	0.34	0.17	0.09	0.04	0.02	0.01

Measurement Reference [1,2]	Measurement ID	Source Description	Calc Type [3] (A, C, or S)	SPL Ref Distance [4] (S or C) (m)	Length [5] (C only) (m)	Area (A only) (m^2)	Partition Coefficient (S or C) (%)	Net Surface Area [5] (m^2)	Nearfield Correction (dB)	Spectral Weighting (A or Flat)	Octave Band Sound Pressure Level Data (dB or dBA) [6] 31.5	63	125	250	500	1000	2000	4000	8000	Total (dBA)	Octave Band Sound Power Level Data (dB or dBA) [6] 31.5	63	125	250	500	1000	2000	4000	8000	Total (dBA)
831_Data.001.s	MB_EX1	Methane bubble exhaust 1	S	1.0			50%	6.3		Flat	68.9	68.4	72.5	80.0	82.8	81.7	82.0	73.7	67.5	87	76.9	76.3	80.5	87.9	90.8	89.7	90.0	81.7	75.5	95
831_Data.002.s	MB_EX2	Methane bubble exhaust 2	S	1.0			50%	6.3		Flat	70.0	69.3	68.3	65.7	65.2	64.2	61.8	61.5	59.3	70	78.0	77.3	76.3	73.7	73.2	72.2	69.8	69.5	67.2	78
831_Data.003.s	BL64120	Methane bubble blower 2	S	1.2			50%	9.0		Flat	74.9	75.5	80.7	78.1	79.1	71.0	67.7	64.5	62.8	79	84.5	85.0	90.3	87.7	88.7	80.5	77.3	74.1	72.4	88
831_Data.004.s	MB_EX3	Methane bubble exhaust 3	S	1.0			50%	6.0		Flat	70.7	71.5	74.2	79.4	83.5	81.9	82.8	74.6	67.7	88	78.5	79.3	82.0	87.2	91.3	89.7	90.6	82.4	75.5	95
831_Data.005.s	BSP64670	Siloxane Blower	S	1.5			50%	14.1		Flat	69.6	67.5	68.6	65.1	68.2	65.1	65.9	61.6	60.6	72	81.1	79.0	80.1	76.6	79.7	76.6	77.4	73.1	72.1	83
831_Data.006.s	JEN_C_19068_EF	Co-gen engine roof exhaust	S	2.5			75%	58.9		Flat	77.0	79.1	81.0	80.0	71.8	65.9	61.7	55.7	48.5	75	94.7	96.8	98.7	97.7	89.5	83.6	79.4	73.4	66.2	93
831_Data.007.s	JEN_C_19068_EL	Co-gen engine wall exhaust louvres	S	2.0			50%	25.1		Flat	76.0	75.8	78.3	70.1	64.4	60.1	56.3	53.4	45.9	68	90.0	89.8	92.3	84.1	78.4	74.1	70.3	67.4	59.9	82
831_Data.008.s	M1_n	Headworks emergency diesel generator (north)	S	2.0			50%	25.1		Flat	91.9	93.4	84.6	87.7	82.6	79.7	76.0	72.7	71.5	86	105.9	107.4	98.6	101.7	96.6	93.7	90.0	86.7	85.5	100
831_Data.009.s	M1_w1	Headworks emergency diesel generator (west 1)	S	2.0			50%	25.1		Flat	90.3	91.9	84.5	88.6	78.0	72.3	69.3	66.8	74.1	83	104.3	105.9	98.5	102.6	92.0	86.3	83.3	80.8	88.1	97
831_Data.010.s	M1_w2	Headworks emergency diesel generator (west 2)	S	2.0			50%	25.1		Flat	83.3	84.7	85.9	90.1	79.9	74.9	72.8	73.2	82.3	86	97.3	98.7	99.9	104.1	93.9	88.9	86.8	87.2	96.3	100
831_Data.011.s	M17_1w	P1 Blower building roof hood intake 1 (west)	S	1.0			25%	3.1		Flat	82.6	88.0	82.3	81.5	78.6	78.2	77.1	71.7	62.8	83	87.6	93.0	87.3	86.5	83.6	83.1	82.0	76.7	67.8	88
831_Data.012.s	M17_1n	P1 Blower building roof hood intake 1 (north)	S	1.0			25%	3.1		Flat	84.7	89.9	80.4	82.1	78.4	75.5	76.5	70.6	62.4	82	89.7	94.9	85.4	87.1	83.4	80.5	81.5	75.6	67.4	87
831_Data.013.s	M17_1e	P1 Blower building roof hood intake 1 (east)	S	1.0			25%	3.1		Flat	89.5	94.8	81.2	81.9	79.2	76.8	76.7	71.2	62.1	83	94.5	99.8	86.2	86.9	84.1	81.8	81.7	76.1	67.1	88
831_Data.014.s	M17_1s	P1 Blower building roof hood intake 1 (south)	S	1.0			25%	3.1		Flat	90.0	90.9	81.4	81.6	79.3	77.1	76.9	71.1	62.6	83	94.9	95.8	86.4	86.6	84.3	82.1	81.9	76.0	67.6	88
831_Data.015.s	M18	P1 Blower building east wall louvre	S	1.0			50%	6.3		Flat	70.7	76.3	72.6	72.0	67.4	69.1	71.2	66.8	53.6	76	78.6	84.2	80.6	79.9	75.4	77.1	79.2	74.8	61.6	84
831_Data.016.s	BC_RTU1_1	Biosolids complex roof mitsubishi outdoor unit (one fan)	S	1.0			50%	6.3		Flat	74.5	70.8	67.4	60.9	55.4	53.8	50.4	46.9	46.5	60	82.5	78.8	75.4	68.8	63.4	61.8	58.4	54.9	54.5	68
831_Data.017.s	BC_RTU1_2	Biosolids complex roof mitsubishi outdoor unit (both fans)	S	1.0			50%	6.3		Flat	75.1	69.9	66.7	65.3	66.0	65.6	64.1	61.4	57.5	71	83.1	77.9	74.7	73.3	74.0	73.6	72.0	69.4	65.5	79
831_Data.018.s	BC_F97620	Biosolids complex roof twin city fan & blower 1	S	1.0			50%	6.3		Flat	72.2	68.8	69.3	65.0	63.9	54.5	50.9	49.7	45.6	64	80.2	76.8	77.3	73.0	71.9	62.4	58.9	57.7	53.6	72
831_Data.019.s	BC_F97640	Biosolids complex roof twin city fan & blower 2	S	1.0			50%	6.3		Flat	74.5	70.7	72.1	65.6	62.0	57.8	53.7	51.8	47.0	65	82.5	78.6	80.1	73.5	70.0	65.8	61.6	59.7	55.0	72
831_Data.020.s	BC_F97610	Biosolids complex roof twin city fan & blower 3	S	1.0			50%	6.3		Flat	92.0	85.6	79.3	71.6	69.0	61.7	59.0	58.3	51.5	71	100.0	93.5	87.3	79.5	77.0	69.7	67.0	66.3	59.5	79
831_Data.021.s	CAN97903	Biosolids complex roof mitsubishi electric mr slim split AC	S	1.2			50%	9.0		Flat	80.2	73.6	70.4	64.2	60.0	55.4	52.7	48.1	48.2	63	89.8	83.2	80.0	73.7	69.6	64.9	62.3	57.6	57.7	72
831_Data.022.s	M14_w	Biosolids complex roof makeup air unit (west)	A	2.0		9.0		9.0		Flat	73.7	70.9	68.2	67.7	64.8	62.6	57.6	53.0	56.0	67	83.3	80.4	77.8	77.3	74.3	72.2	67.1	62.6	65.6	77
831_Data.023.s	M14_s	Biosolids complex roof makeup air unit (south)	A	2.2		14.4		14.4		Flat	74.6	71.3	68.5	66.5	63.1	61.6	57.5	51.9	57.9	67	86.1	82.9	80.1	78.0	74.7	73.2	69.1	63.5	69.5	78
831_Data.024.s	M14_e	Biosolids complex roof makeup air unit (east)	A	1.8		9.0		9.0		Flat	70.6	69.5	66.7	66.2	62.2	60.6	54.9	48.4	48.7	65	80.1	79.1	76.3	75.7	71.7	70.1	64.4	58.0	58.3	75
831_Data.025.s	M14_n	Biosolids complex roof makeup air unit (north)	A	1.5		14.4		14.4		Flat	76.7	71.5	68.9	66.5	62.5	61.7	56.6	51.0	53.4	66	88.3	83.1	80.5	78.1	74.0	73.3	68.2	62.6	65.0	78
831_Data.026.s	BTI	Biosolids truck idling	S	2.0			50%	25.1		Flat	79.2	76.1	73.5	76.6	76.4	76.7	70.6	66.2	58.5	80	93.2	90.1	87.5	90.6	90.4	90.7	84.6	80.2	72.5	94
831_Data.027.s	BC_BDw	Biolsolids complex west bay door	A			16.0		16.0	3.0	Flat	70.8	69.7	70.6	69.2	69.4	67.0	61.9	58.5	53.4	71	79.8	78.8	79.6	78.2	78.5	76.0	71.0	67.6	62.4	80
831_Data.028.s	M12_1	Biosolids complex south wall louvre 1	S	2.0			50%	25.1		Flat	75.2	74.9	75.0	72.5	72.0	69.0	64.3	56.4	51.3	74	89.2	88.9	89.0	86.5	86.0	83.0	78.3	70.4	65.3	88
831_Data.030.s	BC_HVAC_I	Biosolids complex carrier HVAC intake	S	2.0			50%	25.1		Flat	68.0	81.3	77.8	80.3	79.3	77.7	76.8	68.0	62.4	83	82.0	95.3	91.8	94.3	93.3	91.7	90.8	82.0	76.4	97
831_Data.031.s	M13	Biosolids complex compressor units	S	2.0			50%	25.1		Flat	67.3	82.8	78.5	81.1	79.7	78.5	77.5	69.2	65.2	83	81.3	96.8	92.5	95.1	93.7	92.5	91.5	83.2	79.2	97
831_Data.032.s	BC_HVAC_T	Biosolids complex carrier HVAC top fans	S	1.5			50%	14.1		Flat	80.3	92.3	83.3	90.7	86.5	82.3	77.6	72.9	67.8	88	91.8	103.8	94.8	102.2	98.0	93.8	89.1	84.4	79.3	100
831_Data.034.s	BTP	Biosolids truck passby	S	10.0			50%	628.0		Flat	73.1	73.5	72.1	69.1	66.1	65.0	59.9	56.1	49.3	69	101.1	101.5	100.1	97.1	94.1	93.0	87.8	84.0	77.3	97
831_Data.035.s	D1_2_L	Digester 1&2 building west wall louvre	S	1.5			50%	14.1		Flat	83.1	82.4	80.0	84.6	81.5	78.8	73.8	65.0	54.3	83	94.6	93.9	91.5	96.1	93.0	90.3	85.3	76.5	65.8	95
831_Data.036.s	D2_45002	Digester 2 sludge mixer motor 2	S	1.5			50%	14.1		Flat	67.8	67.1	68.7	64.8	60.3	57.5	51.5	47.3	43.0	63	79.3	78.6	80.2	76.3	71.8	69.0	63.0	58.8	54.5	74
831_Data.037.s	D2_45003	Digester 2 sludge mixer motor 3	S	2.0			50%	25.1		Flat	66.2	65.3	67.5	63.8	59.7	55.6	64.1	53.8	47.5	67	80.2	79.3	81.5	77.8	73.7	69.6	78.1	67.8	61.5	81
831_Data.038.s	D2_45001	Digester 2 sludge mixer motor 1	S	1.5			50%	14.1		Flat	68.2	67.0	67.1	63.1	61.4	59.8	62.3	56.7	49.2	67	79.8	78.5	78.6	74.6	72.9	71.3	73.8	68.2	60.7	78
831_Data.039.s	M2_1	Pump station emergency diesel generator	S	2.0			50%	25.1		Flat	81.1	82.6	81.6	84.2	84.1	79.5	76.6	71.0	64.5	85	95.1	96.6	95.6	98.2	98.1	93.5	90.6	85.0	78.5	99
831_Data.040.s	M2_2	Pump station emergency diesel generator (higher RPM	S	2.0			50%	25.1		Flat	88.0	89.7	85.1	83.8	84.1	83.1	78.9	73.0	68.1	87	102.0	103.7	99.1	97.8	98.1	97.1	92.9	87.0	82.1	101
831_Data.041.s	D3_47003	Digester 3 sludge mixer motor 3	S	2.0			50%	25.1		Flat	72.8	67.8	67.6	62.9	59.4	68.0	55.7	56.3	52.8	69	86.8	81.8	81.6	76.9	73.4	82.0	69.7	70.3	66.8	83
831_Data.042.s	D3_47004	Digester 3 sludge mixer motor 4	S	2.0			50%	25.1		Flat	70.3	67.5	70.5	63.5	59.5	59.5	55.2	49.1	46.6	64	84.3	81.5	84.5	77.5	73.5	73.5	69.2	63.1	60.6	78
831_Data.043.s	D3_47001	Digester 3 sludge mixer motor 1	S	2.0			50%	25.1		Flat	70.2	66.0	68.1	60.3	59.7	58.1	55.7	49.3	44.1	63	84.2	80.0	82.1	74.3	73.7	72.1	69.7	63.3	58.1	77
831_Data.044.s	D3_47002	Digester 3 sludge mixer motor 2	S	1.5			50%	14.1		Flat	69.7	66.8	66.9	62.3	61.1	61.5	57.8	51.2	50.4	65	81.2	78.3	78.4	73.8	72.6	73.0	69.3	62.7	61.9	77
831_Data.045.s	CB_FAN95650	Control building exhaust air fan 1	S	1.0			50%	6.3		Flat	76.2	77.1	80.6	76.3	75.9	75.5	69.6	64.8	60.8	79	84.2	85.1	88.6	84.3	83.8	83.5	77.6	72.8	68.8	87
831_Data.046.s	CB_FAN95490	Control building exhaust air fan 2	S	1.0			50%	6.3		Flat	93.5	83.8	78.2	74.8	70.5	66.6	64.5	60.7	54.7	73	101.4	91.8	86.1	82.8	78.5	74.5	72.5	68.7	62.7	81
831_Data.047.s	CB_FAN95630	Control building exhaust air fan 3	S	0.8			50%	4.0		Flat	71.7	73.1	74.9	71.3	68.6	65.1	60.2	58.6	55.8	71	77.8	79.1	80.9	77.3	74.7	71.2	66.2	64.6	61.8	77
831_Data.048.s	CB_FAN95480	Control building exhaust air fan 4	S	1.0			50%	6.3		Flat	78.2	71.8	73.7	72.2	69.5	66.0	64.4	60.1	53.1	72	86.2	79.8	81.7	80.2	77.5	73.9	72.4	68.1	61.1	80
831_Data.049.s	CB_FAN95430	Control building exhaust air fan 5	S	1.0			50%	6.3		Flat	75.6	73.1	80.3	74.1	74.1	67.3	64.6	60.5	55.4	75	83.5	81.1	88.2	82.1	82.1	75.2	72.6	68.5	63.4	83
831_Data.050.s	D4_48005	Digester 4 sludge mixer motor 5	S	1.0			50%	6.3		Flat	73.8	69.9	69.1	62.8	61.1	63.3	62.6	57.3	46.9	68	81.8	77.8	77.1	70.8	69.1	71.3	70.6	65.2	54.9	76
831_Data.051.s	D4_48001	Digester 4 sludge mixer motor 1	S	1.0			50%	6.3		Flat	72.5	71.8	80.5	73.4	72.3	66.7	63.1	56.2	47.0	73	80.5	79.8	88.5	81.4	80.3	74.7	71.1	64.2	55.0	81
831_Data.052.s	D4_48002	Digester 4 sludge mixer motor 2	S	0.9			50%	5.1		Flat	79.6	72.0	70.6	67.0	69.2	69.1	67.2	61.0	51.3	73	86.6	79.0	77.7	74.0	76.2	76.1	74.3	68.1	58.4	80
831_Data.053.s	D4_48003	Digester 4 sludge mixer motor 3	S	0.9			50%	5.1		Flat	74.0	68.6	69.3	67.0	64.0	65.9	68.9	58.2	48.1	72	81.1	75.6	76.4	74.1	71.0	73.0	76.0	65.2	55.1	79
831_Data.054.s	D4_48004	Digester 4 sludge mixer motor 4	S	0.9			50%	5.1		Flat	77.8	70.7	68.9	63.4	61.9	58.9	57.1	53.7	51.6	65	84.9	77.7	76.0	70.5	69.0	66.0	64.2	60.7	58.7	72
831_Data.055.s	D5_49002	Digester 5 sludge mixer motor 2	S	0.9			50%	5.1		Flat	73.4	69.7	70.4	64.2	62.4	58.1	55.0	50.2	46.2	64	80.5	76.7	77.5	71.2	69.4	65.1	62.1	57.3	53.3	71
831_Data.056.s	D5_49001	Digester 5 sludge mixer motor 1	S	0.9			50%	5.1		Flat	73.9	68.2	70.0	64.1	63.5	61.8	54.5	54.1	49.7	66	81.0	75.3	77.1	71.2	70.5	68.9	61.6	61.1	56.8	73
831_Data.057.s	D5_49005	Digester 5 sludge mixer motor 5	S	0.9			50%	5.1		Flat	76.7	68.5	66.3	64.8	65.4	61.2	57.4	55.1	53.3	67	83.8	75.6	73.4	71.9	72.4	68.3	64.5	62.2	60.3	74
831_Data.058.s	D5_49004	Digester 5 sludge mixer motor 4	S	0.9			50%	5.1		Flat	73.9	66.3	68.6	62.0	63.0	59.1	61.7	55.1	47.0	67	81.0	73.3	75.6	69.1	70.1	66.2	68.8	62.2	54.1	74
831_Data.059.s	D5_49003	Digester 5 sludge mixer motor 3	S	0.9			50%	5.1		Flat	75.7	67.1	69.3	62.6	60.1	55.4	52.6	48.2	42.9	62	82.8	74.2	76.4	69.7	67.2	62.5	59.7	55.3	50.0	69
831_Data.060.s	CB_FAN95710	Control building exhaust air fan 6	S	1.0			25%	3.1		Flat	72.7	68.0	74.9	75.0	68.5	61.4	60.0	61.5	58.2	71	77.7	73.0	79.9	80.0	73.5	66.4	64.9	66.4	63.2	76
831_Data.061.s	HB_FAN98770	Headworks building supply air fan 1	S	1.0			50%	6.3		Flat	69.2	70.4	76.5	71.4	70.7	69.1	58.4	50.4	45.5	73	77.2	78.3	84.5	79.4	78.7	77.1	66.4	58.4	53.5	81
831_Data.062.s	HB_MX12203	Headworks building grit vortex	S	0.9			50%	5.1		Flat	67.1	64.9	69.3	63.6	58.2	57.6	58.6	58.4	52.8	65	74.2	72.0	76.4	70.7	65.2	64.6	65.6	65.5	59.9	72
831_Data.063.s	HB_FAN98710	Headworks building supply air fan 2	S	1.0			100%	12.6		Flat	69.4	69.5	69.6	69.6	61.0	57.1	53.5	46.3	42.4	65	80.4	80.5	80.5	80.6	72.0	68.1	64.4	57.2	53.4	76
831_Data.064.s	P1C_BB_EX1	P1 channel air blower building exhaust	S	1.6			25%	8.0		Flat	75.3	73.3	94.9	103.7	74.4	59.3	53.6	45.7	42.3	95	84.3	82.3	103.9	112.8	83.5	68.4	62.6	54.7	51.4	104
831_Data.065.s	P1C_BB_EX2	P1 channel air blower building exhaust (impulsive)	S	1.8			25%	10.2		Flat	74.7	73.4	94.9	103.5	75.0	59.6	53.6	44.4	41.4	95	84.8	83.5	104.9	113.6	85.0	69.7	63.7	54.4	51.5	105
831_Data.066.s	AHU99300	Air handling unit	S	2.0			50%	25.1		Flat	73.5	68.2	66.7	69.2	69.8	71.8	74.5	63.9	54.0	78	87.5	82.2	80.7	83.2	83.8	85.8	88.5	77.9	68.0	92
831_Data.067.s	HB_WL	Headworks building west wall louvre	S	1.8			50%	20.0		Flat	73.4	67.7	69.3	70.7	57.6	53.0	45.2	41.7	41.3	64	86.4	80.7	82.3	83.7	70.6	66.0	58.2	54.7	54.3	77
831_Data.068.s	HB_M21_n	Headworks building makeup air unit (north)	S	1.3			50%	10.6		Flat	76.3	84.2	81.0	72.6	71.6	67.7	63.4	60.7	53.4	74	86.6	94.5	91.3	82.8	81.9	77.9	73.6	71.0	63.7	84
831_Data.069.s	HB_M21_w	Headworks building makeup air unit (west)	S	1.3			50%	11.3		Flat	77.8	85.8	82.7	74.2	73.8	69.0	63.8	60.2	53.3	75	88.3	96.3	93.2	84.7	84.3	79.6	74.3	70.7	63.9	86
831_Data.070.s	HB_M21_s	Headworks building makeup air unit (south)	S	1.1			50%	7.6		Flat	79.1	83.1	79.3	74.6	73.3	69.1	64.9	61.2	52.5	75	88.0	91.9	88.1	83.4	82.1	77.9	73.7	70.0	61.3	84
831_Data.071.s	HB_M21_e	Headworks building makeup air unit (east)	S	1.2			50%	9.0		Flat	78.8	86.1	82.8	73.4	74.0	69.4	65.1	62.2	54.7	76	88.3	95.7	92.4	82.9	83.5	78.9	74.7	71.7	64.2	85
831_Data.072.s	HB_FAN98620	Headworks building supply air fan 1	S	1.0			25%	2.8		Flat	69.3	77.1	76.8	67.7	64.1	65.7	61.5	58.0	53.3	70	73.8	81.6	81.3	72.2	68.6	70.2	66.0	62.6	57.8	74
831_Data.073.s	HB_FAN98610	Headworks building supply air fan 2	S	1.0			50%	6.3		Flat	67.2	68.0	77.1	78.5	69.3	68.0	66.3	63.3	59.4	75	75.2	76.0	85.0	86.5	77.3	76.0	74.3	71.3	67.4	83
831_Data.074.s	DG	Cummins emergency diesel generator	S	2.3			50%	34.4		Flat	78.4	83.5	86.3	78.8	81.8	74.0	69.2	64.4	59.7	81	93.8	98.8	101.7	94.2	97.2	89.4	84.6	79.7	75.0	97
831_Data.075.s	AHU96601_1	P2 blower building air handling unit exhaust (south)	S	1.3			50%	10.6		Flat	84.0	86.1	95.6	94.1	91.9	90.4	88.0	75.3	66.2	95	94.2	96.4	105.9	104.3	102.2	100.6	98.2	85.5	76.5	105
831_Data.076.s	AHU96601_2	P2 blower building air handling unit intake 1 (east)	S	1.0			50%	6.3		Flat	80.6	77.9	92.8	81.8	79.5	77.7	75.1	64.3	53.5	83	88.6	85.9	100.8	89.8	87.4	85.7	83.1	72.2	61.5	91
831_Data.077.s	AHU96601_3	P2 blower building air handling unit intake 2 (east)	S	1.0			50%	6.3		Flat	77.3	79.6	90.7	82.9	81.1	79.2	74.6	63.0	51.9	84	85.3	87.6	98.6	90.9	89.1	87.2	82.6	71.0	59.8	92
831_Data.078.s	DCB_FAN99710	Disinfection chemical building supply air fan	S	1.0			50%	6.3		Flat	69.9	70.6	69.4	66.8	66.3	60.9	58.2	55.9	50.1	67	77.9	78.5	77.3	74.8	74.3	68.9	66.2	63.9	58.1	75
831_Data.079.s	DCB_BD	Disinfection chemical building north bay door	A			9.0		9.0	3.0	Flat	73.7	71.4	67.7	64.5	63.3	61.7	58.4	53.0	45.9	66	80.3	77.9	74.3	71.0	69.8	68.2	64.9	59.5	52.5	73
831_Data.080.s	DCB_L	Disinfection chemical building east wall louvre	S	2.0			50%	25.1		Flat	73.4	71.9	71.4	76.4	67.5	65.6	57.4	52.4	44.5	71	87.4	85.9	85.4	90.4	81.5	79.6	71.4	66.4	58.5	85
831_Data.081.s	PRC_FAN	PRC tank containment area 4 supply air fan	S	1.0			50%	6.3		Flat	69.4	66.8	65.2	65.0	62.7	63.6	62.3	63.9	59.9	70	77.4	74.8	73.2	73.0	70.6	71.6	70.3	71.9	67.9	78
831_Data.082.s	FAN23740	Odour control fan 1	S	1.8			50%	20.3		Flat	69.1	72.1	75.2	75.4	75.9	80.6	81.9	78.2	77.1	87	82.2	85.2	88.3	88.5	89.0	93.7	95.0	91.3	90.2	100
831_Data.083.s	FAN23520	Odour control fan 3	S	1.0			50%	6.3		Flat	69.1	69.4	79.3	73.5	71.0	67.3	67.5	64.6	68.6	75	77.1	77.3	87.3	81.4	79.0	75.3	75.5	72.6	76.6	83
831_Data.084.s	KTP	Kemira truck mounted pump	S	1.5			50%	14.1		Flat	91.4	84.5	77.7	76.4	78.8	79.2	79.1	81.3	80.6	87	103.0	96.0	89.2	87.9	90.3	90.8	90.6	92.8	92.1	98
831_Data.085.s	KTI	Kemira truck idling	S	1.5			50%	14.1		Flat	85.3	79.6	78.7	79.4	83.1	80.3	76.8	75.3	70.2	85	96.9	91.1	90.2	90.9	94.6	91.8	88.3	86.8	81.7	97

1. All measurements conducted on November 23, 2021 and January 31, 2022 using Larson Davis 831 SLM.
2. All measurements were consistent with the applicable portions of the MOECC Publication NPC-103.
3. Calc Type of C, A, or S refer to the source geometry, and represent Cylindrical, Area, or Spherical sources, respectively.
4. SPL Ref Distance refers to the radial distance from the microphone to the acoustic centre of a spherical source or the symmetrical axis of a cylindrical source.
5. Net surface area refers to surface area corrected for partition coefficient. Partition coefficient applies only to spherical and cylindrical geometries. Sound power level is estimated using an area correction 10 log A.
6. Refer to "Spectral Weighting" column for dB or dBA application information.

BBN Chapter 11 Section 11.12.1

Exhaust Noise

Input

Generator Speed (RPM)	1800
Power Rating (KW)	2500

Output

Overall Sound Power Level (dB)	153.9794

Octave Band (Hz)	Value to be Subtracted from Overall PWL (dB) for unmuffled engine exhaust noise
31	5
63	9
125	3
250	7
500	15
1000	19
2000	25
4000	35
8000	43

Octave Band (Hz)	Approximate Insertion loss (dB) of typical reactive mufflers - low pressure (large)
31	0
63	20
125	25
250	23
500	21
1000	20
2000	19
4000	18
8000	18

Octave Band Frequencies (PWL)									
31.5	63	125	250	500	1000	2000	4000	8000	Overall PWL
149	145	151	147	139	135	129	119	111	154

Casing Noise

Input

Generator Speed (RPM)	1800
Power Rating (KW)	2500

Output

Overall Sound Power Level (dB)	126.9794

Octave Band (Hz)	Value to be Subtracted from Overall PWL (dB) for casing noise
31	22
63	14
125	7
250	7
500	8
1000	6
2000	7
4000	13
8000	20

Octave Band Frequencies (PWL)									
31.5	63	125	250	500	1000	2000	4000	8000	Overall PWL
105	113	120	120	119	121	120	114	107	127

48TC
Gas Heat/Electric Cooling
Packaged Rooftop
3 to 15 Nominal Tons

Carrier

United Technologies

turn to the experts

Product Data

WeatherMaker®

C08613

Puron

ASHRAE 90.1 COMPLIANT

TABLE OF CONTENTS

Turn to the Experts.

The Carrier rooftop unit (RTU) was designed by customers for customers. With “no-strip screw” collars, handled access panels, and more we’ve made your unit easy to install, easy to maintain and easy to use.

Easy to install:

All WeatherMaker® units are field-convertible to horizontal air flow which makes it easy to adjust to unexpected job site complications. Lighter units make easy replacement. Most Carrier 48TC rooftops fit on existing Carrier curbs dating back to 1989. Also, our large control box gives you room to work and room to mount Carrier accessory controls.

Easy to maintain:

Easy access handles by Carrier provide quick and easy access to all normally serviced components. Our “no-strip” screw system has superior holding power and guides screws into position while preventing the screw from stripping the unit’s metal. Take accurate pressure readings by reading condenser pressure with panels on. Simply remove the black, composite plug, route your gauge line(s) through the hole, and connect them to the refrigeration service valve(s).

Easy to use:

The newly designed, central terminal board by Carrier puts all your connections and troubleshooting points in one convenient place, standard. Most low voltage connections are made to the same board and make it easy to find what you’re looking for and easy to access it. Carrier rooftops have high and low pressure switches, a filter drier, and 2-in (51mm) filters standard.

FEATURES AND BENEFITS

- Single cooling stage models are available from 3 – 10 ton.
- Two cooling stage models are available from 7.5 – 15 ton.
- SEER up to 13.0 (up to 13.4 with ECM motor)
- EER's up to 11.1 (up to 11.4 with ECM motor)
- IEER's up to 11.8 with single speed indoor fan motor and up to 12.8 with 2-speed/VFD indoor fan motor.
- Up to 28% lighter than similar industry units. Lighter rooftops make easier replacement jobs.
- Utility connections are the same because 3 – 12.5 ton units fit on existing Carrier rooftop curbs. This saves time and money on replacement jobs.
- Standardized components and layout. Standardized components and controls make service and stocking parts easier.
- Scroll compressors on all units. This makes service, stocking parts, replacement, and troubleshooting easier.
- Field convertible airflow (3 – 15 ton). Being able to convert a unit from vertical airflow to horizontal makes it easy to overcome job site complications. 15 ton models require a simple supply duct cover to field convert from factory vertical to horizontal.
- Easy-adjust, belt-drive motor available.
- Provisions for bottom or side condensate drain.
- Capable of thru-the-base or thru-the-curb gas line routing.
- Single-point gas / electrical connection.
- Sloped, composite drain pan sheds water; and won't rust.
- Standardized controls & control box layout. Standardized components & controls make stocking parts & service easier.
- Tool-less filter access door.
- Clean, large, easy to use control box.
- Color-coded wiring.
- Large, laminated wiring and power wiring drawings which are affixed to unit make troubleshooting easy.
- Single, central terminal board for test and wiring connections.
- Fast-access, handled, panels for easy access on normally accessed service panels.
- "No-strip" screw system guides screws into the panel & captures them tightly without stripping the screw, the panel, or the unit.
- Mechanical cooling (115°F to 40°F or 46°C to 4°C) standard on all models. Winter Start Kit allows cooling operation down to 25°F (-4°C) and MotorMaster to -20°F (-29°C).
- High efficiency, gas heat with induced-draft flue exhaust design.
- Induced draft motor ensures no flue gas can escape into the indoor air stream.
- Carrier designed naturally draining heat exchanger, unlike positive pressure heat exchangers, do not need to be periodically, manually drained. This saves labor and maintenance expense.
- 2-in (51mm) disposable filters on all units.
- Refrigerant filter-drier on each circuit.
- Each circuit is protected with a high and low pressure switch.
- Many factory-installed options ranging from air management economizers, 2 position dampers, plus convenience outlets, disconnect switches and smoke detectors.
- Standard (parts only) Warranty: 10 yr. aluminized heat exchanger, 5 yr. compressor, 3 yr. Novation condenser coil, 1 yr. parts.
- Factory-installed Humidi-MiZer® adaptive dehumidification system on all sizes with round tube / plate fin condenser coils, includes MotorMaster I controller.

  NOTE: The last order date for 48TC 04-06 units with Humidi-MiZer is October, 12, 2015. Use KC, HC or LC models after the last order date.
- Optional Staged Air Volume (SAV) system utilizes a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed between cooling stages. Available on 2-stage cooling models 08-16 with electromechanical controls or RTU Open.

MODEL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	8	T	C	D	A	0	4	A	1	A	5	-	0	A	0	A	0

Unit Heat Type
48 - Gas Heat Packaged Rooftop

Model Series - WeatherMaker™
TC - Standard Efficiency

Heat Options
D = Low Heat
E = Medium Heat
F = High Heat
L = Low NO_x, Low Heat
M = Low NO_x, Medium Heat
N = Low NO_x, High Heat
S = Low Heat w/ Stainless Steel Exchanger
R = Medium Heat w/ Stainless Steel Exchanger
T = High Heat w/ Stainless Steel Exchanger

Refrig. Systems Options
A = Standard One Stage Cooling Models
B = Standard One Stage Cooling Models with Humidi-MiZer® (04-07 models Only)[1]
D = Two Stage Cooling Models 08-16
E = Two Stage Cooling Models 08-16 with Al/Cu condenser Coils and with Humidi-MiZer

Cooling Tons

04 = 3 tons	07 = 6 tons	12 = 10 tons
05 = 4 tons	08 = 7.5 tons	14 = 12.5 tons
06 = 5 tons	09 = 8.5 tons	16 = 15 tons

Sensor Options
A = None
B = RA Smoke Detector
C = SA Smoke Detector
D = RA + SA Smoke Detector
E = CO_2
F = RA Smoke Detector and CO_2
G = SA Smoke Detector and CO_2
H = RA + SA Smoke Detector and CO_2

Indoor Fan Options
0 = Direct Drive ECM (Sizes 04-06 / -5 voltage only)
1 = Belt Drive, Standard Static Option
2 = Belt Drive, Medium Static Option
3 = Belt Drive, High Static Option
C = High Static Option with High Efficiency Motor (Size 16 Only)

Coil Options – RTPF (Outdoor - Indoor - Hail Guard)
A = Al/Cu - Al/Cu
B = Precoat Al/Cu - Al/Cu
C = E-coat Al/Cu - Al/Cu
D = E-coat Al/Cu - E-coat Al/Cu
E = Cu/Cu - Al/Cu
F = Cu/Cu - Cu/Cu
M = Al/Cu -Al/Cu — Louvered Hail Guard
N = Precoat Al/Cu - Al/Cu — Louvered Hail Guard
P = E-coat Al/Cu - Al/Cu — Louvered Hail Guard
Q = E-coat Al/Cu - E-coat Al/Cu — Louvered Hail Guard
R = Cu/Cu - Al/Cu — Louvered Hail Guard
S = Cu/Cu - Cu/Cu — Louvered Hail Guard

Coil Options – Novation (Outdoor - Indoor - Hail Guard)
G = Al/Al - Al/Cu
H = Al/Al - Cu/Cu
J = Al/Al - E-coat Al/Cu
K = E-coat Al/Al - Al/Cu
L = E-coat Al/Al - E-coatAl/Cu
T = Al/Al - Al/Cu — Louvered Hail Guard
U = Al/Al - Cu/Cu — Louvered Hail Guard
V = Al/Al - E-coat Al/Cu — Louvered Hail Guard
W= E-coat Al/Al - Al/Cu — Louvered Hail Guard
X = E-coat Al/Al - E-coat Al/Cu — Louvered Hail Guard

Packaging & Seismic Compliance
0 = Standard
1 = LTL
3 = California Seismic Compliant Label
4 = LTL and CA Seismic Compliant Label

Electrical Options
A = None
C = Non-Fused Disconnect
D = Thru-The-Base Connections
F = Non-Fused Disconnect and Thru-The-Base Connections
G = 2-Speed Indoor Fan (VFD) Controller
J = 2 Speed Fan Controller (VFD) and Non-Fused Disconnect
K = 2 Speed Fan Controller (VFD) and Thru-The-Base Connections
M = 2 Speed Fan Controller (VFD) with Non-Fused Disconnect and Thru-The-Base Connections

Service Options
0 = None
1 = Unpowered Convenience Outlet
2 = Powered Convenience Outlet
3 = Hinged Panels
4 = Hinged Panels and Unpowered Convenience Outlet
5 = Hinged Panels and Powered Convenience Outlet

Intake / Exhaust Options
A = None
B = Temperature Economizer w/ Barometric Relief
F = Enthalpy Economizer w/ Barometric Relief
K = 2-Position Damper
U = Temperature Ultra Low Leak Economizer w/ Barometric Relief
W= Enthalpy Ultra Low Leak Economizer w/ Barometric Relief

Base Unit Controls
0 = Electromechanical Controls can be used with W7212 EconoMi$er IV (Non-Fault Detection and Diagnostic)
1 = PremierLink Controller
2 = RTU Open Multi-Protocol Controller
6 = Electro-mechanical w/ 2-Speed Fan and W7220 Economizer Controller Controls. Can be used with W7220 EconoMi$er X (w/ Fault Detection & Diagnostic)

Design Revision
- = Factory Design Revision

Voltage

1 = 575/3/60	5 = 208-230/3/60
3 = 208-230/1/60[2]	6 = 460/3/60

NOTES:
On single phase (-3 voltage code) models, the following are not available as a factory installed option:
- Humidi-MiZer
- Coated Coils or Cu Fin Coils
- Louvered Hail Guards
- Economizer or 2 Position Damper
- Powered 115 Volt Convenience Outlet

[1] Last order date for 48TC 04-06 with Humidi-MiZer is October 12, 2015. Use KC, HC or LC models after that date.

[2] Production of single phase voltage models has been discontinued per DOE regulations. Single phase 48TC models will only be available until current inventories are exhausted.

Not all possible options are displayed, see the current 48TC 04-16 Price Pages for more details.

C150254

Table 1 – FACTORY-INSTALLED OPTIONS AND FIELD-INSTALLED ACCESSORIES

CATEGORY	ITEM	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Cabinet	Thru–the–base electrical or gas–line connections	X	X
	Supply Duct Cover (16 size only)		X
	California Seismic Compliant Labeling	X	
	Hinged Access Panels	X	
Coil Options	Cu/Cu indoor and/or outdoor coils[1, 6]	X	
	Pre–coated outdoor coils[1, 6]	X	
	Premium, E–coated outdoor coils[1, 6]	X	
Humidity Control	Humidi–MiZer® Adaptive Dehumidification System[6, 9]	X	
Condenser Protection	Condenser coil hail guard (louvered design)[6]	X	X
Controls	Thermostats, temperature sensors, and subbases		X
	PremierLink DDC communicating controller	X	X
	RTU Open–protocol controller	X	
	Smoke detector (supply and/or return air)	X	
	Time Guard II compressor delay control circuit		X
	Phase Monitor		X
Economizers & Outdoor Air Dampers	EconoMi$er IV for electro–mechanical controls – Non FDD (Standard air leak damper models)[6, 7]	X	X
	EconoMi$er2 for DDC controls, complies with FDD (Standard and Ultra Low Leak air damper models)[6, 8]	X	X
	Motorized 2 position outdoor air damper[6]	X	X
	Manual outdoor air damper (25% and 50%)		X
	Barometric relief[2]	X	X
	Power exhaust		X
	EconoMi$er X for electro–mechanical controls, complies with FDD. (Standard and Ultra Low Leak air damper models)[6, 7]	X	X
Economizer Sensors & IAQ Devices	Single dry bulb temperature sensors[3]	X	X
	Differential dry bulb temperature sensors[3]		X
	Single enthalpy sensors[3]	X	X
	Differential enthalpy sensors[3]		X
	Wall or duct mounted CO_2 sensor[3]		X
	Unit mounted CO_2 sensor[3]	X	
Gas Heat	Propane conversion kit		X
	Stainless steel heat exchanger	X	
	High altitude conversion kit		X
	Flue Shield (04–14 sizes only)		X
	Flue Discharge Deflector (04–14 sizes only)		X
Indoor Motor & Drive	Multiple motor and drive packages	X	
	Staged Air Vol (SAV) system w/VFD controller (2–stage cool only with electrical mechanical and RTU Open controls)	X	
	Display Kit for SAV system with VFD		X
Low Ambient Control	Winter start kit[4]		X
	Motormaster® head pressure controller[4]		X
Power Options	Convenience outlet (powered)[6]	X	
	Convenience outlet (un–powered)	X	
	Non–fused disconnect[5]	X	
	Disconnect Switch Bracket (16 size only)		X
Roof Curbs	Roof curb 14–in (356mm)		X
	Roof curb 24–in (610mm)		X

NOTES:
1. Novation coated coils only available with E–coat.
2. Included with economizer.
3. Sensors used to optimize economizer performance.
4. See application data for assistance.
5. Available on units with MOCP's of 80 amps or less.
6. Not available as factory installed option on single phase (208/230–1–60) models. Use field–installed accessory where available.
7. FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2.
8. Models with RTU Open DDC controls comply with California Title 24 Fault Detection and Diagnostic (FDD). PremierLink is non FDD.
9. The last order date for 48TC 04–06 units with Humidi–MiZer is October, 12, 2015. Use KC, HC or LC models after the last order date.

FACTORY OPTIONS AND/OR ACCESSORIES

Economizer

Economizers save energy, money and improve comfort levels in the conditioned space. They bring in fresh, outside air for ventilation; and provide cool outside air to cool your building. This also is the preferred method of low ambient cooling. When integrated with CO2 sensors, economizers can provide even more savings by coupling the ventilation air to only that amount required based on space occupancy. Economizers are available, installed and tested by the factory, with either enthalpy or temperature dry-bulb inputs. There are also models for electromechanical, direct digital controllers and single speed fan or 2-speed indoor fan motors. Additional sensors are available as accessories to optimize the economizer. Economizers include gravity controlled barometric relief that helps equalize building pressure and ambient air pressures. This can be a cost effective solution to prevent building pressurization. Economizers are available in Ultra Low Leak and standard low leak versions.

CO_2 Sensor

Improves productivity and saves money by working with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO_2 sensor detects their presence through increasing CO_2 levels, and opens the economizer appropriately.

When the occupants leave, the CO_2 levels decrease, and the sensor appropriately closes the economizer. This intelligent control of the ventilation air, called Demand Control Ventilation (DCV) reduces the overall load on the rooftop, saving money.

Smoke Detectors

Trust the experts. Smoke detectors make your application safer and your job easier. Carrier smoke detectors immediately shut down the rooftop unit when smoke is detected. They are available, installed by the factory, for supply air, return air, or both.

Louvered Hail Guards

Sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact.

Convenience Outlet (powered or un-powered)

Reduce service and/or installation costs by including a convenience outlet in your specification. Carrier will install this service feature at our factory. Provides a convenient, 15 amp, 115v GFCI receptacle with “Wet in Use” cover. The “powered” option allows the installer to power the outlet from the line side of the disconnect or load side as required by code. The “un-powered” option is to be powered from a separate 115/120v power source.

Non-fused Disconnect

This OSHA-compliant, factory installed, safety switch allows a service technician to locally secure power to the rooftop.

Disconnect Switch Bracket

Provides a pre-engineered and sized mounting bracket for applications requiring a unit mounted fused and non-fused disconnect of greater than 100 amps. Bracket assures that no damage will occur to coils when mounting with screws and other fasteners (16 size only).

Power Exhaust with Barometric Relief

Superior internal building pressure control. This field installed accessory may eliminate the need for costly, external pressure control fans.

PremierLink, DDC Controller

This CCN controller regulates your rooftop’s performance to tighter tolerances and expanded limits, as well as facilitates zoning systems and digital accessories. It also unites your Carrier HVAC equipment together on one, coherent CCN network. The PremierLink can be factory installed, or easily field installed. Not available with 2-speed Staged Air Volume (SAV) system.

RTU Open, Multi-Protocol Controller

Connect the rooftop to an existing BAS without needing complicated translators or adapter modules using the RTU Open controller. This new controller speaks the 4 most common building automation system languages (Bacnet, Modbus, N2, and Lonworks). Use this controller when you have an existing BAS.

Time Guard II Control Circuit

This accessory protects your compressor by preventing short-cycling in the event of some other failure, prevents the compressor from restarting for 30 seconds after stopping. Not required with PremierLink, RTU Open, or authorized commercial thermostats.

Motorized 2-Position Damper

The new Carrier 2-position, motorized outdoor air damper admits up to 100% outside air. Using reliable, gear-driven technology, the 2-position damper opens to allow ventilation air and closes when the rooftop stops, stopping unwanted infiltration. Not available with Staged Air Volume (SAV) models.

Manual OA Damper

Manual outdoor air dampers are an economical way to bring in ventilation air. The dampers are available in 25% and 50% versions. Not available with Staged Air Volume (SAV) models.

Optional Humidi-MiZer® Adaptive Dehumidification System

Carrier's Humidi-MiZer Adaptive Dehumidification System is an all-inclusive factory installed option that can be ordered with any WeatherMaker 48TC 04-16 rooftop unit equipped with RTPF condenser coils.

NOTE: The last order date for 48TC 04-06 units with Humidi-MiZer is October, 12, 2015. Use KC, HC or LC models after the last order date.

This system expands the envelope of operation of Carrier's WeatherMaker rooftop products to provide unprecedented flexibility to meet year round comfort conditions.

The Humidi-MiZer adaptive dehumidification system has the industry's only dual dehumidification mode setting. The Humidi-MiZer system includes two new modes of operation.

The WeatherMaker 48TC rooftop coupled with the Humidi-MiZer system is capable of operating in normal design cooling mode, subcooling mode, and hot gas reheat mode. Normal design cooling mode is when the unit will operate under its normal sequence of operation by cycling compressors to maintain comfort conditions.

Subcooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control. Hot Gas Reheat mode will operate when outdoor temperatures diminish and the need for latent capacity is required for sole humidity control. Hot Gas Reheat mode will provide neutral air for maximum dehumidification operation.

Staged Air Volume (SAV) Indoor Fan Speed System

Carrier's Staged Air Volume (SAV) system saves energy and installation time by utilizing a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed in sequence with the units cooling operation. Per ASHRAE 90.1 standard section 6.4.3.10.b, during the first stage of cooling operation the VFD will adjust the fan motor to provide 2/3rd of the total cfm established for the unit. When a call for the second stage of cooling is required, the VFD will allow the total cfm for the unit established (100%). During the heating mode the VFD will allow total design cfm (100%) operation and during the ventilation mode the VFD will allow operation to 2/3rd of total cfm.

Compared to single speed indoor fan motor systems, Carrier's SAV system can save substantial energy, 25%+*, versus single speed indoor fan motor systems.

The VFD used in Carrier's SAV system has soft start capabilities to slowly ramp up the speeds, thus eliminating any high inrush air volume during initial start-up. It also has internal over-current protection for the fan motor and a field installed display kit that allows adjustment and in depth diagnostics of the VFD.

This SAV system is available on models with 2-stage cooling operation with electromechanical or RTU Open, Multi Protocol controls. Both space sensor and conventional thermostats/controls can be used to provide accurate control in any application.

The SAV system is very flexible for initial fan performance set up and adjustment. The standard factory shipped VFD is pre-programmed to automatically stage the fan speed between the first and second stage of cooling. The unit fan performance static pressure and cfm can be easily adjusted using the traditional means of pulley adjustments. The other means to adjust the unit static and cfm performance is to utilize the field installed Display Kit and adjust the frequency and voltage in the VFD to performance requirements. In either case, once set up, the VFD will automatically adjust the speed between the cooling stage operations.

*Data based on .10 ($/kWh) in an office application utilizing Carrier's HAP 4.6 simulation software program

Motormaster Head Pressure Controller

The Motormaster motor controller is a low ambient, head pressure controller kit that is designed to maintain the unit's condenser head pressure during periods of low ambient cooling operation. This device should be used as an alternative to economizer free cooling when economizer usage is either not appropriate or desired. The Motormaster will either cycle the outdoor fan motors or operate them at reduced speed to maintain the unit operation, depending on the model.

Winter Start Kit

The winter start kit by Carrier extends the low ambient limit of your rooftop to 25°F (-4°C). The kit bypasses the low pressure switch, preventing nuisance tripping of the low pressure switch. Other low ambient precautions may still be prudent.

Propane Heating

Convert your gas heat rooftop from standard natural gas operation to propane using this field installed kit.

High Altitude Heating

High altitudes have less oxygen, which means heat exchangers need less fuel. The new gas orifices in this field installed kit make the necessary adjustment for high altitude applications. They restore the optimal fuel to air mixture and maintain healthy combustion at altitudes above 2000 ft (610m). Kits may not be required in all areas.

Hinged Access Panels

Allows access to unit's major components with specifically designed hinged access panels. Panels are: filter, control box, fan motor, and compressor.

Flue Discharge Deflector

The flue discharge deflector is a useful accessory when flue gas recirculation is a concern. By venting the flue discharge upwards, the deflector minimizes the chance for a neighboring unit to intake the flue exhaust (04-14 sizes only).

Optional Stainless Steel Heat Exchanger

The stainless steel heat exchanger option provides the tubular heat exchanger be made out of a minimum 20 gauge type 409 stainless steel for applications where the mixed air to the heat exchanger is expected to drop below 45°F (7°C). Stainless steel may be specified on applications where the presence of airborne contaminants require its use (applications such as paper mills) or in areas with very high outdoor humidity that may result in severe condensation in the heat exchanger during cooling operation.

Flue Discharge Heat Shield

The flue discharge heat shield keeps people from touching the rooftop unit's potentially hot flue discharge. This is especially useful for ground level applications, where more, untrained people could have access to the unit's exterior (04-14 sizes only).

Alternate Motors and Drives

Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory installed combination to meet your application. A wide selection of motors and pulleys (drives) are available, factory installed, to handle nearly any application.

Thru-the-Base Connections

Thru-the-base connections, available as either an accessory or as a factory option, are necessary to ensure proper connection and seal when routing wire and piping through the rooftop's basepan and curb. These couplings eliminate roof penetration and should be considered for gas lines, main power lines, as well as control power.

Supply Duct Cover

This supply duct cover is required when field converting the factory standard vertical duct supply to horizontal duct supply configuration. One required per unit (16 size only).

California OSHPD Seismic Certification Label

Units meet the seismic requirements of the International Code Council Evaluation Service (ICC-ES) document AC156 (Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems) and per International Building Code (IBC 2009) at an SDS (g) value of 2.00 z/h=1.0, Ip=1.5 and certified by independent structural engineers. A certification label is applied to the unit that meets the CA OSHPD Special Seismic Certification pre-approval labeling requirements on the external chassis of the unit.

Table 2 – AHRI COOLING RATING TABLE

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (KW)	SEER	EER	IEER WITH SINGLE SPEED INDOOR MOTOR	IEER WITH 2-SPEED INDOOR MOTOR
A04	1	3	34.0	3.2	13.0	10.60	N/A	N/A
A05	1	4	45.0	4.0	13.0	11.00	N/A	N/A
A06	1	5	59.0	5.5	13.0	10.75	N/A	N/A
A07	1	6	70.0	6.4	N/A	11.00	11.2	N/A
A08	1	7.5	88.0	8.0	N/A	11.00	11.2	N/A
D08	2	7.5	83.0	7.5	N/A	11.00	11.7	12.8
A09	1	8.5	97.0	8.8	N/A	11.00	11.2	N/A
D09	2	8.5	99.0	9.0	N/A	11.00	11.7	12.8
A12	1	10	117.0	10.6	N/A	11.00	11.2	N/A
D12	2	10	114.0	10.3	N/A	11.10	11.8	12.8
D14	2	12.5	140.0	12.9	N/A	10.80	11.0	11.8
D16	2	15	174.0	16.1	N/A	10.80	11.7	12.4

Table 3 – DIRECT DRIVE INDOOR ECM-X13 MOTOR

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (KW)	SEER	EER
A04	1	3	34.4	3.1	13.4	11.00
A05	1	4	45.0	3.9	13.4	11.40
A06	1	5	59.0	5.5	13.2	10.75

LEGEND AND NOTES for TABLES 2 and 3

AHRI – Air Conditioning, Heating and Refrigeration Institute Test Standard
ASHRAE – American Society of Heating, Refrigerating and Air Conditioning, Inc.
EER – Energy Efficiency Ratio
IEER – Integrated Energy Efficiency Ratio
N/A – Not Applicable
SEER – Seasonal Energy Efficiency Ratio

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

NOTES:

1. Rated in accordance with AHRI Standard 210/240 or 340/360, as appropriate.
2. Ratings are based on:
   Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 95°F (35°C) db outdoor air temp.
   IEER Standard: A measure that expresses cooling part-load EER efficiency for commercial unitary air conditioning and heat pump equipment on the basis of weighted operation at various load capacities.
3. All 48TC units comply with ASHRAE 90.1 Energy Standard for minimum SEER and EER requirements.
4. 48TC units comply with US Energy Policy Act (2005). To evaluate code compliance requirements, refer to state and local codes.

Table 4 – HEATING RATING TABLE - NATURAL GAS & PROPANE

UNITS		GAS HEAT	AL/SS HEAT EXCHANGER		TEMP RISE (DEG F)	THERMAL EFFICIENCY (%)	AFUE (%)
			INPUT / OUTPUT STAGE 1 (MBH)	INPUT / OUTPUT STAGE 2 (MBH)			
Single Phase*	04	LOW	–	72 / 56	25 – 55	82%	79.1%
		MED	–	115 / 89	55 – 85	80%	78.5%
		HIGH	–	–	–	–	–
	05	LOW	–	72 / 56	25 – 55	82%	79.1%
		MED	–	115 / 90	35 – 65	81%	79%
		HIGH	–	150 / 117	50 – 80	80%	78.8%
	06	LOW	–	72 / 56	20 – 55	82%	79.1%
		MED	–	115 / 90	30 – 65	81%	79%
		HIGH	–	150 / 117	40 – 80	80%	78.8%
Three Phase	04	LOW	–	72 / 56	25 – 55	82%	N/A
		MED	82 / 66	115 / 89	55 – 85	80%	N/A
		HIGH	–	–	–	–	–
	05	LOW	–	72 / 56	25 – 55	82%	N/A
		MED	–	115 / 90	35 – 65	81%	N/A
		HIGH	120 / 96	150 / 117	50 – 80	80%	N/A
	06	LOW	–	72 / 56	20 – 55	82%	N/A
		MED	–	115 / 90	30 – 65	81%	N/A
		HIGH	120 / 96	150 / 117	40 – 80	80%	N/A
	07	LOW	–	72 / 59	15 – 55	82%	N/A
		MED	–	115 / 93	25 – 65	81%	N/A
		HIGH	120 / 96	150 / 120	35 – 80	80%	N/A
	08	LOW	–	125 / 103	20 – 50	82%	N/A
		MED	120 / 98	180 / 148	35 – 65	82%	N/A
		HIGH	180 / 147	224 / 184	45 – 75	82%	N/A
	09	LOW	–	125 / 103	20 – 50	82%	N/A
		MED	120 / 98	180 / 148	30 – 65	82%	N/A
		HIGH	180 / 147	224 / 184	40 – 75	82%	N/A
	12	LOW	120 / 98	180 / 148	25 – 65	82%	N/A
		MED	180 / 147	224 / 184	30 – 65	82%	N/A
		HIGH	200 / 160	250 / 205	35 – 70	80%	N/A
	14	LOW	120 / 98	180 / 148	20 – 65	82%	N/A
		MED	180 / 147	224 / 184	25 – 65	82%	N/A
		HIGH	200 / 160	250 / 205	25 – 70	80%	N/A
	16	LOW	144 / 118	180 / 146	15 – 55	81%	N/A
		MED	192 / 156	240 / 195	20 – 60	81%	N/A
		HIGH	280 / 224	350 / 280	35 – 65	80%	N/A

NOTES:

Heat ratings are for natural gas heat exchangers operated at or below 2000 ft (610 m). For information on propane or altitudes above 2000 ft (610 m), see the Application Data section of this book. Accessory Propane/High Altitude kits are also available.

In the USA the input rating for altitudes above 2000 ft (610m) must be derated by 4% for each 1000 ft (305 m) above sea level. In Canada, the input rating must be derated by 10% for altitudes of 2000 ft (610 m) to 4500 ft (1372 m) above sea level.

* Production of single phase units has been discontinued per DOE regulations. Single phase 48TC models are only available until current inventories are exhausted.

Table 5 – HEATING RATING TABLE - LOW NO_X[1]

UNIT		GAS HEAT	LOW NOx HEAT EXCHANGER INPUT / OUTPUT STAGE 1 (MBH)	LOW NOx HEAT EXCHANGER INPUT / OUTPUT STAGE 2 (MBH)	TEMP RISE (DEG F)	THERMAL EFFICIENCY (%)	AFUE (%)
Single Phase*	04	LOW	–	60 / 47	20 – 50	81%	80.6%
		MED	–	90 / 72	30 – 60	81%	80.6%
		HIGH	–	–	–	–	–
	05	LOW	–	60 / 47	20 – 50	81%	80.6%
		MED	–	90 / 72	30 – 60	81%	80.6%
		HIGH	–	120 / 97	40 – 70	81%	81.5%
	06	LOW	–	60 / 47	15 – 50	81%	80.6%
		MED	–	90 / 72	25 – 60	80%	80.6%
		HIGH	–	120 / 97	35 – 70	80%	81.5%
Three Phase	04	LOW	–	60 / 47	20 – 50	81%	N/A
		MED	–	90 / 72	30 – 60	81%	N/A
		HIGH	–	–	–	–	–
	05	LOW	–	60 / 47	20 – 50	81%	N/A
		MED	–	90 / 72	30 – 60	81%	N/A
		HIGH	–	120 / 97	40 – 70	81%	N/A
	06	LOW	–	60 / 47	15 – 50	81%	N/A
		MED	–	90 / 72	25 – 60	80%	N/A
		HIGH	–	120 / 97	35 – 70	80%	N/A

NOTE:

1. Units meet California's South Coast Air Quality Management District (SCAQMD) Low–NO_x emissions requirement of 40 nanograms per joule or less.

– Not Applicable

* Production of single phase units has been discontinued per DOE regulations. Single phase 48TC models are only available until current inventories are exhausted.

Table 6 – SOUND PERFORMANCE TABLE

UNIT	COOLING STAGES	OUTDOOR SOUND (dB) @60Hz A–WEIGHTED	63	125	250	500	1000	2000	4000	8000
A04	1	80	90.6	80.9	80.2	76	74.6	71.3	68.5	63.9
A05	1	81	90.9	84.6	79.5	77.9	76.5	71.1	66.9	62.5
A06	1	78	84.0	82.2	76.3	74.8	72.5	68.8	65.6	61.8
A07	1	78	88.8	81.8	76.9	74.4	73.3	69.8	66.3	62.7
A08	1	82	90.1	82.6	81.0	79.4	77.0	73.0	70.4	66.7
D08	2	82	85.8	84.3	80.5	78.7	76.4	72.7	68.3	65.1
A09	1	83	91.2	86.4	81.9	81.0	78.3	73.9	71.4	67.3
D09	2	82	88.6	85.0	81.6	79.5	77.4	74.1	71.0	66.3
A12	1	82	88.6	85.0	81.6	79.5	77.4	74.1	71.0	66.3
D12	2	82	89.0	83.1	80.5	78.5	75.5	71.6	69.6	69.3
D14	2	87	87.0	85.2	84.6	84.9	82.2	78.4	75.3	72.9
D16	2	87	87.0	85.2	84.6	84.9	82.2	78.4	75.3	72.9

LEGEND

dB – Decibel

NOTES:

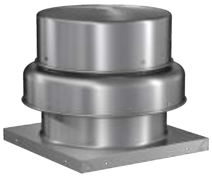
1. Outdoor sound data is measure in accordance with AHRI standard 270–2008.
2. Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
3. A–weighted sound ratings filter out very high and very low frequencies, to better approximate the response of "average" human ear. A–weighted measurements for Carrier units are taken in accordance with AHRI standard 270–2008.

GREENHECK
Quick Delivery

SKU
G-103-AX-QD

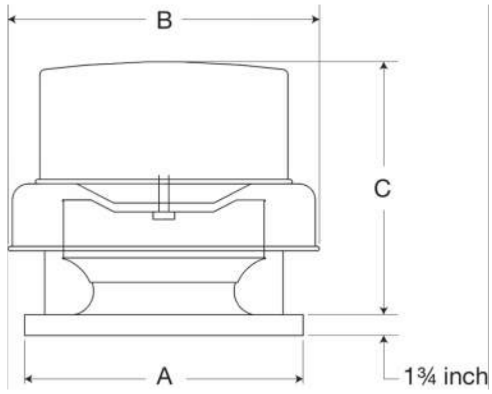
Job Name:
Mark:
Submitted By:
Date: 10/29/2020

Centrifugal Downblast Exhaust Fan, Model G-103, Direct Drive, 1/4HP, 115V, 1Ph, 955-1462 CFM



Model G, direct drive centrifugal roof exhaust fans provide the industry's best performance and durability for general clean air applications where air is discharged downward, toward the roof. Units feature the most advanced motor cooling of any fan in its class.

- Centrifugal wheel provides high-efficiency and minimal sound
- True vibration isolation supports the motor and wheel for long life and quiet operation
- One-piece aluminum curb cap provides a weather-tight fit
- Positive motor cooling with fresh air results in maximum motor life
- Galvanized birdscreen protects the fan discharge from birds and small objects

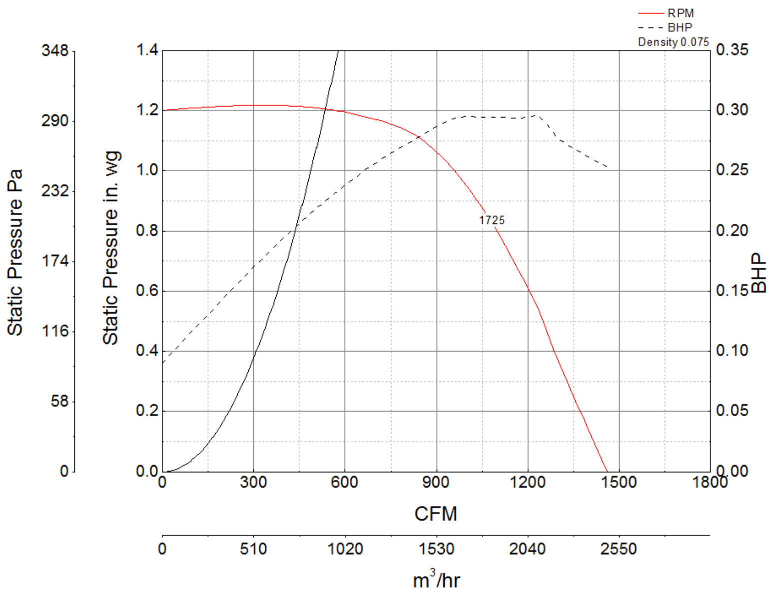


A	B	C
19 in	24.375 in	23.75 in

Certifications

AMCA Sound & Air
High Wind and Hurricane
Seismic
UL/cUL 705

Performance Characteristics



Construction Features

Drive Type	Direct Drive
Impeller Type	Centrifugal Wheel
Impeller Material	Aluminum
Housing Material	Spun Aluminum
Max Inlet Temp	180 °F
Certifications	AMCA Sound & Air High Wind and Hurricane Seismic UL/cUL 705
Speed Controllable	Yes
Required Accessory	Roof curbs for new installations

Motor Information

Service Factor	1
Phase	1
Voltage	115
HP	1/4
Hertz	60
Motor Enclosure	Open Drip Proof
RPM	1800
Motor Insulation	B
Thermal Protection	Auto
Nominal Efficiency	58.3
NEMA Frame Size	48

Air and Sound Performance

Motor HP	Max BHP	Max Fan RPM	Min Fan RPM	Ps (in. wg)	0	0.125	0.25	0.375	0.5	0.625	0.75	0.875	1
1/4	0.29	1725	0	CFM	1,462	1,405	1,351	1,298	1,250	1,193	1,126	1,052	955
				Sones	12.4	12	11.5	11.4	11	10.5	10.1	9.6	9.2

- Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.
- Performance certified is for installation type A: Free inlet, Free outlet.
- Power rating (BHP/kW) does not include transmission losses.
- Performance ratings include the effects of birdscreen.
- The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels.

California Residents

WARNING

This product can expose you to chemicals including cadmium used in the processing of corrosion resistant metal and fasteners, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information visit www.P65Warnings.ca.gov

Appendix D

Insignificant Noise Sources

List of Insignificant Noise Sources

Project: Clarkson WRRF
Location: Mississauga, ON

Source Description	Location and Reason/Rational
Outdoor Condensing Unit	Located at P1 Blower Building. Not audible over the facility noise.
Mitsubishi Split System Heat Pump	One located at the existing Headworks Building on the ground and the other located at roof of the Digester Control Building. Not audible over the facility noise.
Ambient Elbow Stack	Located at existing Headworks Building. No fan identified so assumed to be not audible
Exhaust Fans	Three exhaust fans at the existing Headworks Building (FAN98420, FAN98520) and four at the Digester Control Building (FAN95450, FAN95455, FAN95440). Not audible over the Facility noise. ID tags are identified for the fans if any were observed.
Water Channels	Associated with clarifiers and aeration tanks. Assumed to be a source of odour source and audible over facility noise

Appendix E

Key Parameters included in the Model and Sample Calculations

Key Parameters Included in the Noise Model

Project: Clarkson WRRF
Location: Mississauga, ON

Parameter	Value	Rationale
Ground Absorption	0 - 0.5	Default value of 0.5 used for a conservativism. Water channels in the facility are assigned a value of 0.
Temperature	10°C	Ontario standard conditions
Relative Humidity	0.7	Ontario standard conditions
Max. Order of Reflection	1	Accounts building reflections

Receiver
Name: 762 Embassy Ave
ID: POR1
X: 611283.45 m
Y: 4817992.84 m
Z: 4.50 m

Point Source, ISO 9613, Name: "P1 channel air blower building exhaust", ID: "!0601!P1C_BB_EX1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	611591.75	4816887.50	3.50	0	DEN	32	49.9	0.0	0.0	0.0	0.0	72.2	0.0	-5.4	0.0	0.0	0.0	0.0	0.0	-17.0
1	611591.75	4816887.50	3.50	0	DEN	63	61.1	0.0	0.0	0.0	0.0	72.2	0.1	-5.4	0.0	0.0	0.0	0.0	0.0	-5.9
1	611591.75	4816887.50	3.50	0	DEN	125	92.8	0.0	0.0	0.0	0.0	72.2	0.5	1.3	0.0	0.0	0.0	0.0	0.0	18.8
1	611591.75	4816887.50	3.50	0	DEN	250	109.2	0.0	0.0	0.0	0.0	72.2	1.2	-0.6	0.0	0.0	0.0	0.0	0.0	36.4
1	611591.75	4816887.50	3.50	0	DEN	500	85.3	0.0	0.0	0.0	0.0	72.2	2.2	-2.7	0.0	0.0	0.0	0.0	0.0	13.6
1	611591.75	4816887.50	3.50	0	DEN	1000	73.4	0.0	0.0	0.0	0.0	72.2	4.2	-2.7	0.0	0.0	0.0	0.0	0.0	-0.3
1	611591.75	4816887.50	3.50	0	DEN	2000	68.8	0.0	0.0	0.0	0.0	72.2	11.1	-2.7	0.0	0.0	0.0	0.0	0.0	-11.8
1	611591.75	4816887.50	3.50	0	DEN	4000	60.7	0.0	0.0	0.0	0.0	72.2	37.6	-2.7	0.0	0.0	0.0	0.0	0.0	-46.4
1	611591.75	4816887.50	3.50	0	DEN	8000	55.3	0.0	0.0	0.0	0.0	72.2	134.1	-2.7	0.0	0.0	0.0	0.0	0.0	-148.3

Point Source, ISO 9613, Name: "New Admin Building Air Handling Unit 1", ID: "!0601!AHU_101"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	611941.76	4816791.95	9.97	0	DEN	32	84.7	0.0	0.0	0.0	0.0	73.7	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	11.2
2	611941.76	4816791.95	9.97	0	DEN	63	88.4	0.0	0.0	0.0	0.0	73.7	0.2	-5.0	0.0	0.0	4.8	0.0	0.0	14.8
2	611941.76	4816791.95	9.97	0	DEN	125	92.8	0.0	0.0	0.0	0.0	73.7	0.6	-0.6	0.0	0.0	4.8	0.0	0.0	14.4
2	611941.76	4816791.95	9.97	0	DEN	250	99.0	0.0	0.0	0.0	0.0	73.7	1.4	-1.9	0.0	0.0	4.8	0.0	0.0	21.0
2	611941.76	4816791.95	9.97	0	DEN	500	100.8	0.0	0.0	0.0	0.0	73.7	2.6	-2.6	0.0	0.0	4.8	0.0	0.0	22.3
2	611941.76	4816791.95	9.97	0	DEN	1000	102.2	0.0	0.0	0.0	0.0	73.7	5.0	-2.6	0.0	0.0	4.8	0.0	0.0	21.3
2	611941.76	4816791.95	9.97	0	DEN	2000	98.9	0.0	0.0	0.0	0.0	73.7	13.2	-2.6	0.0	0.0	4.8	0.0	0.0	9.8
2	611941.76	4816791.95	9.97	0	DEN	4000	93.8	0.0	0.0	0.0	0.0	73.7	44.9	-2.6	0.0	0.0	4.8	0.0	0.0	-27.0
2	611941.76	4816791.95	9.97	0	DEN	8000	84.5	0.0	0.0	0.0	0.0	73.7	160.1	-2.6	0.0	0.0	4.8	0.0	0.0	-151.5

Point Source, ISO 9613, Name: "New Admin Building Air Handling Unit 2", ID: "!0601!AHU_201"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	611928.94	4816780.87	9.97	0	DEN	32	84.7	0.0	0.0	0.0	0.0	73.8	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	11.2
4	611928.94	4816780.87	9.97	0	DEN	63	88.4	0.0	0.0	0.0	0.0	73.8	0.2	-5.1	0.0	0.0	4.8	0.0	0.0	14.8
4	611928.94	4816780.87	9.97	0	DEN	125	92.8	0.0	0.0	0.0	0.0	73.8	0.6	-0.7	0.0	0.0	4.8	0.0	0.0	14.4
4	611928.94	4816780.87	9.97	0	DEN	250	99.0	0.0	0.0	0.0	0.0	73.8	1.4	-2.0	0.0	0.0	4.8	0.0	0.0	21.1
4	611928.94	4816780.87	9.97	0	DEN	500	100.8	0.0	0.0	0.0	0.0	73.8	2.6	-2.7	0.0	0.0	4.8	0.0	0.0	22.3
4	611928.94	4816780.87	9.97	0	DEN	1000	102.2	0.0	0.0	0.0	0.0	73.8	5.0	-2.7	0.0	0.0	4.8	0.0	0.0	21.4
4	611928.94	4816780.87	9.97	0	DEN	2000	98.9	0.0	0.0	0.0	0.0	73.8	13.3	-2.7	0.0	0.0	4.8	0.0	0.0	9.8
4	611928.94	4816780.87	9.97	0	DEN	4000	93.8	0.0	0.0	0.0	0.0	73.8	45.0	-2.7	0.0	0.0	4.8	0.0	0.0	-27.0
4	611928.94	4816780.87	9.97	0	DEN	8000	84.5	0.0	0.0	0.0	0.0	73.8	160.5	-2.7	0.0	0.0	4.8	0.0	0.0	-151.8

Point Source, ISO 9613, Name: "New Blower Building AHU", ID: "!0500!BB_AHU"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6	611857.12	4817042.31	10.00	0	DEN	32	54.6	0.0	0.0	0.0	0.0	71.9	0.0	-4.8	0.0	0.0	0.0	0.0	0.0	-12.5
6	611857.12	4817042.31	10.00	0	DEN	63	69.9	0.0	0.0	0.0	0.0	71.9	0.1	-4.8	0.0	0.0	0.0	0.0	0.0	2.7
6	611857.12	4817042.31	10.00	0	DEN	125	89.5	0.0	0.0	0.0	0.0	71.9	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	17.6
6	611857.12	4817042.31	10.00	0	DEN	250	95.5	0.0	0.0	0.0	0.0	71.9	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	24.2
6	611857.12	4817042.31	10.00	0	DEN	500	98.7	0.0	0.0	0.0	0.0	71.9	2.1	-2.4	0.0	0.0	0.0	0.0	0.0	27.1
6	611857.12	4817042.31	10.00	0	DEN	1000	100.4	0.0	0.0	0.0	0.0	71.9	4.1	-2.4	0.0	0.0	0.0	0.0	0.0	26.9
6	611857.12	4817042.31	10.00	0	DEN	2000	99.2	0.0	0.0	0.0	0.0	71.9	10.7	-2.4	0.0	0.0	0.0	0.0	0.0	19.0
6	611857.12	4817042.31	10.00	0	DEN	4000	86.3	0.0	0.0	0.0	0.0	71.9	36.4	-2.4	0.0	0.0	0.0	0.0	0.0	-19.6
6	611857.12	4817042.31	10.00	0	DEN	8000	75.2	0.0	0.0	0.0	0.0	71.9	129.8	-2.4	0.0	0.0	0.0	0.0	0.0	-124.1

vert. Area Source, ISO 9613, Name: "P2 blower building air handling unit exhaust 1", ID: "!0602!AHU96601_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	611816.57	4816894.64	7.50	0	DEN	32	45.6	5.3	0.0	3.0	0.0	72.7	0.0	-5.1	0.0	0.0	9.0	0.0	0.0	-22.8

vert. Area Source, ISO 9613, Name: "P2 blower building air handling unit exhaust 1", ID: "!0602!AHU96601_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	611816.57	4816894.64	7.50	0	DEN	63	60.9	5.3	0.0	3.0	0.0	72.7	0.1	-5.1	0.0	0.0	11.6	0.0	0.0	-10.2
9	611816.57	4816894.64	7.50	0	DEN	125	80.5	5.3	0.0	3.0	0.0	72.7	0.5	-0.4	0.0	0.0	15.2	0.0	0.0	0.7
9	611816.57	4816894.64	7.50	0	DEN	250	86.5	5.3	0.0	3.0	0.0	72.7	1.3	-2.1	0.0	0.0	19.5	0.0	0.0	3.3
9	611816.57	4816894.64	7.50	0	DEN	500	89.7	5.3	0.0	3.0	0.0	72.7	2.4	-2.8	0.0	0.0	23.2	0.0	0.0	2.5
9	611816.57	4816894.64	7.50	0	DEN	1000	91.4	5.3	0.0	3.0	0.0	72.7	4.5	-2.8	0.0	0.0	25.0	0.0	0.0	0.3
9	611816.57	4816894.64	7.50	0	DEN	2000	90.2	5.3	0.0	3.0	0.0	72.7	11.8	-2.8	0.0	0.0	25.0	0.0	0.0	-8.3
9	611816.57	4816894.64	7.50	0	DEN	4000	77.3	5.3	0.0	3.0	0.0	72.7	40.0	-2.8	0.0	0.0	25.0	0.0	0.0	-49.4
9	611816.57	4816894.64	7.50	0	DEN	8000	66.2	5.3	0.0	3.0	0.0	72.7	142.7	-2.8	0.0	0.0	25.0	0.0	0.0	-163.2
12	611816.57	4816894.64	8.50	0	DEN	32	45.6	5.3	0.0	3.0	0.0	72.7	0.0	-5.0	0.0	0.0	8.3	0.0	0.0	-22.1
12	611816.57	4816894.64	8.50	0	DEN	63	60.9	5.3	0.0	3.0	0.0	72.7	0.1	-5.0	0.0	0.0	10.6	0.0	0.0	-9.3
12	611816.57	4816894.64	8.50	0	DEN	125	80.5	5.3	0.0	3.0	0.0	72.7	0.5	-0.6	0.0	0.0	14.1	0.0	0.0	2.0
12	611816.57	4816894.64	8.50	0	DEN	250	86.5	5.3	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	18.2	0.0	0.0	4.5
12	611816.57	4816894.64	8.50	0	DEN	500	89.7	5.3	0.0	3.0	0.0	72.7	2.4	-2.7	0.0	0.0	21.9	0.0	0.0	3.7
12	611816.57	4816894.64	8.50	0	DEN	1000	91.4	5.3	0.0	3.0	0.0	72.7	4.5	-2.7	0.0	0.0	25.0	0.0	0.0	0.2
12	611816.57	4816894.64	8.50	0	DEN	2000	90.2	5.3	0.0	3.0	0.0	72.7	11.8	-2.7	0.0	0.0	25.0	0.0	0.0	-8.4
12	611816.57	4816894.64	8.50	0	DEN	4000	77.3	5.3	0.0	3.0	0.0	72.7	40.0	-2.7	0.0	0.0	25.0	0.0	0.0	-49.5
12	611816.57	4816894.64	8.50	0	DEN	8000	66.2	5.3	0.0	3.0	0.0	72.7	142.7	-2.7	0.0	0.0	25.0	0.0	0.0	-163.3
42	611816.57	4816894.64	6.75	0	DEN	32	45.6	2.2	0.0	3.0	0.0	72.7	0.0	-5.2	0.0	0.0	9.5	0.0	0.0	-26.3
42	611816.57	4816894.64	6.75	0	DEN	63	60.9	2.2	0.0	3.0	0.0	72.7	0.1	-5.2	0.0	0.0	12.2	0.0	0.0	-13.7
42	611816.57	4816894.64	6.75	0	DEN	125	80.5	2.2	0.0	3.0	0.0	72.7	0.5	-0.2	0.0	0.0	16.0	0.0	0.0	-3.2
42	611816.57	4816894.64	6.75	0	DEN	250	86.5	2.2	0.0	3.0	0.0	72.7	1.3	-2.1	0.0	0.0	20.2	0.0	0.0	-0.4
42	611816.57	4816894.64	6.75	0	DEN	500	89.7	2.2	0.0	3.0	0.0	72.7	2.4	-2.8	0.0	0.0	23.9	0.0	0.0	-1.2
42	611816.57	4816894.64	6.75	0	DEN	1000	91.4	2.2	0.0	3.0	0.0	72.7	4.5	-2.8	0.0	0.0	25.0	0.0	0.0	-2.7
42	611816.57	4816894.64	6.75	0	DEN	2000	90.2	2.2	0.0	3.0	0.0	72.7	11.8	-2.8	0.0	0.0	25.0	0.0	0.0	-11.2
42	611816.57	4816894.64	6.75	0	DEN	4000	77.3	2.2	0.0	3.0	0.0	72.7	40.0	-2.8	0.0	0.0	25.0	0.0	0.0	-52.3
42	611816.57	4816894.64	6.75	0	DEN	8000	66.2	2.2	0.0	3.0	0.0	72.7	142.7	-2.8	0.0	0.0	25.0	0.0	0.0	-166.2

Point Source, ISO 9613, Name: "Odour control fan 2", ID: "!0601!FAN23740"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	611538.42	4816680.95	0.50	0	DEN	32	47.8	0.0	0.0	0.0	0.0	73.5	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-24.9
15	611538.42	4816680.95	0.50	0	DEN	63	64.0	0.0	0.0	0.0	0.0	73.5	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-8.8
15	611538.42	4816680.95	0.50	0	DEN	125	77.2	0.0	0.0	0.0	0.0	73.5	0.5	1.9	0.0	0.0	2.8	0.0	0.0	-1.6
15	611538.42	4816680.95	0.50	0	DEN	250	84.9	0.0	0.0	0.0	0.0	73.5	1.4	2.0	0.0	0.0	2.8	0.0	0.0	5.2
15	611538.42	4816680.95	0.50	0	DEN	500	90.8	0.0	0.0	0.0	0.0	73.5	2.6	3.4	0.0	0.0	1.4	0.0	0.0	9.9
15	611538.42	4816680.95	0.50	0	DEN	1000	98.7	0.0	0.0	0.0	0.0	73.5	4.9	-0.9	0.0	0.0	4.8	0.0	0.0	16.3
15	611538.42	4816680.95	0.50	0	DEN	2000	101.2	0.0	0.0	0.0	0.0	73.5	12.9	-2.9	0.0	0.0	4.9	0.0	0.0	12.7
15	611538.42	4816680.95	0.50	0	DEN	4000	97.3	0.0	0.0	0.0	0.0	73.5	43.8	-2.9	0.0	0.0	5.1	0.0	0.0	-22.2
15	611538.42	4816680.95	0.50	0	DEN	8000	94.1	0.0	0.0	0.0	0.0	73.5	156.2	-2.9	0.0	0.0	5.4	0.0	0.0	-138.1

Point Source, ISO 9613, Name: "Odour control fan 1", ID: "!0601!FAN23750"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
18	611539.52	4816679.69	0.50	0	DEN	32	47.8	0.0	0.0	0.0	0.0	73.5	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-24.9
18	611539.52	4816679.69	0.50	0	DEN	63	64.0	0.0	0.0	0.0	0.0	73.5	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-8.8
18	611539.52	4816679.69	0.50	0	DEN	125	77.2	0.0	0.0	0.0	0.0	73.5	0.5	1.9	0.0	0.0	2.8	0.0	0.0	-1.7
18	611539.52	4816679.69	0.50	0	DEN	250	84.9	0.0	0.0	0.0	0.0	73.5	1.4	2.0	0.0	0.0	2.8	0.0	0.0	5.2
18	611539.52	4816679.69	0.50	0	DEN	500	90.8	0.0	0.0	0.0	0.0	73.5	2.6	3.4	0.0	0.0	1.4	0.0	0.0	9.9
18	611539.52	4816679.69	0.50	0	DEN	1000	98.7	0.0	0.0	0.0	0.0	73.5	4.9	-0.9	0.0	0.0	4.8	0.0	0.0	16.3
18	611539.52	4816679.69	0.50	0	DEN	2000	101.2	0.0	0.0	0.0	0.0	73.5	12.9	-2.9	0.0	0.0	4.9	0.0	0.0	12.7
18	611539.52	4816679.69	0.50	0	DEN	4000	97.3	0.0	0.0	0.0	0.0	73.5	43.8	-2.9	0.0	0.0	5.1	0.0	0.0	-22.3
18	611539.52	4816679.69	0.50	0	DEN	8000	94.1	0.0	0.0	0.0	0.0	73.5	156.4	-2.9	0.0	0.0	5.3	0.0	0.0	-138.3

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 5", ID: "!0500!HW_EF5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
21	611590.21	4817174.43	15.30	0	DEN	32	49.9	0.0	0.0	0.0	0.0	69.8	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	-16.0
21	611590.21	4817174.43	15.30	0	DEN	63	77.0	0.0	0.0	0.0	0.0	69.8	0.1	-4.0	0.0	0.0	0.0	0.0	0.0	11.1
21	611590.21	4817174.43	15.30	0	DEN	125	88.7	0.0	0.0	0.0	0.0	69.8	0.4	-0.1	0.0	0.0	0.0	0.0	0.0	18.7
21	611590.21	4817174.43	15.30	0	DEN	250	92.3	0.0	0.0	0.0	0.0	69.8	0.9	-1.3	0.0	0.0	0.0	0.0	0.0	22.9
21	611590.21	4817174.43	15.30	0	DEN	500	94.7	0.0	0.0	0.0	0.0	69.8	1.7	-2.0	0.0	0.0	0.0	0.0	0.0	25.2
21	611590.21	4817174.43	15.30	0	DEN	1000	94.1	0.0	0.0	0.0	0.0	69.8	3.2	-2.0	0.0	0.0	0.0	0.0	0.0	23.1
21	611590.21	4817174.43	15.30	0	DEN	2000	91.5	0.0	0.0	0.0	0.0	69.8	8.4	-2.0	0.0	0.0	0.0	0.0	0.0	15.2

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 5", ID: "!0500!HW_EF5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
21	611590.21	4817174.43	15.30	0	DEN	4000	86.4	0.0	0.0	0.0	0.0	69.8	28.6	-2.0	0.0	0.0	0.0	0.0	0.0	-10.1
21	611590.21	4817174.43	15.30	0	DEN	8000	78.7	0.0	0.0	0.0	0.0	69.8	102.2	-2.0	0.0	0.0	0.0	0.0	0.0	-91.3

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 4", ID: "!0500!HW_EF4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
26	611583.64	4817164.25	15.30	0	DEN	32	52.0	0.0	0.0	0.0	0.0	69.9	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	-14.0
26	611583.64	4817164.25	15.30	0	DEN	63	83.7	0.0	0.0	0.0	0.0	69.9	0.1	-4.0	0.0	0.0	0.0	0.0	0.0	17.7
26	611583.64	4817164.25	15.30	0	DEN	125	92.4	0.0	0.0	0.0	0.0	69.9	0.4	-0.1	0.0	0.0	0.0	0.0	0.0	22.3
26	611583.64	4817164.25	15.30	0	DEN	250	91.3	0.0	0.0	0.0	0.0	69.9	0.9	-1.3	0.0	0.0	0.0	0.0	0.0	21.8
26	611583.64	4817164.25	15.30	0	DEN	500	94.7	0.0	0.0	0.0	0.0	69.9	1.7	-2.0	0.0	0.0	0.0	0.0	0.0	25.1
26	611583.64	4817164.25	15.30	0	DEN	1000	94.3	0.0	0.0	0.0	0.0	69.9	3.2	-2.0	0.0	0.0	0.0	0.0	0.0	23.2
26	611583.64	4817164.25	15.30	0	DEN	2000	89.2	0.0	0.0	0.0	0.0	69.9	8.5	-2.0	0.0	0.0	0.0	0.0	0.0	12.8
26	611583.64	4817164.25	15.30	0	DEN	4000	82.9	0.0	0.0	0.0	0.0	69.9	28.9	-2.0	0.0	0.0	0.0	0.0	0.0	-13.9
26	611583.64	4817164.25	15.30	0	DEN	8000	75.8	0.0	0.0	0.0	0.0	69.9	103.0	-2.0	0.0	0.0	0.0	0.0	0.0	-95.1

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 1", ID: "!0500!HW_EF1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
29	611573.89	4817156.52	15.30	0	DEN	32	54.9	0.0	0.0	0.0	0.0	69.9	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	-11.0
29	611573.89	4817156.52	15.30	0	DEN	63	67.6	0.0	0.0	0.0	0.0	69.9	0.1	-4.0	0.0	0.0	0.0	0.0	0.0	1.6
29	611573.89	4817156.52	15.30	0	DEN	125	82.7	0.0	0.0	0.0	0.0	69.9	0.4	-0.1	0.0	0.0	0.0	0.0	0.0	12.6
29	611573.89	4817156.52	15.30	0	DEN	250	93.6	0.0	0.0	0.0	0.0	69.9	0.9	-1.3	0.0	0.0	0.0	0.0	0.0	24.1
29	611573.89	4817156.52	15.30	0	DEN	500	94.7	0.0	0.0	0.0	0.0	69.9	1.7	-2.0	0.0	0.0	0.0	0.0	0.0	25.1
29	611573.89	4817156.52	15.30	0	DEN	1000	95.4	0.0	0.0	0.0	0.0	69.9	3.2	-2.0	0.0	0.0	0.0	0.0	0.0	24.3
29	611573.89	4817156.52	15.30	0	DEN	2000	89.1	0.0	0.0	0.0	0.0	69.9	8.6	-2.0	0.0	0.0	0.0	0.0	0.0	12.6
29	611573.89	4817156.52	15.30	0	DEN	4000	82.4	0.0	0.0	0.0	0.0	69.9	29.0	-2.0	0.0	0.0	0.0	0.0	0.0	-14.5
29	611573.89	4817156.52	15.30	0	DEN	8000	71.9	0.0	0.0	0.0	0.0	69.9	103.5	-2.0	0.0	0.0	0.0	0.0	0.0	-99.5

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 3", ID: "!0500!HW_EF3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
32	611596.89	4817149.95	15.30	0	DEN	32	52.0	0.0	0.0	0.0	0.0	70.1	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	-14.1
32	611596.89	4817149.95	15.30	0	DEN	63	83.7	0.0	0.0	0.0	0.0	70.1	0.1	-4.0	0.0	0.0	0.0	0.0	0.0	17.5
32	611596.89	4817149.95	15.30	0	DEN	125	92.4	0.0	0.0	0.0	0.0	70.1	0.4	-0.2	0.0	0.0	0.0	0.0	0.0	22.1
32	611596.89	4817149.95	15.30	0	DEN	250	91.3	0.0	0.0	0.0	0.0	70.1	0.9	-1.4	0.0	0.0	0.0	0.0	0.0	21.6
32	611596.89	4817149.95	15.30	0	DEN	500	94.7	0.0	0.0	0.0	0.0	70.1	1.7	-2.1	0.0	0.0	0.0	0.0	0.0	24.9
32	611596.89	4817149.95	15.30	0	DEN	1000	94.3	0.0	0.0	0.0	0.0	70.1	3.3	-2.1	0.0	0.0	0.0	0.0	0.0	23.0
32	611596.89	4817149.95	15.30	0	DEN	2000	89.2	0.0	0.0	0.0	0.0	70.1	8.7	-2.1	0.0	0.0	0.0	0.0	0.0	12.5
32	611596.89	4817149.95	15.30	0	DEN	4000	82.9	0.0	0.0	0.0	0.0	70.1	29.5	-2.1	0.0	0.0	0.0	0.0	0.0	-14.6
32	611596.89	4817149.95	15.30	0	DEN	8000	75.8	0.0	0.0	0.0	0.0	70.1	105.1	-2.1	0.0	0.0	0.0	0.0	0.0	-97.3

Point Source, ISO 9613, Name: "New Headworks Building Exhaust Fan 2", ID: "!0500!HW_EF2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
36	611608.90	4817136.91	15.30	0	DEN	32	54.9	0.0	0.0	0.0	0.0	70.2	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	-11.3
36	611608.90	4817136.91	15.30	0	DEN	63	67.6	0.0	0.0	0.0	0.0	70.2	0.1	-4.1	0.0	0.0	0.0	0.0	0.0	1.3
36	611608.90	4817136.91	15.30	0	DEN	125	82.7	0.0	0.0	0.0	0.0	70.2	0.4	-0.2	0.0	0.0	0.0	0.0	0.0	12.4
36	611608.90	4817136.91	15.30	0	DEN	250	93.6	0.0	0.0	0.0	0.0	70.2	1.0	-1.4	0.0	0.0	0.0	0.0	0.0	23.9
36	611608.90	4817136.91	15.30	0	DEN	500	94.7	0.0	0.0	0.0	0.0	70.2	1.8	-2.1	0.0	0.0	0.0	0.0	0.0	24.9
36	611608.90	4817136.91	15.30	0	DEN	1000	95.4	0.0	0.0	0.0	0.0	70.2	3.3	-2.1	0.0	0.0	0.0	0.0	0.0	24.0
36	611608.90	4817136.91	15.30	0	DEN	2000	89.1	0.0	0.0	0.0	0.0	70.2	8.9	-2.1	0.0	0.0	0.0	0.0	0.0	12.2
36	611608.90	4817136.91	15.30	0	DEN	4000	82.4	0.0	0.0	0.0	0.0	70.2	30.0	-2.1	0.0	0.0	0.0	0.0	0.0	-15.7
36	611608.90	4817136.91	15.30	0	DEN	8000	71.9	0.0	0.0	0.0	0.0	70.2	107.0	-2.1	0.0	0.0	0.0	0.0	0.0	-103.2

Point Source, ISO 9613, Name: "Radial Flow Dry Media Unit Stack", ID: "!0500!S3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
39	611558.44	4817071.41	30.00	0	DEN	32	54.8	0.0	0.0	0.0	0.0	70.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-12.9
39	611558.44	4817071.41	30.00	0	DEN	63	84.8	0.0	0.0	0.0	0.0	70.7	0.1	-3.0	0.0	0.0	0.0	0.0	0.0	17.0
39	611558.44	4817071.41	30.00	0	DEN	125	93.6	0.0	0.0	0.0	0.0	70.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	22.2
39	611558.44	4817071.41	30.00	0	DEN	250	91.9	0.0	0.0	0.0	0.0	70.7	1.0	-0.8	0.0	0.0	0.0	0.0	0.0	21.0
39	611558.44	4817071.41	30.00	0	DEN	500	94.1	0.0	0.0	0.0	0.0	70.7	1.9	-1.5	0.0	0.0	0.0	0.0	0.0	23.1

Point Source, ISO 9613, Name: "Radial Flow Dry Media Unit Stack", ID: "!0500!S3"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
39	611558.44	4817071.41	30.00	0	DEN	1000	93.4	0.0	0.0	0.0	0.0	70.7	3.5	-1.5	0.0	0.0	0.0	0.0	0.0	20.7
39	611558.44	4817071.41	30.00	0	DEN	2000	88.9	0.0	0.0	0.0	0.0	70.7	9.3	-1.5	0.0	0.0	0.0	0.0	0.0	10.4
39	611558.44	4817071.41	30.00	0	DEN	4000	84.4	0.0	0.0	0.0	0.0	70.7	31.5	-1.5	0.0	0.0	0.0	0.0	0.0	-16.3
39	611558.44	4817071.41	30.00	0	DEN	8000	76.4	0.0	0.0	0.0	0.0	70.7	112.4	-1.5	0.0	0.0	0.0	0.0	0.0	-105.2

Point Source, ISO 9613, Name: "Regenerative Thermal Oxidizer Stack ", ID: "!0500!S4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
44	611430.75	4816940.52	30.00	0	DEN	32	54.8	0.0	0.0	0.0	0.0	71.5	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	-13.7
44	611430.75	4816940.52	30.00	0	DEN	63	84.8	0.0	0.0	0.0	0.0	71.5	0.1	-3.1	0.0	0.0	0.0	0.0	0.0	16.2
44	611430.75	4816940.52	30.00	0	DEN	125	93.6	0.0	0.0	0.0	0.0	71.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	21.3
44	611430.75	4816940.52	30.00	0	DEN	250	91.9	0.0	0.0	0.0	0.0	71.5	1.1	-0.8	0.0	0.0	0.0	0.0	0.0	20.1
44	611430.75	4816940.52	30.00	0	DEN	500	94.1	0.0	0.0	0.0	0.0	71.5	2.0	-1.5	0.0	0.0	0.0	0.0	0.0	22.1
44	611430.75	4816940.52	30.00	0	DEN	1000	93.4	0.0	0.0	0.0	0.0	71.5	3.9	-1.5	0.0	0.0	0.0	0.0	0.0	19.5
44	611430.75	4816940.52	30.00	0	DEN	2000	88.9	0.0	0.0	0.0	0.0	71.5	10.3	-1.5	0.0	0.0	0.0	0.0	0.0	8.6
44	611430.75	4816940.52	30.00	0	DEN	4000	84.4	0.0	0.0	0.0	0.0	71.5	34.8	-1.5	0.0	0.0	0.0	0.0	0.0	-20.4
44	611430.75	4816940.52	30.00	0	DEN	8000	76.4	0.0	0.0	0.0	0.0	71.5	124.2	-1.5	0.0	0.0	0.0	0.0	0.0	-117.8

Point Source, ISO 9613, Name: "New Biosolids Dryer Structure exhaust fan 1", ID: "!0500!DS_CF1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
46	611437.70	4816930.54	10.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	71.6	0.0	-4.7	0.0	0.0	0.0	0.0	0.0	-23.9
46	611437.70	4816930.54	10.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	71.6	0.1	-4.7	0.0	0.0	0.0	0.0	0.0	-7.7
46	611437.70	4816930.54	10.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	71.6	0.4	-0.5	0.0	0.0	0.0	0.0	0.0	0.8
46	611437.70	4816930.54	10.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	71.6	1.1	-1.7	0.0	0.0	0.0	0.0	0.0	9.1
46	611437.70	4816930.54	10.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	71.6	2.1	-2.4	0.0	0.0	0.0	0.0	0.0	14.8
46	611437.70	4816930.54	10.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	71.6	3.9	-2.4	0.0	0.0	0.0	0.0	0.0	20.8
46	611437.70	4816930.54	10.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	71.6	10.4	-2.4	0.0	0.0	0.0	0.0	0.0	16.8
46	611437.70	4816930.54	10.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	71.6	35.2	-2.4	0.0	0.0	0.0	0.0	0.0	-11.9
46	611437.70	4816930.54	10.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	71.6	125.5	-2.4	0.0	0.0	0.0	0.0	0.0	-105.4

Point Source, ISO 9613, Name: "Radial Flow Dry Media Activated Carbon System Stack ", ID: "!0500!S5"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
51	611408.07	4816918.47	30.00	0	DEN	32	54.8	0.0	0.0	0.0	0.0	71.7	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	-13.8
51	611408.07	4816918.47	30.00	0	DEN	63	84.8	0.0	0.0	0.0	0.0	71.7	0.1	-3.1	0.0	0.0	0.0	0.0	0.0	16.1
51	611408.07	4816918.47	30.00	0	DEN	125	93.6	0.0	0.0	0.0	0.0	71.7	0.4	0.3	0.0	0.0	0.0	0.0	0.0	21.1
51	611408.07	4816918.47	30.00	0	DEN	250	91.9	0.0	0.0	0.0	0.0	71.7	1.1	-0.9	0.0	0.0	0.0	0.0	0.0	20.0
51	611408.07	4816918.47	30.00	0	DEN	500	94.1	0.0	0.0	0.0	0.0	71.7	2.1	-1.6	0.0	0.0	0.0	0.0	0.0	21.9
51	611408.07	4816918.47	30.00	0	DEN	1000	93.4	0.0	0.0	0.0	0.0	71.7	4.0	-1.6	0.0	0.0	0.0	0.0	0.0	19.3
51	611408.07	4816918.47	30.00	0	DEN	2000	88.9	0.0	0.0	0.0	0.0	71.7	10.5	-1.6	0.0	0.0	0.0	0.0	0.0	8.3
51	611408.07	4816918.47	30.00	0	DEN	4000	84.4	0.0	0.0	0.0	0.0	71.7	35.5	-1.6	0.0	0.0	0.0	0.0	0.0	-21.2
51	611408.07	4816918.47	30.00	0	DEN	8000	76.4	0.0	0.0	0.0	0.0	71.7	126.5	-1.6	0.0	0.0	0.0	0.0	0.0	-120.2

Point Source, ISO 9613, Name: "New Biosolids Dryer Structure exhaust fan 4", ID: "!0500!DS_CF4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
61	611418.21	4816913.26	10.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	71.7	0.0	-4.8	0.0	0.0	0.0	0.0	0.0	-24.0
61	611418.21	4816913.26	10.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	71.7	0.1	-4.8	0.0	0.0	0.0	0.0	0.0	-7.8
61	611418.21	4816913.26	10.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	71.7	0.4	-0.5	0.0	0.0	0.0	0.0	0.0	0.7
61	611418.21	4816913.26	10.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	71.7	1.1	-1.7	0.0	0.0	0.0	0.0	0.0	9.0
61	611418.21	4816913.26	10.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	71.7	2.1	-2.4	0.0	0.0	0.0	0.0	0.0	14.6
61	611418.21	4816913.26	10.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	71.7	4.0	-2.4	0.0	0.0	0.0	0.0	0.0	20.6
61	611418.21	4816913.26	10.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	71.7	10.5	-2.4	0.0	0.0	0.0	0.0	0.0	16.6
61	611418.21	4816913.26	10.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	71.7	35.7	-2.4	0.0	0.0	0.0	0.0	0.0	-12.5
61	611418.21	4816913.26	10.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	71.7	127.2	-2.4	0.0	0.0	0.0	0.0	0.0	-107.2

Point Source, ISO 9613, Name: "New Biosolids Dryer Structure exhaust fan 2", ID: "!0500!DS_CF2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
67	611458.49	4816909.46	10.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	71.8	0.0	-4.8	0.0	0.0	0.0	0.0	0.0	-24.0
67	611458.49	4816909.46	10.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	71.8	0.1	-4.8	0.0	0.0	0.0	0.0	0.0	-7.9
67	611458.49	4816909.46	10.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	71.8	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	0.7

Point Source, ISO 9613, Name: "New Biosolids Dryer Structure exhaust fan 2", ID: "!0500!DS_CF2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
67	611458.49	4816909.46	10.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	71.8	1.1	-1.7	0.0	0.0	0.0	0.0	0.0	8.9
67	611458.49	4816909.46	10.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	71.8	2.1	-2.4	0.0	0.0	0.0	0.0	0.0	14.5
67	611458.49	4816909.46	10.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	71.8	4.0	-2.4	0.0	0.0	0.0	0.0	0.0	20.5
67	611458.49	4816909.46	10.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	71.8	10.6	-2.4	0.0	0.0	0.0	0.0	0.0	16.4
67	611458.49	4816909.46	10.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	71.8	36.0	-2.4	0.0	0.0	0.0	0.0	0.0	-12.8
67	611458.49	4816909.46	10.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	71.8	128.3	-2.4	0.0	0.0	0.0	0.0	0.0	-108.4

Point Source, ISO 9613, Name: "New Biosolids Dryer Structure exhaust fan 3", ID: "!0500!DS_CF3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
76	611441.10	4816891.22	10.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	71.9	0.0	-4.8	0.0	0.0	0.0	0.0	0.0	-24.1
76	611441.10	4816891.22	10.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	71.9	0.1	-4.8	0.0	0.0	0.0	0.0	0.0	-8.0
76	611441.10	4816891.22	10.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	71.9	0.5	-0.6	0.0	0.0	0.0	0.0	0.0	0.6
76	611441.10	4816891.22	10.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	71.9	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	8.9
76	611441.10	4816891.22	10.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	71.9	2.1	-2.5	0.0	0.0	0.0	0.0	0.0	14.5
76	611441.10	4816891.22	10.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	71.9	4.1	-2.5	0.0	0.0	0.0	0.0	0.0	20.4
76	611441.10	4816891.22	10.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	71.9	10.8	-2.5	0.0	0.0	0.0	0.0	0.0	16.2
76	611441.10	4816891.22	10.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	71.9	36.5	-2.5	0.0	0.0	0.0	0.0	0.0	-13.4
76	611441.10	4816891.22	10.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	71.9	130.1	-2.5	0.0	0.0	0.0	0.0	0.0	-110.2

Point Source, ISO 9613, Name: "New Primary Thickening Facility odour control fan 4", ID: "!0500!ODC_F4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
89	611505.64	4816868.65	8.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	72.2	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-24.2
89	611505.64	4816868.65	8.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	72.2	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-8.1
89	611505.64	4816868.65	8.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	72.2	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
89	611505.64	4816868.65	8.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	72.2	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	8.6
89	611505.64	4816868.65	8.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	72.2	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	14.2
89	611505.64	4816868.65	8.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	72.2	4.2	-2.5	0.0	0.0	0.0	0.0	0.0	20.1
89	611505.64	4816868.65	8.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	72.2	11.1	-2.5	0.0	0.0	0.0	0.0	0.0	15.7
89	611505.64	4816868.65	8.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	72.2	37.6	-2.5	0.0	0.0	0.0	0.0	0.0	-14.7
89	611505.64	4816868.65	8.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	72.2	133.9	-2.5	0.0	0.0	0.0	0.0	0.0	-114.3

Point Source, ISO 9613, Name: "New Primary Thickening Facility odour control fan 3", ID: "!0500!ODC_F3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
92	611508.11	4816866.05	8.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	72.2	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-24.2
92	611508.11	4816866.05	8.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	72.2	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-8.1
92	611508.11	4816866.05	8.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	72.2	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
92	611508.11	4816866.05	8.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	72.2	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	8.5
92	611508.11	4816866.05	8.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	72.2	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	14.1
92	611508.11	4816866.05	8.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	72.2	4.2	-2.5	0.0	0.0	0.0	0.0	0.0	20.0
92	611508.11	4816866.05	8.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	72.2	11.1	-2.5	0.0	0.0	0.0	0.0	0.0	15.6
92	611508.11	4816866.05	8.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	72.2	37.7	-2.5	0.0	0.0	0.0	0.0	0.0	-14.8
92	611508.11	4816866.05	8.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	72.2	134.3	-2.5	0.0	0.0	0.0	0.0	0.0	-114.7

Point Source, ISO 9613, Name: "New Primary Thickening Facility odour control fan 2", ID: "!0500!ODC_F2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
105	611515.15	4816858.68	8.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	72.3	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-24.3
105	611515.15	4816858.68	8.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	72.3	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-8.2
105	611515.15	4816858.68	8.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	72.3	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	-0.0
105	611515.15	4816858.68	8.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	72.3	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	8.5
105	611515.15	4816858.68	8.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	72.3	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	14.0
105	611515.15	4816858.68	8.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	72.3	4.2	-2.5	0.0	0.0	0.0	0.0	0.0	19.9
105	611515.15	4816858.68	8.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	72.3	11.2	-2.5	0.0	0.0	0.0	0.0	0.0	15.5
105	611515.15	4816858.68	8.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	72.3	37.9	-2.5	0.0	0.0	0.0	0.0	0.0	-15.2
105	611515.15	4816858.68	8.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	72.3	135.3	-2.5	0.0	0.0	0.0	0.0	0.0	-115.7

Point Source, ISO 9613, Name: "New Primary Thickening Facility odour control fan 1", ID: "!0500!ODC_F1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
107	611516.76	4816856.89	8.50	0	DEN	32	43.0	0.0	0.0	0.0	0.0	72.3	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-24.3

Point Source, ISO 9613, Name: "New Primary Thickening Facility odour control fan 1", ID: "!0500!ODC_F1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
107	611516.76	4816856.89	8.50	0	DEN	63	59.3	0.0	0.0	0.0	0.0	72.3	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-8.2
107	611516.76	4816856.89	8.50	0	DEN	125	72.4	0.0	0.0	0.0	0.0	72.3	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	-0.0
107	611516.76	4816856.89	8.50	0	DEN	250	80.1	0.0	0.0	0.0	0.0	72.3	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	8.5
107	611516.76	4816856.89	8.50	0	DEN	500	86.0	0.0	0.0	0.0	0.0	72.3	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	14.0
107	611516.76	4816856.89	8.50	0	DEN	1000	93.9	0.0	0.0	0.0	0.0	72.3	4.2	-2.5	0.0	0.0	0.0	0.0	0.0	19.9
107	611516.76	4816856.89	8.50	0	DEN	2000	96.4	0.0	0.0	0.0	0.0	72.3	11.2	-2.5	0.0	0.0	0.0	0.0	0.0	15.4
107	611516.76	4816856.89	8.50	0	DEN	4000	92.5	0.0	0.0	0.0	0.0	72.3	38.0	-2.5	0.0	0.0	0.0	0.0	0.0	-15.2
107	611516.76	4816856.89	8.50	0	DEN	8000	89.3	0.0	0.0	0.0	0.0	72.3	135.5	-2.5	0.0	0.0	0.0	0.0	0.0	-116.0

Point Source, ISO 9613, Name: "Biosolids complex carrier HVAC intake ", ID: "!0604!BC_HVAC_I"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
115	611569.52	4816792.07	2.50	0	DEN	32	42.6	0.0	0.0	3.0	0.0	72.8	0.0	-5.5	0.0	0.0	8.3	0.0	0.0	-30.1
115	611569.52	4816792.07	2.50	0	DEN	63	69.1	0.0	0.0	3.0	0.0	72.8	0.2	-5.5	0.0	0.0	11.1	0.0	0.0	-6.5
115	611569.52	4816792.07	2.50	0	DEN	125	75.7	0.0	0.0	3.0	0.0	72.8	0.5	0.5	0.0	0.0	14.4	0.0	0.0	-9.5
115	611569.52	4816792.07	2.50	0	DEN	250	85.7	0.0	0.0	3.0	0.0	72.8	1.3	-0.7	0.0	0.0	18.6	0.0	0.0	-3.4
115	611569.52	4816792.07	2.50	0	DEN	500	90.1	0.0	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	21.9	0.0	0.0	-1.3
115	611569.52	4816792.07	2.50	0	DEN	1000	91.7	0.0	0.0	3.0	0.0	72.8	4.5	-3.0	0.0	0.0	25.0	0.0	0.0	-4.6
115	611569.52	4816792.07	2.50	0	DEN	2000	92.0	0.0	0.0	3.0	0.0	72.8	11.9	-3.0	0.0	0.0	25.0	0.0	0.0	-11.8
115	611569.52	4816792.07	2.50	0	DEN	4000	83.0	0.0	0.0	3.0	0.0	72.8	40.5	-3.0	0.0	0.0	25.0	0.0	0.0	-49.3
115	611569.52	4816792.07	2.50	0	DEN	8000	75.3	0.0	0.0	3.0	0.0	72.8	144.3	-3.0	0.0	0.0	25.0	0.0	0.0	-160.8

Point Source, ISO 9613, Name: "New Headworks Building Carbon Unit Stack 2", ID: "!0500!HW_CUS2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
122	611590.11	4817170.51	30.00	0	DEN	32	49.8	0.0	0.0	0.0	0.0	69.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-17.1
122	611590.11	4817170.51	30.00	0	DEN	63	79.8	0.0	0.0	0.0	0.0	69.9	0.1	-3.0	0.0	0.0	0.0	0.0	0.0	12.8
122	611590.11	4817170.51	30.00	0	DEN	125	88.6	0.0	0.0	0.0	0.0	69.9	0.4	0.4	0.0	0.0	0.0	0.0	0.0	18.0
122	611590.11	4817170.51	30.00	0	DEN	250	86.9	0.0	0.0	0.0	0.0	69.9	0.9	-0.8	0.0	0.0	0.0	0.0	0.0	16.9
122	611590.11	4817170.51	30.00	0	DEN	500	89.1	0.0	0.0	0.0	0.0	69.9	1.7	-1.5	0.0	0.0	0.0	0.0	0.0	19.0
122	611590.11	4817170.51	30.00	0	DEN	1000	88.4	0.0	0.0	0.0	0.0	69.9	3.2	-1.5	0.0	0.0	0.0	0.0	0.0	16.8
122	611590.11	4817170.51	30.00	0	DEN	2000	83.9	0.0	0.0	0.0	0.0	69.9	8.5	-1.5	0.0	0.0	0.0	0.0	0.0	7.1
122	611590.11	4817170.51	30.00	0	DEN	4000	79.4	0.0	0.0	0.0	0.0	69.9	28.8	-1.5	0.0	0.0	0.0	0.0	0.0	-17.7
122	611590.11	4817170.51	30.00	0	DEN	8000	71.4	0.0	0.0	0.0	0.0	69.9	102.6	-1.5	0.0	0.0	0.0	0.0	0.0	-99.6

Point Source, ISO 9613, Name: "New Headworks Building Carbon Unit Stack 1", ID: "!0500!HW_CUS1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
125	611601.34	4817158.64	30.00	0	DEN	32	49.8	0.0	0.0	0.0	0.0	70.0	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-17.2
125	611601.34	4817158.64	30.00	0	DEN	63	79.8	0.0	0.0	0.0	0.0	70.0	0.1	-3.0	0.0	0.0	0.0	0.0	0.0	12.7
125	611601.34	4817158.64	30.00	0	DEN	125	88.6	0.0	0.0	0.0	0.0	70.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	17.9
125	611601.34	4817158.64	30.00	0	DEN	250	86.9	0.0	0.0	0.0	0.0	70.0	0.9	-0.8	0.0	0.0	0.0	0.0	0.0	16.8
125	611601.34	4817158.64	30.00	0	DEN	500	89.1	0.0	0.0	0.0	0.0	70.0	1.7	-1.5	0.0	0.0	0.0	0.0	0.0	18.9
125	611601.34	4817158.64	30.00	0	DEN	1000	88.4	0.0	0.0	0.0	0.0	70.0	3.3	-1.5	0.0	0.0	0.0	0.0	0.0	16.6
125	611601.34	4817158.64	30.00	0	DEN	2000	83.9	0.0	0.0	0.0	0.0	70.0	8.6	-1.5	0.0	0.0	0.0	0.0	0.0	6.8
125	611601.34	4817158.64	30.00	0	DEN	4000	79.4	0.0	0.0	0.0	0.0	70.0	29.3	-1.5	0.0	0.0	0.0	0.0	0.0	-18.4
125	611601.34	4817158.64	30.00	0	DEN	8000	71.4	0.0	0.0	0.0	0.0	70.0	104.4	-1.5	0.0	0.0	0.0	0.0	0.0	-101.5

vert. Area Source, ISO 9613, Name: "P1 Blower building south wall louvre ", ID: "!0603!P1B_SL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
128	611683.83	4816754.05	7.00	0	DEN	32	33.7	7.0	0.0	3.0	0.0	73.3	0.0	-5.2	0.0	0.0	9.1	0.0	0.0	-33.5
128	611683.83	4816754.05	7.00	0	DEN	63	52.5	7.0	0.0	3.0	0.0	73.3	0.2	-5.2	0.0	0.0	11.7	0.0	0.0	-17.4
128	611683.83	4816754.05	7.00	0	DEN	125	59.0	7.0	0.0	3.0	0.0	73.3	0.5	-0.7	0.0	0.0	15.3	0.0	0.0	-19.4
128	611683.83	4816754.05	7.00	0	DEN	250	65.8	7.0	0.0	3.0	0.0	73.3	1.4	-2.3	0.0	0.0	19.6	0.0	0.0	-16.1
128	611683.83	4816754.05	7.00	0	DEN	500	66.7	7.0	0.0	3.0	0.0	73.3	2.5	-3.0	0.0	0.0	23.4	0.0	0.0	-19.4
128	611683.83	4816754.05	7.00	0	DEN	1000	71.6	7.0	0.0	3.0	0.0	73.3	4.8	-3.0	0.0	0.0	25.0	0.0	0.0	-18.4
128	611683.83	4816754.05	7.00	0	DEN	2000	74.9	7.0	0.0	3.0	0.0	73.3	12.6	-3.0	0.0	0.0	25.0	0.0	0.0	-22.9
128	611683.83	4816754.05	7.00	0	DEN	4000	70.3	7.0	0.0	3.0	0.0	73.3	42.7	-3.0	0.0	0.0	25.0	0.0	0.0	-57.6
128	611683.83	4816754.05	7.00	0	DEN	8000	55.0	7.0	0.0	3.0	0.0	73.3	152.2	-3.0	0.0	0.0	25.0	0.0	0.0	-182.4
130	611700.81	4816771.44	7.00	0	DEN	32	33.7	16.4	0.0	3.0	0.0	73.2	0.0	-5.2	0.0	0.0	12.1	0.0	0.0	-27.1
130	611700.81	4816771.44	7.00	0	DEN	63	52.5	16.4	0.0	3.0	0.0	73.2	0.2	-5.2	0.0	0.0	14.8	0.0	0.0	-11.1
130	611700.81	4816771.44	7.00	0	DEN	125	59.0	16.4	0.0	3.0	0.0	73.2	0.5	-0.7	0.0	0.0	17.6	0.0	0.0	-12.3

vert. Area Source, ISO 9613, Name: "P1 Blower building south wall louvre ", ID: "!0603!P1B_SL"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
130	611700.81	4816771.44	7.00	0	DEN	250	65.8	16.4	0.0	3.0	0.0	73.2	1.3	-2.3	0.0	0.0	20.5	0.0	0.0	-7.6
130	611700.81	4816771.44	7.00	0	DEN	500	66.7	16.4	0.0	3.0	0.0	73.2	2.5	-3.0	0.0	0.0	23.5	0.0	0.0	-10.1
130	611700.81	4816771.44	7.00	0	DEN	1000	71.6	16.4	0.0	3.0	0.0	73.2	4.7	-3.0	0.0	0.0	25.0	0.0	0.0	-8.9
130	611700.81	4816771.44	7.00	0	DEN	2000	74.9	16.4	0.0	3.0	0.0	73.2	12.5	-3.0	0.0	0.0	25.0	0.0	0.0	-13.4
130	611700.81	4816771.44	7.00	0	DEN	4000	70.3	16.4	0.0	3.0	0.0	73.2	42.3	-3.0	0.0	0.0	25.0	0.0	0.0	-47.8
130	611700.81	4816771.44	7.00	0	DEN	8000	55.0	16.4	0.0	3.0	0.0	73.2	150.9	-3.0	0.0	0.0	25.0	0.0	0.0	-171.6

Point Source, ISO 9613, Name: "Biosolids complex compressor units", ID: "!0604!BC_C"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
133	611570.69	4816793.47	0.50	0	DEN	32	41.9	0.0	0.0	0.0	0.0	72.8	0.0	-5.6	0.0	0.0	9.5	0.0	0.0	-34.9
133	611570.69	4816793.47	0.50	0	DEN	63	70.6	0.0	0.0	0.0	0.0	72.8	0.2	-5.6	0.0	0.0	12.5	0.0	0.0	-9.2
133	611570.69	4816793.47	0.50	0	DEN	125	76.4	0.0	0.0	0.0	0.0	72.8	0.5	-0.5	0.0	0.0	16.5	0.0	0.0	-12.9
133	611570.69	4816793.47	0.50	0	DEN	250	86.5	0.0	0.0	0.0	0.0	72.8	1.3	-1.3	0.0	0.0	20.5	0.0	0.0	-6.8
133	611570.69	4816793.47	0.50	0	DEN	500	90.5	0.0	0.0	0.0	0.0	72.8	2.4	-1.4	0.0	0.0	23.9	0.0	0.0	-7.3
133	611570.69	4816793.47	0.50	0	DEN	1000	92.5	0.0	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	25.0	0.0	0.0	-7.1
133	611570.69	4816793.47	0.50	0	DEN	2000	92.7	0.0	0.0	0.0	0.0	72.8	11.9	-3.4	0.0	0.0	25.0	0.0	0.0	-13.7
133	611570.69	4816793.47	0.50	0	DEN	4000	84.2	0.0	0.0	0.0	0.0	72.8	40.4	-3.4	0.0	0.0	25.0	0.0	0.0	-50.7
133	611570.69	4816793.47	0.50	0	DEN	8000	78.1	0.0	0.0	0.0	0.0	72.8	144.1	-3.4	0.0	0.0	25.0	0.0	0.0	-160.5

vert. Area Source, ISO 9613, Name: "P1 Blower building north wall louvre 2", ID: "!0603!P1B_NL2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
147	611692.96	4816782.27	7.00	0	DEN	32	33.7	15.9	0.0	3.0	0.0	73.1	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-15.4
147	611692.96	4816782.27	7.00	0	DEN	63	52.5	15.9	0.0	3.0	0.0	73.1	0.2	-5.2	0.0	0.0	0.0	0.0	0.0	3.3
147	611692.96	4816782.27	7.00	0	DEN	125	59.0	15.9	0.0	3.0	0.0	73.1	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	4.8
147	611692.96	4816782.27	7.00	0	DEN	250	65.8	15.9	0.0	3.0	0.0	73.1	1.3	-2.2	0.0	0.0	0.0	0.0	0.0	12.5
147	611692.96	4816782.27	7.00	0	DEN	500	66.7	15.9	0.0	3.0	0.0	73.1	2.5	-3.0	0.0	0.0	0.0	0.0	0.0	13.0
147	611692.96	4816782.27	7.00	0	DEN	1000	71.6	15.9	0.0	3.0	0.0	73.1	4.7	-3.0	0.0	0.0	0.0	0.0	0.0	15.7
147	611692.96	4816782.27	7.00	0	DEN	2000	74.9	15.9	0.0	3.0	0.0	73.1	12.4	-3.0	0.0	0.0	0.0	0.0	0.0	11.3
147	611692.96	4816782.27	7.00	0	DEN	4000	70.3	15.9	0.0	3.0	0.0	73.1	41.9	-3.0	0.0	0.0	0.0	0.0	0.0	-22.9
147	611692.96	4816782.27	7.00	0	DEN	8000	55.0	15.9	0.0	3.0	0.0	73.1	149.4	-3.0	0.0	0.0	0.0	0.0	0.0	-145.6

Point Source, ISO 9613, Name: "Biosolids complex carrier HVAC top fans", ID: "!0604!BC_HVAC_T"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
149	611570.16	4816793.00	3.00	0	DEN	32	42.6	0.0	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	6.6	0.0	0.0	-31.5
149	611570.16	4816793.00	3.00	0	DEN	63	69.1	0.0	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	8.3	0.0	0.0	-6.7
149	611570.16	4816793.00	3.00	0	DEN	125	75.7	0.0	0.0	0.0	0.0	72.8	0.5	0.5	0.0	0.0	10.8	0.0	0.0	-8.9
149	611570.16	4816793.00	3.00	0	DEN	250	85.7	0.0	0.0	0.0	0.0	72.8	1.3	-0.9	0.0	0.0	15.0	0.0	0.0	-2.5
149	611570.16	4816793.00	3.00	0	DEN	500	90.1	0.0	0.0	0.0	0.0	72.8	2.4	-2.9	0.0	0.0	18.4	0.0	0.0	-0.7
149	611570.16	4816793.00	3.00	0	DEN	1000	91.7	0.0	0.0	0.0	0.0	72.8	4.5	-3.0	0.0	0.0	21.6	0.0	0.0	-4.2
149	611570.16	4816793.00	3.00	0	DEN	2000	92.0	0.0	0.0	0.0	0.0	72.8	11.9	-3.0	0.0	0.0	24.6	0.0	0.0	-14.4
149	611570.16	4816793.00	3.00	0	DEN	4000	83.0	0.0	0.0	0.0	0.0	72.8	40.4	-3.0	0.0	0.0	25.0	0.0	0.0	-52.3
149	611570.16	4816793.00	3.00	0	DEN	8000	75.3	0.0	0.0	0.0	0.0	72.8	144.2	-3.0	0.0	0.0	25.0	0.0	0.0	-163.7

Point Source, ISO 9613, Name: "Kemira truck mounted pump", ID: "!0601!KTP"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
157	611736.66	4816684.98	1.00	0	D	32	63.6	0.0	0.0	0.0	0.0	73.8	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-9.5
157	611736.66	4816684.98	1.00	0	D	63	69.8	0.0	0.0	0.0	0.0	73.8	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-3.4
157	611736.66	4816684.98	1.00	0	D	125	73.1	0.0	0.0	0.0	0.0	73.8	0.6	1.7	0.0	0.0	3.1	0.0	0.0	-6.2
157	611736.66	4816684.98	1.00	0	D	250	79.3	0.0	0.0	0.0	0.0	73.8	1.4	1.6	0.0	0.0	3.3	0.0	0.0	-0.9
157	611736.66	4816684.98	1.00	0	D	500	87.1	0.0	0.0	0.0	0.0	73.8	2.7	1.4	0.0	0.0	3.7	0.0	0.0	5.5
157	611736.66	4816684.98	1.00	0	D	1000	90.8	0.0	0.0	0.0	0.0	73.8	5.1	-2.0	0.0	0.0	5.4	0.0	0.0	8.4
157	611736.66	4816684.98	1.00	0	D	2000	91.8	0.0	0.0	0.0	0.0	73.8	13.4	-3.0	0.0	0.0	6.0	0.0	0.0	1.6
157	611736.66	4816684.98	1.00	0	D	4000	93.8	0.0	0.0	0.0	0.0	73.8	45.4	-3.0	0.0	0.0	7.0	0.0	0.0	-29.4
157	611736.66	4816684.98	1.00	0	D	8000	91.0	0.0	0.0	0.0	0.0	73.8	161.8	-3.0	0.0	0.0	8.5	0.0	0.0	-150.1
157	611736.66	4816684.98	1.00	0	N	32	63.6	0.0	-188.0	0.0	0.0	73.8	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-197.5
157	611736.66	4816684.98	1.00	0	N	63	69.8	0.0	-188.0	0.0	0.0	73.8	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-191.4
157	611736.66	4816684.98	1.00	0	N	125	73.1	0.0	-188.0	0.0	0.0	73.8	0.6	1.7	0.0	0.0	3.1	0.0	0.0	-194.2
157	611736.66	4816684.98	1.00	0	N	250	79.3	0.0	-188.0	0.0	0.0	73.8	1.4	1.6	0.0	0.0	3.3	0.0	0.0	-188.9
157	611736.66	4816684.98	1.00	0	N	500	87.1	0.0	-188.0	0.0	0.0	73.8	2.7	1.4	0.0	0.0	3.7	0.0	0.0	-182.5

Point Source, ISO 9613, Name: "Kemira truck mounted pump", ID: "!0601!KTP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
157	611736.66	4816684.98	1.00	0	N	1000	90.8	0.0	-188.0	0.0	0.0	73.8	5.1	-2.0	0.0	0.0	5.4	0.0	0.0	-179.6
157	611736.66	4816684.98	1.00	0	N	2000	91.8	0.0	-188.0	0.0	0.0	73.8	13.4	-3.0	0.0	0.0	6.0	0.0	0.0	-186.4
157	611736.66	4816684.98	1.00	0	N	4000	93.8	0.0	-188.0	0.0	0.0	73.8	45.4	-3.0	0.0	0.0	7.0	0.0	0.0	-217.4
157	611736.66	4816684.98	1.00	0	N	8000	91.0	0.0	-188.0	0.0	0.0	73.8	161.8	-3.0	0.0	0.0	8.5	0.0	0.0	-338.1
157	611736.66	4816684.98	1.00	0	E	32	63.6	0.0	0.0	0.0	0.0	73.8	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-9.5
157	611736.66	4816684.98	1.00	0	E	63	69.8	0.0	0.0	0.0	0.0	73.8	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-3.4
157	611736.66	4816684.98	1.00	0	E	125	73.1	0.0	0.0	0.0	0.0	73.8	0.6	1.7	0.0	0.0	3.1	0.0	0.0	-6.2
157	611736.66	4816684.98	1.00	0	E	250	79.3	0.0	0.0	0.0	0.0	73.8	1.4	1.6	0.0	0.0	3.3	0.0	0.0	-0.9
157	611736.66	4816684.98	1.00	0	E	500	87.1	0.0	0.0	0.0	0.0	73.8	2.7	1.4	0.0	0.0	3.7	0.0	0.0	5.5
157	611736.66	4816684.98	1.00	0	E	1000	90.8	0.0	0.0	0.0	0.0	73.8	5.1	-2.0	0.0	0.0	5.4	0.0	0.0	8.4
157	611736.66	4816684.98	1.00	0	E	2000	91.8	0.0	0.0	0.0	0.0	73.8	13.4	-3.0	0.0	0.0	6.0	0.0	0.0	1.6
157	611736.66	4816684.98	1.00	0	E	4000	93.8	0.0	0.0	0.0	0.0	73.8	45.4	-3.0	0.0	0.0	7.0	0.0	0.0	-29.4
157	611736.66	4816684.98	1.00	0	E	8000	91.0	0.0	0.0	0.0	0.0	73.8	161.8	-3.0	0.0	0.0	8.5	0.0	0.0	-150.1

Point Source, ISO 9613, Name: "New Primary Thickening Facility stack for biotrickling filter", ID: "!0500!S1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
165	611511.09	4816862.56	30.00	0	DEN	32	49.8	0.0	0.0	0.0	0.0	72.2	0.0	-3.3	0.0	0.0	0.0	0.0	0.0	-19.2
165	611511.09	4816862.56	30.00	0	DEN	63	79.8	0.0	0.0	0.0	0.0	72.2	0.1	-3.3	0.0	0.0	0.0	0.0	0.0	10.7
165	611511.09	4816862.56	30.00	0	DEN	125	88.6	0.0	0.0	0.0	0.0	72.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	15.6
165	611511.09	4816862.56	30.00	0	DEN	250	86.9	0.0	0.0	0.0	0.0	72.2	1.2	-1.0	0.0	0.0	0.0	0.0	0.0	14.4
165	611511.09	4816862.56	30.00	0	DEN	500	89.1	0.0	0.0	0.0	0.0	72.2	2.2	-1.7	0.0	0.0	0.0	0.0	0.0	16.3
165	611511.09	4816862.56	30.00	0	DEN	1000	88.4	0.0	0.0	0.0	0.0	72.2	4.2	-1.7	0.0	0.0	0.0	0.0	0.0	13.6
165	611511.09	4816862.56	30.00	0	DEN	2000	83.9	0.0	0.0	0.0	0.0	72.2	11.1	-1.7	0.0	0.0	0.0	0.0	0.0	2.2
165	611511.09	4816862.56	30.00	0	DEN	4000	79.4	0.0	0.0	0.0	0.0	72.2	37.8	-1.7	0.0	0.0	0.0	0.0	0.0	-29.0
165	611511.09	4816862.56	30.00	0	DEN	8000	71.4	0.0	0.0	0.0	0.0	72.2	134.8	-1.7	0.0	0.0	0.0	0.0	0.0	-134.0

Point Source, ISO 9613, Name: "Methane bubble exhaust 3", ID: "!0601!MB_EX3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
178	611444.21	4816698.32	2.50	0	DEN	32	39.1	0.0	0.0	0.0	0.0	73.3	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-33.5
178	611444.21	4816698.32	2.50	0	DEN	63	53.1	0.0	0.0	0.0	0.0	73.3	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-19.6
178	611444.21	4816698.32	2.50	0	DEN	125	65.9	0.0	0.0	0.0	0.0	73.3	0.5	1.4	0.0	0.0	3.3	0.0	0.0	-12.7
178	611444.21	4816698.32	2.50	0	DEN	250	78.6	0.0	0.0	0.0	0.0	73.3	1.4	0.4	0.0	0.0	4.4	0.0	0.0	-0.8
178	611444.21	4816698.32	2.50	0	DEN	500	88.1	0.0	0.0	0.0	0.0	73.3	2.5	-2.4	0.0	0.0	4.8	0.0	0.0	9.9
178	611444.21	4816698.32	2.50	0	DEN	1000	89.7	0.0	0.0	0.0	0.0	73.3	4.8	-2.8	0.0	0.0	4.8	0.0	0.0	9.6
178	611444.21	4816698.32	2.50	0	DEN	2000	91.8	0.0	0.0	0.0	0.0	73.3	12.6	-2.8	0.0	0.0	4.8	0.0	0.0	3.9
178	611444.21	4816698.32	2.50	0	DEN	4000	83.4	0.0	0.0	0.0	0.0	73.3	42.7	-2.8	0.0	0.0	4.8	0.0	0.0	-34.7
178	611444.21	4816698.32	2.50	0	DEN	8000	74.4	0.0	0.0	0.0	0.0	73.3	152.5	-2.8	0.0	0.0	4.8	0.0	0.0	-153.4

Point Source, ISO 9613, Name: "Methane bubble exhaust 1", ID: "!0601!MB_EX1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
191	611453.36	4816710.60	2.50	0	DEN	32	37.5	0.0	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.0
191	611453.36	4816710.60	2.50	0	DEN	63	50.1	0.0	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-22.5
191	611453.36	4816710.60	2.50	0	DEN	125	64.4	0.0	0.0	0.0	0.0	73.2	0.5	0.7	0.0	0.0	4.1	0.0	0.0	-14.2
191	611453.36	4816710.60	2.50	0	DEN	250	79.3	0.0	0.0	0.0	0.0	73.2	1.3	-0.4	0.0	0.0	4.8	0.0	0.0	0.4
191	611453.36	4816710.60	2.50	0	DEN	500	87.6	0.0	0.0	0.0	0.0	73.2	2.5	-2.7	0.0	0.0	4.8	0.0	0.0	9.8
191	611453.36	4816710.60	2.50	0	DEN	1000	89.7	0.0	0.0	0.0	0.0	73.2	4.7	-3.0	0.0	0.0	4.8	0.0	0.0	10.0
191	611453.36	4816710.60	2.50	0	DEN	2000	91.2	0.0	0.0	0.0	0.0	73.2	12.5	-3.0	0.0	0.0	4.8	0.0	0.0	3.7
191	611453.36	4816710.60	2.50	0	DEN	4000	82.7	0.0	0.0	0.0	0.0	73.2	42.4	-3.0	0.0	0.0	4.8	0.0	0.0	-34.7
191	611453.36	4816710.60	2.50	0	DEN	8000	74.4	0.0	0.0	0.0	0.0	73.2	151.2	-3.0	0.0	0.0	4.8	0.0	0.0	-151.8

Point Source, ISO 9613, Name: "Biosolids truck idling", ID: "!0604!BTI"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
194	611521.86	4816815.14	2.00	0	DEN	32	53.8	0.0	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	11.6	0.0	0.0	-24.9
194	611521.86	4816815.14	2.00	0	DEN	63	63.9	0.0	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	14.7	0.0	0.0	-18.0
194	611521.86	4816815.14	2.00	0	DEN	125	71.4	0.0	0.0	0.0	0.0	72.6	0.5	-0.5	0.0	0.0	18.7	0.0	0.0	-19.9
194	611521.86	4816815.14	2.00	0	DEN	250	82.0	0.0	0.0	0.0	0.0	72.6	1.3	-1.5	0.0	0.0	23.0	0.0	0.0	-13.4
194	611521.86	4816815.14	2.00	0	DEN	500	87.2	0.0	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	25.0	0.0	0.0	-9.9
194	611521.86	4816815.14	2.00	0	DEN	1000	90.7	0.0	0.0	0.0	0.0	72.6	4.4	-3.2	0.0	0.0	25.0	0.0	0.0	-8.1
194	611521.86	4816815.14	2.00	0	DEN	2000	85.8	0.0	0.0	0.0	0.0	72.6	11.6	-3.2	0.0	0.0	25.0	0.0	0.0	-20.2

Point Source, ISO 9613, Name: "Biosolids truck idling", ID: "!0604!BTI"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
194	611521.86	4816815.14	2.00	0	DEN	4000	81.2	0.0	0.0	0.0	0.0	72.6	39.4	-3.2	0.0	0.0	25.0	0.0	0.0	-52.5
194	611521.86	4816815.14	2.00	0	DEN	8000	71.4	0.0	0.0	0.0	0.0	72.6	140.4	-3.2	0.0	0.0	25.0	0.0	0.0	-163.4

Point Source, ISO 9613, Name: "Kemira Truck idling", ID: "!0601!KTI"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
197	611737.53	4816682.84	2.50	0	D	32	57.5	0.0	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-15.7
197	611737.53	4816682.84	2.50	0	D	63	64.9	0.0	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-8.4
197	611737.53	4816682.84	2.50	0	D	125	74.1	0.0	0.0	0.0	0.0	73.8	0.6	0.0	0.0	0.0	4.8	0.0	0.0	-5.1
197	611737.53	4816682.84	2.50	0	D	250	82.3	0.0	0.0	0.0	0.0	73.8	1.4	-1.1	0.0	0.0	4.8	0.0	0.0	3.3
197	611737.53	4816682.84	2.50	0	D	500	91.4	0.0	0.0	0.0	0.0	73.8	2.7	-3.0	0.0	0.0	4.9	0.0	0.0	13.0
197	611737.53	4816682.84	2.50	0	D	1000	91.8	0.0	0.0	0.0	0.0	73.8	5.1	-3.2	0.0	0.0	5.0	0.0	0.0	11.1
197	611737.53	4816682.84	2.50	0	D	2000	89.5	0.0	0.0	0.0	0.0	73.8	13.4	-3.2	0.0	0.0	5.2	0.0	0.0	0.4
197	611737.53	4816682.84	2.50	0	D	4000	87.8	0.0	0.0	0.0	0.0	73.8	45.4	-3.2	0.0	0.0	5.5	0.0	0.0	-33.8
197	611737.53	4816682.84	2.50	0	D	8000	80.6	0.0	0.0	0.0	0.0	73.8	162.1	-3.2	0.0	0.0	6.2	0.0	0.0	-158.2
197	611737.53	4816682.84	2.50	0	N	32	57.5	0.0	-188.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-203.7
197	611737.53	4816682.84	2.50	0	N	63	64.9	0.0	-188.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-196.4
197	611737.53	4816682.84	2.50	0	N	125	74.1	0.0	-188.0	0.0	0.0	73.8	0.6	0.0	0.0	0.0	4.8	0.0	0.0	-193.1
197	611737.53	4816682.84	2.50	0	N	250	82.3	0.0	-188.0	0.0	0.0	73.8	1.4	-1.1	0.0	0.0	4.8	0.0	0.0	-184.7
197	611737.53	4816682.84	2.50	0	N	500	91.4	0.0	-188.0	0.0	0.0	73.8	2.7	-3.0	0.0	0.0	4.9	0.0	0.0	-175.0
197	611737.53	4816682.84	2.50	0	N	1000	91.8	0.0	-188.0	0.0	0.0	73.8	5.1	-3.2	0.0	0.0	5.0	0.0	0.0	-176.9
197	611737.53	4816682.84	2.50	0	N	2000	89.5	0.0	-188.0	0.0	0.0	73.8	13.4	-3.2	0.0	0.0	5.2	0.0	0.0	-187.6
197	611737.53	4816682.84	2.50	0	N	4000	87.8	0.0	-188.0	0.0	0.0	73.8	45.4	-3.2	0.0	0.0	5.5	0.0	0.0	-221.8
197	611737.53	4816682.84	2.50	0	N	8000	80.6	0.0	-188.0	0.0	0.0	73.8	162.1	-3.2	0.0	0.0	6.2	0.0	0.0	-346.2
197	611737.53	4816682.84	2.50	0	E	32	57.5	0.0	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-15.7
197	611737.53	4816682.84	2.50	0	E	63	64.9	0.0	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-8.4
197	611737.53	4816682.84	2.50	0	E	125	74.1	0.0	0.0	0.0	0.0	73.8	0.6	0.0	0.0	0.0	4.8	0.0	0.0	-5.1
197	611737.53	4816682.84	2.50	0	E	250	82.3	0.0	0.0	0.0	0.0	73.8	1.4	-1.1	0.0	0.0	4.8	0.0	0.0	3.3
197	611737.53	4816682.84	2.50	0	E	500	91.4	0.0	0.0	0.0	0.0	73.8	2.7	-3.0	0.0	0.0	4.9	0.0	0.0	13.0
197	611737.53	4816682.84	2.50	0	E	1000	91.8	0.0	0.0	0.0	0.0	73.8	5.1	-3.2	0.0	0.0	5.0	0.0	0.0	11.1
197	611737.53	4816682.84	2.50	0	E	2000	89.5	0.0	0.0	0.0	0.0	73.8	13.4	-3.2	0.0	0.0	5.2	0.0	0.0	0.4
197	611737.53	4816682.84	2.50	0	E	4000	87.8	0.0	0.0	0.0	0.0	73.8	45.4	-3.2	0.0	0.0	5.5	0.0	0.0	-33.8
197	611737.53	4816682.84	2.50	0	E	8000	80.6	0.0	0.0	0.0	0.0	73.8	162.1	-3.2	0.0	0.0	6.2	0.0	0.0	-158.2

Point Source, ISO 9613, Name: "Air Handling Unit", ID: "!0601!AHU99300"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
213	611595.57	4816878.24	2.00	0	DEN	32	48.1	0.0	0.0	0.0	0.0	72.3	0.0	-5.5	0.0	0.0	6.4	0.0	0.0	-25.1
213	611595.57	4816878.24	2.00	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.3	0.1	-5.5	0.0	0.0	7.5	0.0	0.0	-18.5
213	611595.57	4816878.24	2.00	0	DEN	125	64.6	0.0	0.0	0.0	0.0	72.3	0.5	1.4	0.0	0.0	7.9	0.0	0.0	-17.4
213	611595.57	4816878.24	2.00	0	DEN	250	74.6	0.0	0.0	0.0	0.0	72.3	1.2	0.7	0.0	0.0	11.2	0.0	0.0	-10.8
213	611595.57	4816878.24	2.00	0	DEN	500	80.6	0.0	0.0	0.0	0.0	72.3	2.2	-1.8	0.0	0.0	15.7	0.0	0.0	-7.8
213	611595.57	4816878.24	2.00	0	DEN	1000	85.8	0.0	0.0	0.0	0.0	72.3	4.2	-2.7	0.0	0.0	20.0	0.0	0.0	-7.9
213	611595.57	4816878.24	2.00	0	DEN	2000	89.7	0.0	0.0	0.0	0.0	72.3	11.2	-2.8	0.0	0.0	23.7	0.0	0.0	-14.6
213	611595.57	4816878.24	2.00	0	DEN	4000	78.9	0.0	0.0	0.0	0.0	72.3	37.9	-2.8	0.0	0.0	25.0	0.0	0.0	-53.5
213	611595.57	4816878.24	2.00	0	DEN	8000	66.9	0.0	0.0	0.0	0.0	72.3	135.3	-2.8	0.0	0.0	25.0	0.0	0.0	-162.9

Point Source, ISO 9613, Name: "Co-gen engine roof exhaust ", ID: "!0601!JEN_C_19068_EF"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
217	611419.22	4816699.81	4.00	0	DEN	32	55.3	0.0	0.0	0.0	0.0	73.3	0.0	-5.4	0.0	0.0	4.8	0.0	0.0	-17.4
217	611419.22	4816699.81	4.00	0	DEN	63	70.6	0.0	0.0	0.0	0.0	73.3	0.2	-5.4	0.0	0.0	4.8	0.0	0.0	-2.2
217	611419.22	4816699.81	4.00	0	DEN	125	82.6	0.0	0.0	0.0	0.0	73.3	0.5	1.2	0.0	0.0	3.6	0.0	0.0	4.0
217	611419.22	4816699.81	4.00	0	DEN	250	89.1	0.0	0.0	0.0	0.0	73.3	1.4	-1.0	0.0	0.0	4.8	0.0	0.0	10.7
217	611419.22	4816699.81	4.00	0	DEN	500	86.3	0.0	0.0	0.0	0.0	73.3	2.5	-2.7	0.0	0.0	4.8	0.0	0.0	8.5
217	611419.22	4816699.81	4.00	0	DEN	1000	83.6	0.0	0.0	0.0	0.0	73.3	4.8	-2.7	0.0	0.0	4.8	0.0	0.0	3.5
217	611419.22	4816699.81	4.00	0	DEN	2000	80.6	0.0	0.0	0.0	0.0	73.3	12.6	-2.7	0.0	0.0	4.8	0.0	0.0	-7.3
217	611419.22	4816699.81	4.00	0	DEN	4000	74.4	0.0	0.0	0.0	0.0	73.3	42.6	-2.7	0.0	0.0	4.8	0.0	0.0	-43.5
217	611419.22	4816699.81	4.00	0	DEN	8000	65.1	0.0	0.0	0.0	0.0	73.3	152.0	-2.7	0.0	0.0	4.8	0.0	0.0	-162.2

Point Source, ISO 9613, Name: "New Digester Control Building exhaust air fan 4", ID: "!0500!DC_EF4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
230	611394.10	4816852.07	5.44	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.2	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-19.2
230	611394.10	4816852.07	5.44	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.2	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-5.2
230	611394.10	4816852.07	5.44	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.2	0.5	0.9	0.0	0.0	0.0	0.0	0.0	2.0
230	611394.10	4816852.07	5.44	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.2	1.2	-1.6	0.0	0.0	0.0	0.0	0.0	7.0
230	611394.10	4816852.07	5.44	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.2	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	11.8
230	611394.10	4816852.07	5.44	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.2	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	12.8
230	611394.10	4816852.07	5.44	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.2	11.1	-2.6	0.0	0.0	0.0	0.0	0.0	1.2
230	611394.10	4816852.07	5.44	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.2	37.6	-2.6	0.0	0.0	0.0	0.0	0.0	-30.3
230	611394.10	4816852.07	5.44	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.2	134.0	-2.6	0.0	0.0	0.0	0.0	0.0	-132.8

Point Source, ISO 9613, Name: "New Digester Control Building exhaust air fan 3", ID: "!0500!DC_EF3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
237	611384.68	4816844.00	5.44	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.2	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-19.2
237	611384.68	4816844.00	5.44	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.2	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-5.2
237	611384.68	4816844.00	5.44	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.2	0.5	0.8	0.0	0.0	0.0	0.0	0.0	2.0
237	611384.68	4816844.00	5.44	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.2	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	6.9
237	611384.68	4816844.00	5.44	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.2	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	11.8
237	611384.68	4816844.00	5.44	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.2	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	12.7
237	611384.68	4816844.00	5.44	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.2	11.1	-2.6	0.0	0.0	0.0	0.0	0.0	1.1
237	611384.68	4816844.00	5.44	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.2	37.8	-2.6	0.0	0.0	0.0	0.0	0.0	-30.6
237	611384.68	4816844.00	5.44	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.2	134.8	-2.6	0.0	0.0	0.0	0.0	0.0	-133.7

Point Source, ISO 9613, Name: "New Digester Control Building exhaust air fan 1", ID: "!0500!DC_EF1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
246	611404.07	4816841.75	5.44	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-19.3
246	611404.07	4816841.75	5.44	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-5.3
246	611404.07	4816841.75	5.44	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.3	0.5	0.8	0.0	0.0	0.0	0.0	0.0	2.0
246	611404.07	4816841.75	5.44	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.3	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	6.9
246	611404.07	4816841.75	5.44	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.3	2.2	-2.7	0.0	0.0	0.0	0.0	0.0	11.8
246	611404.07	4816841.75	5.44	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.3	4.2	-2.7	0.0	0.0	0.0	0.0	0.0	12.7
246	611404.07	4816841.75	5.44	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.3	11.2	-2.7	0.0	0.0	0.0	0.0	0.0	1.0
246	611404.07	4816841.75	5.44	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.3	37.9	-2.7	0.0	0.0	0.0	0.0	0.0	-30.7
246	611404.07	4816841.75	5.44	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.3	135.3	-2.7	0.0	0.0	0.0	0.0	0.0	-134.2

Point Source, ISO 9613, Name: "New Sidestream Treatment Building exhaust air fan 1", ID: "!0500!ST_EF1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
254	611470.54	4816845.74	6.00	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-24.1
254	611470.54	4816845.74	6.00	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-10.1
254	611470.54	4816845.74	6.00	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.3	0.5	0.4	0.0	0.0	4.4	0.0	0.0	-2.0
254	611470.54	4816845.74	6.00	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.3	1.2	-1.9	0.0	0.0	4.8	0.0	0.0	2.3
254	611470.54	4816845.74	6.00	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.3	2.2	-2.7	0.0	0.0	4.8	0.0	0.0	7.0
254	611470.54	4816845.74	6.00	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.3	4.3	-2.7	0.0	0.0	4.8	0.0	0.0	7.9
254	611470.54	4816845.74	6.00	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.3	11.2	-2.7	0.0	0.0	4.8	0.0	0.0	-3.8
254	611470.54	4816845.74	6.00	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.3	38.1	-2.7	0.0	0.0	4.9	0.0	0.0	-35.8
254	611470.54	4816845.74	6.00	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.3	135.8	-2.7	0.0	0.0	5.0	0.0	0.0	-139.8

Point Source, ISO 9613, Name: "New Digester Control Building exhaust air fan 2", ID: "!0500!DC_EF2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
266	611395.11	4816834.58	5.44	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-19.3
266	611395.11	4816834.58	5.44	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-5.3
266	611395.11	4816834.58	5.44	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.3	0.5	0.6	0.0	0.0	0.0	0.0	0.0	2.1
266	611395.11	4816834.58	5.44	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.3	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	6.9
266	611395.11	4816834.58	5.44	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.3	2.2	-2.7	0.0	0.0	0.0	0.0	0.0	11.8
266	611395.11	4816834.58	5.44	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.3	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	12.7
266	611395.11	4816834.58	5.44	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.3	11.2	-2.7	0.0	0.0	0.0	0.0	0.0	1.0
266	611395.11	4816834.58	5.44	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.3	38.1	-2.7	0.0	0.0	0.0	0.0	0.0	-30.9
266	611395.11	4816834.58	5.44	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.3	136.0	-2.7	0.0	0.0	0.0	0.0	0.0	-134.9

Point Source, ISO 9613, Name: "New Sidestream Treatment Building exhaust air fan 2", ID: "!0500!ST_EF2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
268	611463.42	4816839.79	6.00	0	DEN	32	47.8	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-24.2
268	611463.42	4816839.79	6.00	0	DEN	63	61.9	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-10.2
268	611463.42	4816839.79	6.00	0	DEN	125	75.5	0.0	0.0	0.0	0.0	72.3	0.5	0.2	0.0	0.0	4.6	0.0	0.0	-2.1
268	611463.42	4816839.79	6.00	0	DEN	250	78.7	0.0	0.0	0.0	0.0	72.3	1.2	-2.0	0.0	0.0	4.8	0.0	0.0	2.3
268	611463.42	4816839.79	6.00	0	DEN	500	83.6	0.0	0.0	0.0	0.0	72.3	2.2	-2.8	0.0	0.0	4.8	0.0	0.0	7.0
268	611463.42	4816839.79	6.00	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	72.3	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	7.9
268	611463.42	4816839.79	6.00	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	72.3	11.3	-2.8	0.0	0.0	4.8	0.0	0.0	-3.9
268	611463.42	4816839.79	6.00	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	72.3	38.2	-2.8	0.0	0.0	4.9	0.0	0.0	-35.9
268	611463.42	4816839.79	6.00	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	72.3	136.4	-2.8	0.0	0.0	5.1	0.0	0.0	-140.3

vert. Area Source, ISO 9613, Name: "P2 blower building air handling unit exhaust 3", ID: "!0602!AHU96601_3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
270	611816.71	4816900.49	8.50	0	DEN	32	38.1	2.0	0.0	3.0	0.0	72.7	0.0	-5.0	0.0	0.0	8.3	0.0	0.0	-32.8
270	611816.71	4816900.49	8.50	0	DEN	63	53.5	2.0	0.0	3.0	0.0	72.7	0.1	-5.0	0.0	0.0	10.2	0.0	0.0	-19.4
270	611816.71	4816900.49	8.50	0	DEN	125	74.7	2.0	0.0	3.0	0.0	72.7	0.5	-0.5	0.0	0.0	12.5	0.0	0.0	-5.4
270	611816.71	4816900.49	8.50	0	DEN	250	74.4	2.0	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	15.1	0.0	0.0	-7.6
270	611816.71	4816900.49	8.50	0	DEN	500	78.1	2.0	0.0	3.0	0.0	72.7	2.3	-2.7	0.0	0.0	17.9	0.0	0.0	-7.2
270	611816.71	4816900.49	8.50	0	DEN	1000	79.4	2.0	0.0	3.0	0.0	72.7	4.4	-2.7	0.0	0.0	20.0	0.0	0.0	-10.0
270	611816.71	4816900.49	8.50	0	DEN	2000	76.0	2.0	0.0	3.0	0.0	72.7	11.7	-2.7	0.0	0.0	20.0	0.0	0.0	-20.7
270	611816.71	4816900.49	8.50	0	DEN	4000	64.2	2.0	0.0	3.0	0.0	72.7	39.8	-2.7	0.0	0.0	20.0	0.0	0.0	-60.7
270	611816.71	4816900.49	8.50	0	DEN	8000	50.9	2.0	0.0	3.0	0.0	72.7	142.1	-2.7	0.0	0.0	20.0	0.0	0.0	-176.2
272	611816.71	4816900.49	9.50	0	DEN	32	38.1	2.0	0.0	3.0	0.0	72.7	0.0	-5.0	0.0	0.0	7.6	0.0	0.0	-32.2
272	611816.71	4816900.49	9.50	0	DEN	63	53.5	2.0	0.0	3.0	0.0	72.7	0.1	-5.0	0.0	0.0	9.3	0.0	0.0	-18.6
272	611816.71	4816900.49	9.50	0	DEN	125	74.7	2.0	0.0	3.0	0.0	72.7	0.5	-0.6	0.0	0.0	11.4	0.0	0.0	-4.2
272	611816.71	4816900.49	9.50	0	DEN	250	74.4	2.0	0.0	3.0	0.0	72.7	1.3	-1.9	0.0	0.0	13.9	0.0	0.0	-6.5
272	611816.71	4816900.49	9.50	0	DEN	500	78.1	2.0	0.0	3.0	0.0	72.7	2.3	-2.6	0.0	0.0	16.6	0.0	0.0	-5.9
272	611816.71	4816900.49	9.50	0	DEN	1000	79.4	2.0	0.0	3.0	0.0	72.7	4.4	-2.6	0.0	0.0	19.5	0.0	0.0	-9.6
272	611816.71	4816900.49	9.50	0	DEN	2000	76.0	2.0	0.0	3.0	0.0	72.7	11.7	-2.6	0.0	0.0	20.0	0.0	0.0	-20.8
272	611816.71	4816900.49	9.50	0	DEN	4000	64.2	2.0	0.0	3.0	0.0	72.7	39.8	-2.6	0.0	0.0	20.0	0.0	0.0	-60.7
272	611816.71	4816900.49	9.50	0	DEN	8000	50.9	2.0	0.0	3.0	0.0	72.7	142.1	-2.6	0.0	0.0	20.0	0.0	0.0	-176.2
275	611816.71	4816900.49	7.50	0	DEN	32	38.1	2.0	0.0	3.0	0.0	72.7	0.0	-5.1	0.0	0.0	8.9	0.0	0.0	-33.4
275	611816.71	4816900.49	7.50	0	DEN	63	53.5	2.0	0.0	3.0	0.0	72.7	0.1	-5.1	0.0	0.0	11.0	0.0	0.0	-20.1
275	611816.71	4816900.49	7.50	0	DEN	125	74.7	2.0	0.0	3.0	0.0	72.7	0.5	-0.3	0.0	0.0	13.4	0.0	0.0	-6.5
275	611816.71	4816900.49	7.50	0	DEN	250	74.4	2.0	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	16.1	0.0	0.0	-8.6
275	611816.71	4816900.49	7.50	0	DEN	500	78.1	2.0	0.0	3.0	0.0	72.7	2.3	-2.7	0.0	0.0	18.9	0.0	0.0	-8.1
275	611816.71	4816900.49	7.50	0	DEN	1000	79.4	2.0	0.0	3.0	0.0	72.7	4.4	-2.7	0.0	0.0	20.0	0.0	0.0	-10.0
275	611816.71	4816900.49	7.50	0	DEN	2000	76.0	2.0	0.0	3.0	0.0	72.7	11.7	-2.7	0.0	0.0	20.0	0.0	0.0	-20.7
275	611816.71	4816900.49	7.50	0	DEN	4000	64.2	2.0	0.0	3.0	0.0	72.7	39.8	-2.7	0.0	0.0	20.0	0.0	0.0	-60.6
275	611816.71	4816900.49	7.50	0	DEN	8000	50.9	2.0	0.0	3.0	0.0	72.7	142.1	-2.7	0.0	0.0	20.0	0.0	0.0	-176.1
340	611816.71	4816900.49	6.60	0	DEN	32	38.1	1.1	0.0	3.0	0.0	72.7	0.0	-5.2	0.0	0.0	9.4	0.0	0.0	-34.8
340	611816.71	4816900.49	6.60	0	DEN	63	53.5	1.1	0.0	3.0	0.0	72.7	0.1	-5.2	0.0	0.0	11.6	0.0	0.0	-21.6
340	611816.71	4816900.49	6.60	0	DEN	125	74.7	1.1	0.0	3.0	0.0	72.7	0.5	-0.1	0.0	0.0	14.1	0.0	0.0	-8.4
340	611816.71	4816900.49	6.60	0	DEN	250	74.4	1.1	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	16.8	0.0	0.0	-10.3
340	611816.71	4816900.49	6.60	0	DEN	500	78.1	1.1	0.0	3.0	0.0	72.7	2.3	-2.8	0.0	0.0	19.7	0.0	0.0	-9.8
340	611816.71	4816900.49	6.60	0	DEN	1000	79.4	1.1	0.0	3.0	0.0	72.7	4.4	-2.8	0.0	0.0	20.0	0.0	0.0	-10.9
340	611816.71	4816900.49	6.60	0	DEN	2000	76.0	1.1	0.0	3.0	0.0	72.7	11.7	-2.8	0.0	0.0	20.0	0.0	0.0	-21.6
340	611816.71	4816900.49	6.60	0	DEN	4000	64.2	1.1	0.0	3.0	0.0	72.7	39.8	-2.8	0.0	0.0	20.0	0.0	0.0	-61.5
340	611816.71	4816900.49	6.60	0	DEN	8000	50.9	1.1	0.0	3.0	0.0	72.7	142.1	-2.8	0.0	0.0	20.0	0.0	0.0	-177.0

Point Source, ISO 9613, Name: "New Admin Building Greenheck Exhaust Fan", ID: "!0601!EF_201"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
282	611931.53	4816787.67	9.12	0	DEN	32	47.8	0.0	0.0	0.0	0.0	73.7	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-25.6
282	611931.53	4816787.67	9.12	0	DEN	63	61.9	0.0	0.0	0.0	0.0	73.7	0.2	-5.1	0.0	0.0	4.8	0.0	0.0	-11.6
282	611931.53	4816787.67	9.12	0	DEN	125	75.5	0.0	0.0	0.0	0.0	73.7	0.6	-0.6	0.0	0.0	4.8	0.0	0.0	-2.9
282	611931.53	4816787.67	9.12	0	DEN	250	78.7	0.0	0.0	0.0	0.0	73.7	1.4	-2.0	0.0	0.0	4.8	0.0	0.0	0.8
282	611931.53	4816787.67	9.12	0	DEN	500	83.6	0.0	0.0	0.0	0.0	73.7	2.6	-2.7	0.0	0.0	4.8	0.0	0.0	5.2
282	611931.53	4816787.67	9.12	0	DEN	1000	86.5	0.0	0.0	0.0	0.0	73.7	5.0	-2.7	0.0	0.0	4.8	0.0	0.0	5.7
282	611931.53	4816787.67	9.12	0	DEN	2000	81.8	0.0	0.0	0.0	0.0	73.7	13.2	-2.7	0.0	0.0	4.8	0.0	0.0	-7.2
282	611931.53	4816787.67	9.12	0	DEN	4000	76.8	0.0	0.0	0.0	0.0	73.7	44.8	-2.7	0.0	0.0	4.8	0.0	0.0	-43.8
282	611931.53	4816787.67	9.12	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	73.7	159.9	-2.7	0.0	0.0	4.8	0.0	0.0	-165.0

vert. Area Source, ISO 9613, Name: "P2 blower building air handling unit exhaust 2", ID: "!0602!AHU96601_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
294	611818.49	4816898.81	9.50	0	DEN	32	41.3	2.0	0.0	3.0	0.0	72.7	0.0	-5.0	0.0	0.0	7.3	0.0	0.0	-28.8
294	611818.49	4816898.81	9.50	0	DEN	63	51.9	2.0	0.0	3.0	0.0	72.7	0.1	-5.0	0.0	0.0	8.9	0.0	0.0	-20.0
294	611818.49	4816898.81	9.50	0	DEN	125	76.9	2.0	0.0	3.0	0.0	72.7	0.5	-0.6	0.0	0.0	11.0	0.0	0.0	-1.7
294	611818.49	4816898.81	9.50	0	DEN	250	73.3	2.0	0.0	3.0	0.0	72.7	1.3	-1.9	0.0	0.0	13.5	0.0	0.0	-7.1
294	611818.49	4816898.81	9.50	0	DEN	500	76.4	2.0	0.0	3.0	0.0	72.7	2.3	-2.6	0.0	0.0	16.2	0.0	0.0	-7.2
294	611818.49	4816898.81	9.50	0	DEN	1000	77.8	2.0	0.0	3.0	0.0	72.7	4.5	-2.6	0.0	0.0	19.0	0.0	0.0	-10.7
294	611818.49	4816898.81	9.50	0	DEN	2000	76.5	2.0	0.0	3.0	0.0	72.7	11.8	-2.6	0.0	0.0	20.0	0.0	0.0	-20.4
294	611818.49	4816898.81	9.50	0	DEN	4000	65.4	2.0	0.0	3.0	0.0	72.7	39.9	-2.6	0.0	0.0	20.0	0.0	0.0	-59.6
294	611818.49	4816898.81	9.50	0	DEN	8000	52.6	2.0	0.0	3.0	0.0	72.7	142.3	-2.6	0.0	0.0	20.0	0.0	0.0	-174.8
296	611818.49	4816898.81	8.50	0	DEN	32	41.3	2.0	0.0	3.0	0.0	72.7	0.0	-5.0	0.0	0.0	8.1	0.0	0.0	-29.4
296	611818.49	4816898.81	8.50	0	DEN	63	51.9	2.0	0.0	3.0	0.0	72.7	0.1	-5.0	0.0	0.0	9.9	0.0	0.0	-20.8
296	611818.49	4816898.81	8.50	0	DEN	125	76.9	2.0	0.0	3.0	0.0	72.7	0.5	-0.5	0.0	0.0	12.2	0.0	0.0	-3.0
296	611818.49	4816898.81	8.50	0	DEN	250	73.3	2.0	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	14.8	0.0	0.0	-8.4
296	611818.49	4816898.81	8.50	0	DEN	500	76.4	2.0	0.0	3.0	0.0	72.7	2.3	-2.7	0.0	0.0	17.5	0.0	0.0	-8.5
296	611818.49	4816898.81	8.50	0	DEN	1000	77.8	2.0	0.0	3.0	0.0	72.7	4.5	-2.7	0.0	0.0	20.0	0.0	0.0	-11.6
296	611818.49	4816898.81	8.50	0	DEN	2000	76.5	2.0	0.0	3.0	0.0	72.7	11.8	-2.7	0.0	0.0	20.0	0.0	0.0	-20.3
296	611818.49	4816898.81	8.50	0	DEN	4000	65.4	2.0	0.0	3.0	0.0	72.7	39.9	-2.7	0.0	0.0	20.0	0.0	0.0	-59.5
296	611818.49	4816898.81	8.50	0	DEN	8000	52.6	2.0	0.0	3.0	0.0	72.7	142.3	-2.7	0.0	0.0	20.0	0.0	0.0	-174.8
302	611818.49	4816898.81	7.50	0	DEN	32	41.3	2.0	0.0	3.0	0.0	72.7	0.0	-5.1	0.0	0.0	8.7	0.0	0.0	-30.0
302	611818.49	4816898.81	7.50	0	DEN	63	51.9	2.0	0.0	3.0	0.0	72.7	0.1	-5.1	0.0	0.0	10.7	0.0	0.0	-21.6
302	611818.49	4816898.81	7.50	0	DEN	125	76.9	2.0	0.0	3.0	0.0	72.7	0.5	-0.3	0.0	0.0	13.1	0.0	0.0	-4.2
302	611818.49	4816898.81	7.50	0	DEN	250	73.3	2.0	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	15.8	0.0	0.0	-9.4
302	611818.49	4816898.81	7.50	0	DEN	500	76.4	2.0	0.0	3.0	0.0	72.7	2.3	-2.7	0.0	0.0	18.7	0.0	0.0	-9.5
302	611818.49	4816898.81	7.50	0	DEN	1000	77.8	2.0	0.0	3.0	0.0	72.7	4.5	-2.7	0.0	0.0	20.0	0.0	0.0	-11.6
302	611818.49	4816898.81	7.50	0	DEN	2000	76.5	2.0	0.0	3.0	0.0	72.7	11.8	-2.7	0.0	0.0	20.0	0.0	0.0	-20.3
302	611818.49	4816898.81	7.50	0	DEN	4000	65.4	2.0	0.0	3.0	0.0	72.7	39.9	-2.7	0.0	0.0	20.0	0.0	0.0	-59.4
302	611818.49	4816898.81	7.50	0	DEN	8000	52.6	2.0	0.0	3.0	0.0	72.7	142.3	-2.7	0.0	0.0	20.0	0.0	0.0	-174.7
371	611818.49	4816898.81	6.60	0	DEN	32	41.3	1.1	0.0	3.0	0.0	72.7	0.0	-5.2	0.0	0.0	9.2	0.0	0.0	-31.4
371	611818.49	4816898.81	6.60	0	DEN	63	51.9	1.1	0.0	3.0	0.0	72.7	0.1	-5.2	0.0	0.0	11.4	0.0	0.0	-23.2
371	611818.49	4816898.81	6.60	0	DEN	125	76.9	1.1	0.0	3.0	0.0	72.7	0.5	-0.1	0.0	0.0	13.9	0.0	0.0	-6.1
371	611818.49	4816898.81	6.60	0	DEN	250	73.3	1.1	0.0	3.0	0.0	72.7	1.3	-2.0	0.0	0.0	16.6	0.0	0.0	-11.2
371	611818.49	4816898.81	6.60	0	DEN	500	76.4	1.1	0.0	3.0	0.0	72.7	2.3	-2.8	0.0	0.0	19.5	0.0	0.0	-11.3
371	611818.49	4816898.81	6.60	0	DEN	1000	77.8	1.1	0.0	3.0	0.0	72.7	4.5	-2.8	0.0	0.0	20.0	0.0	0.0	-12.5
371	611818.49	4816898.81	6.60	0	DEN	2000	76.5	1.1	0.0	3.0	0.0	72.7	11.8	-2.8	0.0	0.0	20.0	0.0	0.0	-21.2
371	611818.49	4816898.81	6.60	0	DEN	4000	65.4	1.1	0.0	3.0	0.0	72.7	39.9	-2.8	0.0	0.0	20.0	0.0	0.0	-60.3
371	611818.49	4816898.81	6.60	0	DEN	8000	52.6	1.1	0.0	3.0	0.0	72.7	142.3	-2.8	0.0	0.0	20.0	0.0	0.0	-175.6

vert. Area Source, ISO 9613, Name: "P1 Blower building east wall louvre 3", ID: "!0603!P1B_EL3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
314	611708.82	4816794.40	7.00	0	DEN	32	33.7	7.5	0.0	3.0	0.0	73.1	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-28.5
314	611708.82	4816794.40	7.00	0	DEN	63	52.5	7.5	0.0	3.0	0.0	73.1	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-9.8
314	611708.82	4816794.40	7.00	0	DEN	125	59.0	7.5	0.0	3.0	0.0	73.1	0.5	-0.6	0.0	0.0	4.8	0.0	0.0	-8.3
314	611708.82	4816794.40	7.00	0	DEN	250	65.8	7.5	0.0	3.0	0.0	73.1	1.3	-2.3	0.0	0.0	4.8	0.0	0.0	-0.6
314	611708.82	4816794.40	7.00	0	DEN	500	66.7	7.5	0.0	3.0	0.0	73.1	2.5	-3.0	0.0	0.0	4.8	0.0	0.0	-0.1
314	611708.82	4816794.40	7.00	0	DEN	1000	71.6	7.5	0.0	3.0	0.0	73.1	4.7	-3.0	0.0	0.0	4.8	0.0	0.0	2.6
314	611708.82	4816794.40	7.00	0	DEN	2000	74.9	7.5	0.0	3.0	0.0	73.1	12.3	-3.0	0.0	0.0	4.8	0.0	0.0	-1.7
314	611708.82	4816794.40	7.00	0	DEN	4000	70.3	7.5	0.0	3.0	0.0	73.1	41.7	-3.0	0.0	0.0	4.8	0.0	0.0	-35.7
314	611708.82	4816794.40	7.00	0	DEN	8000	55.0	7.5	0.0	3.0	0.0	73.1	148.6	-3.0	0.0	0.0	4.8	0.0	0.0	-158.0

vert. Area Source, ISO 9613, Name: "P1 Blower building west wall louvre ", ID: "!0603!P1B_WL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
320	611674.55	4816759.12	7.00	0	DEN	32	33.7	7.5	0.0	3.0	0.0	73.2	0.0	-5.2	0.0	0.0	8.5	0.0	0.0	-32.4
320	611674.55	4816759.12	7.00	0	DEN	63	52.5	7.5	0.0	3.0	0.0	73.2	0.2	-5.2	0.0	0.0	10.5	0.0	0.0	-15.7
320	611674.55	4816759.12	7.00	0	DEN	125	59.0	7.5	0.0	3.0	0.0	73.2	0.5	-0.6	0.0	0.0	13.0	0.0	0.0	-16.7
320	611674.55	4816759.12	7.00	0	DEN	250	65.8	7.5	0.0	3.0	0.0	73.2	1.4	-2.2	0.0	0.0	16.1	0.0	0.0	-12.1
320	611674.55	4816759.12	7.00	0	DEN	500	66.7	7.5	0.0	3.0	0.0	73.2	2.5	-3.0	0.0	0.0	19.9	0.0	0.0	-15.5
320	611674.55	4816759.12	7.00	0	DEN	1000	71.6	7.5	0.0	3.0	0.0	73.2	4.7	-3.0	0.0	0.0	24.4	0.0	0.0	-17.3
320	611674.55	4816759.12	7.00	0	DEN	2000	74.9	7.5	0.0	3.0	0.0	73.2	12.5	-3.0	0.0	0.0	25.0	0.0	0.0	-22.4
320	611674.55	4816759.12	7.00	0	DEN	4000	70.3	7.5	0.0	3.0	0.0	73.2	42.4	-3.0	0.0	0.0	25.0	0.0	0.0	-56.9
320	611674.55	4816759.12	7.00	0	DEN	8000	55.0	7.5	0.0	3.0	0.0	73.2	151.3	-3.0	0.0	0.0	25.0	0.0	0.0	-181.0

Point Source, ISO 9613, Name: "Digester 3 sludge mixer motor 3", ID: "!0607!D3_47003"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
342	611462.60	4816745.20	6.90	0	DEN	32	52.4	0.0	0.0	0.0	0.0	73.0	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-20.2
342	611462.60	4816745.20	6.90	0	DEN	63	60.6	0.0	0.0	0.0	0.0	73.0	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-12.1
342	611462.60	4816745.20	6.90	0	DEN	125	70.5	0.0	0.0	0.0	0.0	73.0	0.5	-0.5	0.0	0.0	4.8	0.0	0.0	-7.3
342	611462.60	4816745.20	6.90	0	DEN	250	73.3	0.0	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	4.8	0.0	0.0	-3.6
342	611462.60	4816745.20	6.90	0	DEN	500	75.2	0.0	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	4.8	0.0	0.0	-2.1
342	611462.60	4816745.20	6.90	0	DEN	1000	87.0	0.0	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	7.5
342	611462.60	4816745.20	6.90	0	DEN	2000	75.9	0.0	0.0	0.0	0.0	73.0	12.2	-2.9	0.0	0.0	4.8	0.0	0.0	-11.1
342	611462.60	4816745.20	6.90	0	DEN	4000	76.3	0.0	0.0	0.0	0.0	73.0	41.3	-2.9	0.0	0.0	4.8	0.0	0.0	-39.9
342	611462.60	4816745.20	6.90	0	DEN	8000	70.7	0.0	0.0	0.0	0.0	73.0	147.3	-2.9	0.0	0.0	4.8	0.0	0.0	-151.5

Point Source, ISO 9613, Name: "Methane bubble blower 1", ID: "!0601!BL64110"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
350	611430.45	4816708.37	1.00	0	DEN	32	45.1	0.0	0.0	0.0	0.0	73.2	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-27.3
350	611430.45	4816708.37	1.00	0	DEN	63	58.8	0.0	0.0	0.0	0.0	73.2	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-13.7
350	611430.45	4816708.37	1.00	0	DEN	125	74.2	0.0	0.0	0.0	0.0	73.2	0.5	1.9	0.0	0.0	2.9	0.0	0.0	-4.4
350	611430.45	4816708.37	1.00	0	DEN	250	79.1	0.0	0.0	0.0	0.0	73.2	1.3	1.8	0.0	0.0	3.1	0.0	0.0	-0.4
350	611430.45	4816708.37	1.00	0	DEN	500	85.5	0.0	0.0	0.0	0.0	73.2	2.5	1.6	0.0	0.0	3.3	0.0	0.0	4.8
350	611430.45	4816708.37	1.00	0	DEN	1000	80.5	0.0	0.0	0.0	0.0	73.2	4.7	-1.8	0.0	0.0	5.1	0.0	0.0	-0.8
350	611430.45	4816708.37	1.00	0	DEN	2000	78.5	0.0	0.0	0.0	0.0	73.2	12.5	-2.8	0.0	0.0	5.4	0.0	0.0	-9.9
350	611430.45	4816708.37	1.00	0	DEN	4000	75.1	0.0	0.0	0.0	0.0	73.2	42.4	-2.8	0.0	0.0	6.0	0.0	0.0	-43.7
350	611430.45	4816708.37	1.00	0	DEN	8000	71.3	0.0	0.0	0.0	0.0	73.2	151.1	-2.8	0.0	0.0	7.0	0.0	0.0	-157.2

Point Source, ISO 9613, Name: "Methane bubble blower 2", ID: "!0601!BL64120"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
353	611430.34	4816706.04	1.00	0	DEN	32	45.1	0.0	0.0	0.0	0.0	73.2	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-27.3
353	611430.34	4816706.04	1.00	0	DEN	63	58.8	0.0	0.0	0.0	0.0	73.2	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-13.7
353	611430.34	4816706.04	1.00	0	DEN	125	74.2	0.0	0.0	0.0	0.0	73.2	0.5	1.9	0.0	0.0	2.9	0.0	0.0	-4.4
353	611430.34	4816706.04	1.00	0	DEN	250	79.1	0.0	0.0	0.0	0.0	73.2	1.4	1.8	0.0	0.0	3.0	0.0	0.0	-0.3
353	611430.34	4816706.04	1.00	0	DEN	500	85.5	0.0	0.0	0.0	0.0	73.2	2.5	1.6	0.0	0.0	3.3	0.0	0.0	4.8
353	611430.34	4816706.04	1.00	0	DEN	1000	80.5	0.0	0.0	0.0	0.0	73.2	4.7	-1.8	0.0	0.0	5.0	0.0	0.0	-0.7
353	611430.34	4816706.04	1.00	0	DEN	2000	78.5	0.0	0.0	0.0	0.0	73.2	12.5	-2.8	0.0	0.0	5.3	0.0	0.0	-9.7
353	611430.34	4816706.04	1.00	0	DEN	4000	75.1	0.0	0.0	0.0	0.0	73.2	42.4	-2.8	0.0	0.0	5.7	0.0	0.0	-43.5
353	611430.34	4816706.04	1.00	0	DEN	8000	71.3	0.0	0.0	0.0	0.0	73.2	151.4	-2.8	0.0	0.0	6.5	0.0	0.0	-157.0

Point Source, ISO 9613, Name: "Siloxane blower", ID: "!0601!BSP64670"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
356	611424.56	4816693.30	1.80	0	DEN	32	46.7	0.0	0.0	0.0	0.0	73.3	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-25.9
356	611424.56	4816693.30	1.80	0	DEN	63	57.8	0.0	0.0	0.0	0.0	73.3	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-14.9
356	611424.56	4816693.30	1.80	0	DEN	125	69.0	0.0	0.0	0.0	0.0	73.3	0.5	1.7	0.0	0.0	3.1	0.0	0.0	-9.6
356	611424.56	4816693.30	1.80	0	DEN	250	73.0	0.0	0.0	0.0	0.0	73.3	1.4	1.1	0.0	0.0	3.6	0.0	0.0	-6.5
356	611424.56	4816693.30	1.80	0	DEN	500	81.5	0.0	0.0	0.0	0.0	73.3	2.5	-1.2	0.0	0.0	4.8	0.0	0.0	2.1
356	611424.56	4816693.30	1.80	0	DEN	1000	81.6	0.0	0.0	0.0	0.0	73.3	4.8	-2.6	0.0	0.0	4.8	0.0	0.0	1.4
356	611424.56	4816693.30	1.80	0	DEN	2000	83.6	0.0	0.0	0.0	0.0	73.3	12.6	-2.8	0.0	0.0	4.8	0.0	0.0	-4.3
356	611424.56	4816693.30	1.80	0	DEN	4000	79.1	0.0	0.0	0.0	0.0	73.3	42.8	-2.8	0.0	0.0	4.8	0.0	0.0	-39.1
356	611424.56	4816693.30	1.80	0	DEN	8000	76.0	0.0	0.0	0.0	0.0	73.3	152.8	-2.8	0.0	0.0	4.8	0.0	0.0	-152.1

Point Source, ISO 9613, Name: "P1 Blower Building hood exhuast 4", ID: "!0603!P1B_EX4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
364	611704.55	4816783.28	11.63	0	DEN	32	53.6	0.0	0.0	0.0	0.0	73.1	0.0	-4.9	0.0	0.0	4.8	0.0	0.0	-19.5
364	611704.55	4816783.28	11.63	0	DEN	63	70.8	0.0	0.0	0.0	0.0	73.1	0.2	-4.9	0.0	0.0	4.8	0.0	0.0	-2.4
364	611704.55	4816783.28	11.63	0	DEN	125	69.9	0.0	0.0	0.0	0.0	73.1	0.5	-0.8	0.0	0.0	4.8	0.0	0.0	-7.8
364	611704.55	4816783.28	11.63	0	DEN	250	78.4	0.0	0.0	0.0	0.0	73.1	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	1.1
364	611704.55	4816783.28	11.63	0	DEN	500	80.8	0.0	0.0	0.0	0.0	73.1	2.5	-2.7	0.0	0.0	4.8	0.0	0.0	3.1
364	611704.55	4816783.28	11.63	0	DEN	1000	82.0	0.0	0.0	0.0	0.0	73.1	4.7	-2.7	0.0	0.0	4.8	0.0	0.0	2.0
364	611704.55	4816783.28	11.63	0	DEN	2000	83.2	0.0	0.0	0.0	0.0	73.1	12.4	-2.7	0.0	0.0	4.8	0.0	0.0	-4.4
364	611704.55	4816783.28	11.63	0	DEN	4000	77.0	0.0	0.0	0.0	0.0	73.1	42.0	-2.7	0.0	0.0	4.8	0.0	0.0	-40.2
364	611704.55	4816783.28	11.63	0	DEN	8000	65.9	0.0	0.0	0.0	0.0	73.1	149.7	-2.7	0.0	0.0	4.8	0.0	0.0	-159.1

Point Source, ISO 9613, Name: "P1 Blower Building hood exhuast 3", ID: "!0603!P1B_EX3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
373	611697.82	4816776.29	11.63	0	DEN	32	53.6	0.0	0.0	0.0	0.0	73.2	0.0	-4.9	0.0	0.0	4.8	0.0	0.0	-19.5
373	611697.82	4816776.29	11.63	0	DEN	63	70.8	0.0	0.0	0.0	0.0	73.2	0.2	-4.9	0.0	0.0	4.8	0.0	0.0	-2.5
373	611697.82	4816776.29	11.63	0	DEN	125	69.9	0.0	0.0	0.0	0.0	73.2	0.5	-0.8	0.0	0.0	4.8	0.0	0.0	-7.9
373	611697.82	4816776.29	11.63	0	DEN	250	78.4	0.0	0.0	0.0	0.0	73.2	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	1.1
373	611697.82	4816776.29	11.63	0	DEN	500	80.8	0.0	0.0	0.0	0.0	73.2	2.5	-2.7	0.0	0.0	4.8	0.0	0.0	3.0
373	611697.82	4816776.29	11.63	0	DEN	1000	82.0	0.0	0.0	0.0	0.0	73.2	4.7	-2.7	0.0	0.0	4.8	0.0	0.0	2.0
373	611697.82	4816776.29	11.63	0	DEN	2000	83.2	0.0	0.0	0.0	0.0	73.2	12.4	-2.7	0.0	0.0	4.8	0.0	0.0	-4.5
373	611697.82	4816776.29	11.63	0	DEN	4000	77.0	0.0	0.0	0.0	0.0	73.2	42.1	-2.7	0.0	0.0	4.8	0.0	0.0	-40.4
373	611697.82	4816776.29	11.63	0	DEN	8000	65.9	0.0	0.0	0.0	0.0	73.2	150.2	-2.7	0.0	0.0	4.8	0.0	0.0	-159.6

Point Source, ISO 9613, Name: "P1 Blower Building hood exhuast 2", ID: "!0603!P1B_EX2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
375	611690.98	4816769.03	11.63	0	DEN	32	53.6	0.0	0.0	0.0	0.0	73.2	0.0	-4.9	0.0	0.0	0.0	0.0	0.0	-14.8
375	611690.98	4816769.03	11.63	0	DEN	63	70.8	0.0	0.0	0.0	0.0	73.2	0.2	-4.9	0.0	0.0	0.0	0.0	0.0	2.3
375	611690.98	4816769.03	11.63	0	DEN	125	69.9	0.0	0.0	0.0	0.0	73.2	0.5	-0.8	0.0	0.0	0.0	0.0	0.0	-3.1
375	611690.98	4816769.03	11.63	0	DEN	250	78.4	0.0	0.0	0.0	0.0	73.2	1.3	-2.0	0.0	0.0	0.0	0.0	0.0	5.8
375	611690.98	4816769.03	11.63	0	DEN	500	80.8	0.0	0.0	0.0	0.0	73.2	2.5	-2.7	0.0	0.0	0.0	0.0	0.0	7.7
375	611690.98	4816769.03	11.63	0	DEN	1000	82.0	0.0	0.0	0.0	0.0	73.2	4.7	-2.7	0.0	0.0	0.0	0.0	0.0	6.7
375	611690.98	4816769.03	11.63	0	DEN	2000	83.2	0.0	0.0	0.0	0.0	73.2	12.5	-2.7	0.0	0.0	0.0	0.0	0.0	0.2
375	611690.98	4816769.03	11.63	0	DEN	4000	77.0	0.0	0.0	0.0	0.0	73.2	42.3	-2.7	0.0	0.0	0.0	0.0	0.0	-35.8
375	611690.98	4816769.03	11.63	0	DEN	8000	65.9	0.0	0.0	0.0	0.0	73.2	150.8	-2.7	0.0	0.0	0.0	0.0	0.0	-155.4

Point Source, ISO 9613, Name: "P1 Blower Building hood exhuast 1", ID: "!0603!P1B_EX1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
387	611683.35	4816761.07	11.63	0	DEN	32	53.6	0.0	0.0	0.0	0.0	73.2	0.0	-4.9	0.0	0.0	5.2	0.0	0.0	-20.0
387	611683.35	4816761.07	11.63	0	DEN	63	70.8	0.0	0.0	0.0	0.0	73.2	0.2	-4.9	0.0	0.0	5.5	0.0	0.0	-3.3
387	611683.35	4816761.07	11.63	0	DEN	125	69.9	0.0	0.0	0.0	0.0	73.2	0.5	-0.8	0.0	0.0	6.2	0.0	0.0	-9.3
387	611683.35	4816761.07	11.63	0	DEN	250	78.4	0.0	0.0	0.0	0.0	73.2	1.4	-2.0	0.0	0.0	7.3	0.0	0.0	-1.5
387	611683.35	4816761.07	11.63	0	DEN	500	80.8	0.0	0.0	0.0	0.0	73.2	2.5	-2.7	0.0	0.0	9.0	0.0	0.0	-1.3
387	611683.35	4816761.07	11.63	0	DEN	1000	82.0	0.0	0.0	0.0	0.0	73.2	4.7	-2.7	0.0	0.0	11.7	0.0	0.0	-5.1
387	611683.35	4816761.07	11.63	0	DEN	2000	83.2	0.0	0.0	0.0	0.0	73.2	12.5	-2.7	0.0	0.0	15.6	0.0	0.0	-15.5
387	611683.35	4816761.07	11.63	0	DEN	4000	77.0	0.0	0.0	0.0	0.0	73.2	42.4	-2.7	0.0	0.0	19.7	0.0	0.0	-55.8
387	611683.35	4816761.07	11.63	0	DEN	8000	65.9	0.0	0.0	0.0	0.0	73.2	151.4	-2.7	0.0	0.0	23.3	0.0	0.0	-179.3

Point Source, ISO 9613, Name: "Control building exhaust air fan 1", ID: "!0607!CB_FAN95650"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
390	611469.85	4816773.11	5.44	0	DEN	32	44.8	0.0	0.0	0.0	0.0	72.8	0.0	-5.3	0.0	0.0	7.2	0.0	0.0	-30.0
390	611469.85	4816773.11	5.44	0	DEN	63	58.9	0.0	0.0	0.0	0.0	72.8	0.2	-5.3	0.0	0.0	9.4	0.0	0.0	-18.2
390	611469.85	4816773.11	5.44	0	DEN	125	72.5	0.0	0.0	0.0	0.0	72.8	0.5	-0.2	0.0	0.0	12.8	0.0	0.0	-13.5
390	611469.85	4816773.11	5.44	0	DEN	250	75.7	0.0	0.0	0.0	0.0	72.8	1.3	-2.1	0.0	0.0	16.6	0.0	0.0	-12.8
390	611469.85	4816773.11	5.44	0	DEN	500	80.6	0.0	0.0	0.0	0.0	72.8	2.4	-3.0	0.0	0.0	19.9	0.0	0.0	-11.5
390	611469.85	4816773.11	5.44	0	DEN	1000	83.5	0.0	0.0	0.0	0.0	72.8	4.5	-3.0	0.0	0.0	22.9	0.0	0.0	-13.8
390	611469.85	4816773.11	5.44	0	DEN	2000	78.8	0.0	0.0	0.0	0.0	72.8	11.9	-3.0	0.0	0.0	25.0	0.0	0.0	-28.0
390	611469.85	4816773.11	5.44	0	DEN	4000	73.8	0.0	0.0	0.0	0.0	72.8	40.4	-3.0	0.0	0.0	25.0	0.0	0.0	-61.5
390	611469.85	4816773.11	5.44	0	DEN	8000	67.7	0.0	0.0	0.0	0.0	72.8	144.2	-3.0	0.0	0.0	25.0	0.0	0.0	-171.4

vert. Area Source, ISO 9613, Name: "P1 Blower building east wall louvre 2", ID: "!0603!P1B_EL2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
392	611714.84	4816788.53	7.00	0	DEN	32	33.7	5.5	0.0	3.0	0.0	73.1	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-30.6
392	611714.84	4816788.53	7.00	0	DEN	63	52.5	5.5	0.0	3.0	0.0	73.1	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-11.9
392	611714.84	4816788.53	7.00	0	DEN	125	59.0	5.5	0.0	3.0	0.0	73.1	0.5	-0.6	0.0	0.0	4.8	0.0	0.0	-10.3
392	611714.84	4816788.53	7.00	0	DEN	250	65.8	5.5	0.0	3.0	0.0	73.1	1.3	-2.3	0.0	0.0	4.8	0.0	0.0	-2.7
392	611714.84	4816788.53	7.00	0	DEN	500	66.7	5.5	0.0	3.0	0.0	73.1	2.5	-3.0	0.0	0.0	4.8	0.0	0.0	-2.2
392	611714.84	4816788.53	7.00	0	DEN	1000	71.6	5.5	0.0	3.0	0.0	73.1	4.7	-3.0	0.0	0.0	4.8	0.0	0.0	0.5
392	611714.84	4816788.53	7.00	0	DEN	2000	74.9	5.5	0.0	3.0	0.0	73.1	12.4	-3.0	0.0	0.0	4.8	0.0	0.0	-3.9
392	611714.84	4816788.53	7.00	0	DEN	4000	70.3	5.5	0.0	3.0	0.0	73.1	41.9	-3.0	0.0	0.0	4.8	0.0	0.0	-38.0
392	611714.84	4816788.53	7.00	0	DEN	8000	55.0	5.5	0.0	3.0	0.0	73.1	149.5	-3.0	0.0	0.0	4.8	0.0	0.0	-160.9

vert. Area Source, ISO 9613, Name: "P1 Blower building east wall louvre 1", ID: "!0603!P1B_EL1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
394	611714.84	4816788.53	3.00	0	DEN	32	33.7	5.5	0.0	3.0	0.0	73.1	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-30.3
394	611714.84	4816788.53	3.00	0	DEN	63	52.5	5.5	0.0	3.0	0.0	73.1	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-11.6
394	611714.84	4816788.53	3.00	0	DEN	125	59.0	5.5	0.0	3.0	0.0	73.1	0.5	-1.1	0.0	0.0	4.8	0.0	0.0	-9.8
394	611714.84	4816788.53	3.00	0	DEN	250	65.8	5.5	0.0	3.0	0.0	73.1	1.3	-2.4	0.0	0.0	4.8	0.0	0.0	-2.6
394	611714.84	4816788.53	3.00	0	DEN	500	66.7	5.5	0.0	3.0	0.0	73.1	2.5	-3.4	0.0	0.0	4.8	0.0	0.0	-1.8
394	611714.84	4816788.53	3.00	0	DEN	1000	71.6	5.5	0.0	3.0	0.0	73.1	4.7	-3.4	0.0	0.0	4.8	0.0	0.0	0.9
394	611714.84	4816788.53	3.00	0	DEN	2000	74.9	5.5	0.0	3.0	0.0	73.1	12.4	-3.4	0.0	0.0	4.8	0.0	0.0	-3.5
394	611714.84	4816788.53	3.00	0	DEN	4000	70.3	5.5	0.0	3.0	0.0	73.1	41.9	-3.4	0.0	0.0	4.8	0.0	0.0	-37.6
394	611714.84	4816788.53	3.00	0	DEN	8000	55.0	5.5	0.0	3.0	0.0	73.1	149.5	-3.4	0.0	0.0	4.8	0.0	0.0	-160.5

vert. Area Source, ISO 9613, Name: "P1 Blower building north wall louvre 1", ID: "!0603!P1B_NL1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
405	611674.86	4816763.72	7.00	0	DEN	32	30.9	8.3	0.0	3.0	0.0	73.2	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-25.9
405	611674.86	4816763.72	7.00	0	DEN	63	49.7	8.3	0.0	3.0	0.0	73.2	0.2	-5.2	0.0	0.0	0.0	0.0	0.0	-7.2
405	611674.86	4816763.72	7.00	0	DEN	125	56.2	8.3	0.0	3.0	0.0	73.2	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	-5.7
405	611674.86	4816763.72	7.00	0	DEN	250	63.0	8.3	0.0	3.0	0.0	73.2	1.3	-2.2	0.0	0.0	0.0	0.0	0.0	2.0
405	611674.86	4816763.72	7.00	0	DEN	500	63.9	8.3	0.0	3.0	0.0	73.2	2.5	-3.0	0.0	0.0	0.0	0.0	0.0	2.5
405	611674.86	4816763.72	7.00	0	DEN	1000	68.8	8.3	0.0	3.0	0.0	73.2	4.7	-3.0	0.0	0.0	0.0	0.0	0.0	5.1
405	611674.86	4816763.72	7.00	0	DEN	2000	72.1	8.3	0.0	3.0	0.0	73.2	12.5	-3.0	0.0	0.0	0.0	0.0	0.0	0.7
405	611674.86	4816763.72	7.00	0	DEN	4000	67.5	8.3	0.0	3.0	0.0	73.2	42.3	-3.0	0.0	0.0	0.0	0.0	0.0	-33.7
405	611674.86	4816763.72	7.00	0	DEN	8000	52.2	8.3	0.0	3.0	0.0	73.2	150.8	-3.0	0.0	0.0	0.0	0.0	0.0	-157.5

Point Source, ISO 9613, Name: "Digester 4 sludge mixer motor 2", ID: "!0606!D4_48002"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
408	611426.00	4816772.91	6.28	0	DEN	32	52.2	0.0	0.0	0.0	0.0	72.8	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-20.2
408	611426.00	4816772.91	6.28	0	DEN	63	57.8	0.0	0.0	0.0	0.0	72.8	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-14.7
408	611426.00	4816772.91	6.28	0	DEN	125	66.6	0.0	0.0	0.0	0.0	72.8	0.5	0.6	0.0	0.0	4.2	0.0	0.0	-11.5
408	611426.00	4816772.91	6.28	0	DEN	250	70.4	0.0	0.0	0.0	0.0	72.8	1.3	-1.8	0.0	0.0	4.8	0.0	0.0	-6.6
408	611426.00	4816772.91	6.28	0	DEN	500	78.0	0.0	0.0	0.0	0.0	72.8	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	0.7
408	611426.00	4816772.91	6.28	0	DEN	1000	81.1	0.0	0.0	0.0	0.0	72.8	4.5	-2.6	0.0	0.0	4.8	0.0	0.0	1.7
408	611426.00	4816772.91	6.28	0	DEN	2000	80.5	0.0	0.0	0.0	0.0	72.8	11.9	-2.6	0.0	0.0	4.8	0.0	0.0	-6.3
408	611426.00	4816772.91	6.28	0	DEN	4000	74.1	0.0	0.0	0.0	0.0	72.8	40.2	-2.6	0.0	0.0	4.8	0.0	0.0	-41.1
408	611426.00	4816772.91	6.28	0	DEN	8000	62.3	0.0	0.0	0.0	0.0	72.8	143.6	-2.6	0.0	0.0	4.8	0.0	0.0	-156.2

vert. Area Source, ISO 9613, Name: "Biosolids complex south wall louvre ", ID: "!0603!BC_SL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
411	611558.64	4816783.27	1.50	0	DEN	32	34.2	0.4	0.0	3.0	0.0	72.9	0.0	-5.6	0.0	0.0	11.5	0.0	0.0	-41.2
411	611558.64	4816783.27	1.50	0	DEN	63	47.1	0.4	0.0	3.0	0.0	72.9	0.2	-5.6	0.0	0.0	15.4	0.0	0.0	-32.3
411	611558.64	4816783.27	1.50	0	DEN	125	57.3	0.4	0.0	3.0	0.0	72.9	0.5	-1.6	0.0	0.0	19.2	0.0	0.0	-30.2
411	611558.64	4816783.27	1.50	0	DEN	250	62.3	0.4	0.0	3.0	0.0	72.9	1.3	-2.8	0.0	0.0	22.5	0.0	0.0	-28.1
411	611558.64	4816783.27	1.50	0	DEN	500	67.2	0.4	0.0	3.0	0.0	72.9	2.4	-3.5	0.0	0.0	25.0	0.0	0.0	-26.1
411	611558.64	4816783.27	1.50	0	DEN	1000	67.4	0.4	0.0	3.0	0.0	72.9	4.5	-3.5	0.0	0.0	25.0	0.0	0.0	-28.1
411	611558.64	4816783.27	1.50	0	DEN	2000	63.9	0.4	0.0	3.0	0.0	72.9	12.0	-3.5	0.0	0.0	25.0	0.0	0.0	-39.0
411	611558.64	4816783.27	1.50	0	DEN	4000	55.8	0.4	0.0	3.0	0.0	72.9	40.7	-3.5	0.0	0.0	25.0	0.0	0.0	-75.8
411	611558.64	4816783.27	1.50	0	DEN	8000	48.6	0.4	0.0	3.0	0.0	72.9	145.0	-3.5	0.0	0.0	25.0	0.0	0.0	-187.3
414	611561.60	4816786.37	1.50	0	DEN	32	34.2	8.7	0.0	3.0	0.0	72.9	0.0	-5.6	0.0	0.0	10.3	0.0	0.0	-31.8
414	611561.60	4816786.37	1.50	0	DEN	63	47.1	8.7	0.0	3.0	0.0	72.9	0.2	-5.6	0.0	0.0	13.0	0.0	0.0	-21.6
414	611561.60	4816786.37	1.50	0	DEN	125	57.3	8.7	0.0	3.0	0.0	72.9	0.5	-1.5	0.0	0.0	16.6	0.0	0.0	-19.4
414	611561.60	4816786.37	1.50	0	DEN	250	62.3	8.7	0.0	3.0	0.0	72.9	1.3	-2.6	0.0	0.0	20.9	0.0	0.0	-18.4
414	611561.60	4816786.37	1.50	0	DEN	500	67.2	8.7	0.0	3.0	0.0	72.9	2.4	-3.4	0.0	0.0	25.0	0.0	0.0	-17.9
414	611561.60	4816786.37	1.50	0	DEN	1000	67.4	8.7	0.0	3.0	0.0	72.9	4.5	-3.5	0.0	0.0	25.0	0.0	0.0	-19.8
414	611561.60	4816786.37	1.50	0	DEN	2000	63.9	8.7	0.0	3.0	0.0	72.9	12.0	-3.5	0.0	0.0	25.0	0.0	0.0	-30.7
414	611561.60	4816786.37	1.50	0	DEN	4000	55.8	8.7	0.0	3.0	0.0	72.9	40.6	-3.5	0.0	0.0	25.0	0.0	0.0	-67.4
414	611561.60	4816786.37	1.50	0	DEN	8000	48.6	8.7	0.0	3.0	0.0	72.9	144.7	-3.5	0.0	0.0	25.0	0.0	0.0	-178.8
416	611564.37	4816789.26	1.50	0	DEN	32	34.2	-2.7	0.0	3.0	0.0	72.8	0.0	-5.6	0.0	0.0	10.3	0.0	0.0	-43.1
416	611564.37	4816789.26	1.50	0	DEN	63	47.1	-2.7	0.0	3.0	0.0	72.8	0.2	-5.6	0.0	0.0	12.7	0.0	0.0	-32.8
416	611564.37	4816789.26	1.50	0	DEN	125	57.3	-2.7	0.0	3.0	0.0	72.8	0.5	-1.0	0.0	0.0	15.7	0.0	0.0	-30.5
416	611564.37	4816789.26	1.50	0	DEN	250	62.3	-2.7	0.0	3.0	0.0	72.8	1.3	-2.1	0.0	0.0	19.6	0.0	0.0	-29.1
416	611564.37	4816789.26	1.50	0	DEN	500	67.2	-2.7	0.0	3.0	0.0	72.8	2.4	-2.9	0.0	0.0	24.1	0.0	0.0	-28.9
416	611564.37	4816789.26	1.50	0	DEN	1000	67.4	-2.7	0.0	3.0	0.0	72.8	4.5	-3.3	0.0	0.0	25.0	0.0	0.0	-31.3

vert. Area Source, ISO 9613, Name: "Biosolids complex south wall louvre ", ID: "!0603!BC_SL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
416	611564.37	4816789.26	1.50	0	DEN	2000	63.9	-2.7	0.0	3.0	0.0	72.8	11.9	-3.4	0.0	0.0	25.0	0.0	0.0	-42.2
416	611564.37	4816789.26	1.50	0	DEN	4000	55.8	-2.7	0.0	3.0	0.0	72.8	40.5	-3.4	0.0	0.0	25.0	0.0	0.0	-78.8
416	611564.37	4816789.26	1.50	0	DEN	8000	48.6	-2.7	0.0	3.0	0.0	72.8	144.5	-3.4	0.0	0.0	25.0	0.0	0.0	-190.0
418	611558.64	4816783.27	2.50	0	DEN	32	34.2	0.4	0.0	3.0	0.0	72.9	0.0	-5.5	0.0	0.0	10.9	0.0	0.0	-40.7
418	611558.64	4816783.27	2.50	0	DEN	63	47.1	0.4	0.0	3.0	0.0	72.9	0.2	-5.5	0.0	0.0	14.7	0.0	0.0	-31.7
418	611558.64	4816783.27	2.50	0	DEN	125	57.3	0.4	0.0	3.0	0.0	72.9	0.5	-0.7	0.0	0.0	18.4	0.0	0.0	-30.4
418	611558.64	4816783.27	2.50	0	DEN	250	62.3	0.4	0.0	3.0	0.0	72.9	1.3	-1.9	0.0	0.0	21.7	0.0	0.0	-28.3
418	611558.64	4816783.27	2.50	0	DEN	500	67.2	0.4	0.0	3.0	0.0	72.9	2.4	-3.2	0.0	0.0	24.8	0.0	0.0	-26.3
418	611558.64	4816783.27	2.50	0	DEN	1000	67.4	0.4	0.0	3.0	0.0	72.9	4.5	-3.3	0.0	0.0	25.0	0.0	0.0	-28.3
418	611558.64	4816783.27	2.50	0	DEN	2000	63.9	0.4	0.0	3.0	0.0	72.9	12.0	-3.3	0.0	0.0	25.0	0.0	0.0	-39.3
418	611558.64	4816783.27	2.50	0	DEN	4000	55.8	0.4	0.0	3.0	0.0	72.9	40.7	-3.3	0.0	0.0	25.0	0.0	0.0	-76.0
418	611558.64	4816783.27	2.50	0	DEN	8000	48.6	0.4	0.0	3.0	0.0	72.9	145.0	-3.3	0.0	0.0	25.0	0.0	0.0	-187.6
420	611561.60	4816786.37	2.50	0	DEN	32	34.2	8.7	0.0	3.0	0.0	72.9	0.0	-5.5	0.0	0.0	9.8	0.0	0.0	-31.3
420	611561.60	4816786.37	2.50	0	DEN	63	47.1	8.7	0.0	3.0	0.0	72.9	0.2	-5.5	0.0	0.0	12.4	0.0	0.0	-21.1
420	611561.60	4816786.37	2.50	0	DEN	125	57.3	8.7	0.0	3.0	0.0	72.9	0.5	-0.3	0.0	0.0	15.9	0.0	0.0	-20.0
420	611561.60	4816786.37	2.50	0	DEN	250	62.3	8.7	0.0	3.0	0.0	72.9	1.3	-1.4	0.0	0.0	20.2	0.0	0.0	-18.9
420	611561.60	4816786.37	2.50	0	DEN	500	67.2	8.7	0.0	3.0	0.0	72.9	2.4	-3.0	0.0	0.0	24.3	0.0	0.0	-17.6
420	611561.60	4816786.37	2.50	0	DEN	1000	67.4	8.7	0.0	3.0	0.0	72.9	4.5	-3.2	0.0	0.0	25.0	0.0	0.0	-20.1
420	611561.60	4816786.37	2.50	0	DEN	2000	63.9	8.7	0.0	3.0	0.0	72.9	12.0	-3.2	0.0	0.0	25.0	0.0	0.0	-31.0
420	611561.60	4816786.37	2.50	0	DEN	4000	55.8	8.7	0.0	3.0	0.0	72.9	40.6	-3.2	0.0	0.0	25.0	0.0	0.0	-67.7
420	611561.60	4816786.37	2.50	0	DEN	8000	48.6	8.7	0.0	3.0	0.0	72.9	144.7	-3.2	0.0	0.0	25.0	0.0	0.0	-179.1
422	611564.37	4816789.26	2.50	0	DEN	32	34.2	-2.7	0.0	3.0	0.0	72.8	0.0	-5.5	0.0	0.0	9.8	0.0	0.0	-42.6
422	611564.37	4816789.26	2.50	0	DEN	63	47.1	-2.7	0.0	3.0	0.0	72.8	0.2	-5.5	0.0	0.0	12.1	0.0	0.0	-32.2
422	611564.37	4816789.26	2.50	0	DEN	125	57.3	-2.7	0.0	3.0	0.0	72.8	0.5	-0.0	0.0	0.0	15.1	0.0	0.0	-30.8
422	611564.37	4816789.26	2.50	0	DEN	250	62.3	-2.7	0.0	3.0	0.0	72.8	1.3	-1.2	0.0	0.0	18.9	0.0	0.0	-29.3
422	611564.37	4816789.26	2.50	0	DEN	500	67.2	-2.7	0.0	3.0	0.0	72.8	2.4	-2.9	0.0	0.0	23.4	0.0	0.0	-28.2
422	611564.37	4816789.26	2.50	0	DEN	1000	67.4	-2.7	0.0	3.0	0.0	72.8	4.5	-3.1	0.0	0.0	25.0	0.0	0.0	-31.5
422	611564.37	4816789.26	2.50	0	DEN	2000	63.9	-2.7	0.0	3.0	0.0	72.8	11.9	-3.1	0.0	0.0	25.0	0.0	0.0	-42.5
422	611564.37	4816789.26	2.50	0	DEN	4000	55.8	-2.7	0.0	3.0	0.0	72.8	40.5	-3.1	0.0	0.0	25.0	0.0	0.0	-79.1
422	611564.37	4816789.26	2.50	0	DEN	8000	48.6	-2.7	0.0	3.0	0.0	72.8	144.5	-3.1	0.0	0.0	25.0	0.0	0.0	-190.3
427	611558.64	4816783.27	0.50	0	DEN	32	34.2	0.4	0.0	3.0	0.0	72.9	0.0	-5.6	0.0	0.0	12.0	0.0	0.0	-41.7
427	611558.64	4816783.27	0.50	0	DEN	63	47.1	0.4	0.0	3.0	0.0	72.9	0.2	-5.6	0.0	0.0	16.0	0.0	0.0	-32.9
427	611558.64	4816783.27	0.50	0	DEN	125	57.3	0.4	0.0	3.0	0.0	72.9	0.5	-1.5	0.0	0.0	19.8	0.0	0.0	-30.9
427	611558.64	4816783.27	0.50	0	DEN	250	62.3	0.4	0.0	3.0	0.0	72.9	1.3	-2.7	0.0	0.0	23.1	0.0	0.0	-28.9
427	611558.64	4816783.27	0.50	0	DEN	500	67.2	0.4	0.0	3.0	0.0	72.9	2.4	-3.3	0.0	0.0	25.0	0.0	0.0	-26.4
427	611558.64	4816783.27	0.50	0	DEN	1000	67.4	0.4	0.0	3.0	0.0	72.9	4.5	-3.5	0.0	0.0	25.0	0.0	0.0	-28.1
427	611558.64	4816783.27	0.50	0	DEN	2000	63.9	0.4	0.0	3.0	0.0	72.9	12.0	-3.6	0.0	0.0	25.0	0.0	0.0	-39.0
427	611558.64	4816783.27	0.50	0	DEN	4000	55.8	0.4	0.0	3.0	0.0	72.9	40.7	-3.6	0.0	0.0	25.0	0.0	0.0	-75.7
427	611558.64	4816783.27	0.50	0	DEN	8000	48.6	0.4	0.0	3.0	0.0	72.9	145.0	-3.6	0.0	0.0	25.0	0.0	0.0	-187.3
429	611561.60	4816786.37	0.50	0	DEN	32	34.2	8.7	0.0	3.0	0.0	72.9	0.0	-5.6	0.0	0.0	10.8	0.0	0.0	-32.2
429	611561.60	4816786.37	0.50	0	DEN	63	47.1	8.7	0.0	3.0	0.0	72.9	0.2	-5.6	0.0	0.0	13.6	0.0	0.0	-22.1
429	611561.60	4816786.37	0.50	0	DEN	125	57.3	8.7	0.0	3.0	0.0	72.9	0.5	-1.0	0.0	0.0	17.2	0.0	0.0	-20.5
429	611561.60	4816786.37	0.50	0	DEN	250	62.3	8.7	0.0	3.0	0.0	72.9	1.3	-2.0	0.0	0.0	21.6	0.0	0.0	-19.7
429	611561.60	4816786.37	0.50	0	DEN	500	67.2	8.7	0.0	3.0	0.0	72.9	2.4	-2.4	0.0	0.0	25.0	0.0	0.0	-19.0
429	611561.60	4816786.37	0.50	0	DEN	1000	67.4	8.7	0.0	3.0	0.0	72.9	4.5	-3.1	0.0	0.0	25.0	0.0	0.0	-20.2
429	611561.60	4816786.37	0.50	0	DEN	2000	63.9	8.7	0.0	3.0	0.0	72.9	12.0	-3.5	0.0	0.0	25.0	0.0	0.0	-30.7
429	611561.60	4816786.37	0.50	0	DEN	4000	55.8	8.7	0.0	3.0	0.0	72.9	40.6	-3.5	0.0	0.0	25.0	0.0	0.0	-67.4
429	611561.60	4816786.37	0.50	0	DEN	8000	48.6	8.7	0.0	3.0	0.0	72.9	144.7	-3.5	0.0	0.0	25.0	0.0	0.0	-178.8
431	611564.37	4816789.26	0.50	0	DEN	32	34.2	-2.7	0.0	3.0	0.0	72.8	0.0	-5.6	0.0	0.0	10.7	0.0	0.0	-43.5
431	611564.37	4816789.26	0.50	0	DEN	63	47.1	-2.7	0.0	3.0	0.0	72.8	0.2	-5.6	0.0	0.0	13.3	0.0	0.0	-33.2
431	611564.37	4816789.26	0.50	0	DEN	125	57.3	-2.7	0.0	3.0	0.0	72.8	0.5	-1.5	0.0	0.0	16.3	0.0	0.0	-30.5
431	611564.37	4816789.26	0.50	0	DEN	250	62.3	-2.7	0.0	3.0	0.0	72.8	1.3	-2.7	0.0	0.0	20.3	0.0	0.0	-29.1
431	611564.37	4816789.26	0.50	0	DEN	500	67.2	-2.7	0.0	3.0	0.0	72.8	2.4	-3.3	0.0	0.0	24.7	0.0	0.0	-29.1
431	611564.37	4816789.26	0.50	0	DEN	1000	67.4	-2.7	0.0	3.0	0.0	72.8	4.5	-3.5	0.0	0.0	25.0	0.0	0.0	-31.2
431	611564.37	4816789.26	0.50	0	DEN	2000	63.9	-2.7	0.0	3.0	0.0	72.8	11.9	-3.6	0.0	0.0	25.0	0.0	0.0	-42.0
431	611564.37	4816789.26	0.50	0	DEN	4000	55.8	-2.7	0.0	3.0	0.0	72.8	40.5	-3.6	0.0	0.0	25.0	0.0	0.0	-78.7
431	611564.37	4816789.26	0.50	0	DEN	8000	48.6	-2.7	0.0	3.0	0.0	72.8	144.5	-3.6	0.0	0.0	25.0	0.0	0.0	-189.8
434	611558.64	4816783.27	3.50	0	DEN	32	34.2	0.4	0.0	3.0	0.0	72.9	0.0	-5.4	0.0	0.0	10.2	0.0	0.0	-40.1
434	611558.64	4816783.27	3.50	0	DEN	63	47.1	0.4	0.0	3.0	0.0	72.9	0.2	-5.4	0.0	0.0	13.9	0.0	0.0	-31.0
434	611558.64	4816783.27	3.50	0	DEN	125	57.3	0.4	0.0	3.0	0.0	72.9	0.5	-0.1	0.0	0.0	17.6	0.0	0.0	-30.2
434	611558.64	4816783.27	3.50	0	DEN	250	62.3	0.4	0.0	3.0	0.0	72.9	1.3	-1.7	0.0	0.0	20.8	0.0	0.0	-27.7
434	611558.64	4816783.27	3.50	0	DEN	500	67.2	0.4	0.0	3.0	0.0	72.9	2.4	-3.1	0.0	0.0	23.9	0.0	0.0	-25.5
434	611558.64	4816783.27	3.50	0	DEN	1000	67.4	0.4	0.0	3.0	0.0	72.9	4.5	-3.1	0.0	0.0	25.0	0.0	0.0	-28.5

vert. Area Source, ISO 9613, Name: "Biosolids complex south wall louvre ", ID: "!0603!BC_SL"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
434	611558.64	4816783.27	3.50	0	DEN	2000	63.9	0.4	0.0	3.0	0.0	72.9	12.0	-3.1	0.0	0.0	25.0	0.0	0.0	-39.5
434	611558.64	4816783.27	3.50	0	DEN	4000	55.8	0.4	0.0	3.0	0.0	72.9	40.7	-3.1	0.0	0.0	25.0	0.0	0.0	-76.3
434	611558.64	4816783.27	3.50	0	DEN	8000	48.6	0.4	0.0	3.0	0.0	72.9	145.0	-3.1	0.0	0.0	25.0	0.0	0.0	-187.8
443	611561.60	4816786.37	3.50	0	DEN	32	34.2	8.7	0.0	3.0	0.0	72.9	0.0	-5.4	0.0	0.0	9.2	0.0	0.0	-30.8
443	611561.60	4816786.37	3.50	0	DEN	63	47.1	8.7	0.0	3.0	0.0	72.9	0.2	-5.4	0.0	0.0	11.7	0.0	0.0	-20.4
443	611561.60	4816786.37	3.50	0	DEN	125	57.3	8.7	0.0	3.0	0.0	72.9	0.5	0.1	0.0	0.0	14.9	0.0	0.0	-19.4
443	611561.60	4816786.37	3.50	0	DEN	250	62.3	8.7	0.0	3.0	0.0	72.9	1.3	-1.5	0.0	0.0	19.3	0.0	0.0	-18.0
443	611561.60	4816786.37	3.50	0	DEN	500	67.2	8.7	0.0	3.0	0.0	72.9	2.4	-3.0	0.0	0.0	23.4	0.0	0.0	-16.7
443	611561.60	4816786.37	3.50	0	DEN	1000	67.4	8.7	0.0	3.0	0.0	72.9	4.5	-3.0	0.0	0.0	25.0	0.0	0.0	-20.2
443	611561.60	4816786.37	3.50	0	DEN	2000	63.9	8.7	0.0	3.0	0.0	72.9	12.0	-3.0	0.0	0.0	25.0	0.0	0.0	-31.2
443	611561.60	4816786.37	3.50	0	DEN	4000	55.8	8.7	0.0	3.0	0.0	72.9	40.6	-3.0	0.0	0.0	25.0	0.0	0.0	-67.9
443	611561.60	4816786.37	3.50	0	DEN	8000	48.6	8.7	0.0	3.0	0.0	72.9	144.7	-3.0	0.0	0.0	25.0	0.0	0.0	-179.2
445	611564.37	4816789.26	3.50	0	DEN	32	34.2	-2.7	0.0	3.0	0.0	72.8	0.0	-5.4	0.0	0.0	9.2	0.0	0.0	-42.1
445	611564.37	4816789.26	3.50	0	DEN	63	47.1	-2.7	0.0	3.0	0.0	72.8	0.2	-5.4	0.0	0.0	11.4	0.0	0.0	-31.6
445	611564.37	4816789.26	3.50	0	DEN	125	57.3	-2.7	0.0	3.0	0.0	72.8	0.5	0.3	0.0	0.0	14.0	0.0	0.0	-30.0
445	611564.37	4816789.26	3.50	0	DEN	250	62.3	-2.7	0.0	3.0	0.0	72.8	1.3	-1.4	0.0	0.0	18.1	0.0	0.0	-28.2
445	611564.37	4816789.26	3.50	0	DEN	500	67.2	-2.7	0.0	3.0	0.0	72.8	2.4	-3.0	0.0	0.0	22.5	0.0	0.0	-27.3
445	611564.37	4816789.26	3.50	0	DEN	1000	67.4	-2.7	0.0	3.0	0.0	72.8	4.5	-3.0	0.0	0.0	25.0	0.0	0.0	-31.7
445	611564.37	4816789.26	3.50	0	DEN	2000	63.9	-2.7	0.0	3.0	0.0	72.8	11.9	-3.0	0.0	0.0	25.0	0.0	0.0	-42.6
445	611564.37	4816789.26	3.50	0	DEN	4000	55.8	-2.7	0.0	3.0	0.0	72.8	40.5	-3.0	0.0	0.0	25.0	0.0	0.0	-79.3
445	611564.37	4816789.26	3.50	0	DEN	8000	48.6	-2.7	0.0	3.0	0.0	72.8	144.5	-3.0	0.0	0.0	25.0	0.0	0.0	-190.4

vert. Area Source, ISO 9613, Name: "Biosolids Complex makeup air unit (south)", ID: "!0604!BC_MAUs"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
452	611560.66	4816792.62	9.00	0	DEN	32	40.2	8.6	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	5.5	0.0	0.0	-21.5
452	611560.66	4816792.62	9.00	0	DEN	63	50.1	8.6	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	6.1	0.0	0.0	-12.3
452	611560.66	4816792.62	9.00	0	DEN	125	57.4	8.6	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	7.2	0.0	0.0	-11.0
452	611560.66	4816792.62	9.00	0	DEN	250	62.9	8.6	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	9.4	0.0	0.0	-7.0
452	611560.66	4816792.62	9.00	0	DEN	500	64.9	8.6	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	12.8	0.0	0.0	-8.9
452	611560.66	4816792.62	9.00	0	DEN	1000	66.6	8.6	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	16.6	0.0	0.0	-13.1
452	611560.66	4816792.62	9.00	0	DEN	2000	63.7	8.6	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	19.9	0.0	0.0	-26.7
452	611560.66	4816792.62	9.00	0	DEN	4000	57.9	8.6	0.0	3.0	0.0	72.8	40.4	-2.6	0.0	0.0	23.0	0.0	0.0	-64.0
452	611560.66	4816792.62	9.00	0	DEN	8000	61.8	8.6	0.0	3.0	0.0	72.8	144.0	-2.6	0.0	0.0	25.0	0.0	0.0	-165.7
455	611560.66	4816792.62	8.00	0	DEN	32	40.2	8.6	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	6.8	0.0	0.0	-22.7
455	611560.66	4816792.62	8.00	0	DEN	63	50.1	8.6	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	8.2	0.0	0.0	-14.3
455	611560.66	4816792.62	8.00	0	DEN	125	57.4	8.6	0.0	3.0	0.0	72.8	0.5	-0.3	0.0	0.0	10.2	0.0	0.0	-14.2
455	611560.66	4816792.62	8.00	0	DEN	250	62.9	8.6	0.0	3.0	0.0	72.8	1.3	-2.0	0.0	0.0	13.4	0.0	0.0	-11.0
455	611560.66	4816792.62	8.00	0	DEN	500	64.9	8.6	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	17.5	0.0	0.0	-13.5
455	611560.66	4816792.62	8.00	0	DEN	1000	66.6	8.6	0.0	3.0	0.0	72.8	4.5	-2.7	0.0	0.0	21.6	0.0	0.0	-18.0
455	611560.66	4816792.62	8.00	0	DEN	2000	63.7	8.6	0.0	3.0	0.0	72.8	11.9	-2.7	0.0	0.0	25.0	0.0	0.0	-31.7
455	611560.66	4816792.62	8.00	0	DEN	4000	57.9	8.6	0.0	3.0	0.0	72.8	40.4	-2.7	0.0	0.0	25.0	0.0	0.0	-66.0
455	611560.66	4816792.62	8.00	0	DEN	8000	61.8	8.6	0.0	3.0	0.0	72.8	144.0	-2.7	0.0	0.0	25.0	0.0	0.0	-165.7

vert. Area Source, ISO 9613, Name: "Disinfection chemical building east wall louvre", ID: "!0602!DCB_L"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
458	611791.76	4816674.16	2.50	0	DEN	32	39.3	4.8	0.0	3.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-26.2
458	611791.76	4816674.16	2.50	0	DEN	63	50.9	4.8	0.0	3.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-14.7
458	611791.76	4816674.16	2.50	0	DEN	125	60.5	4.8	0.0	3.0	0.0	74.0	0.6	-0.6	0.0	0.0	4.8	0.0	0.0	-10.4
458	611791.76	4816674.16	2.50	0	DEN	250	73.0	4.8	0.0	3.0	0.0	74.0	1.5	-1.8	0.0	0.0	4.8	0.0	0.0	2.4
458	611791.76	4816674.16	2.50	0	DEN	500	69.6	4.8	0.0	3.0	0.0	74.0	2.7	-3.3	0.0	0.0	4.8	0.0	0.0	-0.9
458	611791.76	4816674.16	2.50	0	DEN	1000	70.8	4.8	0.0	3.0	0.0	74.0	5.2	-3.4	0.0	0.0	4.8	0.0	0.0	-2.0
458	611791.76	4816674.16	2.50	0	DEN	2000	63.8	4.8	0.0	3.0	0.0	74.0	13.7	-3.4	0.0	0.0	4.8	0.0	0.0	-17.4
458	611791.76	4816674.16	2.50	0	DEN	4000	58.6	4.8	0.0	3.0	0.0	74.0	46.3	-3.4	0.0	0.0	4.8	0.0	0.0	-55.3
458	611791.76	4816674.16	2.50	0	DEN	8000	48.6	4.8	0.0	3.0	0.0	74.0	165.2	-3.4	0.0	0.0	4.8	0.0	0.0	-184.2
472	611791.76	4816674.16	1.50	0	DEN	32	39.3	4.8	0.0	3.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-26.2
472	611791.76	4816674.16	1.50	0	DEN	63	50.9	4.8	0.0	3.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-14.6
472	611791.76	4816674.16	1.50	0	DEN	125	60.5	4.8	0.0	3.0	0.0	74.0	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-11.0
472	611791.76	4816674.16	1.50	0	DEN	250	73.0	4.8	0.0	3.0	0.0	74.0	1.5	-0.4	0.0	0.0	4.8	0.0	0.0	1.0
472	611791.76	4816674.16	1.50	0	DEN	500	69.6	4.8	0.0	3.0	0.0	74.0	2.7	-1.7	0.0	0.0	4.8	0.0	0.0	-2.4
472	611791.76	4816674.16	1.50	0	DEN	1000	70.8	4.8	0.0	3.0	0.0	74.0	5.2	-3.1	0.0	0.0	4.8	0.0	0.0	-2.3
472	611791.76	4816674.16	1.50	0	DEN	2000	63.8	4.8	0.0	3.0	0.0	74.0	13.7	-3.3	0.0	0.0	4.8	0.0	0.0	-17.5

vert. Area Source, ISO 9613, Name: "Disinfection chemical building east wall louvre", ID: "!0602!DCB_L"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
472	611791.76	4816674.16	1.50	0	DEN	4000	58.6	4.8	0.0	3.0	0.0	74.0	46.3	-3.3	0.0	0.0	4.8	0.0	0.0	-55.4
472	611791.76	4816674.16	1.50	0	DEN	8000	48.6	4.8	0.0	3.0	0.0	74.0	165.2	-3.3	0.0	0.0	4.8	0.0	0.0	-184.3
887	611791.76	4816674.16	0.75	0	DEN	32	39.3	1.8	0.0	3.0	0.0	74.0	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-29.1
887	611791.76	4816674.16	0.75	0	DEN	63	50.9	1.8	0.0	3.0	0.0	74.0	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-17.6
887	611791.76	4816674.16	0.75	0	DEN	125	60.5	1.8	0.0	3.0	0.0	74.0	0.6	1.8	0.0	0.0	3.0	0.0	0.0	-14.1
887	611791.76	4816674.16	0.75	0	DEN	250	73.0	1.8	0.0	3.0	0.0	74.0	1.5	1.7	0.0	0.0	3.0	0.0	0.0	-2.4
887	611791.76	4816674.16	0.75	0	DEN	500	69.6	1.8	0.0	3.0	0.0	74.0	2.7	2.4	0.0	0.0	2.4	0.0	0.0	-7.1
887	611791.76	4816674.16	0.75	0	DEN	1000	70.8	1.8	0.0	3.0	0.0	74.0	5.2	-1.5	0.0	0.0	4.8	0.0	0.0	-6.8
887	611791.76	4816674.16	0.75	0	DEN	2000	63.8	1.8	0.0	3.0	0.0	74.0	13.7	-3.0	0.0	0.0	4.8	0.0	0.0	-20.8
887	611791.76	4816674.16	0.75	0	DEN	4000	58.6	1.8	0.0	3.0	0.0	74.0	46.3	-3.0	0.0	0.0	4.8	0.0	0.0	-58.6
887	611791.76	4816674.16	0.75	0	DEN	8000	48.6	1.8	0.0	3.0	0.0	74.0	165.2	-3.0	0.0	0.0	4.8	0.0	0.0	-187.6

vert. Area Source, ISO 9613, Name: "Biosolids Complex makeup air unit (north)", ID: "!0604!BC_MAUn"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
476	611555.44	4816794.28	8.00	0	DEN	32	42.3	4.3	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-23.0
476	611555.44	4816794.28	8.00	0	DEN	63	50.3	4.3	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	4.8	0.0	0.0	-15.1
476	611555.44	4816794.28	8.00	0	DEN	125	57.8	4.3	0.0	3.0	0.0	72.8	0.5	-0.3	0.0	0.0	4.8	0.0	0.0	-12.7
476	611555.44	4816794.28	8.00	0	DEN	250	62.9	4.3	0.0	3.0	0.0	72.8	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	-6.7
476	611555.44	4816794.28	8.00	0	DEN	500	64.3	4.3	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	4.8	0.0	0.0	-5.7
476	611555.44	4816794.28	8.00	0	DEN	1000	66.7	4.3	0.0	3.0	0.0	72.8	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-5.4
476	611555.44	4816794.28	8.00	0	DEN	2000	62.8	4.3	0.0	3.0	0.0	72.8	11.9	-2.7	0.0	0.0	4.8	0.0	0.0	-16.7
476	611555.44	4816794.28	8.00	0	DEN	4000	57.0	4.3	0.0	3.0	0.0	72.8	40.3	-2.7	0.0	0.0	4.8	0.0	0.0	-51.0
476	611555.44	4816794.28	8.00	0	DEN	8000	57.3	4.3	0.0	3.0	0.0	72.8	143.7	-2.7	0.0	0.0	4.9	0.0	0.0	-154.1
506	611558.12	4816796.92	8.00	0	DEN	32	42.3	6.9	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-15.6
506	611558.12	4816796.92	8.00	0	DEN	63	50.3	6.9	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-7.7
506	611558.12	4816796.92	8.00	0	DEN	125	57.8	6.9	0.0	3.0	0.0	72.8	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	-5.3
506	611558.12	4816796.92	8.00	0	DEN	250	62.9	6.9	0.0	3.0	0.0	72.8	1.3	-2.0	0.0	0.0	0.0	0.0	0.0	0.7
506	611558.12	4816796.92	8.00	0	DEN	500	64.3	6.9	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	0.0	0.0	0.0	1.7
506	611558.12	4816796.92	8.00	0	DEN	1000	66.7	6.9	0.0	3.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	2.0
506	611558.12	4816796.92	8.00	0	DEN	2000	62.8	6.9	0.0	3.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-9.3
506	611558.12	4816796.92	8.00	0	DEN	4000	57.0	6.9	0.0	3.0	0.0	72.8	40.2	-2.7	0.0	0.0	0.0	0.0	0.0	-43.5
506	611558.12	4816796.92	8.00	0	DEN	8000	57.3	6.9	0.0	3.0	0.0	72.8	143.4	-2.7	0.0	0.0	0.0	0.0	0.0	-146.4
508	611555.44	4816794.28	9.00	0	DEN	32	42.3	4.3	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	-23.0
508	611555.44	4816794.28	9.00	0	DEN	63	50.3	4.3	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	-15.1
508	611555.44	4816794.28	9.00	0	DEN	125	57.8	4.3	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	4.8	0.0	0.0	-12.5
508	611555.44	4816794.28	9.00	0	DEN	250	62.9	4.3	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	4.8	0.0	0.0	-6.8
508	611555.44	4816794.28	9.00	0	DEN	500	64.3	4.3	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	-5.8
508	611555.44	4816794.28	9.00	0	DEN	1000	66.7	4.3	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	4.8	0.0	0.0	-5.5
508	611555.44	4816794.28	9.00	0	DEN	2000	62.8	4.3	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	4.8	0.0	0.0	-16.8
508	611555.44	4816794.28	9.00	0	DEN	4000	57.0	4.3	0.0	3.0	0.0	72.8	40.3	-2.6	0.0	0.0	4.8	0.0	0.0	-51.0
508	611555.44	4816794.28	9.00	0	DEN	8000	57.3	4.3	0.0	3.0	0.0	72.8	143.7	-2.6	0.0	0.0	4.8	0.0	0.0	-154.0
510	611558.12	4816796.92	9.00	0	DEN	32	42.3	6.9	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-15.6
510	611558.12	4816796.92	9.00	0	DEN	63	50.3	6.9	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-7.7
510	611558.12	4816796.92	9.00	0	DEN	125	57.8	6.9	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	-5.1
510	611558.12	4816796.92	9.00	0	DEN	250	62.9	6.9	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	0.0	0.0	0.0	0.6
510	611558.12	4816796.92	9.00	0	DEN	500	64.3	6.9	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	0.0	0.0	0.0	1.6
510	611558.12	4816796.92	9.00	0	DEN	1000	66.7	6.9	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	0.0	0.0	0.0	1.9
510	611558.12	4816796.92	9.00	0	DEN	2000	62.8	6.9	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	0.0	0.0	0.0	-9.4
510	611558.12	4816796.92	9.00	0	DEN	4000	57.0	6.9	0.0	3.0	0.0	72.8	40.2	-2.6	0.0	0.0	0.0	0.0	0.0	-43.5
510	611558.12	4816796.92	9.00	0	DEN	8000	57.3	6.9	0.0	3.0	0.0	72.8	143.4	-2.6	0.0	0.0	0.0	0.0	0.0	-146.4

Point Source, ISO 9613, Name: "Control building exhaust air fan 5", ID: "!0607!CB_FAN95430"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
513	611448.08	4816790.64	5.64	0	DEN	32	44.1	0.0	0.0	0.0	0.0	72.7	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-28.1
513	611448.08	4816790.64	5.64	0	DEN	63	54.9	0.0	0.0	0.0	0.0	72.7	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-17.5
513	611448.08	4816790.64	5.64	0	DEN	125	72.1	0.0	0.0	0.0	0.0	72.7	0.5	0.1	0.0	0.0	4.6	0.0	0.0	-5.9
513	611448.08	4816790.64	5.64	0	DEN	250	73.5	0.0	0.0	0.0	0.0	72.7	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	-3.2
513	611448.08	4816790.64	5.64	0	DEN	500	78.9	0.0	0.0	0.0	0.0	72.7	2.3	-2.9	0.0	0.0	4.8	0.0	0.0	2.0
513	611448.08	4816790.64	5.64	0	DEN	1000	75.2	0.0	0.0	0.0	0.0	72.7	4.4	-2.9	0.0	0.0	4.8	0.0	0.0	-3.8
513	611448.08	4816790.64	5.64	0	DEN	2000	73.8	0.0	0.0	0.0	0.0	72.7	11.7	-2.9	0.0	0.0	4.8	0.0	0.0	-12.5
513	611448.08	4816790.64	5.64	0	DEN	4000	69.5	0.0	0.0	0.0	0.0	72.7	39.8	-2.9	0.0	0.0	4.8	0.0	0.0	-44.9

Point Source, ISO 9613, Name: "Control building exhaust air fan 5", ID: "!0607!CB_FAN95430"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
513	611448.08	4816790.64	5.64	0	DEN	8000	62.3	0.0	0.0	0.0	0.0	72.7	141.8	-2.9	0.0	0.0	4.8	0.0	0.0	-154.1

Point Source, ISO 9613, Name: "Odour control fan 4", ID: "!0601!FAN23510"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
521	611529.00	4816689.19	0.50	0	DEN	32	37.7	0.0	0.0	0.0	0.0	73.5	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-34.9
521	611529.00	4816689.19	0.50	0	DEN	63	51.1	0.0	0.0	0.0	0.0	73.5	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-21.6
521	611529.00	4816689.19	0.50	0	DEN	125	71.2	0.0	0.0	0.0	0.0	73.5	0.5	2.0	0.0	0.0	2.8	0.0	0.0	-7.6
521	611529.00	4816689.19	0.50	0	DEN	250	72.8	0.0	0.0	0.0	0.0	73.5	1.4	2.0	0.0	0.0	2.7	0.0	0.0	-6.8
521	611529.00	4816689.19	0.50	0	DEN	500	75.8	0.0	0.0	0.0	0.0	73.5	2.6	3.4	0.0	0.0	1.4	0.0	0.0	-5.0
521	611529.00	4816689.19	0.50	0	DEN	1000	75.3	0.0	0.0	0.0	0.0	73.5	4.9	-0.9	0.0	0.0	4.8	0.0	0.0	-6.9
521	611529.00	4816689.19	0.50	0	DEN	2000	76.7	0.0	0.0	0.0	0.0	73.5	12.8	-2.9	0.0	0.0	4.8	0.0	0.0	-11.5
521	611529.00	4816689.19	0.50	0	DEN	4000	73.6	0.0	0.0	0.0	0.0	73.5	43.5	-2.9	0.0	0.0	4.8	0.0	0.0	-45.3
521	611529.00	4816689.19	0.50	0	DEN	8000	75.5	0.0	0.0	0.0	0.0	73.5	155.1	-2.9	0.0	0.0	4.8	0.0	0.0	-155.0

Point Source, ISO 9613, Name: "Odour control fan 3", ID: "!0601!FAN23520"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
524	611530.22	4816688.06	0.50	0	DEN	32	37.7	0.0	0.0	0.0	0.0	73.5	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-34.9
524	611530.22	4816688.06	0.50	0	DEN	63	51.1	0.0	0.0	0.0	0.0	73.5	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-21.6
524	611530.22	4816688.06	0.50	0	DEN	125	71.2	0.0	0.0	0.0	0.0	73.5	0.5	2.0	0.0	0.0	2.8	0.0	0.0	-7.6
524	611530.22	4816688.06	0.50	0	DEN	250	72.8	0.0	0.0	0.0	0.0	73.5	1.4	2.0	0.0	0.0	2.7	0.0	0.0	-6.8
524	611530.22	4816688.06	0.50	0	DEN	500	75.8	0.0	0.0	0.0	0.0	73.5	2.6	3.4	0.0	0.0	1.4	0.0	0.0	-5.0
524	611530.22	4816688.06	0.50	0	DEN	1000	75.3	0.0	0.0	0.0	0.0	73.5	4.9	-0.9	0.0	0.0	4.8	0.0	0.0	-6.9
524	611530.22	4816688.06	0.50	0	DEN	2000	76.7	0.0	0.0	0.0	0.0	73.5	12.8	-2.9	0.0	0.0	4.8	0.0	0.0	-11.5
524	611530.22	4816688.06	0.50	0	DEN	4000	73.6	0.0	0.0	0.0	0.0	73.5	43.5	-2.9	0.0	0.0	4.8	0.0	0.0	-45.3
524	611530.22	4816688.06	0.50	0	DEN	8000	75.5	0.0	0.0	0.0	0.0	73.5	155.2	-2.9	0.0	0.0	4.8	0.0	0.0	-155.1

vert. Area Source, ISO 9613, Name: "Biosolids Complex makeup air unit (west)", ID: "!0604!BC_MAUw"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
538	611556.33	4816791.66	8.00	0	DEN	32	39.3	6.8	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	7.3	0.0	0.0	-26.0
538	611556.33	4816791.66	8.00	0	DEN	63	49.7	6.8	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	9.8	0.0	0.0	-18.3
538	611556.33	4816791.66	8.00	0	DEN	125	57.1	6.8	0.0	3.0	0.0	72.8	0.5	-0.4	0.0	0.0	13.1	0.0	0.0	-19.2
538	611556.33	4816791.66	8.00	0	DEN	250	64.1	6.8	0.0	3.0	0.0	72.8	1.3	-2.0	0.0	0.0	16.3	0.0	0.0	-14.5
538	611556.33	4816791.66	8.00	0	DEN	500	66.6	6.8	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	19.3	0.0	0.0	-15.4
538	611556.33	4816791.66	8.00	0	DEN	1000	67.6	6.8	0.0	3.0	0.0	72.8	4.5	-2.7	0.0	0.0	22.3	0.0	0.0	-19.5
538	611556.33	4816791.66	8.00	0	DEN	2000	63.8	6.8	0.0	3.0	0.0	72.8	11.9	-2.7	0.0	0.0	25.0	0.0	0.0	-33.5
538	611556.33	4816791.66	8.00	0	DEN	4000	59.0	6.8	0.0	3.0	0.0	72.8	40.4	-2.7	0.0	0.0	25.0	0.0	0.0	-66.7
538	611556.33	4816791.66	8.00	0	DEN	8000	59.9	6.8	0.0	3.0	0.0	72.8	144.0	-2.7	0.0	0.0	25.0	0.0	0.0	-169.4
540	611554.54	4816793.30	8.00	0	DEN	32	39.3	-9.0	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-39.3
540	611554.54	4816793.30	8.00	0	DEN	63	49.7	-9.0	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	4.8	0.0	0.0	-29.0
540	611554.54	4816793.30	8.00	0	DEN	125	57.1	-9.0	0.0	3.0	0.0	72.8	0.5	-0.4	0.0	0.0	4.8	0.0	0.0	-26.7
540	611554.54	4816793.30	8.00	0	DEN	250	64.1	-9.0	0.0	3.0	0.0	72.8	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	-18.8
540	611554.54	4816793.30	8.00	0	DEN	500	66.6	-9.0	0.0	3.0	0.0	72.8	2.4	-2.7	0.0	0.0	4.8	0.0	0.0	-16.7
540	611554.54	4816793.30	8.00	0	DEN	1000	67.6	-9.0	0.0	3.0	0.0	72.8	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-17.8
540	611554.54	4816793.30	8.00	0	DEN	2000	63.8	-9.0	0.0	3.0	0.0	72.8	11.9	-2.7	0.0	0.0	4.8	0.0	0.0	-29.0
540	611554.54	4816793.30	8.00	0	DEN	4000	59.0	-9.0	0.0	3.0	0.0	72.8	40.3	-2.7	0.0	0.0	4.8	0.0	0.0	-62.3
540	611554.54	4816793.30	8.00	0	DEN	8000	59.9	-9.0	0.0	3.0	0.0	72.8	143.7	-2.7	0.0	0.0	4.9	0.0	0.0	-164.9
543	611556.33	4816791.66	9.00	0	DEN	32	39.3	6.8	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	5.7	0.0	0.0	-24.5
543	611556.33	4816791.66	9.00	0	DEN	63	49.7	6.8	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	7.0	0.0	0.0	-15.5
543	611556.33	4816791.66	9.00	0	DEN	125	57.1	6.8	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	9.2	0.0	0.0	-15.2
543	611556.33	4816791.66	9.00	0	DEN	250	64.1	6.8	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	11.8	0.0	0.0	-10.1
543	611556.33	4816791.66	9.00	0	DEN	500	66.6	6.8	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	14.5	0.0	0.0	-10.7
543	611556.33	4816791.66	9.00	0	DEN	1000	67.6	6.8	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	17.3	0.0	0.0	-14.6
543	611556.33	4816791.66	9.00	0	DEN	2000	63.8	6.8	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	20.2	0.0	0.0	-28.7
543	611556.33	4816791.66	9.00	0	DEN	4000	59.0	6.8	0.0	3.0	0.0	72.8	40.4	-2.6	0.0	0.0	23.2	0.0	0.0	-64.9
543	611556.33	4816791.66	9.00	0	DEN	8000	59.9	6.8	0.0	3.0	0.0	72.8	144.0	-2.6	0.0	0.0	25.0	0.0	0.0	-169.5
545	611554.54	4816793.30	9.00	0	DEN	32	39.3	-9.0	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	-39.3
545	611554.54	4816793.30	9.00	0	DEN	63	49.7	-9.0	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	-29.0
545	611554.54	4816793.30	9.00	0	DEN	125	57.1	-9.0	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	4.8	0.0	0.0	-26.5
545	611554.54	4816793.30	9.00	0	DEN	250	64.1	-9.0	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	4.8	0.0	0.0	-18.9
545	611554.54	4816793.30	9.00	0	DEN	500	66.6	-9.0	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	-16.7

vert. Area Source, ISO 9613, Name: "Biosolids Complex makeup air unit (west)", ID: "!0604!BC_MAUw"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
545	611554.54	4816793.30	9.00	0	DEN	1000	67.6	-9.0	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	4.8	0.0	0.0	-17.9
545	611554.54	4816793.30	9.00	0	DEN	2000	63.8	-9.0	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	4.8	0.0	0.0	-29.1
545	611554.54	4816793.30	9.00	0	DEN	4000	59.0	-9.0	0.0	3.0	0.0	72.8	40.3	-2.6	0.0	0.0	4.8	0.0	0.0	-62.3
545	611554.54	4816793.30	9.00	0	DEN	8000	59.9	-9.0	0.0	3.0	0.0	72.8	143.7	-2.6	0.0	0.0	4.8	0.0	0.0	-164.8

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
548	611600.12	4816814.73	2.50	0	D	32	24.7	3.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-43.9
548	611600.12	4816814.73	2.50	0	D	63	38.3	3.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-30.4
548	611600.12	4816814.73	2.50	0	D	125	47.0	3.5	0.0	0.0	0.0	72.7	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-27.5
548	611600.12	4816814.73	2.50	0	D	250	51.5	3.5	0.0	0.0	0.0	72.7	1.3	0.2	0.0	0.0	4.5	0.0	0.0	-23.8
548	611600.12	4816814.73	2.50	0	D	500	53.9	3.5	0.0	0.0	0.0	72.7	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-20.1
548	611600.12	4816814.73	2.50	0	D	1000	56.0	3.5	0.0	0.0	0.0	72.7	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-19.7
548	611600.12	4816814.73	2.50	0	D	2000	52.1	3.5	0.0	0.0	0.0	72.7	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-31.0
548	611600.12	4816814.73	2.50	0	D	4000	48.0	3.5	0.0	0.0	0.0	72.7	40.0	-2.8	0.0	0.0	4.8	0.0	0.0	-63.2
548	611600.12	4816814.73	2.50	0	D	8000	39.2	3.5	0.0	0.0	0.0	72.7	142.6	-2.8	0.0	0.0	4.8	0.0	0.0	-174.7
548	611600.12	4816814.73	2.50	0	N	32	26.5	3.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-42.1
548	611600.12	4816814.73	2.50	0	N	63	40.0	3.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-28.6
548	611600.12	4816814.73	2.50	0	N	125	48.7	3.5	0.0	0.0	0.0	72.7	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-25.8
548	611600.12	4816814.73	2.50	0	N	250	53.3	3.5	0.0	0.0	0.0	72.7	1.3	0.2	0.0	0.0	4.5	0.0	0.0	-22.0
548	611600.12	4816814.73	2.50	0	N	500	55.7	3.5	0.0	0.0	0.0	72.7	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-18.3
548	611600.12	4816814.73	2.50	0	N	1000	57.7	3.5	0.0	0.0	0.0	72.7	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-18.0
548	611600.12	4816814.73	2.50	0	N	2000	53.8	3.5	0.0	0.0	0.0	72.7	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-29.2
548	611600.12	4816814.73	2.50	0	N	4000	49.8	3.5	0.0	0.0	0.0	72.7	40.0	-2.8	0.0	0.0	4.8	0.0	0.0	-61.4
548	611600.12	4816814.73	2.50	0	N	8000	40.9	3.5	0.0	0.0	0.0	72.7	142.6	-2.8	0.0	0.0	4.8	0.0	0.0	-172.9
548	611600.12	4816814.73	2.50	0	E	32	24.7	3.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-43.9
548	611600.12	4816814.73	2.50	0	E	63	38.3	3.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-30.4
548	611600.12	4816814.73	2.50	0	E	125	47.0	3.5	0.0	0.0	0.0	72.7	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-27.5
548	611600.12	4816814.73	2.50	0	E	250	51.5	3.5	0.0	0.0	0.0	72.7	1.3	0.2	0.0	0.0	4.5	0.0	0.0	-23.8
548	611600.12	4816814.73	2.50	0	E	500	53.9	3.5	0.0	0.0	0.0	72.7	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-20.1
548	611600.12	4816814.73	2.50	0	E	1000	56.0	3.5	0.0	0.0	0.0	72.7	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-19.7
548	611600.12	4816814.73	2.50	0	E	2000	52.1	3.5	0.0	0.0	0.0	72.7	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-31.0
548	611600.12	4816814.73	2.50	0	E	4000	48.0	3.5	0.0	0.0	0.0	72.7	40.0	-2.8	0.0	0.0	4.8	0.0	0.0	-63.2
548	611600.12	4816814.73	2.50	0	E	8000	39.2	3.5	0.0	0.0	0.0	72.7	142.6	-2.8	0.0	0.0	4.8	0.0	0.0	-174.7
550	611608.28	4816806.88	2.50	0	D	32	24.7	13.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-29.5
550	611608.28	4816806.88	2.50	0	D	63	38.3	13.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-16.1
550	611608.28	4816806.88	2.50	0	D	125	47.0	13.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-14.7
550	611608.28	4816806.88	2.50	0	D	250	51.5	13.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-9.9
550	611608.28	4816806.88	2.50	0	D	500	53.9	13.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-5.8
550	611608.28	4816806.88	2.50	0	D	1000	56.0	13.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-5.5
550	611608.28	4816806.88	2.50	0	D	2000	52.1	13.1	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-16.8
550	611608.28	4816806.88	2.50	0	D	4000	48.0	13.1	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-49.2
550	611608.28	4816806.88	2.50	0	D	8000	39.2	13.1	0.0	0.0	0.0	72.8	143.7	-2.7	0.0	0.0	0.0	0.0	0.0	-161.5
550	611608.28	4816806.88	2.50	0	N	32	26.5	13.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-27.8
550	611608.28	4816806.88	2.50	0	N	63	40.0	13.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-14.3
550	611608.28	4816806.88	2.50	0	N	125	48.7	13.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-12.9
550	611608.28	4816806.88	2.50	0	N	250	53.3	13.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-8.1
550	611608.28	4816806.88	2.50	0	N	500	55.7	13.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-4.1
550	611608.28	4816806.88	2.50	0	N	1000	57.7	13.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-3.7
550	611608.28	4816806.88	2.50	0	N	2000	53.8	13.1	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-15.0
550	611608.28	4816806.88	2.50	0	N	4000	49.8	13.1	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-47.4
550	611608.28	4816806.88	2.50	0	N	8000	40.9	13.1	0.0	0.0	0.0	72.8	143.7	-2.7	0.0	0.0	0.0	0.0	0.0	-159.7
550	611608.28	4816806.88	2.50	0	E	32	24.7	13.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-29.5
550	611608.28	4816806.88	2.50	0	E	63	38.3	13.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-16.1
550	611608.28	4816806.88	2.50	0	E	125	47.0	13.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-14.7
550	611608.28	4816806.88	2.50	0	E	250	51.5	13.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-9.9
550	611608.28	4816806.88	2.50	0	E	500	53.9	13.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-5.8
550	611608.28	4816806.88	2.50	0	E	1000	56.0	13.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-5.5
550	611608.28	4816806.88	2.50	0	E	2000	52.1	13.1	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-16.8
550	611608.28	4816806.88	2.50	0	E	4000	48.0	13.1	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-49.2
550	611608.28	4816806.88	2.50	0	E	8000	39.2	13.1	0.0	0.0	0.0	72.8	143.7	-2.7	0.0	0.0	0.0	0.0	0.0	-161.5
552	611630.37	4816785.65	2.50	0	D	32	24.7	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.5

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
552	611630.37	4816785.65	2.50	0	D	63	38.3	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-18.0
552	611630.37	4816785.65	2.50	0	D	125	47.0	16.1	0.0	0.0	0.0	73.0	0.5	0.7	0.0	0.0	4.1	0.0	0.0	-15.2
552	611630.37	4816785.65	2.50	0	D	250	51.5	16.1	0.0	0.0	0.0	73.0	1.3	-0.4	0.0	0.0	4.8	0.0	0.0	-11.0
552	611630.37	4816785.65	2.50	0	D	500	53.9	16.1	0.0	0.0	0.0	73.0	2.4	-2.7	0.0	0.0	4.8	0.0	0.0	-7.5
552	611630.37	4816785.65	2.50	0	D	1000	56.0	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-7.3
552	611630.37	4816785.65	2.50	0	D	2000	52.1	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-18.8
552	611630.37	4816785.65	2.50	0	D	4000	48.0	16.1	0.0	0.0	0.0	73.0	41.2	-2.9	0.0	0.0	4.8	0.0	0.0	-51.8
552	611630.37	4816785.65	2.50	0	D	8000	39.2	16.1	0.0	0.0	0.0	73.0	146.8	-2.9	0.0	0.0	4.8	0.0	0.0	-166.3
552	611630.37	4816785.65	2.50	0	N	32	26.5	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-29.7
552	611630.37	4816785.65	2.50	0	N	63	40.0	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-16.2
552	611630.37	4816785.65	2.50	0	N	125	48.7	16.1	0.0	0.0	0.0	73.0	0.5	0.7	0.0	0.0	4.1	0.0	0.0	-13.4
552	611630.37	4816785.65	2.50	0	N	250	53.3	16.1	0.0	0.0	0.0	73.0	1.3	-0.4	0.0	0.0	4.8	0.0	0.0	-9.3
552	611630.37	4816785.65	2.50	0	N	500	55.7	16.1	0.0	0.0	0.0	73.0	2.4	-2.7	0.0	0.0	4.8	0.0	0.0	-5.7
552	611630.37	4816785.65	2.50	0	N	1000	57.7	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-5.5
552	611630.37	4816785.65	2.50	0	N	2000	53.8	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-17.0
552	611630.37	4816785.65	2.50	0	N	4000	49.8	16.1	0.0	0.0	0.0	73.0	41.2	-2.9	0.0	0.0	4.8	0.0	0.0	-50.0
552	611630.37	4816785.65	2.50	0	N	8000	40.9	16.1	0.0	0.0	0.0	73.0	146.8	-2.9	0.0	0.0	4.8	0.0	0.0	-164.6
552	611630.37	4816785.65	2.50	0	E	32	24.7	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.5
552	611630.37	4816785.65	2.50	0	E	63	38.3	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-18.0
552	611630.37	4816785.65	2.50	0	E	125	47.0	16.1	0.0	0.0	0.0	73.0	0.5	0.7	0.0	0.0	4.1	0.0	0.0	-15.2
552	611630.37	4816785.65	2.50	0	E	250	51.5	16.1	0.0	0.0	0.0	73.0	1.3	-0.4	0.0	0.0	4.8	0.0	0.0	-11.0
552	611630.37	4816785.65	2.50	0	E	500	53.9	16.1	0.0	0.0	0.0	73.0	2.4	-2.7	0.0	0.0	4.8	0.0	0.0	-7.5
552	611630.37	4816785.65	2.50	0	E	1000	56.0	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-7.3
552	611630.37	4816785.65	2.50	0	E	2000	52.1	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-18.8
552	611630.37	4816785.65	2.50	0	E	4000	48.0	16.1	0.0	0.0	0.0	73.0	41.2	-2.9	0.0	0.0	4.8	0.0	0.0	-51.8
552	611630.37	4816785.65	2.50	0	E	8000	39.2	16.1	0.0	0.0	0.0	73.0	146.8	-2.9	0.0	0.0	4.8	0.0	0.0	-166.3
564	611662.41	4816754.84	2.50	0	D	32	24.7	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-26.2
564	611662.41	4816754.84	2.50	0	D	63	38.3	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-12.8
564	611662.41	4816754.84	2.50	0	D	125	47.0	16.8	0.0	0.0	0.0	73.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-10.1
564	611662.41	4816754.84	2.50	0	D	250	51.5	16.8	0.0	0.0	0.0	73.2	1.4	-1.1	0.0	0.0	0.0	0.0	0.0	-5.2
564	611662.41	4816754.84	2.50	0	D	500	53.9	16.8	0.0	0.0	0.0	73.2	2.5	-2.9	0.0	0.0	0.0	0.0	0.0	-2.1
564	611662.41	4816754.84	2.50	0	D	1000	56.0	16.8	0.0	0.0	0.0	73.2	4.7	-3.1	0.0	0.0	0.0	0.0	0.0	-2.1
564	611662.41	4816754.84	2.50	0	D	2000	52.1	16.8	0.0	0.0	0.0	73.2	12.5	-3.1	0.0	0.0	0.0	0.0	0.0	-13.8
564	611662.41	4816754.84	2.50	0	D	4000	48.0	16.8	0.0	0.0	0.0	73.2	42.4	-3.1	0.0	0.0	0.0	0.0	0.0	-47.7
564	611662.41	4816754.84	2.50	0	D	8000	39.2	16.8	0.0	0.0	0.0	73.2	151.3	-3.1	0.0	0.0	0.0	0.0	0.0	-165.5
564	611662.41	4816754.84	2.50	0	N	32	26.5	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-24.5
564	611662.41	4816754.84	2.50	0	N	63	40.0	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-11.0
564	611662.41	4816754.84	2.50	0	N	125	48.7	16.8	0.0	0.0	0.0	73.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-8.3
564	611662.41	4816754.84	2.50	0	N	250	53.3	16.8	0.0	0.0	0.0	73.2	1.4	-1.1	0.0	0.0	0.0	0.0	0.0	-3.4
564	611662.41	4816754.84	2.50	0	N	500	55.7	16.8	0.0	0.0	0.0	73.2	2.5	-2.9	0.0	0.0	0.0	0.0	0.0	-0.4
564	611662.41	4816754.84	2.50	0	N	1000	57.7	16.8	0.0	0.0	0.0	73.2	4.7	-3.1	0.0	0.0	0.0	0.0	0.0	-0.3
564	611662.41	4816754.84	2.50	0	N	2000	53.8	16.8	0.0	0.0	0.0	73.2	12.5	-3.1	0.0	0.0	0.0	0.0	0.0	-12.0
564	611662.41	4816754.84	2.50	0	N	4000	49.8	16.8	0.0	0.0	0.0	73.2	42.4	-3.1	0.0	0.0	0.0	0.0	0.0	-45.9
564	611662.41	4816754.84	2.50	0	N	8000	40.9	16.8	0.0	0.0	0.0	73.2	151.3	-3.1	0.0	0.0	0.0	0.0	0.0	-163.7
564	611662.41	4816754.84	2.50	0	E	32	24.7	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-26.2
564	611662.41	4816754.84	2.50	0	E	63	38.3	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-12.8
564	611662.41	4816754.84	2.50	0	E	125	47.0	16.8	0.0	0.0	0.0	73.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-10.1
564	611662.41	4816754.84	2.50	0	E	250	51.5	16.8	0.0	0.0	0.0	73.2	1.4	-1.1	0.0	0.0	0.0	0.0	0.0	-5.2
564	611662.41	4816754.84	2.50	0	E	500	53.9	16.8	0.0	0.0	0.0	73.2	2.5	-2.9	0.0	0.0	0.0	0.0	0.0	-2.1
564	611662.41	4816754.84	2.50	0	E	1000	56.0	16.8	0.0	0.0	0.0	73.2	4.7	-3.1	0.0	0.0	0.0	0.0	0.0	-2.1
564	611662.41	4816754.84	2.50	0	E	2000	52.1	16.8	0.0	0.0	0.0	73.2	12.5	-3.1	0.0	0.0	0.0	0.0	0.0	-13.8
564	611662.41	4816754.84	2.50	0	E	4000	48.0	16.8	0.0	0.0	0.0	73.2	42.4	-3.1	0.0	0.0	0.0	0.0	0.0	-47.7
564	611662.41	4816754.84	2.50	0	E	8000	39.2	16.8	0.0	0.0	0.0	73.2	151.3	-3.1	0.0	0.0	0.0	0.0	0.0	-165.5
570	611684.53	4816733.59	2.50	0	D	32	24.7	11.2	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-37.2
570	611684.53	4816733.59	2.50	0	D	63	38.3	11.2	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.7	0.0	0.0	-24.2
570	611684.53	4816733.59	2.50	0	D	125	47.0	11.2	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.6	0.0	0.0	-21.9
570	611684.53	4816733.59	2.50	0	D	250	51.5	11.2	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.5	0.0	0.0	-19.0
570	611684.53	4816733.59	2.50	0	D	500	53.9	11.2	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-19.4
570	611684.53	4816733.59	2.50	0	D	1000	56.0	11.2	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.0	0.0	0.0	-22.8
570	611684.53	4816733.59	2.50	0	D	2000	52.1	11.2	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.1	0.0	0.0	-37.7
570	611684.53	4816733.59	2.50	0	D	4000	48.0	11.2	0.0	0.0	0.0	73.4	43.3	-3.3	0.0	0.0	21.1	0.0	0.0	-75.3
570	611684.53	4816733.59	2.50	0	D	8000	39.2	11.2	0.0	0.0	0.0	73.4	154.5	-3.3	0.0	0.0	24.1	0.0	0.0	-198.3
570	611684.53	4816733.59	2.50	0	N	32	26.5	11.2	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-35.5

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
570	611684.53	4816733.59	2.50	0	N	63	40.0	11.2	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.7	0.0	0.0	-22.5
570	611684.53	4816733.59	2.50	0	N	125	48.7	11.2	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.6	0.0	0.0	-20.1
570	611684.53	4816733.59	2.50	0	N	250	53.3	11.2	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.5	0.0	0.0	-17.2
570	611684.53	4816733.59	2.50	0	N	500	55.7	11.2	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-17.6
570	611684.53	4816733.59	2.50	0	N	1000	57.7	11.2	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.0	0.0	0.0	-21.0
570	611684.53	4816733.59	2.50	0	N	2000	53.8	11.2	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.1	0.0	0.0	-36.0
570	611684.53	4816733.59	2.50	0	N	4000	49.8	11.2	0.0	0.0	0.0	73.4	43.3	-3.3	0.0	0.0	21.1	0.0	0.0	-73.5
570	611684.53	4816733.59	2.50	0	N	8000	40.9	11.2	0.0	0.0	0.0	73.4	154.5	-3.3	0.0	0.0	24.1	0.0	0.0	-196.5
570	611684.53	4816733.59	2.50	0	E	32	24.7	11.2	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-37.2
570	611684.53	4816733.59	2.50	0	E	63	38.3	11.2	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.7	0.0	0.0	-24.2
570	611684.53	4816733.59	2.50	0	E	125	47.0	11.2	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.6	0.0	0.0	-21.9
570	611684.53	4816733.59	2.50	0	E	250	51.5	11.2	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.5	0.0	0.0	-19.0
570	611684.53	4816733.59	2.50	0	E	500	53.9	11.2	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-19.4
570	611684.53	4816733.59	2.50	0	E	1000	56.0	11.2	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.0	0.0	0.0	-22.8
570	611684.53	4816733.59	2.50	0	E	2000	52.1	11.2	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.1	0.0	0.0	-37.7
570	611684.53	4816733.59	2.50	0	E	4000	48.0	11.2	0.0	0.0	0.0	73.4	43.3	-3.3	0.0	0.0	21.1	0.0	0.0	-75.3
570	611684.53	4816733.59	2.50	0	E	8000	39.2	11.2	0.0	0.0	0.0	73.4	154.5	-3.3	0.0	0.0	24.1	0.0	0.0	-198.3
572	611692.14	4816726.26	2.50	0	D	32	24.7	8.9	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-39.5
572	611692.14	4816726.26	2.50	0	D	63	38.3	8.9	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-26.4
572	611692.14	4816726.26	2.50	0	D	125	47.0	8.9	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.3	0.0	0.0	-24.2
572	611692.14	4816726.26	2.50	0	D	250	51.5	8.9	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.7	0.0	0.0	-20.8
572	611692.14	4816726.26	2.50	0	D	500	53.9	8.9	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.3	0.0	0.0	-20.5
572	611692.14	4816726.26	2.50	0	D	1000	56.0	8.9	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.9	0.0	0.0	-24.1
572	611692.14	4816726.26	2.50	0	D	2000	52.1	8.9	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	17.3	0.0	0.0	-39.5
572	611692.14	4816726.26	2.50	0	D	4000	48.0	8.9	0.0	0.0	0.0	73.5	43.6	-3.2	0.0	0.0	20.5	0.0	0.0	-77.3
572	611692.14	4816726.26	2.50	0	D	8000	39.2	8.9	0.0	0.0	0.0	73.5	155.6	-3.2	0.0	0.0	23.5	0.0	0.0	-201.2
572	611692.14	4816726.26	2.50	0	N	32	26.5	8.9	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-37.8
572	611692.14	4816726.26	2.50	0	N	63	40.0	8.9	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-24.7
572	611692.14	4816726.26	2.50	0	N	125	48.7	8.9	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.3	0.0	0.0	-22.5
572	611692.14	4816726.26	2.50	0	N	250	53.3	8.9	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.7	0.0	0.0	-19.0
572	611692.14	4816726.26	2.50	0	N	500	55.7	8.9	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.3	0.0	0.0	-18.7
572	611692.14	4816726.26	2.50	0	N	1000	57.7	8.9	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.9	0.0	0.0	-22.4
572	611692.14	4816726.26	2.50	0	N	2000	53.8	8.9	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	17.3	0.0	0.0	-37.7
572	611692.14	4816726.26	2.50	0	N	4000	49.8	8.9	0.0	0.0	0.0	73.5	43.6	-3.2	0.0	0.0	20.5	0.0	0.0	-75.6
572	611692.14	4816726.26	2.50	0	N	8000	40.9	8.9	0.0	0.0	0.0	73.5	155.6	-3.2	0.0	0.0	23.5	0.0	0.0	-199.4
572	611692.14	4816726.26	2.50	0	E	32	24.7	8.9	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.2	0.0	0.0	-39.5
572	611692.14	4816726.26	2.50	0	E	63	38.3	8.9	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-26.4
572	611692.14	4816726.26	2.50	0	E	125	47.0	8.9	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.3	0.0	0.0	-24.2
572	611692.14	4816726.26	2.50	0	E	250	51.5	8.9	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.7	0.0	0.0	-20.8
572	611692.14	4816726.26	2.50	0	E	500	53.9	8.9	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.3	0.0	0.0	-20.5
572	611692.14	4816726.26	2.50	0	E	1000	56.0	8.9	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.9	0.0	0.0	-24.1
572	611692.14	4816726.26	2.50	0	E	2000	52.1	8.9	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	17.3	0.0	0.0	-39.5
572	611692.14	4816726.26	2.50	0	E	4000	48.0	8.9	0.0	0.0	0.0	73.5	43.6	-3.2	0.0	0.0	20.5	0.0	0.0	-77.3
572	611692.14	4816726.26	2.50	0	E	8000	39.2	8.9	0.0	0.0	0.0	73.5	155.6	-3.2	0.0	0.0	23.5	0.0	0.0	-201.2
613	611695.77	4816722.81	2.50	0	D	32	24.7	3.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-45.0
613	611695.77	4816722.81	2.50	0	D	63	38.3	3.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-31.8
613	611695.77	4816722.81	2.50	0	D	125	47.0	3.4	0.0	0.0	0.0	73.5	0.5	0.0	0.0	0.0	5.8	0.0	0.0	-29.5
613	611695.77	4816722.81	2.50	0	D	250	51.5	3.4	0.0	0.0	0.0	73.5	1.4	-1.1	0.0	0.0	6.6	0.0	0.0	-25.5
613	611695.77	4816722.81	2.50	0	D	500	53.9	3.4	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	8.1	0.0	0.0	-23.9
613	611695.77	4816722.81	2.50	0	D	1000	56.0	3.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	10.5	0.0	0.0	-26.3
613	611695.77	4816722.81	2.50	0	D	2000	52.1	3.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	14.1	0.0	0.0	-41.9
613	611695.77	4816722.81	2.50	0	D	4000	48.0	3.4	0.0	0.0	0.0	73.5	43.8	-3.2	0.0	0.0	18.1	0.0	0.0	-80.8
613	611695.77	4816722.81	2.50	0	D	8000	39.2	3.4	0.0	0.0	0.0	73.5	156.1	-3.2	0.0	0.0	21.6	0.0	0.0	-205.5
613	611695.77	4816722.81	2.50	0	N	32	26.5	3.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-43.2
613	611695.77	4816722.81	2.50	0	N	63	40.0	3.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-30.0
613	611695.77	4816722.81	2.50	0	N	125	48.7	3.4	0.0	0.0	0.0	73.5	0.5	0.0	0.0	0.0	5.8	0.0	0.0	-27.7
613	611695.77	4816722.81	2.50	0	N	250	53.3	3.4	0.0	0.0	0.0	73.5	1.4	-1.1	0.0	0.0	6.6	0.0	0.0	-23.8
613	611695.77	4816722.81	2.50	0	N	500	55.7	3.4	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	8.1	0.0	0.0	-22.1
613	611695.77	4816722.81	2.50	0	N	1000	57.7	3.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	10.5	0.0	0.0	-24.5
613	611695.77	4816722.81	2.50	0	N	2000	53.8	3.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	14.1	0.0	0.0	-40.1
613	611695.77	4816722.81	2.50	0	N	4000	49.8	3.4	0.0	0.0	0.0	73.5	43.8	-3.2	0.0	0.0	18.1	0.0	0.0	-79.0
613	611695.77	4816722.81	2.50	0	N	8000	40.9	3.4	0.0	0.0	0.0	73.5	156.1	-3.2	0.0	0.0	21.6	0.0	0.0	-203.7
613	611695.77	4816722.81	2.50	0	E	32	24.7	3.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-45.0

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
613	611695.77	4816722.81	2.50	0	E	63	38.3	3.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-31.8
613	611695.77	4816722.81	2.50	0	E	125	47.0	3.4	0.0	0.0	0.0	73.5	0.5	0.0	0.0	0.0	5.8	0.0	0.0	-29.5
613	611695.77	4816722.81	2.50	0	E	250	51.5	3.4	0.0	0.0	0.0	73.5	1.4	-1.1	0.0	0.0	6.6	0.0	0.0	-25.5
613	611695.77	4816722.81	2.50	0	E	500	53.9	3.4	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	8.1	0.0	0.0	-23.9
613	611695.77	4816722.81	2.50	0	E	1000	56.0	3.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	10.5	0.0	0.0	-26.3
613	611695.77	4816722.81	2.50	0	E	2000	52.1	3.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	14.1	0.0	0.0	-41.9
613	611695.77	4816722.81	2.50	0	E	4000	48.0	3.4	0.0	0.0	0.0	73.5	43.8	-3.2	0.0	0.0	18.1	0.0	0.0	-80.8
613	611695.77	4816722.81	2.50	0	E	8000	39.2	3.4	0.0	0.0	0.0	73.5	156.1	-3.2	0.0	0.0	21.6	0.0	0.0	-205.5
616	611701.12	4816717.89	2.50	0	D	32	24.7	10.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-37.3
616	611701.12	4816717.89	2.50	0	D	63	38.3	10.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-23.9
616	611701.12	4816717.89	2.50	0	D	125	47.0	10.9	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	5.0	0.0	0.0	-21.4
616	611701.12	4816717.89	2.50	0	D	250	51.5	10.9	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.8	0.0	0.0	-17.4
616	611701.12	4816717.89	2.50	0	D	500	53.9	10.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	7.0	0.0	0.0	-15.4
616	611701.12	4816717.89	2.50	0	D	1000	56.0	10.9	0.0	0.0	0.0	73.6	4.9	-3.2	0.0	0.0	8.6	0.0	0.0	-17.0
616	611701.12	4816717.89	2.50	0	D	2000	52.1	10.9	0.0	0.0	0.0	73.6	13.0	-3.2	0.0	0.0	10.7	0.0	0.0	-31.1
616	611701.12	4816717.89	2.50	0	D	4000	48.0	10.9	0.0	0.0	0.0	73.6	44.0	-3.2	0.0	0.0	13.1	0.0	0.0	-68.5
616	611701.12	4816717.89	2.50	0	D	8000	39.2	10.9	0.0	0.0	0.0	73.6	156.8	-3.2	0.0	0.0	15.8	0.0	0.0	-192.9
616	611701.12	4816717.89	2.50	0	N	32	26.5	10.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.5
616	611701.12	4816717.89	2.50	0	N	63	40.0	10.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-22.1
616	611701.12	4816717.89	2.50	0	N	125	48.7	10.9	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	5.0	0.0	0.0	-19.6
616	611701.12	4816717.89	2.50	0	N	250	53.3	10.9	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.8	0.0	0.0	-15.6
616	611701.12	4816717.89	2.50	0	N	500	55.7	10.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	7.0	0.0	0.0	-13.6
616	611701.12	4816717.89	2.50	0	N	1000	57.7	10.9	0.0	0.0	0.0	73.6	4.9	-3.2	0.0	0.0	8.6	0.0	0.0	-15.3
616	611701.12	4816717.89	2.50	0	N	2000	53.8	10.9	0.0	0.0	0.0	73.6	13.0	-3.2	0.0	0.0	10.7	0.0	0.0	-29.3
616	611701.12	4816717.89	2.50	0	N	4000	49.8	10.9	0.0	0.0	0.0	73.6	44.0	-3.2	0.0	0.0	13.1	0.0	0.0	-66.8
616	611701.12	4816717.89	2.50	0	N	8000	40.9	10.9	0.0	0.0	0.0	73.6	156.8	-3.2	0.0	0.0	15.8	0.0	0.0	-191.2
616	611701.12	4816717.89	2.50	0	E	32	24.7	10.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-37.3
616	611701.12	4816717.89	2.50	0	E	63	38.3	10.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-23.9
616	611701.12	4816717.89	2.50	0	E	125	47.0	10.9	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	5.0	0.0	0.0	-21.4
616	611701.12	4816717.89	2.50	0	E	250	51.5	10.9	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.8	0.0	0.0	-17.4
616	611701.12	4816717.89	2.50	0	E	500	53.9	10.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	7.0	0.0	0.0	-15.4
616	611701.12	4816717.89	2.50	0	E	1000	56.0	10.9	0.0	0.0	0.0	73.6	4.9	-3.2	0.0	0.0	8.6	0.0	0.0	-17.0
616	611701.12	4816717.89	2.50	0	E	2000	52.1	10.9	0.0	0.0	0.0	73.6	13.0	-3.2	0.0	0.0	10.7	0.0	0.0	-31.1
616	611701.12	4816717.89	2.50	0	E	4000	48.0	10.9	0.0	0.0	0.0	73.6	44.0	-3.2	0.0	0.0	13.1	0.0	0.0	-68.5
616	611701.12	4816717.89	2.50	0	E	8000	39.2	10.9	0.0	0.0	0.0	73.6	156.8	-3.2	0.0	0.0	15.8	0.0	0.0	-192.9
619	611711.25	4816708.57	2.50	0	D	32	24.7	11.8	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.4
619	611711.25	4816708.57	2.50	0	D	63	38.3	11.8	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-23.0
619	611711.25	4816708.57	2.50	0	D	125	47.0	11.8	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	4.7	0.0	0.0	-20.3
619	611711.25	4816708.57	2.50	0	D	250	51.5	11.8	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.0	0.0	0.0	-15.8
619	611711.25	4816708.57	2.50	0	D	500	53.9	11.8	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	5.4	0.0	0.0	-13.0
619	611711.25	4816708.57	2.50	0	D	1000	56.0	11.8	0.0	0.0	0.0	73.6	5.0	-3.2	0.0	0.0	6.0	0.0	0.0	-13.6
619	611711.25	4816708.57	2.50	0	D	2000	52.1	11.8	0.0	0.0	0.0	73.6	13.1	-3.2	0.0	0.0	6.9	0.0	0.0	-26.6
619	611711.25	4816708.57	2.50	0	D	4000	48.0	11.8	0.0	0.0	0.0	73.6	44.4	-3.2	0.0	0.0	8.4	0.0	0.0	-63.3
619	611711.25	4816708.57	2.50	0	D	8000	39.2	11.8	0.0	0.0	0.0	73.6	158.2	-3.2	0.0	0.0	10.3	0.0	0.0	-188.0
619	611711.25	4816708.57	2.50	0	N	32	26.5	11.8	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.6
619	611711.25	4816708.57	2.50	0	N	63	40.0	11.8	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.2
619	611711.25	4816708.57	2.50	0	N	125	48.7	11.8	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	4.7	0.0	0.0	-18.5
619	611711.25	4816708.57	2.50	0	N	250	53.3	11.8	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.0	0.0	0.0	-14.0
619	611711.25	4816708.57	2.50	0	N	500	55.7	11.8	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	5.4	0.0	0.0	-11.2
619	611711.25	4816708.57	2.50	0	N	1000	57.7	11.8	0.0	0.0	0.0	73.6	5.0	-3.2	0.0	0.0	6.0	0.0	0.0	-11.8
619	611711.25	4816708.57	2.50	0	N	2000	53.8	11.8	0.0	0.0	0.0	73.6	13.1	-3.2	0.0	0.0	6.9	0.0	0.0	-24.8
619	611711.25	4816708.57	2.50	0	N	4000	49.8	11.8	0.0	0.0	0.0	73.6	44.4	-3.2	0.0	0.0	8.4	0.0	0.0	-61.6
619	611711.25	4816708.57	2.50	0	N	8000	40.9	11.8	0.0	0.0	0.0	73.6	158.2	-3.2	0.0	0.0	10.3	0.0	0.0	-186.2
619	611711.25	4816708.57	2.50	0	E	32	24.7	11.8	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.4
619	611711.25	4816708.57	2.50	0	E	63	38.3	11.8	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-23.0
619	611711.25	4816708.57	2.50	0	E	125	47.0	11.8	0.0	0.0	0.0	73.6	0.6	0.2	0.0	0.0	4.7	0.0	0.0	-20.3
619	611711.25	4816708.57	2.50	0	E	250	51.5	11.8	0.0	0.0	0.0	73.6	1.4	-1.0	0.0	0.0	5.0	0.0	0.0	-15.8
619	611711.25	4816708.57	2.50	0	E	500	53.9	11.8	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	5.4	0.0	0.0	-13.0
619	611711.25	4816708.57	2.50	0	E	1000	56.0	11.8	0.0	0.0	0.0	73.6	5.0	-3.2	0.0	0.0	6.0	0.0	0.0	-13.6
619	611711.25	4816708.57	2.50	0	E	2000	52.1	11.8	0.0	0.0	0.0	73.6	13.1	-3.2	0.0	0.0	6.9	0.0	0.0	-26.6
619	611711.25	4816708.57	2.50	0	E	4000	48.0	11.8	0.0	0.0	0.0	73.6	44.4	-3.2	0.0	0.0	8.4	0.0	0.0	-63.3
619	611711.25	4816708.57	2.50	0	E	8000	39.2	11.8	0.0	0.0	0.0	73.6	158.2	-3.2	0.0	0.0	10.3	0.0	0.0	-188.0
642	611726.15	4816694.87	2.50	0	D	32	24.7	14.0	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-34.9

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
642	611726.15	4816694.87	2.50	0	D	63	38.3	14.0	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	6.0	0.0	0.0	-22.1
642	611726.15	4816694.87	2.50	0	D	125	47.0	14.0	0.0	0.0	0.0	73.7	0.6	-0.5	0.0	0.0	7.0	0.0	0.0	-19.8
642	611726.15	4816694.87	2.50	0	D	250	51.5	14.0	0.0	0.0	0.0	73.7	1.4	-1.7	0.0	0.0	8.5	0.0	0.0	-16.4
642	611726.15	4816694.87	2.50	0	D	500	53.9	14.0	0.0	0.0	0.0	73.7	2.6	-3.2	0.0	0.0	10.4	0.0	0.0	-15.7
642	611726.15	4816694.87	2.50	0	D	1000	56.0	14.0	0.0	0.0	0.0	73.7	5.0	-3.4	0.0	0.0	12.8	0.0	0.0	-18.2
642	611726.15	4816694.87	2.50	0	D	2000	52.1	14.0	0.0	0.0	0.0	73.7	13.3	-3.4	0.0	0.0	15.5	0.0	0.0	-33.0
642	611726.15	4816694.87	2.50	0	D	4000	48.0	14.0	0.0	0.0	0.0	73.7	44.9	-3.4	0.0	0.0	18.3	0.0	0.0	-71.5
642	611726.15	4816694.87	2.50	0	D	8000	39.2	14.0	0.0	0.0	0.0	73.7	160.3	-3.4	0.0	0.0	21.2	0.0	0.0	-198.7
642	611726.15	4816694.87	2.50	0	N	32	26.5	14.0	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-33.2
642	611726.15	4816694.87	2.50	0	N	63	40.0	14.0	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	6.0	0.0	0.0	-20.3
642	611726.15	4816694.87	2.50	0	N	125	48.7	14.0	0.0	0.0	0.0	73.7	0.6	-0.5	0.0	0.0	7.0	0.0	0.0	-18.0
642	611726.15	4816694.87	2.50	0	N	250	53.3	14.0	0.0	0.0	0.0	73.7	1.4	-1.7	0.0	0.0	8.5	0.0	0.0	-14.6
642	611726.15	4816694.87	2.50	0	N	500	55.7	14.0	0.0	0.0	0.0	73.7	2.6	-3.2	0.0	0.0	10.4	0.0	0.0	-13.9
642	611726.15	4816694.87	2.50	0	N	1000	57.7	14.0	0.0	0.0	0.0	73.7	5.0	-3.4	0.0	0.0	12.8	0.0	0.0	-16.4
642	611726.15	4816694.87	2.50	0	N	2000	53.8	14.0	0.0	0.0	0.0	73.7	13.3	-3.4	0.0	0.0	15.5	0.0	0.0	-31.2
642	611726.15	4816694.87	2.50	0	N	4000	49.8	14.0	0.0	0.0	0.0	73.7	44.9	-3.4	0.0	0.0	18.3	0.0	0.0	-69.8
642	611726.15	4816694.87	2.50	0	N	8000	40.9	14.0	0.0	0.0	0.0	73.7	160.3	-3.4	0.0	0.0	21.2	0.0	0.0	-196.9
642	611726.15	4816694.87	2.50	0	E	32	24.7	14.0	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-34.9
642	611726.15	4816694.87	2.50	0	E	63	38.3	14.0	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	6.0	0.0	0.0	-22.1
642	611726.15	4816694.87	2.50	0	E	125	47.0	14.0	0.0	0.0	0.0	73.7	0.6	-0.5	0.0	0.0	7.0	0.0	0.0	-19.8
642	611726.15	4816694.87	2.50	0	E	250	51.5	14.0	0.0	0.0	0.0	73.7	1.4	-1.7	0.0	0.0	8.5	0.0	0.0	-16.4
642	611726.15	4816694.87	2.50	0	E	500	53.9	14.0	0.0	0.0	0.0	73.7	2.6	-3.2	0.0	0.0	10.4	0.0	0.0	-15.7
642	611726.15	4816694.87	2.50	0	E	1000	56.0	14.0	0.0	0.0	0.0	73.7	5.0	-3.4	0.0	0.0	12.8	0.0	0.0	-18.2
642	611726.15	4816694.87	2.50	0	E	2000	52.1	14.0	0.0	0.0	0.0	73.7	13.3	-3.4	0.0	0.0	15.5	0.0	0.0	-33.0
642	611726.15	4816694.87	2.50	0	E	4000	48.0	14.0	0.0	0.0	0.0	73.7	44.9	-3.4	0.0	0.0	18.3	0.0	0.0	-71.5
642	611726.15	4816694.87	2.50	0	E	8000	39.2	14.0	0.0	0.0	0.0	73.7	160.3	-3.4	0.0	0.0	21.2	0.0	0.0	-198.7
668	611748.05	4816674.72	2.50	0	D	32	24.7	15.3	0.0	0.0	0.0	73.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-33.1
668	611748.05	4816674.72	2.50	0	D	63	38.3	15.3	0.0	0.0	0.0	73.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-19.7
668	611748.05	4816674.72	2.50	0	D	125	47.0	15.3	0.0	0.0	0.0	73.9	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-16.9
668	611748.05	4816674.72	2.50	0	D	250	51.5	15.3	0.0	0.0	0.0	73.9	1.5	-1.2	0.0	0.0	4.8	0.0	0.0	-12.1
668	611748.05	4816674.72	2.50	0	D	500	53.9	15.3	0.0	0.0	0.0	73.9	2.7	-3.1	0.0	0.0	4.8	0.0	0.0	-9.1
668	611748.05	4816674.72	2.50	0	D	1000	56.0	15.3	0.0	0.0	0.0	73.9	5.1	-3.3	0.0	0.0	4.9	0.0	0.0	-9.3
668	611748.05	4816674.72	2.50	0	D	2000	52.1	15.3	0.0	0.0	0.0	73.9	13.5	-3.3	0.0	0.0	4.9	0.0	0.0	-21.6
668	611748.05	4816674.72	2.50	0	D	4000	48.0	15.3	0.0	0.0	0.0	73.9	45.8	-3.3	0.0	0.0	5.1	0.0	0.0	-58.1
668	611748.05	4816674.72	2.50	0	D	8000	39.2	15.3	0.0	0.0	0.0	73.9	163.4	-3.3	0.0	0.0	5.4	0.0	0.0	-184.8
668	611748.05	4816674.72	2.50	0	N	32	26.5	15.3	0.0	0.0	0.0	73.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.4
668	611748.05	4816674.72	2.50	0	N	63	40.0	15.3	0.0	0.0	0.0	73.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-17.9
668	611748.05	4816674.72	2.50	0	N	125	48.7	15.3	0.0	0.0	0.0	73.9	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-15.1
668	611748.05	4816674.72	2.50	0	N	250	53.3	15.3	0.0	0.0	0.0	73.9	1.5	-1.2	0.0	0.0	4.8	0.0	0.0	-10.3
668	611748.05	4816674.72	2.50	0	N	500	55.7	15.3	0.0	0.0	0.0	73.9	2.7	-3.1	0.0	0.0	4.8	0.0	0.0	-7.3
668	611748.05	4816674.72	2.50	0	N	1000	57.7	15.3	0.0	0.0	0.0	73.9	5.1	-3.3	0.0	0.0	4.9	0.0	0.0	-7.5
668	611748.05	4816674.72	2.50	0	N	2000	53.8	15.3	0.0	0.0	0.0	73.9	13.5	-3.3	0.0	0.0	4.9	0.0	0.0	-19.9
668	611748.05	4816674.72	2.50	0	N	4000	49.8	15.3	0.0	0.0	0.0	73.9	45.8	-3.3	0.0	0.0	5.1	0.0	0.0	-56.3
668	611748.05	4816674.72	2.50	0	N	8000	40.9	15.3	0.0	0.0	0.0	73.9	163.4	-3.3	0.0	0.0	5.4	0.0	0.0	-183.1
668	611748.05	4816674.72	2.50	0	E	32	24.7	15.3	0.0	0.0	0.0	73.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-33.1
668	611748.05	4816674.72	2.50	0	E	63	38.3	15.3	0.0	0.0	0.0	73.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-19.7
668	611748.05	4816674.72	2.50	0	E	125	47.0	15.3	0.0	0.0	0.0	73.9	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-16.9
668	611748.05	4816674.72	2.50	0	E	250	51.5	15.3	0.0	0.0	0.0	73.9	1.5	-1.2	0.0	0.0	4.8	0.0	0.0	-12.1
668	611748.05	4816674.72	2.50	0	E	500	53.9	15.3	0.0	0.0	0.0	73.9	2.7	-3.1	0.0	0.0	4.8	0.0	0.0	-9.1
668	611748.05	4816674.72	2.50	0	E	1000	56.0	15.3	0.0	0.0	0.0	73.9	5.1	-3.3	0.0	0.0	4.9	0.0	0.0	-9.3
668	611748.05	4816674.72	2.50	0	E	2000	52.1	15.3	0.0	0.0	0.0	73.9	13.5	-3.3	0.0	0.0	4.9	0.0	0.0	-21.6
668	611748.05	4816674.72	2.50	0	E	4000	48.0	15.3	0.0	0.0	0.0	73.9	45.8	-3.3	0.0	0.0	5.1	0.0	0.0	-58.1
668	611748.05	4816674.72	2.50	0	E	8000	39.2	15.3	0.0	0.0	0.0	73.9	163.4	-3.3	0.0	0.0	5.4	0.0	0.0	-184.8
671	611771.92	4816652.76	2.50	0	D	32	24.7	14.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.8
671	611771.92	4816652.76	2.50	0	D	63	38.3	14.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-20.3
671	611771.92	4816652.76	2.50	0	D	125	47.0	14.9	0.0	0.0	0.0	74.1	0.6	-0.4	0.0	0.0	4.8	0.0	0.0	-17.2
671	611771.92	4816652.76	2.50	0	D	250	51.5	14.9	0.0	0.0	0.0	74.1	1.5	-1.5	0.0	0.0	4.8	0.0	0.0	-12.4
671	611771.92	4816652.76	2.50	0	D	500	53.9	14.9	0.0	0.0	0.0	74.1	2.7	-3.2	0.0	0.0	4.8	0.0	0.0	-9.6
671	611771.92	4816652.76	2.50	0	D	1000	56.0	14.9	0.0	0.0	0.0	74.1	5.2	-3.4	0.0	0.0	4.8	0.0	0.0	-9.8
671	611771.92	4816652.76	2.50	0	D	2000	52.1	14.9	0.0	0.0	0.0	74.1	13.8	-3.4	0.0	0.0	4.8	0.0	0.0	-22.3
671	611771.92	4816652.76	2.50	0	D	4000	48.0	14.9	0.0	0.0	0.0	74.1	46.7	-3.4	0.0	0.0	4.8	0.0	0.0	-59.3
671	611771.92	4816652.76	2.50	0	D	8000	39.2	14.9	0.0	0.0	0.0	74.1	166.7	-3.4	0.0	0.0	4.8	0.0	0.0	-188.2
671	611771.92	4816652.76	2.50	0	N	32	26.5	14.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-32.0

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
671	611771.92	4816652.76	2.50	0	N	63	40.0	14.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-18.6
671	611771.92	4816652.76	2.50	0	N	125	48.7	14.9	0.0	0.0	0.0	74.1	0.6	-0.4	0.0	0.0	4.8	0.0	0.0	-15.5
671	611771.92	4816652.76	2.50	0	N	250	53.3	14.9	0.0	0.0	0.0	74.1	1.5	-1.5	0.0	0.0	4.8	0.0	0.0	-10.7
671	611771.92	4816652.76	2.50	0	N	500	55.7	14.9	0.0	0.0	0.0	74.1	2.7	-3.2	0.0	0.0	4.8	0.0	0.0	-7.9
671	611771.92	4816652.76	2.50	0	N	1000	57.7	14.9	0.0	0.0	0.0	74.1	5.2	-3.4	0.0	0.0	4.8	0.0	0.0	-8.1
671	611771.92	4816652.76	2.50	0	N	2000	53.8	14.9	0.0	0.0	0.0	74.1	13.8	-3.4	0.0	0.0	4.8	0.0	0.0	-20.6
671	611771.92	4816652.76	2.50	0	N	4000	49.8	14.9	0.0	0.0	0.0	74.1	46.7	-3.4	0.0	0.0	4.8	0.0	0.0	-57.5
671	611771.92	4816652.76	2.50	0	N	8000	40.9	14.9	0.0	0.0	0.0	74.1	166.7	-3.4	0.0	0.0	4.8	0.0	0.0	-186.4
671	611771.92	4816652.76	2.50	0	E	32	24.7	14.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.8
671	611771.92	4816652.76	2.50	0	E	63	38.3	14.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-20.3
671	611771.92	4816652.76	2.50	0	E	125	47.0	14.9	0.0	0.0	0.0	74.1	0.6	-0.4	0.0	0.0	4.8	0.0	0.0	-17.2
671	611771.92	4816652.76	2.50	0	E	250	51.5	14.9	0.0	0.0	0.0	74.1	1.5	-1.5	0.0	0.0	4.8	0.0	0.0	-12.4
671	611771.92	4816652.76	2.50	0	E	500	53.9	14.9	0.0	0.0	0.0	74.1	2.7	-3.2	0.0	0.0	4.8	0.0	0.0	-9.6
671	611771.92	4816652.76	2.50	0	E	1000	56.0	14.9	0.0	0.0	0.0	74.1	5.2	-3.4	0.0	0.0	4.8	0.0	0.0	-9.8
671	611771.92	4816652.76	2.50	0	E	2000	52.1	14.9	0.0	0.0	0.0	74.1	13.8	-3.4	0.0	0.0	4.8	0.0	0.0	-22.3
671	611771.92	4816652.76	2.50	0	E	4000	48.0	14.9	0.0	0.0	0.0	74.1	46.7	-3.4	0.0	0.0	4.8	0.0	0.0	-59.3
671	611771.92	4816652.76	2.50	0	E	8000	39.2	14.9	0.0	0.0	0.0	74.1	166.7	-3.4	0.0	0.0	4.8	0.0	0.0	-188.2
677	611785.23	4816640.52	2.50	0	D	32	24.7	7.4	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-41.6
677	611785.23	4816640.52	2.50	0	D	63	38.3	7.4	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.3	0.0	0.0	-28.4
677	611785.23	4816640.52	2.50	0	D	125	47.0	7.4	0.0	0.0	0.0	74.2	0.6	0.0	0.0	0.0	5.8	0.0	0.0	-26.2
677	611785.23	4816640.52	2.50	0	D	250	51.5	7.4	0.0	0.0	0.0	74.2	1.5	-1.1	0.0	0.0	6.6	0.0	0.0	-22.3
677	611785.23	4816640.52	2.50	0	D	500	53.9	7.4	0.0	0.0	0.0	74.2	2.8	-3.1	0.0	0.0	7.9	0.0	0.0	-20.5
677	611785.23	4816640.52	2.50	0	D	1000	56.0	7.4	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	9.7	0.0	0.0	-22.5
677	611785.23	4816640.52	2.50	0	D	2000	52.1	7.4	0.0	0.0	0.0	74.2	13.9	-3.3	0.0	0.0	12.0	0.0	0.0	-37.3
677	611785.23	4816640.52	2.50	0	D	4000	48.0	7.4	0.0	0.0	0.0	74.2	47.3	-3.3	0.0	0.0	14.6	0.0	0.0	-77.3
677	611785.23	4816640.52	2.50	0	D	8000	39.2	7.4	0.0	0.0	0.0	74.2	168.6	-3.3	0.0	0.0	17.3	0.0	0.0	-210.2
677	611785.23	4816640.52	2.50	0	N	32	26.5	7.4	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-39.8
677	611785.23	4816640.52	2.50	0	N	63	40.0	7.4	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.3	0.0	0.0	-26.7
677	611785.23	4816640.52	2.50	0	N	125	48.7	7.4	0.0	0.0	0.0	74.2	0.6	0.0	0.0	0.0	5.8	0.0	0.0	-24.4
677	611785.23	4816640.52	2.50	0	N	250	53.3	7.4	0.0	0.0	0.0	74.2	1.5	-1.1	0.0	0.0	6.6	0.0	0.0	-20.5
677	611785.23	4816640.52	2.50	0	N	500	55.7	7.4	0.0	0.0	0.0	74.2	2.8	-3.1	0.0	0.0	7.9	0.0	0.0	-18.8
677	611785.23	4816640.52	2.50	0	N	1000	57.7	7.4	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	9.7	0.0	0.0	-20.7
677	611785.23	4816640.52	2.50	0	N	2000	53.8	7.4	0.0	0.0	0.0	74.2	13.9	-3.3	0.0	0.0	12.0	0.0	0.0	-35.6
677	611785.23	4816640.52	2.50	0	N	4000	49.8	7.4	0.0	0.0	0.0	74.2	47.3	-3.3	0.0	0.0	14.6	0.0	0.0	-75.5
677	611785.23	4816640.52	2.50	0	N	8000	40.9	7.4	0.0	0.0	0.0	74.2	168.6	-3.3	0.0	0.0	17.3	0.0	0.0	-208.5
677	611785.23	4816640.52	2.50	0	E	32	24.7	7.4	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-41.6
677	611785.23	4816640.52	2.50	0	E	63	38.3	7.4	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.3	0.0	0.0	-28.4
677	611785.23	4816640.52	2.50	0	E	125	47.0	7.4	0.0	0.0	0.0	74.2	0.6	0.0	0.0	0.0	5.8	0.0	0.0	-26.2
677	611785.23	4816640.52	2.50	0	E	250	51.5	7.4	0.0	0.0	0.0	74.2	1.5	-1.1	0.0	0.0	6.6	0.0	0.0	-22.3
677	611785.23	4816640.52	2.50	0	E	500	53.9	7.4	0.0	0.0	0.0	74.2	2.8	-3.1	0.0	0.0	7.9	0.0	0.0	-20.5
677	611785.23	4816640.52	2.50	0	E	1000	56.0	7.4	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	9.7	0.0	0.0	-22.5
677	611785.23	4816640.52	2.50	0	E	2000	52.1	7.4	0.0	0.0	0.0	74.2	13.9	-3.3	0.0	0.0	12.0	0.0	0.0	-37.3
677	611785.23	4816640.52	2.50	0	E	4000	48.0	7.4	0.0	0.0	0.0	74.2	47.3	-3.3	0.0	0.0	14.6	0.0	0.0	-77.3
677	611785.23	4816640.52	2.50	0	E	8000	39.2	7.4	0.0	0.0	0.0	74.2	168.6	-3.3	0.0	0.0	17.3	0.0	0.0	-210.2
1055	611812.20	4816610.90	2.50	0	D	32	24.7	16.4	0.0	0.0	0.0	74.4	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-32.5
1055	611812.20	4816610.90	2.50	0	D	63	38.3	16.4	0.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.1
1055	611812.20	4816610.90	2.50	0	D	125	47.0	16.4	0.0	0.0	0.0	74.4	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-16.4
1055	611812.20	4816610.90	2.50	0	D	250	51.5	16.4	0.0	0.0	0.0	74.4	1.5	-0.7	0.0	0.0	4.9	0.0	0.0	-12.2
1055	611812.20	4816610.90	2.50	0	D	500	53.9	16.4	0.0	0.0	0.0	74.4	2.9	-2.9	0.0	0.0	4.9	0.0	0.0	-9.0
1055	611812.20	4816610.90	2.50	0	D	1000	56.0	16.4	0.0	0.0	0.0	74.4	5.4	-3.2	0.0	0.0	5.1	0.0	0.0	-9.3
1055	611812.20	4816610.90	2.50	0	D	2000	52.1	16.4	0.0	0.0	0.0	74.4	14.3	-3.2	0.0	0.0	5.4	0.0	0.0	-22.4
1055	611812.20	4816610.90	2.50	0	D	4000	48.0	16.4	0.0	0.0	0.0	74.4	48.5	-3.2	0.0	0.0	6.0	0.0	0.0	-61.2
1055	611812.20	4816610.90	2.50	0	D	8000	39.2	16.4	0.0	0.0	0.0	74.4	172.9	-3.2	0.0	0.0	6.9	0.0	0.0	-195.5
1055	611812.20	4816610.90	2.50	0	N	32	26.5	16.4	0.0	0.0	0.0	74.4	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-30.7
1055	611812.20	4816610.90	2.50	0	N	63	40.0	16.4	0.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-17.3
1055	611812.20	4816610.90	2.50	0	N	125	48.7	16.4	0.0	0.0	0.0	74.4	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-14.6
1055	611812.20	4816610.90	2.50	0	N	250	53.3	16.4	0.0	0.0	0.0	74.4	1.5	-0.7	0.0	0.0	4.9	0.0	0.0	-10.4
1055	611812.20	4816610.90	2.50	0	N	500	55.7	16.4	0.0	0.0	0.0	74.4	2.9	-2.9	0.0	0.0	4.9	0.0	0.0	-7.2
1055	611812.20	4816610.90	2.50	0	N	1000	57.7	16.4	0.0	0.0	0.0	74.4	5.4	-3.2	0.0	0.0	5.1	0.0	0.0	-7.5
1055	611812.20	4816610.90	2.50	0	N	2000	53.8	16.4	0.0	0.0	0.0	74.4	14.3	-3.2	0.0	0.0	5.4	0.0	0.0	-20.7
1055	611812.20	4816610.90	2.50	0	N	4000	49.8	16.4	0.0	0.0	0.0	74.4	48.5	-3.2	0.0	0.0	6.0	0.0	0.0	-59.4
1055	611812.20	4816610.90	2.50	0	N	8000	40.9	16.4	0.0	0.0	0.0	74.4	172.9	-3.2	0.0	0.0	6.9	0.0	0.0	-193.7
1055	611812.20	4816610.90	2.50	0	E	32	24.7	16.4	0.0	0.0	0.0	74.4	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-32.5

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1055	611812.20	4816610.90	2.50	0	E	63	38.3	16.4	0.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.1
1055	611812.20	4816610.90	2.50	0	E	125	47.0	16.4	0.0	0.0	0.0	74.4	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-16.4
1055	611812.20	4816610.90	2.50	0	E	250	51.5	16.4	0.0	0.0	0.0	74.4	1.5	-0.7	0.0	0.0	4.9	0.0	0.0	-12.2
1055	611812.20	4816610.90	2.50	0	E	500	53.9	16.4	0.0	0.0	0.0	74.4	2.9	-2.9	0.0	0.0	4.9	0.0	0.0	-9.0
1055	611812.20	4816610.90	2.50	0	E	1000	56.0	16.4	0.0	0.0	0.0	74.4	5.4	-3.2	0.0	0.0	5.1	0.0	0.0	-9.3
1055	611812.20	4816610.90	2.50	0	E	2000	52.1	16.4	0.0	0.0	0.0	74.4	14.3	-3.2	0.0	0.0	5.4	0.0	0.0	-22.4
1055	611812.20	4816610.90	2.50	0	E	4000	48.0	16.4	0.0	0.0	0.0	74.4	48.5	-3.2	0.0	0.0	6.0	0.0	0.0	-61.2
1055	611812.20	4816610.90	2.50	0	E	8000	39.2	16.4	0.0	0.0	0.0	74.4	172.9	-3.2	0.0	0.0	6.9	0.0	0.0	-195.5
1059	611837.83	4816586.15	2.50	0	D	32	24.7	14.3	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.8
1059	611837.83	4816586.15	2.50	0	D	63	38.3	14.3	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-21.3
1059	611837.83	4816586.15	2.50	0	D	125	47.0	14.3	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-18.7
1059	611837.83	4816586.15	2.50	0	D	250	51.5	14.3	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-15.1
1059	611837.83	4816586.15	2.50	0	D	500	53.9	14.3	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-11.5
1059	611837.83	4816586.15	2.50	0	D	1000	56.0	14.3	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-11.7
1059	611837.83	4816586.15	2.50	0	D	2000	52.1	14.3	0.0	0.0	0.0	74.6	14.6	-2.9	0.0	0.0	4.8	0.0	0.0	-24.7
1059	611837.83	4816586.15	2.50	0	D	4000	48.0	14.3	0.0	0.0	0.0	74.6	49.5	-2.9	0.0	0.0	4.8	0.0	0.0	-63.6
1059	611837.83	4816586.15	2.50	0	D	8000	39.2	14.3	0.0	0.0	0.0	74.6	176.7	-2.9	0.0	0.0	4.8	0.0	0.0	-199.7
1059	611837.83	4816586.15	2.50	0	N	32	26.5	14.3	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.0
1059	611837.83	4816586.15	2.50	0	N	63	40.0	14.3	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.6
1059	611837.83	4816586.15	2.50	0	N	125	48.7	14.3	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-16.9
1059	611837.83	4816586.15	2.50	0	N	250	53.3	14.3	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-13.3
1059	611837.83	4816586.15	2.50	0	N	500	55.7	14.3	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-9.8
1059	611837.83	4816586.15	2.50	0	N	1000	57.7	14.3	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-9.9
1059	611837.83	4816586.15	2.50	0	N	2000	53.8	14.3	0.0	0.0	0.0	74.6	14.6	-2.9	0.0	0.0	4.8	0.0	0.0	-22.9
1059	611837.83	4816586.15	2.50	0	N	4000	49.8	14.3	0.0	0.0	0.0	74.6	49.5	-2.9	0.0	0.0	4.8	0.0	0.0	-61.8
1059	611837.83	4816586.15	2.50	0	N	8000	40.9	14.3	0.0	0.0	0.0	74.6	176.7	-2.9	0.0	0.0	4.8	0.0	0.0	-197.9
1059	611837.83	4816586.15	2.50	0	E	32	24.7	14.3	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.8
1059	611837.83	4816586.15	2.50	0	E	63	38.3	14.3	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-21.3
1059	611837.83	4816586.15	2.50	0	E	125	47.0	14.3	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-18.7
1059	611837.83	4816586.15	2.50	0	E	250	51.5	14.3	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-15.1
1059	611837.83	4816586.15	2.50	0	E	500	53.9	14.3	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-11.5
1059	611837.83	4816586.15	2.50	0	E	1000	56.0	14.3	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-11.7
1059	611837.83	4816586.15	2.50	0	E	2000	52.1	14.3	0.0	0.0	0.0	74.6	14.6	-2.9	0.0	0.0	4.8	0.0	0.0	-24.7
1059	611837.83	4816586.15	2.50	0	E	4000	48.0	14.3	0.0	0.0	0.0	74.6	49.5	-2.9	0.0	0.0	4.8	0.0	0.0	-63.6
1059	611837.83	4816586.15	2.50	0	E	8000	39.2	14.3	0.0	0.0	0.0	74.6	176.7	-2.9	0.0	0.0	4.8	0.0	0.0	-199.7
1162	611584.94	4816825.34	2.50	0	D	32	24.7	15.4	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.8
1162	611584.94	4816825.34	2.50	0	D	63	38.3	15.4	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-18.4
1162	611584.94	4816825.34	2.50	0	D	125	47.0	15.4	0.0	0.0	0.0	72.6	0.5	0.5	0.0	0.0	4.3	0.0	0.0	-15.5
1162	611584.94	4816825.34	2.50	0	D	250	51.5	15.4	0.0	0.0	0.0	72.6	1.3	-0.7	0.0	0.0	4.8	0.0	0.0	-11.1
1162	611584.94	4816825.34	2.50	0	D	500	53.9	15.4	0.0	0.0	0.0	72.6	2.3	-2.7	0.0	0.0	4.8	0.0	0.0	-7.7
1162	611584.94	4816825.34	2.50	0	D	1000	56.0	15.4	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	4.8	0.0	0.0	-7.4
1162	611584.94	4816825.34	2.50	0	D	2000	52.1	15.4	0.0	0.0	0.0	72.6	11.7	-3.0	0.0	0.0	4.8	0.0	0.0	-18.6
1162	611584.94	4816825.34	2.50	0	D	4000	48.0	15.4	0.0	0.0	0.0	72.6	39.5	-3.0	0.0	0.0	4.9	0.0	0.0	-50.5
1162	611584.94	4816825.34	2.50	0	D	8000	39.2	15.4	0.0	0.0	0.0	72.6	140.9	-3.0	0.0	0.0	4.9	0.0	0.0	-160.9
1162	611584.94	4816825.34	2.50	0	N	32	26.5	15.4	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-30.1
1162	611584.94	4816825.34	2.50	0	N	63	40.0	15.4	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-16.6
1162	611584.94	4816825.34	2.50	0	N	125	48.7	15.4	0.0	0.0	0.0	72.6	0.5	0.5	0.0	0.0	4.3	0.0	0.0	-13.7
1162	611584.94	4816825.34	2.50	0	N	250	53.3	15.4	0.0	0.0	0.0	72.6	1.3	-0.7	0.0	0.0	4.8	0.0	0.0	-9.3
1162	611584.94	4816825.34	2.50	0	N	500	55.7	15.4	0.0	0.0	0.0	72.6	2.3	-2.7	0.0	0.0	4.8	0.0	0.0	-5.9
1162	611584.94	4816825.34	2.50	0	N	1000	57.7	15.4	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	4.8	0.0	0.0	-5.7
1162	611584.94	4816825.34	2.50	0	N	2000	53.8	15.4	0.0	0.0	0.0	72.6	11.7	-3.0	0.0	0.0	4.8	0.0	0.0	-16.9
1162	611584.94	4816825.34	2.50	0	N	4000	49.8	15.4	0.0	0.0	0.0	72.6	39.5	-3.0	0.0	0.0	4.9	0.0	0.0	-48.8
1162	611584.94	4816825.34	2.50	0	N	8000	40.9	15.4	0.0	0.0	0.0	72.6	140.9	-3.0	0.0	0.0	4.9	0.0	0.0	-159.2
1162	611584.94	4816825.34	2.50	0	E	32	24.7	15.4	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.8
1162	611584.94	4816825.34	2.50	0	E	63	38.3	15.4	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-18.4
1162	611584.94	4816825.34	2.50	0	E	125	47.0	15.4	0.0	0.0	0.0	72.6	0.5	0.5	0.0	0.0	4.3	0.0	0.0	-15.5
1162	611584.94	4816825.34	2.50	0	E	250	51.5	15.4	0.0	0.0	0.0	72.6	1.3	-0.7	0.0	0.0	4.8	0.0	0.0	-11.1
1162	611584.94	4816825.34	2.50	0	E	500	53.9	15.4	0.0	0.0	0.0	72.6	2.3	-2.7	0.0	0.0	4.8	0.0	0.0	-7.7
1162	611584.94	4816825.34	2.50	0	E	1000	56.0	15.4	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	4.8	0.0	0.0	-7.4
1162	611584.94	4816825.34	2.50	0	E	2000	52.1	15.4	0.0	0.0	0.0	72.6	11.7	-3.0	0.0	0.0	4.8	0.0	0.0	-18.6
1162	611584.94	4816825.34	2.50	0	E	4000	48.0	15.4	0.0	0.0	0.0	72.6	39.5	-3.0	0.0	0.0	4.9	0.0	0.0	-50.5
1162	611584.94	4816825.34	2.50	0	E	8000	39.2	15.4	0.0	0.0	0.0	72.6	140.9	-3.0	0.0	0.0	4.9	0.0	0.0	-160.9
1266	611565.97	4816837.77	2.50	0	D	32	24.7	10.2	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.9

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1266	611565.97	4816837.77	2.50	0	D	63	38.3	10.2	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-23.5
1266	611565.97	4816837.77	2.50	0	D	125	47.0	10.2	0.0	0.0	0.0	72.5	0.5	0.4	0.0	0.0	4.5	0.0	0.0	-20.6
1266	611565.97	4816837.77	2.50	0	D	250	51.5	10.2	0.0	0.0	0.0	72.5	1.2	-0.7	0.0	0.0	5.0	0.0	0.0	-16.3
1266	611565.97	4816837.77	2.50	0	D	500	53.9	10.2	0.0	0.0	0.0	72.5	2.3	-2.7	0.0	0.0	5.3	0.0	0.0	-13.2
1266	611565.97	4816837.77	2.50	0	D	1000	56.0	10.2	0.0	0.0	0.0	72.5	4.3	-3.0	0.0	0.0	5.7	0.0	0.0	-13.3
1266	611565.97	4816837.77	2.50	0	D	2000	52.1	10.2	0.0	0.0	0.0	72.5	11.5	-3.0	0.0	0.0	6.5	0.0	0.0	-25.2
1266	611565.97	4816837.77	2.50	0	D	4000	48.0	10.2	0.0	0.0	0.0	72.5	39.0	-3.0	0.0	0.0	7.7	0.0	0.0	-57.9
1266	611565.97	4816837.77	2.50	0	D	8000	39.2	10.2	0.0	0.0	0.0	72.5	139.0	-3.0	0.0	0.0	9.5	0.0	0.0	-168.6
1266	611565.97	4816837.77	2.50	0	N	32	26.5	10.2	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.1
1266	611565.97	4816837.77	2.50	0	N	63	40.0	10.2	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-21.7
1266	611565.97	4816837.77	2.50	0	N	125	48.7	10.2	0.0	0.0	0.0	72.5	0.5	0.4	0.0	0.0	4.5	0.0	0.0	-18.9
1266	611565.97	4816837.77	2.50	0	N	250	53.3	10.2	0.0	0.0	0.0	72.5	1.2	-0.7	0.0	0.0	5.0	0.0	0.0	-14.5
1266	611565.97	4816837.77	2.50	0	N	500	55.7	10.2	0.0	0.0	0.0	72.5	2.3	-2.7	0.0	0.0	5.3	0.0	0.0	-11.4
1266	611565.97	4816837.77	2.50	0	N	1000	57.7	10.2	0.0	0.0	0.0	72.5	4.3	-3.0	0.0	0.0	5.7	0.0	0.0	-11.6
1266	611565.97	4816837.77	2.50	0	N	2000	53.8	10.2	0.0	0.0	0.0	72.5	11.5	-3.0	0.0	0.0	6.5	0.0	0.0	-23.4
1266	611565.97	4816837.77	2.50	0	N	4000	49.8	10.2	0.0	0.0	0.0	72.5	39.0	-3.0	0.0	0.0	7.7	0.0	0.0	-56.2
1266	611565.97	4816837.77	2.50	0	N	8000	40.9	10.2	0.0	0.0	0.0	72.5	139.0	-3.0	0.0	0.0	9.5	0.0	0.0	-166.8
1266	611565.97	4816837.77	2.50	0	E	32	24.7	10.2	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.9
1266	611565.97	4816837.77	2.50	0	E	63	38.3	10.2	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-23.5
1266	611565.97	4816837.77	2.50	0	E	125	47.0	10.2	0.0	0.0	0.0	72.5	0.5	0.4	0.0	0.0	4.5	0.0	0.0	-20.6
1266	611565.97	4816837.77	2.50	0	E	250	51.5	10.2	0.0	0.0	0.0	72.5	1.2	-0.7	0.0	0.0	5.0	0.0	0.0	-16.3
1266	611565.97	4816837.77	2.50	0	E	500	53.9	10.2	0.0	0.0	0.0	72.5	2.3	-2.7	0.0	0.0	5.3	0.0	0.0	-13.2
1266	611565.97	4816837.77	2.50	0	E	1000	56.0	10.2	0.0	0.0	0.0	72.5	4.3	-3.0	0.0	0.0	5.7	0.0	0.0	-13.3
1266	611565.97	4816837.77	2.50	0	E	2000	52.1	10.2	0.0	0.0	0.0	72.5	11.5	-3.0	0.0	0.0	6.5	0.0	0.0	-25.2
1266	611565.97	4816837.77	2.50	0	E	4000	48.0	10.2	0.0	0.0	0.0	72.5	39.0	-3.0	0.0	0.0	7.7	0.0	0.0	-57.9
1266	611565.97	4816837.77	2.50	0	E	8000	39.2	10.2	0.0	0.0	0.0	72.5	139.0	-3.0	0.0	0.0	9.5	0.0	0.0	-168.6
1284	611791.80	4816632.43	2.50	0	D	32	24.7	11.9	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-37.1
1284	611791.80	4816632.43	2.50	0	D	63	38.3	11.9	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.1	0.0	0.0	-23.8
1284	611791.80	4816632.43	2.50	0	D	125	47.0	11.9	0.0	0.0	0.0	74.2	0.6	0.1	0.0	0.0	5.4	0.0	0.0	-21.5
1284	611791.80	4816632.43	2.50	0	D	250	51.5	11.9	0.0	0.0	0.0	74.2	1.5	-1.0	0.0	0.0	6.1	0.0	0.0	-17.4
1284	611791.80	4816632.43	2.50	0	D	500	53.9	11.9	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	7.1	0.0	0.0	-15.3
1284	611791.80	4816632.43	2.50	0	D	1000	56.0	11.9	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	8.6	0.0	0.0	-17.0
1284	611791.80	4816632.43	2.50	0	D	2000	52.1	11.9	0.0	0.0	0.0	74.2	14.0	-3.3	0.0	0.0	10.6	0.0	0.0	-31.6
1284	611791.80	4816632.43	2.50	0	D	4000	48.0	11.9	0.0	0.0	0.0	74.2	47.6	-3.3	0.0	0.0	13.0	0.0	0.0	-71.6
1284	611791.80	4816632.43	2.50	0	D	8000	39.2	11.9	0.0	0.0	0.0	74.2	169.7	-3.3	0.0	0.0	15.6	0.0	0.0	-205.3
1284	611791.80	4816632.43	2.50	0	N	32	26.5	11.9	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-35.3
1284	611791.80	4816632.43	2.50	0	N	63	40.0	11.9	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.1	0.0	0.0	-22.1
1284	611791.80	4816632.43	2.50	0	N	125	48.7	11.9	0.0	0.0	0.0	74.2	0.6	0.1	0.0	0.0	5.4	0.0	0.0	-19.7
1284	611791.80	4816632.43	2.50	0	N	250	53.3	11.9	0.0	0.0	0.0	74.2	1.5	-1.0	0.0	0.0	6.1	0.0	0.0	-15.7
1284	611791.80	4816632.43	2.50	0	N	500	55.7	11.9	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	7.1	0.0	0.0	-13.6
1284	611791.80	4816632.43	2.50	0	N	1000	57.7	11.9	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	8.6	0.0	0.0	-15.2
1284	611791.80	4816632.43	2.50	0	N	2000	53.8	11.9	0.0	0.0	0.0	74.2	14.0	-3.3	0.0	0.0	10.6	0.0	0.0	-29.9
1284	611791.80	4816632.43	2.50	0	N	4000	49.8	11.9	0.0	0.0	0.0	74.2	47.6	-3.3	0.0	0.0	13.0	0.0	0.0	-69.9
1284	611791.80	4816632.43	2.50	0	N	8000	40.9	11.9	0.0	0.0	0.0	74.2	169.7	-3.3	0.0	0.0	15.6	0.0	0.0	-203.6
1284	611791.80	4816632.43	2.50	0	E	32	24.7	11.9	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	5.0	0.0	0.0	-37.1
1284	611791.80	4816632.43	2.50	0	E	63	38.3	11.9	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	5.1	0.0	0.0	-23.8
1284	611791.80	4816632.43	2.50	0	E	125	47.0	11.9	0.0	0.0	0.0	74.2	0.6	0.1	0.0	0.0	5.4	0.0	0.0	-21.5
1284	611791.80	4816632.43	2.50	0	E	250	51.5	11.9	0.0	0.0	0.0	74.2	1.5	-1.0	0.0	0.0	6.1	0.0	0.0	-17.4
1284	611791.80	4816632.43	2.50	0	E	500	53.9	11.9	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	7.1	0.0	0.0	-15.3
1284	611791.80	4816632.43	2.50	0	E	1000	56.0	11.9	0.0	0.0	0.0	74.2	5.3	-3.3	0.0	0.0	8.6	0.0	0.0	-17.0
1284	611791.80	4816632.43	2.50	0	E	2000	52.1	11.9	0.0	0.0	0.0	74.2	14.0	-3.3	0.0	0.0	10.6	0.0	0.0	-31.6
1284	611791.80	4816632.43	2.50	0	E	4000	48.0	11.9	0.0	0.0	0.0	74.2	47.6	-3.3	0.0	0.0	13.0	0.0	0.0	-71.6
1284	611791.80	4816632.43	2.50	0	E	8000	39.2	11.9	0.0	0.0	0.0	74.2	169.7	-3.3	0.0	0.0	15.6	0.0	0.0	-205.3
1303	611557.56	4816841.11	2.50	0	D	32	24.7	8.9	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-38.2
1303	611557.56	4816841.11	2.50	0	D	63	38.3	8.9	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-24.7
1303	611557.56	4816841.11	2.50	0	D	125	47.0	8.9	0.0	0.0	0.0	72.5	0.5	1.0	0.0	0.0	3.8	0.0	0.0	-21.9
1303	611557.56	4816841.11	2.50	0	D	250	51.5	8.9	0.0	0.0	0.0	72.5	1.2	-0.1	0.0	0.0	4.8	0.0	0.0	-18.0
1303	611557.56	4816841.11	2.50	0	D	500	53.9	8.9	0.0	0.0	0.0	72.5	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-14.3
1303	611557.56	4816841.11	2.50	0	D	1000	56.0	8.9	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	5.1	0.0	0.0	-14.2
1303	611557.56	4816841.11	2.50	0	D	2000	52.1	8.9	0.0	0.0	0.0	72.5	11.4	-2.9	0.0	0.0	5.4	0.0	0.0	-25.5
1303	611557.56	4816841.11	2.50	0	D	4000	48.0	8.9	0.0	0.0	0.0	72.5	38.8	-2.9	0.0	0.0	6.0	0.0	0.0	-57.4
1303	611557.56	4816841.11	2.50	0	D	8000	39.2	8.9	0.0	0.0	0.0	72.5	138.4	-2.9	0.0	0.0	6.9	0.0	0.0	-166.8
1303	611557.56	4816841.11	2.50	0	N	32	26.5	8.9	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.4

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1303	611557.56	4816841.11	2.50	0	N	63	40.0	8.9	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-23.0
1303	611557.56	4816841.11	2.50	0	N	125	48.7	8.9	0.0	0.0	0.0	72.5	0.5	1.0	0.0	0.0	3.8	0.0	0.0	-20.1
1303	611557.56	4816841.11	2.50	0	N	250	53.3	8.9	0.0	0.0	0.0	72.5	1.2	-0.1	0.0	0.0	4.8	0.0	0.0	-16.3
1303	611557.56	4816841.11	2.50	0	N	500	55.7	8.9	0.0	0.0	0.0	72.5	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-12.6
1303	611557.56	4816841.11	2.50	0	N	1000	57.7	8.9	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	5.1	0.0	0.0	-12.4
1303	611557.56	4816841.11	2.50	0	N	2000	53.8	8.9	0.0	0.0	0.0	72.5	11.4	-2.9	0.0	0.0	5.4	0.0	0.0	-23.7
1303	611557.56	4816841.11	2.50	0	N	4000	49.8	8.9	0.0	0.0	0.0	72.5	38.8	-2.9	0.0	0.0	6.0	0.0	0.0	-55.7
1303	611557.56	4816841.11	2.50	0	N	8000	40.9	8.9	0.0	0.0	0.0	72.5	138.4	-2.9	0.0	0.0	6.9	0.0	0.0	-165.1
1303	611557.56	4816841.11	2.50	0	E	32	24.7	8.9	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-38.2
1303	611557.56	4816841.11	2.50	0	E	63	38.3	8.9	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-24.7
1303	611557.56	4816841.11	2.50	0	E	125	47.0	8.9	0.0	0.0	0.0	72.5	0.5	1.0	0.0	0.0	3.8	0.0	0.0	-21.9
1303	611557.56	4816841.11	2.50	0	E	250	51.5	8.9	0.0	0.0	0.0	72.5	1.2	-0.1	0.0	0.0	4.8	0.0	0.0	-18.0
1303	611557.56	4816841.11	2.50	0	E	500	53.9	8.9	0.0	0.0	0.0	72.5	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-14.3
1303	611557.56	4816841.11	2.50	0	E	1000	56.0	8.9	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	5.1	0.0	0.0	-14.2
1303	611557.56	4816841.11	2.50	0	E	2000	52.1	8.9	0.0	0.0	0.0	72.5	11.4	-2.9	0.0	0.0	5.4	0.0	0.0	-25.5
1303	611557.56	4816841.11	2.50	0	E	4000	48.0	8.9	0.0	0.0	0.0	72.5	38.8	-2.9	0.0	0.0	6.0	0.0	0.0	-57.4
1303	611557.56	4816841.11	2.50	0	E	8000	39.2	8.9	0.0	0.0	0.0	72.5	138.4	-2.9	0.0	0.0	6.9	0.0	0.0	-166.8
1381	611550.21	4816841.93	2.50	0	D	32	24.7	5.2	0.0	0.0	0.0	72.4	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.1
1381	611550.21	4816841.93	2.50	0	D	63	38.3	5.2	0.0	0.0	0.0	72.4	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.6
1381	611550.21	4816841.93	2.50	0	D	125	47.0	5.2	0.0	0.0	0.0	72.4	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.2
1381	611550.21	4816841.93	2.50	0	D	250	51.5	5.2	0.0	0.0	0.0	72.4	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.4
1381	611550.21	4816841.93	2.50	0	D	500	53.9	5.2	0.0	0.0	0.0	72.4	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.3
1381	611550.21	4816841.93	2.50	0	D	1000	56.0	5.2	0.0	0.0	0.0	72.4	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-12.9
1381	611550.21	4816841.93	2.50	0	D	2000	52.1	5.2	0.0	0.0	0.0	72.4	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-23.9
1381	611550.21	4816841.93	2.50	0	D	4000	48.0	5.2	0.0	0.0	0.0	72.4	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-55.2
1381	611550.21	4816841.93	2.50	0	D	8000	39.2	5.2	0.0	0.0	0.0	72.4	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-163.4
1381	611550.21	4816841.93	2.50	0	N	32	26.5	5.2	0.0	0.0	0.0	72.4	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-35.3
1381	611550.21	4816841.93	2.50	0	N	63	40.0	5.2	0.0	0.0	0.0	72.4	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-21.9
1381	611550.21	4816841.93	2.50	0	N	125	48.7	5.2	0.0	0.0	0.0	72.4	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.5
1381	611550.21	4816841.93	2.50	0	N	250	53.3	5.2	0.0	0.0	0.0	72.4	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-15.6
1381	611550.21	4816841.93	2.50	0	N	500	55.7	5.2	0.0	0.0	0.0	72.4	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-11.5
1381	611550.21	4816841.93	2.50	0	N	1000	57.7	5.2	0.0	0.0	0.0	72.4	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-11.1
1381	611550.21	4816841.93	2.50	0	N	2000	53.8	5.2	0.0	0.0	0.0	72.4	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-22.1
1381	611550.21	4816841.93	2.50	0	N	4000	49.8	5.2	0.0	0.0	0.0	72.4	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-53.4
1381	611550.21	4816841.93	2.50	0	N	8000	40.9	5.2	0.0	0.0	0.0	72.4	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-161.7
1381	611550.21	4816841.93	2.50	0	E	32	24.7	5.2	0.0	0.0	0.0	72.4	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.1
1381	611550.21	4816841.93	2.50	0	E	63	38.3	5.2	0.0	0.0	0.0	72.4	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.6
1381	611550.21	4816841.93	2.50	0	E	125	47.0	5.2	0.0	0.0	0.0	72.4	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.2
1381	611550.21	4816841.93	2.50	0	E	250	51.5	5.2	0.0	0.0	0.0	72.4	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.4
1381	611550.21	4816841.93	2.50	0	E	500	53.9	5.2	0.0	0.0	0.0	72.4	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.3
1381	611550.21	4816841.93	2.50	0	E	1000	56.0	5.2	0.0	0.0	0.0	72.4	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-12.9
1381	611550.21	4816841.93	2.50	0	E	2000	52.1	5.2	0.0	0.0	0.0	72.4	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-23.9
1381	611550.21	4816841.93	2.50	0	E	4000	48.0	5.2	0.0	0.0	0.0	72.4	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-55.2
1381	611550.21	4816841.93	2.50	0	E	8000	39.2	5.2	0.0	0.0	0.0	72.4	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-163.4
1386	611552.81	4816841.87	2.50	0	D	32	24.7	2.8	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-44.3
1386	611552.81	4816841.87	2.50	0	D	63	38.3	2.8	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-30.8
1386	611552.81	4816841.87	2.50	0	D	125	47.0	2.8	0.0	0.0	0.0	72.5	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-28.0
1386	611552.81	4816841.87	2.50	0	D	250	51.5	2.8	0.0	0.0	0.0	72.5	1.2	0.2	0.0	0.0	4.5	0.0	0.0	-24.2
1386	611552.81	4816841.87	2.50	0	D	500	53.9	2.8	0.0	0.0	0.0	72.5	2.3	-2.4	0.0	0.0	4.8	0.0	0.0	-20.5
1386	611552.81	4816841.87	2.50	0	D	1000	56.0	2.8	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	-20.1
1386	611552.81	4816841.87	2.50	0	D	2000	52.1	2.8	0.0	0.0	0.0	72.5	11.4	-2.8	0.0	0.0	5.0	0.0	0.0	-31.3
1386	611552.81	4816841.87	2.50	0	D	4000	48.0	2.8	0.0	0.0	0.0	72.5	38.7	-2.8	0.0	0.0	5.3	0.0	0.0	-62.9
1386	611552.81	4816841.87	2.50	0	D	8000	39.2	2.8	0.0	0.0	0.0	72.5	138.2	-2.8	0.0	0.0	5.8	0.0	0.0	-171.7
1386	611552.81	4816841.87	2.50	0	N	32	26.5	2.8	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-42.5
1386	611552.81	4816841.87	2.50	0	N	63	40.0	2.8	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-29.1
1386	611552.81	4816841.87	2.50	0	N	125	48.7	2.8	0.0	0.0	0.0	72.5	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-26.2
1386	611552.81	4816841.87	2.50	0	N	250	53.3	2.8	0.0	0.0	0.0	72.5	1.2	0.2	0.0	0.0	4.5	0.0	0.0	-22.4
1386	611552.81	4816841.87	2.50	0	N	500	55.7	2.8	0.0	0.0	0.0	72.5	2.3	-2.4	0.0	0.0	4.8	0.0	0.0	-18.7
1386	611552.81	4816841.87	2.50	0	N	1000	57.7	2.8	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	-18.3
1386	611552.81	4816841.87	2.50	0	N	2000	53.8	2.8	0.0	0.0	0.0	72.5	11.4	-2.8	0.0	0.0	5.0	0.0	0.0	-29.5
1386	611552.81	4816841.87	2.50	0	N	4000	49.8	2.8	0.0	0.0	0.0	72.5	38.7	-2.8	0.0	0.0	5.3	0.0	0.0	-61.1
1386	611552.81	4816841.87	2.50	0	N	8000	40.9	2.8	0.0	0.0	0.0	72.5	138.2	-2.8	0.0	0.0	5.8	0.0	0.0	-169.9
1386	611552.81	4816841.87	2.50	0	E	32	24.7	2.8	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-44.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 2 (after expansion)", ID: "!01!BTME_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1386	611552.81	4816841.87	2.50	0	E	63	38.3	2.8	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-30.8
1386	611552.81	4816841.87	2.50	0	E	125	47.0	2.8	0.0	0.0	0.0	72.5	0.5	1.3	0.0	0.0	3.5	0.0	0.0	-28.0
1386	611552.81	4816841.87	2.50	0	E	250	51.5	2.8	0.0	0.0	0.0	72.5	1.2	0.2	0.0	0.0	4.5	0.0	0.0	-24.2
1386	611552.81	4816841.87	2.50	0	E	500	53.9	2.8	0.0	0.0	0.0	72.5	2.3	-2.4	0.0	0.0	4.8	0.0	0.0	-20.5
1386	611552.81	4816841.87	2.50	0	E	1000	56.0	2.8	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	-20.1
1386	611552.81	4816841.87	2.50	0	E	2000	52.1	2.8	0.0	0.0	0.0	72.5	11.4	-2.8	0.0	0.0	5.0	0.0	0.0	-31.3
1386	611552.81	4816841.87	2.50	0	E	4000	48.0	2.8	0.0	0.0	0.0	72.5	38.7	-2.8	0.0	0.0	5.3	0.0	0.0	-62.9
1386	611552.81	4816841.87	2.50	0	E	8000	39.2	2.8	0.0	0.0	0.0	72.5	138.2	-2.8	0.0	0.0	5.8	0.0	0.0	-171.7
1429	611547.15	4816840.91	2.50	0	D	32	24.7	5.5	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-36.8
1429	611547.15	4816840.91	2.50	0	D	63	38.3	5.5	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.4
1429	611547.15	4816840.91	2.50	0	D	125	47.0	5.5	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.0
1429	611547.15	4816840.91	2.50	0	D	250	51.5	5.5	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.1
1429	611547.15	4816840.91	2.50	0	D	500	53.9	5.5	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.0
1429	611547.15	4816840.91	2.50	0	D	1000	56.0	5.5	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-12.6
1429	611547.15	4816840.91	2.50	0	D	2000	52.1	5.5	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-23.6
1429	611547.15	4816840.91	2.50	0	D	4000	48.0	5.5	0.0	0.0	0.0	72.5	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-54.9
1429	611547.15	4816840.91	2.50	0	D	8000	39.2	5.5	0.0	0.0	0.0	72.5	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-163.2
1429	611547.15	4816840.91	2.50	0	N	32	26.5	5.5	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-35.1
1429	611547.15	4816840.91	2.50	0	N	63	40.0	5.5	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-21.6
1429	611547.15	4816840.91	2.50	0	N	125	48.7	5.5	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.2
1429	611547.15	4816840.91	2.50	0	N	250	53.3	5.5	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-15.4
1429	611547.15	4816840.91	2.50	0	N	500	55.7	5.5	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-11.3
1429	611547.15	4816840.91	2.50	0	N	1000	57.7	5.5	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-10.8
1429	611547.15	4816840.91	2.50	0	N	2000	53.8	5.5	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-21.8
1429	611547.15	4816840.91	2.50	0	N	4000	49.8	5.5	0.0	0.0	0.0	72.5	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-53.2
1429	611547.15	4816840.91	2.50	0	N	8000	40.9	5.5	0.0	0.0	0.0	72.5	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-161.4
1429	611547.15	4816840.91	2.50	0	E	32	24.7	5.5	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-36.8
1429	611547.15	4816840.91	2.50	0	E	63	38.3	5.5	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.4
1429	611547.15	4816840.91	2.50	0	E	125	47.0	5.5	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.0
1429	611547.15	4816840.91	2.50	0	E	250	51.5	5.5	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.1
1429	611547.15	4816840.91	2.50	0	E	500	53.9	5.5	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.0
1429	611547.15	4816840.91	2.50	0	E	1000	56.0	5.5	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-12.6
1429	611547.15	4816840.91	2.50	0	E	2000	52.1	5.5	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-23.6
1429	611547.15	4816840.91	2.50	0	E	4000	48.0	5.5	0.0	0.0	0.0	72.5	38.7	-2.7	0.0	0.0	0.0	0.0	0.0	-54.9
1429	611547.15	4816840.91	2.50	0	E	8000	39.2	5.5	0.0	0.0	0.0	72.5	138.1	-2.7	0.0	0.0	0.0	0.0	0.0	-163.2
1436	611544.82	4816838.57	2.50	0	D	32	24.7	5.0	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.3
1436	611544.82	4816838.57	2.50	0	D	63	38.3	5.0	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.9
1436	611544.82	4816838.57	2.50	0	D	125	47.0	5.0	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.5
1436	611544.82	4816838.57	2.50	0	D	250	51.5	5.0	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.6
1436	611544.82	4816838.57	2.50	0	D	500	53.9	5.0	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.5
1436	611544.82	4816838.57	2.50	0	D	1000	56.0	5.0	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-13.1
1436	611544.82	4816838.57	2.50	0	D	2000	52.1	5.0	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-24.1
1436	611544.82	4816838.57	2.50	0	D	4000	48.0	5.0	0.0	0.0	0.0	72.5	38.8	-2.7	0.0	0.0	0.0	0.0	0.0	-55.5
1436	611544.82	4816838.57	2.50	0	D	8000	39.2	5.0	0.0	0.0	0.0	72.5	138.3	-2.7	0.0	0.0	0.0	0.0	0.0	-163.9
1436	611544.82	4816838.57	2.50	0	N	32	26.5	5.0	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-35.6
1436	611544.82	4816838.57	2.50	0	N	63	40.0	5.0	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-22.1
1436	611544.82	4816838.57	2.50	0	N	125	48.7	5.0	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.7
1436	611544.82	4816838.57	2.50	0	N	250	53.3	5.0	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-15.9
1436	611544.82	4816838.57	2.50	0	N	500	55.7	5.0	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-11.8
1436	611544.82	4816838.57	2.50	0	N	1000	57.7	5.0	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-11.3
1436	611544.82	4816838.57	2.50	0	N	2000	53.8	5.0	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-22.4
1436	611544.82	4816838.57	2.50	0	N	4000	49.8	5.0	0.0	0.0	0.0	72.5	38.8	-2.7	0.0	0.0	0.0	0.0	0.0	-53.7
1436	611544.82	4816838.57	2.50	0	N	8000	40.9	5.0	0.0	0.0	0.0	72.5	138.3	-2.7	0.0	0.0	0.0	0.0	0.0	-162.2
1436	611544.82	4816838.57	2.50	0	E	32	24.7	5.0	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.3
1436	611544.82	4816838.57	2.50	0	E	63	38.3	5.0	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-23.9
1436	611544.82	4816838.57	2.50	0	E	125	47.0	5.0	0.0	0.0	0.0	72.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.5
1436	611544.82	4816838.57	2.50	0	E	250	51.5	5.0	0.0	0.0	0.0	72.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	-17.6
1436	611544.82	4816838.57	2.50	0	E	500	53.9	5.0	0.0	0.0	0.0	72.5	2.3	-2.3	0.0	0.0	0.0	0.0	0.0	-13.5
1436	611544.82	4816838.57	2.50	0	E	1000	56.0	5.0	0.0	0.0	0.0	72.5	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	-13.1
1436	611544.82	4816838.57	2.50	0	E	2000	52.1	5.0	0.0	0.0	0.0	72.5	11.4	-2.7	0.0	0.0	0.0	0.0	0.0	-24.1
1436	611544.82	4816838.57	2.50	0	E	4000	48.0	5.0	0.0	0.0	0.0	72.5	38.8	-2.7	0.0	0.0	0.0	0.0	0.0	-55.5
1436	611544.82	4816838.57	2.50	0	E	8000	39.2	5.0	0.0	0.0	0.0	72.5	138.3	-2.7	0.0	0.0	0.0	0.0	0.0	-163.9

Point Source, ISO 9613, Name: "Co-gen engine side intake louver", ID: "!0601!JEN_C_19068_EL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
574	611416.54	4816693.85	1.50	0	DEN	32	50.6	0.0	0.0	0.0	0.0	73.3	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-22.0
574	611416.54	4816693.85	1.50	0	DEN	63	63.6	0.0	0.0	0.0	0.0	73.3	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-9.1
574	611416.54	4816693.85	1.50	0	DEN	125	76.2	0.0	0.0	0.0	0.0	73.3	0.5	1.7	0.0	0.0	3.0	0.0	0.0	-2.4
574	611416.54	4816693.85	1.50	0	DEN	250	75.5	0.0	0.0	0.0	0.0	73.3	1.4	1.4	0.0	0.0	3.4	0.0	0.0	-4.0
574	611416.54	4816693.85	1.50	0	DEN	500	75.2	0.0	0.0	0.0	0.0	73.3	2.5	-0.3	0.0	0.0	4.8	0.0	0.0	-5.1
574	611416.54	4816693.85	1.50	0	DEN	1000	74.1	0.0	0.0	0.0	0.0	73.3	4.8	-2.5	0.0	0.0	4.8	0.0	0.0	-6.2
574	611416.54	4816693.85	1.50	0	DEN	2000	71.5	0.0	0.0	0.0	0.0	73.3	12.6	-2.8	0.0	0.0	4.8	0.0	0.0	-16.4
574	611416.54	4816693.85	1.50	0	DEN	4000	68.4	0.0	0.0	0.0	0.0	73.3	42.8	-2.8	0.0	0.0	4.8	0.0	0.0	-49.6
574	611416.54	4816693.85	1.50	0	DEN	8000	58.8	0.0	0.0	0.0	0.0	73.3	152.6	-2.8	0.0	0.0	4.8	0.0	0.0	-169.1

Point Source, ISO 9613, Name: "Digester 4 sludge mixer motor 1", ID: "!0606!D4_48001"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
587	611424.67	4816785.65	7.28	0	DEN	32	41.1	0.0	0.0	0.0	0.0	72.7	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-31.3
587	611424.67	4816785.65	7.28	0	DEN	63	53.6	0.0	0.0	0.0	0.0	72.7	0.1	-5.1	0.0	0.0	4.8	0.0	0.0	-18.9
587	611424.67	4816785.65	7.28	0	DEN	125	72.4	0.0	0.0	0.0	0.0	72.7	0.5	0.1	0.0	0.0	4.6	0.0	0.0	-5.6
587	611424.67	4816785.65	7.28	0	DEN	250	72.8	0.0	0.0	0.0	0.0	72.7	1.3	-1.9	0.0	0.0	4.8	0.0	0.0	-4.1
587	611424.67	4816785.65	7.28	0	DEN	500	77.1	0.0	0.0	0.0	0.0	72.7	2.3	-2.6	0.0	0.0	4.8	0.0	0.0	-0.1
587	611424.67	4816785.65	7.28	0	DEN	1000	74.7	0.0	0.0	0.0	0.0	72.7	4.4	-2.6	0.0	0.0	4.8	0.0	0.0	-4.6
587	611424.67	4816785.65	7.28	0	DEN	2000	72.3	0.0	0.0	0.0	0.0	72.7	11.7	-2.6	0.0	0.0	4.8	0.0	0.0	-14.3
587	611424.67	4816785.65	7.28	0	DEN	4000	65.2	0.0	0.0	0.0	0.0	72.7	39.8	-2.6	0.0	0.0	4.8	0.0	0.0	-49.5
587	611424.67	4816785.65	7.28	0	DEN	8000	53.9	0.0	0.0	0.0	0.0	72.7	142.1	-2.6	0.0	0.0	4.8	0.0	0.0	-163.0

Point Source, ISO 9613, Name: "Control building exhaust air fan 2", ID: "!0607!CB_FAN95490"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
610	611448.29	4816769.92	5.19	0	DEN	32	62.0	0.0	0.0	0.0	0.0	72.8	0.0	-5.3	0.0	0.0	4.8	0.0	0.0	-10.3
610	611448.29	4816769.92	5.19	0	DEN	63	65.6	0.0	0.0	0.0	0.0	72.8	0.2	-5.3	0.0	0.0	4.8	0.0	0.0	-6.9
610	611448.29	4816769.92	5.19	0	DEN	125	70.0	0.0	0.0	0.0	0.0	72.8	0.5	0.1	0.0	0.0	4.7	0.0	0.0	-8.1
610	611448.29	4816769.92	5.19	0	DEN	250	74.2	0.0	0.0	0.0	0.0	72.8	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	-2.7
610	611448.29	4816769.92	5.19	0	DEN	500	75.3	0.0	0.0	0.0	0.0	72.8	2.4	-2.9	0.0	0.0	4.8	0.0	0.0	-1.7
610	611448.29	4816769.92	5.19	0	DEN	1000	74.5	0.0	0.0	0.0	0.0	72.8	4.5	-2.9	0.0	0.0	4.8	0.0	0.0	-4.7
610	611448.29	4816769.92	5.19	0	DEN	2000	73.7	0.0	0.0	0.0	0.0	72.8	11.9	-2.9	0.0	0.0	4.8	0.0	0.0	-12.9
610	611448.29	4816769.92	5.19	0	DEN	4000	69.7	0.0	0.0	0.0	0.0	72.8	40.4	-2.9	0.0	0.0	4.8	0.0	0.0	-45.4
610	611448.29	4816769.92	5.19	0	DEN	8000	61.6	0.0	0.0	0.0	0.0	72.8	144.2	-2.9	0.0	0.0	4.8	0.0	0.0	-157.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
685	611681.86	4816737.67	2.50	0	D	32	24.7	9.0	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-39.6
685	611681.86	4816737.67	2.50	0	D	63	38.3	9.0	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-26.7
685	611681.86	4816737.67	2.50	0	D	125	47.0	9.0	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.9	0.0	0.0	-24.4
685	611681.86	4816737.67	2.50	0	D	250	51.5	9.0	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.6	0.0	0.0	-21.3
685	611681.86	4816737.67	2.50	0	D	500	53.9	9.0	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-21.7
685	611681.86	4816737.67	2.50	0	D	1000	56.0	9.0	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.6	0.0	0.0	-25.5
685	611681.86	4816737.67	2.50	0	D	2000	52.1	9.0	0.0	0.0	0.0	73.4	12.7	-3.3	0.0	0.0	19.1	0.0	0.0	-40.9
685	611681.86	4816737.67	2.50	0	D	4000	48.0	9.0	0.0	0.0	0.0	73.4	43.2	-3.3	0.0	0.0	22.2	0.0	0.0	-78.5
685	611681.86	4816737.67	2.50	0	D	8000	39.2	9.0	0.0	0.0	0.0	73.4	153.9	-3.3	0.0	0.0	25.0	0.0	0.0	-200.9
685	611681.86	4816737.67	2.50	0	N	32	26.5	9.0	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-37.8
685	611681.86	4816737.67	2.50	0	N	63	40.0	9.0	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-24.9
685	611681.86	4816737.67	2.50	0	N	125	48.7	9.0	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.9	0.0	0.0	-22.6
685	611681.86	4816737.67	2.50	0	N	250	53.3	9.0	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.6	0.0	0.0	-19.5
685	611681.86	4816737.67	2.50	0	N	500	55.7	9.0	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-19.9
685	611681.86	4816737.67	2.50	0	N	1000	57.7	9.0	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.6	0.0	0.0	-23.8
685	611681.86	4816737.67	2.50	0	N	2000	53.8	9.0	0.0	0.0	0.0	73.4	12.7	-3.3	0.0	0.0	19.1	0.0	0.0	-39.1
685	611681.86	4816737.67	2.50	0	N	4000	49.8	9.0	0.0	0.0	0.0	73.4	43.2	-3.3	0.0	0.0	22.2	0.0	0.0	-76.7
685	611681.86	4816737.67	2.50	0	N	8000	40.9	9.0	0.0	0.0	0.0	73.4	153.9	-3.3	0.0	0.0	25.0	0.0	0.0	-199.1
685	611681.86	4816737.67	2.50	0	E	32	24.7	9.0	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.4	0.0	0.0	-39.6
685	611681.86	4816737.67	2.50	0	E	63	38.3	9.0	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-26.7
685	611681.86	4816737.67	2.50	0	E	125	47.0	9.0	0.0	0.0	0.0	73.4	0.5	-0.5	0.0	0.0	6.9	0.0	0.0	-24.4
685	611681.86	4816737.67	2.50	0	E	250	51.5	9.0	0.0	0.0	0.0	73.4	1.4	-1.6	0.0	0.0	8.6	0.0	0.0	-21.3
685	611681.86	4816737.67	2.50	0	E	500	53.9	9.0	0.0	0.0	0.0	73.4	2.5	-3.1	0.0	0.0	11.7	0.0	0.0	-21.7
685	611681.86	4816737.67	2.50	0	E	1000	56.0	9.0	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.6	0.0	0.0	-25.5

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
685	611681.86	4816737.67	2.50	0	E	2000	52.1	9.0	0.0	0.0	0.0	73.4	12.7	-3.3	0.0	0.0	19.1	0.0	0.0	-40.9
685	611681.86	4816737.67	2.50	0	E	4000	48.0	9.0	0.0	0.0	0.0	73.4	43.2	-3.3	0.0	0.0	22.2	0.0	0.0	-78.5
685	611681.86	4816737.67	2.50	0	E	8000	39.2	9.0	0.0	0.0	0.0	73.4	153.9	-3.3	0.0	0.0	25.0	0.0	0.0	-200.9
704	611661.68	4816757.26	2.50	0	D	32	24.7	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-26.2
704	611661.68	4816757.26	2.50	0	D	63	38.3	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-12.7
704	611661.68	4816757.26	2.50	0	D	125	47.0	16.8	0.0	0.0	0.0	73.2	0.5	-0.1	0.0	0.0	0.0	0.0	0.0	-9.8
704	611661.68	4816757.26	2.50	0	D	250	51.5	16.8	0.0	0.0	0.0	73.2	1.3	-1.3	0.0	0.0	0.0	0.0	0.0	-5.0
704	611661.68	4816757.26	2.50	0	D	500	53.9	16.8	0.0	0.0	0.0	73.2	2.5	-3.0	0.0	0.0	0.0	0.0	0.0	-2.0
704	611661.68	4816757.26	2.50	0	D	1000	56.0	16.8	0.0	0.0	0.0	73.2	4.7	-3.2	0.0	0.0	0.0	0.0	0.0	-2.0
704	611661.68	4816757.26	2.50	0	D	2000	52.1	16.8	0.0	0.0	0.0	73.2	12.5	-3.2	0.0	0.0	0.0	0.0	0.0	-13.6
704	611661.68	4816757.26	2.50	0	D	4000	48.0	16.8	0.0	0.0	0.0	73.2	42.3	-3.2	0.0	0.0	0.0	0.0	0.0	-47.5
704	611661.68	4816757.26	2.50	0	D	8000	39.2	16.8	0.0	0.0	0.0	73.2	151.0	-3.2	0.0	0.0	0.0	0.0	0.0	-165.1
704	611661.68	4816757.26	2.50	0	N	32	26.5	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-24.4
704	611661.68	4816757.26	2.50	0	N	63	40.0	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-11.0
704	611661.68	4816757.26	2.50	0	N	125	48.7	16.8	0.0	0.0	0.0	73.2	0.5	-0.1	0.0	0.0	0.0	0.0	0.0	-8.1
704	611661.68	4816757.26	2.50	0	N	250	53.3	16.8	0.0	0.0	0.0	73.2	1.3	-1.3	0.0	0.0	0.0	0.0	0.0	-3.2
704	611661.68	4816757.26	2.50	0	N	500	55.7	16.8	0.0	0.0	0.0	73.2	2.5	-3.0	0.0	0.0	0.0	0.0	0.0	-0.2
704	611661.68	4816757.26	2.50	0	N	1000	57.7	16.8	0.0	0.0	0.0	73.2	4.7	-3.2	0.0	0.0	0.0	0.0	0.0	-0.2
704	611661.68	4816757.26	2.50	0	N	2000	53.8	16.8	0.0	0.0	0.0	73.2	12.5	-3.2	0.0	0.0	0.0	0.0	0.0	-11.9
704	611661.68	4816757.26	2.50	0	N	4000	49.8	16.8	0.0	0.0	0.0	73.2	42.3	-3.2	0.0	0.0	0.0	0.0	0.0	-45.8
704	611661.68	4816757.26	2.50	0	N	8000	40.9	16.8	0.0	0.0	0.0	73.2	151.0	-3.2	0.0	0.0	0.0	0.0	0.0	-163.3
704	611661.68	4816757.26	2.50	0	E	32	24.7	16.8	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-26.2
704	611661.68	4816757.26	2.50	0	E	63	38.3	16.8	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-12.7
704	611661.68	4816757.26	2.50	0	E	125	47.0	16.8	0.0	0.0	0.0	73.2	0.5	-0.1	0.0	0.0	0.0	0.0	0.0	-9.8
704	611661.68	4816757.26	2.50	0	E	250	51.5	16.8	0.0	0.0	0.0	73.2	1.3	-1.3	0.0	0.0	0.0	0.0	0.0	-5.0
704	611661.68	4816757.26	2.50	0	E	500	53.9	16.8	0.0	0.0	0.0	73.2	2.5	-3.0	0.0	0.0	0.0	0.0	0.0	-2.0
704	611661.68	4816757.26	2.50	0	E	1000	56.0	16.8	0.0	0.0	0.0	73.2	4.7	-3.2	0.0	0.0	0.0	0.0	0.0	-2.0
704	611661.68	4816757.26	2.50	0	E	2000	52.1	16.8	0.0	0.0	0.0	73.2	12.5	-3.2	0.0	0.0	0.0	0.0	0.0	-13.6
704	611661.68	4816757.26	2.50	0	E	4000	48.0	16.8	0.0	0.0	0.0	73.2	42.3	-3.2	0.0	0.0	0.0	0.0	0.0	-47.5
704	611661.68	4816757.26	2.50	0	E	8000	39.2	16.8	0.0	0.0	0.0	73.2	151.0	-3.2	0.0	0.0	0.0	0.0	0.0	-165.1
717	611629.58	4816788.41	2.50	0	D	32	24.7	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.4
717	611629.58	4816788.41	2.50	0	D	63	38.3	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-18.0
717	611629.58	4816788.41	2.50	0	D	125	47.0	16.1	0.0	0.0	0.0	73.0	0.5	0.8	0.0	0.0	4.0	0.0	0.0	-15.1
717	611629.58	4816788.41	2.50	0	D	250	51.5	16.1	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	4.8	0.0	0.0	-11.1
717	611629.58	4816788.41	2.50	0	D	500	53.9	16.1	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	-7.5
717	611629.58	4816788.41	2.50	0	D	1000	56.0	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-7.3
717	611629.58	4816788.41	2.50	0	D	2000	52.1	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-18.7
717	611629.58	4816788.41	2.50	0	D	4000	48.0	16.1	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	4.8	0.0	0.0	-51.7
717	611629.58	4816788.41	2.50	0	D	8000	39.2	16.1	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	4.8	0.0	0.0	-166.0
717	611629.58	4816788.41	2.50	0	N	32	26.5	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-29.7
717	611629.58	4816788.41	2.50	0	N	63	40.0	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-16.2
717	611629.58	4816788.41	2.50	0	N	125	48.7	16.1	0.0	0.0	0.0	73.0	0.5	0.8	0.0	0.0	4.0	0.0	0.0	-13.4
717	611629.58	4816788.41	2.50	0	N	250	53.3	16.1	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	4.8	0.0	0.0	-9.3
717	611629.58	4816788.41	2.50	0	N	500	55.7	16.1	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	-5.7
717	611629.58	4816788.41	2.50	0	N	1000	57.7	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-5.5
717	611629.58	4816788.41	2.50	0	N	2000	53.8	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-17.0
717	611629.58	4816788.41	2.50	0	N	4000	49.8	16.1	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	4.8	0.0	0.0	-49.9
717	611629.58	4816788.41	2.50	0	N	8000	40.9	16.1	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	4.8	0.0	0.0	-164.2
717	611629.58	4816788.41	2.50	0	E	32	24.7	16.1	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-31.4
717	611629.58	4816788.41	2.50	0	E	63	38.3	16.1	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-18.0
717	611629.58	4816788.41	2.50	0	E	125	47.0	16.1	0.0	0.0	0.0	73.0	0.5	0.8	0.0	0.0	4.0	0.0	0.0	-15.1
717	611629.58	4816788.41	2.50	0	E	250	51.5	16.1	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	4.8	0.0	0.0	-11.1
717	611629.58	4816788.41	2.50	0	E	500	53.9	16.1	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	4.8	0.0	0.0	-7.5
717	611629.58	4816788.41	2.50	0	E	1000	56.0	16.1	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-7.3
717	611629.58	4816788.41	2.50	0	E	2000	52.1	16.1	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-18.7
717	611629.58	4816788.41	2.50	0	E	4000	48.0	16.1	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	4.8	0.0	0.0	-51.7
717	611629.58	4816788.41	2.50	0	E	8000	39.2	16.1	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	4.8	0.0	0.0	-166.0
720	611613.81	4816803.72	2.50	0	D	32	24.7	4.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-38.1
720	611613.81	4816803.72	2.50	0	D	63	38.3	4.6	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-24.6
720	611613.81	4816803.72	2.50	0	D	125	47.0	4.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-23.3
720	611613.81	4816803.72	2.50	0	D	250	51.5	4.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-18.5
720	611613.81	4816803.72	2.50	0	D	500	53.9	4.6	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-14.4
720	611613.81	4816803.72	2.50	0	D	1000	56.0	4.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-14.1

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
720	611613.81	4816803.72	2.50	0	D	2000	52.1	4.6	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-25.4
720	611613.81	4816803.72	2.50	0	D	4000	48.0	4.6	0.0	0.0	0.0	72.8	40.4	-2.7	0.0	0.0	0.0	0.0	0.0	-57.9
720	611613.81	4816803.72	2.50	0	D	8000	39.2	4.6	0.0	0.0	0.0	72.8	144.3	-2.7	0.0	0.0	0.0	0.0	0.0	-170.6
720	611613.81	4816803.72	2.50	0	N	32	26.5	4.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-36.3
720	611613.81	4816803.72	2.50	0	N	63	40.0	4.6	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-22.9
720	611613.81	4816803.72	2.50	0	N	125	48.7	4.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-21.5
720	611613.81	4816803.72	2.50	0	N	250	53.3	4.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-16.7
720	611613.81	4816803.72	2.50	0	N	500	55.7	4.6	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-12.6
720	611613.81	4816803.72	2.50	0	N	1000	57.7	4.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-12.3
720	611613.81	4816803.72	2.50	0	N	2000	53.8	4.6	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-23.6
720	611613.81	4816803.72	2.50	0	N	4000	49.8	4.6	0.0	0.0	0.0	72.8	40.4	-2.7	0.0	0.0	0.0	0.0	0.0	-56.2
720	611613.81	4816803.72	2.50	0	N	8000	40.9	4.6	0.0	0.0	0.0	72.8	144.3	-2.7	0.0	0.0	0.0	0.0	0.0	-168.9
720	611613.81	4816803.72	2.50	0	E	32	24.7	4.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-38.1
720	611613.81	4816803.72	2.50	0	E	63	38.3	4.6	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	-24.6
720	611613.81	4816803.72	2.50	0	E	125	47.0	4.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-23.3
720	611613.81	4816803.72	2.50	0	E	250	51.5	4.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-18.5
720	611613.81	4816803.72	2.50	0	E	500	53.9	4.6	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-14.4
720	611613.81	4816803.72	2.50	0	E	1000	56.0	4.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-14.1
720	611613.81	4816803.72	2.50	0	E	2000	52.1	4.6	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-25.4
720	611613.81	4816803.72	2.50	0	E	4000	48.0	4.6	0.0	0.0	0.0	72.8	40.4	-2.7	0.0	0.0	0.0	0.0	0.0	-57.9
720	611613.81	4816803.72	2.50	0	E	8000	39.2	4.6	0.0	0.0	0.0	72.8	144.3	-2.7	0.0	0.0	0.0	0.0	0.0	-170.6
947	611772.65	4816645.99	2.50	0	D	32	24.7	13.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.8
947	611772.65	4816645.99	2.50	0	D	63	38.3	13.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-21.3
947	611772.65	4816645.99	2.50	0	D	125	47.0	13.9	0.0	0.0	0.0	74.1	0.6	0.0	0.0	0.0	4.7	0.0	0.0	-18.6
947	611772.65	4816645.99	2.50	0	D	250	51.5	13.9	0.0	0.0	0.0	74.1	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-13.9
947	611772.65	4816645.99	2.50	0	D	500	53.9	13.9	0.0	0.0	0.0	74.1	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-10.8
947	611772.65	4816645.99	2.50	0	D	1000	56.0	13.9	0.0	0.0	0.0	74.1	5.2	-3.3	0.0	0.0	4.8	0.0	0.0	-11.0
947	611772.65	4816645.99	2.50	0	D	2000	52.1	13.9	0.0	0.0	0.0	74.1	13.8	-3.3	0.0	0.0	4.8	0.0	0.0	-23.5
947	611772.65	4816645.99	2.50	0	D	4000	48.0	13.9	0.0	0.0	0.0	74.1	47.0	-3.3	0.0	0.0	4.8	0.0	0.0	-60.6
947	611772.65	4816645.99	2.50	0	D	8000	39.2	13.9	0.0	0.0	0.0	74.1	167.5	-3.3	0.0	0.0	4.8	0.0	0.0	-190.1
947	611772.65	4816645.99	2.50	0	N	32	26.5	13.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.0
947	611772.65	4816645.99	2.50	0	N	63	40.0	13.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.6
947	611772.65	4816645.99	2.50	0	N	125	48.7	13.9	0.0	0.0	0.0	74.1	0.6	0.0	0.0	0.0	4.7	0.0	0.0	-16.9
947	611772.65	4816645.99	2.50	0	N	250	53.3	13.9	0.0	0.0	0.0	74.1	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-12.1
947	611772.65	4816645.99	2.50	0	N	500	55.7	13.9	0.0	0.0	0.0	74.1	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-9.1
947	611772.65	4816645.99	2.50	0	N	1000	57.7	13.9	0.0	0.0	0.0	74.1	5.2	-3.3	0.0	0.0	4.8	0.0	0.0	-9.2
947	611772.65	4816645.99	2.50	0	N	2000	53.8	13.9	0.0	0.0	0.0	74.1	13.8	-3.3	0.0	0.0	4.8	0.0	0.0	-21.8
947	611772.65	4816645.99	2.50	0	N	4000	49.8	13.9	0.0	0.0	0.0	74.1	47.0	-3.3	0.0	0.0	4.8	0.0	0.0	-58.9
947	611772.65	4816645.99	2.50	0	N	8000	40.9	13.9	0.0	0.0	0.0	74.1	167.5	-3.3	0.0	0.0	4.8	0.0	0.0	-188.3
947	611772.65	4816645.99	2.50	0	E	32	24.7	13.9	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.8
947	611772.65	4816645.99	2.50	0	E	63	38.3	13.9	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-21.3
947	611772.65	4816645.99	2.50	0	E	125	47.0	13.9	0.0	0.0	0.0	74.1	0.6	0.0	0.0	0.0	4.7	0.0	0.0	-18.6
947	611772.65	4816645.99	2.50	0	E	250	51.5	13.9	0.0	0.0	0.0	74.1	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-13.9
947	611772.65	4816645.99	2.50	0	E	500	53.9	13.9	0.0	0.0	0.0	74.1	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-10.8
947	611772.65	4816645.99	2.50	0	E	1000	56.0	13.9	0.0	0.0	0.0	74.1	5.2	-3.3	0.0	0.0	4.8	0.0	0.0	-11.0
947	611772.65	4816645.99	2.50	0	E	2000	52.1	13.9	0.0	0.0	0.0	74.1	13.8	-3.3	0.0	0.0	4.8	0.0	0.0	-23.5
947	611772.65	4816645.99	2.50	0	E	4000	48.0	13.9	0.0	0.0	0.0	74.1	47.0	-3.3	0.0	0.0	4.8	0.0	0.0	-60.6
947	611772.65	4816645.99	2.50	0	E	8000	39.2	13.9	0.0	0.0	0.0	74.1	167.5	-3.3	0.0	0.0	4.8	0.0	0.0	-190.1
959	611750.92	4816666.58	2.50	0	D	32	24.7	15.5	0.0	0.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.0
959	611750.92	4816666.58	2.50	0	D	63	38.3	15.5	0.0	0.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.6
959	611750.92	4816666.58	2.50	0	D	125	47.0	15.5	0.0	0.0	0.0	74.0	0.6	0.1	0.0	0.0	4.7	0.0	0.0	-16.8
959	611750.92	4816666.58	2.50	0	D	250	51.5	15.5	0.0	0.0	0.0	74.0	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-12.1
959	611750.92	4816666.58	2.50	0	D	500	53.9	15.5	0.0	0.0	0.0	74.0	2.7	-3.0	0.0	0.0	4.8	0.0	0.0	-9.1
959	611750.92	4816666.58	2.50	0	D	1000	56.0	15.5	0.0	0.0	0.0	74.0	5.1	-3.2	0.0	0.0	4.8	0.0	0.0	-9.2
959	611750.92	4816666.58	2.50	0	D	2000	52.1	15.5	0.0	0.0	0.0	74.0	13.6	-3.3	0.0	0.0	4.9	0.0	0.0	-21.6
959	611750.92	4816666.58	2.50	0	D	4000	48.0	15.5	0.0	0.0	0.0	74.0	46.1	-3.3	0.0	0.0	4.9	0.0	0.0	-58.2
959	611750.92	4816666.58	2.50	0	D	8000	39.2	15.5	0.0	0.0	0.0	74.0	164.4	-3.3	0.0	0.0	5.1	0.0	0.0	-185.5
959	611750.92	4816666.58	2.50	0	N	32	26.5	15.5	0.0	0.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-31.3
959	611750.92	4816666.58	2.50	0	N	63	40.0	15.5	0.0	0.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-17.8
959	611750.92	4816666.58	2.50	0	N	125	48.7	15.5	0.0	0.0	0.0	74.0	0.6	0.1	0.0	0.0	4.7	0.0	0.0	-15.1
959	611750.92	4816666.58	2.50	0	N	250	53.3	15.5	0.0	0.0	0.0	74.0	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-10.4
959	611750.92	4816666.58	2.50	0	N	500	55.7	15.5	0.0	0.0	0.0	74.0	2.7	-3.0	0.0	0.0	4.8	0.0	0.0	-7.3
959	611750.92	4816666.58	2.50	0	N	1000	57.7	15.5	0.0	0.0	0.0	74.0	5.1	-3.2	0.0	0.0	4.8	0.0	0.0	-7.4

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
959	611750.92	4816666.58	2.50	0	N	2000	53.8	15.5	0.0	0.0	0.0	74.0	13.6	-3.3	0.0	0.0	4.9	0.0	0.0	-19.8
959	611750.92	4816666.58	2.50	0	N	4000	49.8	15.5	0.0	0.0	0.0	74.0	46.1	-3.3	0.0	0.0	4.9	0.0	0.0	-56.4
959	611750.92	4816666.58	2.50	0	N	8000	40.9	15.5	0.0	0.0	0.0	74.0	164.4	-3.3	0.0	0.0	5.1	0.0	0.0	-183.8
959	611750.92	4816666.58	2.50	0	E	32	24.7	15.5	0.0	0.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-33.0
959	611750.92	4816666.58	2.50	0	E	63	38.3	15.5	0.0	0.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.6
959	611750.92	4816666.58	2.50	0	E	125	47.0	15.5	0.0	0.0	0.0	74.0	0.6	0.1	0.0	0.0	4.7	0.0	0.0	-16.8
959	611750.92	4816666.58	2.50	0	E	250	51.5	15.5	0.0	0.0	0.0	74.0	1.5	-1.1	0.0	0.0	4.8	0.0	0.0	-12.1
959	611750.92	4816666.58	2.50	0	E	500	53.9	15.5	0.0	0.0	0.0	74.0	2.7	-3.0	0.0	0.0	4.8	0.0	0.0	-9.1
959	611750.92	4816666.58	2.50	0	E	1000	56.0	15.5	0.0	0.0	0.0	74.0	5.1	-3.2	0.0	0.0	4.8	0.0	0.0	-9.2
959	611750.92	4816666.58	2.50	0	E	2000	52.1	15.5	0.0	0.0	0.0	74.0	13.6	-3.3	0.0	0.0	4.9	0.0	0.0	-21.6
959	611750.92	4816666.58	2.50	0	E	4000	48.0	15.5	0.0	0.0	0.0	74.0	46.1	-3.3	0.0	0.0	4.9	0.0	0.0	-58.2
959	611750.92	4816666.58	2.50	0	E	8000	39.2	15.5	0.0	0.0	0.0	74.0	164.4	-3.3	0.0	0.0	5.1	0.0	0.0	-185.5
962	611729.36	4816687.01	2.50	0	D	32	24.7	13.8	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.6
962	611729.36	4816687.01	2.50	0	D	63	38.3	13.8	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.1
962	611729.36	4816687.01	2.50	0	D	125	47.0	13.8	0.0	0.0	0.0	73.8	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-18.3
962	611729.36	4816687.01	2.50	0	D	250	51.5	13.8	0.0	0.0	0.0	73.8	1.4	-1.3	0.0	0.0	4.9	0.0	0.0	-13.5
962	611729.36	4816687.01	2.50	0	D	500	53.9	13.8	0.0	0.0	0.0	73.8	2.7	-3.1	0.0	0.0	5.0	0.0	0.0	-10.7
962	611729.36	4816687.01	2.50	0	D	1000	56.0	13.8	0.0	0.0	0.0	73.8	5.0	-3.3	0.0	0.0	5.2	0.0	0.0	-11.0
962	611729.36	4816687.01	2.50	0	D	2000	52.1	13.8	0.0	0.0	0.0	73.8	13.3	-3.3	0.0	0.0	5.5	0.0	0.0	-23.5
962	611729.36	4816687.01	2.50	0	D	4000	48.0	13.8	0.0	0.0	0.0	73.8	45.2	-3.3	0.0	0.0	6.1	0.0	0.0	-60.0
962	611729.36	4816687.01	2.50	0	D	8000	39.2	13.8	0.0	0.0	0.0	73.8	161.3	-3.3	0.0	0.0	7.2	0.0	0.0	-186.0
962	611729.36	4816687.01	2.50	0	N	32	26.5	13.8	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-32.8
962	611729.36	4816687.01	2.50	0	N	63	40.0	13.8	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-19.4
962	611729.36	4816687.01	2.50	0	N	125	48.7	13.8	0.0	0.0	0.0	73.8	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-16.5
962	611729.36	4816687.01	2.50	0	N	250	53.3	13.8	0.0	0.0	0.0	73.8	1.4	-1.3	0.0	0.0	4.9	0.0	0.0	-11.7
962	611729.36	4816687.01	2.50	0	N	500	55.7	13.8	0.0	0.0	0.0	73.8	2.7	-3.1	0.0	0.0	5.0	0.0	0.0	-8.9
962	611729.36	4816687.01	2.50	0	N	1000	57.7	13.8	0.0	0.0	0.0	73.8	5.0	-3.3	0.0	0.0	5.2	0.0	0.0	-9.2
962	611729.36	4816687.01	2.50	0	N	2000	53.8	13.8	0.0	0.0	0.0	73.8	13.3	-3.3	0.0	0.0	5.5	0.0	0.0	-21.7
962	611729.36	4816687.01	2.50	0	N	4000	49.8	13.8	0.0	0.0	0.0	73.8	45.2	-3.3	0.0	0.0	6.1	0.0	0.0	-58.3
962	611729.36	4816687.01	2.50	0	N	8000	40.9	13.8	0.0	0.0	0.0	73.8	161.3	-3.3	0.0	0.0	7.2	0.0	0.0	-184.2
962	611729.36	4816687.01	2.50	0	E	32	24.7	13.8	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.6
962	611729.36	4816687.01	2.50	0	E	63	38.3	13.8	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.1
962	611729.36	4816687.01	2.50	0	E	125	47.0	13.8	0.0	0.0	0.0	73.8	0.6	-0.1	0.0	0.0	4.8	0.0	0.0	-18.3
962	611729.36	4816687.01	2.50	0	E	250	51.5	13.8	0.0	0.0	0.0	73.8	1.4	-1.3	0.0	0.0	4.9	0.0	0.0	-13.5
962	611729.36	4816687.01	2.50	0	E	500	53.9	13.8	0.0	0.0	0.0	73.8	2.7	-3.1	0.0	0.0	5.0	0.0	0.0	-10.7
962	611729.36	4816687.01	2.50	0	E	1000	56.0	13.8	0.0	0.0	0.0	73.8	5.0	-3.3	0.0	0.0	5.2	0.0	0.0	-11.0
962	611729.36	4816687.01	2.50	0	E	2000	52.1	13.8	0.0	0.0	0.0	73.8	13.3	-3.3	0.0	0.0	5.5	0.0	0.0	-23.5
962	611729.36	4816687.01	2.50	0	E	4000	48.0	13.8	0.0	0.0	0.0	73.8	45.2	-3.3	0.0	0.0	6.1	0.0	0.0	-60.0
962	611729.36	4816687.01	2.50	0	E	8000	39.2	13.8	0.0	0.0	0.0	73.8	161.3	-3.3	0.0	0.0	7.2	0.0	0.0	-186.0
970	611588.10	4816798.24	2.50	0	D	32	24.7	12.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.9
970	611588.10	4816798.24	2.50	0	D	63	38.3	12.5	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.5
970	611588.10	4816798.24	2.50	0	D	125	47.0	12.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.3	0.0	0.0	-18.6
970	611588.10	4816798.24	2.50	0	D	250	51.5	12.5	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-14.9
970	611588.10	4816798.24	2.50	0	D	500	53.9	12.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-11.2
970	611588.10	4816798.24	2.50	0	D	1000	56.0	12.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-10.9
970	611588.10	4816798.24	2.50	0	D	2000	52.1	12.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-22.2
970	611588.10	4816798.24	2.50	0	D	4000	48.0	12.5	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	4.8	0.0	0.0	-54.7
970	611588.10	4816798.24	2.50	0	D	8000	39.2	12.5	0.0	0.0	0.0	72.8	144.1	-2.8	0.0	0.0	4.8	0.0	0.0	-167.3
970	611588.10	4816798.24	2.50	0	N	32	26.5	12.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-33.2
970	611588.10	4816798.24	2.50	0	N	63	40.0	12.5	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-19.7
970	611588.10	4816798.24	2.50	0	N	125	48.7	12.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.3	0.0	0.0	-16.9
970	611588.10	4816798.24	2.50	0	N	250	53.3	12.5	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-13.1
970	611588.10	4816798.24	2.50	0	N	500	55.7	12.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-9.4
970	611588.10	4816798.24	2.50	0	N	1000	57.7	12.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-9.1
970	611588.10	4816798.24	2.50	0	N	2000	53.8	12.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-20.4
970	611588.10	4816798.24	2.50	0	N	4000	49.8	12.5	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	4.8	0.0	0.0	-52.9
970	611588.10	4816798.24	2.50	0	N	8000	40.9	12.5	0.0	0.0	0.0	72.8	144.1	-2.8	0.0	0.0	4.8	0.0	0.0	-165.5
970	611588.10	4816798.24	2.50	0	E	32	24.7	12.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.9
970	611588.10	4816798.24	2.50	0	E	63	38.3	12.5	0.0	0.0	0.0	72.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.5
970	611588.10	4816798.24	2.50	0	E	125	47.0	12.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.3	0.0	0.0	-18.6
970	611588.10	4816798.24	2.50	0	E	250	51.5	12.5	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-14.9
970	611588.10	4816798.24	2.50	0	E	500	53.9	12.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-11.2
970	611588.10	4816798.24	2.50	0	E	1000	56.0	12.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-10.9

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
970	611588.10	4816798.24	2.50	0	E	2000	52.1	12.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-22.2
970	611588.10	4816798.24	2.50	0	E	4000	48.0	12.5	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	4.8	0.0	0.0	-54.7
970	611588.10	4816798.24	2.50	0	E	8000	39.2	12.5	0.0	0.0	0.0	72.8	144.1	-2.8	0.0	0.0	4.8	0.0	0.0	-167.3
978	611579.53	4816789.37	2.50	0	D	32	24.7	8.4	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-39.4
978	611579.53	4816789.37	2.50	0	D	63	38.3	8.4	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-26.2
978	611579.53	4816789.37	2.50	0	D	125	47.0	8.4	0.0	0.0	0.0	72.9	0.5	1.3	0.0	0.0	4.9	0.0	0.0	-24.2
978	611579.53	4816789.37	2.50	0	D	250	51.5	8.4	0.0	0.0	0.0	72.9	1.3	0.2	0.0	0.0	7.8	0.0	0.0	-22.3
978	611579.53	4816789.37	2.50	0	D	500	53.9	8.4	0.0	0.0	0.0	72.9	2.4	-2.5	0.0	0.0	10.7	0.0	0.0	-21.2
978	611579.53	4816789.37	2.50	0	D	1000	56.0	8.4	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	13.5	0.0	0.0	-23.7
978	611579.53	4816789.37	2.50	0	D	2000	52.1	8.4	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	16.3	0.0	0.0	-37.8
978	611579.53	4816789.37	2.50	0	D	4000	48.0	8.4	0.0	0.0	0.0	72.9	40.6	-2.8	0.0	0.0	19.2	0.0	0.0	-73.4
978	611579.53	4816789.37	2.50	0	D	8000	39.2	8.4	0.0	0.0	0.0	72.9	144.9	-2.8	0.0	0.0	22.1	0.0	0.0	-189.4
978	611579.53	4816789.37	2.50	0	N	32	26.5	8.4	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-37.6
978	611579.53	4816789.37	2.50	0	N	63	40.0	8.4	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-24.5
978	611579.53	4816789.37	2.50	0	N	125	48.7	8.4	0.0	0.0	0.0	72.9	0.5	1.3	0.0	0.0	4.9	0.0	0.0	-22.4
978	611579.53	4816789.37	2.50	0	N	250	53.3	8.4	0.0	0.0	0.0	72.9	1.3	0.2	0.0	0.0	7.8	0.0	0.0	-20.5
978	611579.53	4816789.37	2.50	0	N	500	55.7	8.4	0.0	0.0	0.0	72.9	2.4	-2.5	0.0	0.0	10.7	0.0	0.0	-19.4
978	611579.53	4816789.37	2.50	0	N	1000	57.7	8.4	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	13.5	0.0	0.0	-21.9
978	611579.53	4816789.37	2.50	0	N	2000	53.8	8.4	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	16.3	0.0	0.0	-36.1
978	611579.53	4816789.37	2.50	0	N	4000	49.8	8.4	0.0	0.0	0.0	72.9	40.6	-2.8	0.0	0.0	19.2	0.0	0.0	-71.6
978	611579.53	4816789.37	2.50	0	N	8000	40.9	8.4	0.0	0.0	0.0	72.9	144.9	-2.8	0.0	0.0	22.1	0.0	0.0	-187.7
978	611579.53	4816789.37	2.50	0	E	32	24.7	8.4	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-39.4
978	611579.53	4816789.37	2.50	0	E	63	38.3	8.4	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-26.2
978	611579.53	4816789.37	2.50	0	E	125	47.0	8.4	0.0	0.0	0.0	72.9	0.5	1.3	0.0	0.0	4.9	0.0	0.0	-24.2
978	611579.53	4816789.37	2.50	0	E	250	51.5	8.4	0.0	0.0	0.0	72.9	1.3	0.2	0.0	0.0	7.8	0.0	0.0	-22.3
978	611579.53	4816789.37	2.50	0	E	500	53.9	8.4	0.0	0.0	0.0	72.9	2.4	-2.5	0.0	0.0	10.7	0.0	0.0	-21.2
978	611579.53	4816789.37	2.50	0	E	1000	56.0	8.4	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	13.5	0.0	0.0	-23.7
978	611579.53	4816789.37	2.50	0	E	2000	52.1	8.4	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	16.3	0.0	0.0	-37.8
978	611579.53	4816789.37	2.50	0	E	4000	48.0	8.4	0.0	0.0	0.0	72.9	40.6	-2.8	0.0	0.0	19.2	0.0	0.0	-73.4
978	611579.53	4816789.37	2.50	0	E	8000	39.2	8.4	0.0	0.0	0.0	72.9	144.9	-2.8	0.0	0.0	22.1	0.0	0.0	-189.4
984	611575.70	4816785.40	2.50	0	D	32	24.7	6.1	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-41.7
984	611575.70	4816785.40	2.50	0	D	63	38.3	6.1	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-28.6
984	611575.70	4816785.40	2.50	0	D	125	47.0	6.1	0.0	0.0	0.0	72.9	0.5	0.9	0.0	0.0	5.5	0.0	0.0	-26.6
984	611575.70	4816785.40	2.50	0	D	250	51.5	6.1	0.0	0.0	0.0	72.9	1.3	-0.2	0.0	0.0	8.3	0.0	0.0	-24.6
984	611575.70	4816785.40	2.50	0	D	500	53.9	6.1	0.0	0.0	0.0	72.9	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-23.4
984	611575.70	4816785.40	2.50	0	D	1000	56.0	6.1	0.0	0.0	0.0	72.9	4.5	-2.9	0.0	0.0	13.4	0.0	0.0	-25.8
984	611575.70	4816785.40	2.50	0	D	2000	52.1	6.1	0.0	0.0	0.0	72.9	12.0	-2.9	0.0	0.0	16.2	0.0	0.0	-40.0
984	611575.70	4816785.40	2.50	0	D	4000	48.0	6.1	0.0	0.0	0.0	72.9	40.7	-2.9	0.0	0.0	19.1	0.0	0.0	-75.6
984	611575.70	4816785.40	2.50	0	D	8000	39.2	6.1	0.0	0.0	0.0	72.9	145.2	-2.9	0.0	0.0	22.0	0.0	0.0	-191.9
984	611575.70	4816785.40	2.50	0	N	32	26.5	6.1	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-39.9
984	611575.70	4816785.40	2.50	0	N	63	40.0	6.1	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-26.8
984	611575.70	4816785.40	2.50	0	N	125	48.7	6.1	0.0	0.0	0.0	72.9	0.5	0.9	0.0	0.0	5.5	0.0	0.0	-24.9
984	611575.70	4816785.40	2.50	0	N	250	53.3	6.1	0.0	0.0	0.0	72.9	1.3	-0.2	0.0	0.0	8.3	0.0	0.0	-22.8
984	611575.70	4816785.40	2.50	0	N	500	55.7	6.1	0.0	0.0	0.0	72.9	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-21.6
984	611575.70	4816785.40	2.50	0	N	1000	57.7	6.1	0.0	0.0	0.0	72.9	4.5	-2.9	0.0	0.0	13.4	0.0	0.0	-24.1
984	611575.70	4816785.40	2.50	0	N	2000	53.8	6.1	0.0	0.0	0.0	72.9	12.0	-2.9	0.0	0.0	16.2	0.0	0.0	-38.2
984	611575.70	4816785.40	2.50	0	N	4000	49.8	6.1	0.0	0.0	0.0	72.9	40.7	-2.9	0.0	0.0	19.1	0.0	0.0	-73.8
984	611575.70	4816785.40	2.50	0	N	8000	40.9	6.1	0.0	0.0	0.0	72.9	145.2	-2.9	0.0	0.0	22.0	0.0	0.0	-190.1
984	611575.70	4816785.40	2.50	0	E	32	24.7	6.1	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-41.7
984	611575.70	4816785.40	2.50	0	E	63	38.3	6.1	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-28.6
984	611575.70	4816785.40	2.50	0	E	125	47.0	6.1	0.0	0.0	0.0	72.9	0.5	0.9	0.0	0.0	5.5	0.0	0.0	-26.6
984	611575.70	4816785.40	2.50	0	E	250	51.5	6.1	0.0	0.0	0.0	72.9	1.3	-0.2	0.0	0.0	8.3	0.0	0.0	-24.6
984	611575.70	4816785.40	2.50	0	E	500	53.9	6.1	0.0	0.0	0.0	72.9	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-23.4
984	611575.70	4816785.40	2.50	0	E	1000	56.0	6.1	0.0	0.0	0.0	72.9	4.5	-2.9	0.0	0.0	13.4	0.0	0.0	-25.8
984	611575.70	4816785.40	2.50	0	E	2000	52.1	6.1	0.0	0.0	0.0	72.9	12.0	-2.9	0.0	0.0	16.2	0.0	0.0	-40.0
984	611575.70	4816785.40	2.50	0	E	4000	48.0	6.1	0.0	0.0	0.0	72.9	40.7	-2.9	0.0	0.0	19.1	0.0	0.0	-75.6
984	611575.70	4816785.40	2.50	0	E	8000	39.2	6.1	0.0	0.0	0.0	72.9	145.2	-2.9	0.0	0.0	22.0	0.0	0.0	-191.9
992	611572.72	4816782.32	2.50	0	D	32	24.7	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-41.3
992	611572.72	4816782.32	2.50	0	D	63	38.3	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-28.2
992	611572.72	4816782.32	2.50	0	D	125	47.0	6.5	0.0	0.0	0.0	72.9	0.5	0.5	0.0	0.0	5.9	0.0	0.0	-26.3
992	611572.72	4816782.32	2.50	0	D	250	51.5	6.5	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	8.3	0.0	0.0	-23.9
992	611572.72	4816782.32	2.50	0	D	500	53.9	6.5	0.0	0.0	0.0	72.9	2.4	-2.7	0.0	0.0	10.7	0.0	0.0	-22.9
992	611572.72	4816782.32	2.50	0	D	1000	56.0	6.5	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	13.3	0.0	0.0	-25.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
992	611572.72	4816782.32	2.50	0	D	2000	52.1	6.5	0.0	0.0	0.0	72.9	12.0	-3.0	0.0	0.0	16.1	0.0	0.0	-39.5
992	611572.72	4816782.32	2.50	0	D	4000	48.0	6.5	0.0	0.0	0.0	72.9	40.8	-3.0	0.0	0.0	18.9	0.0	0.0	-75.1
992	611572.72	4816782.32	2.50	0	D	8000	39.2	6.5	0.0	0.0	0.0	72.9	145.5	-3.0	0.0	0.0	21.9	0.0	0.0	-191.6
992	611572.72	4816782.32	2.50	0	N	32	26.5	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-39.5
992	611572.72	4816782.32	2.50	0	N	63	40.0	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-26.5
992	611572.72	4816782.32	2.50	0	N	125	48.7	6.5	0.0	0.0	0.0	72.9	0.5	0.5	0.0	0.0	5.9	0.0	0.0	-24.6
992	611572.72	4816782.32	2.50	0	N	250	53.3	6.5	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	8.3	0.0	0.0	-22.1
992	611572.72	4816782.32	2.50	0	N	500	55.7	6.5	0.0	0.0	0.0	72.9	2.4	-2.7	0.0	0.0	10.7	0.0	0.0	-21.1
992	611572.72	4816782.32	2.50	0	N	1000	57.7	6.5	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	13.3	0.0	0.0	-23.5
992	611572.72	4816782.32	2.50	0	N	2000	53.8	6.5	0.0	0.0	0.0	72.9	12.0	-3.0	0.0	0.0	16.1	0.0	0.0	-37.7
992	611572.72	4816782.32	2.50	0	N	4000	49.8	6.5	0.0	0.0	0.0	72.9	40.8	-3.0	0.0	0.0	18.9	0.0	0.0	-73.3
992	611572.72	4816782.32	2.50	0	N	8000	40.9	6.5	0.0	0.0	0.0	72.9	145.5	-3.0	0.0	0.0	21.9	0.0	0.0	-189.8
992	611572.72	4816782.32	2.50	0	E	32	24.7	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-41.3
992	611572.72	4816782.32	2.50	0	E	63	38.3	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-28.2
992	611572.72	4816782.32	2.50	0	E	125	47.0	6.5	0.0	0.0	0.0	72.9	0.5	0.5	0.0	0.0	5.9	0.0	0.0	-26.3
992	611572.72	4816782.32	2.50	0	E	250	51.5	6.5	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	8.3	0.0	0.0	-23.9
992	611572.72	4816782.32	2.50	0	E	500	53.9	6.5	0.0	0.0	0.0	72.9	2.4	-2.7	0.0	0.0	10.7	0.0	0.0	-22.9
992	611572.72	4816782.32	2.50	0	E	1000	56.0	6.5	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	13.3	0.0	0.0	-25.3
992	611572.72	4816782.32	2.50	0	E	2000	52.1	6.5	0.0	0.0	0.0	72.9	12.0	-3.0	0.0	0.0	16.1	0.0	0.0	-39.5
992	611572.72	4816782.32	2.50	0	E	4000	48.0	6.5	0.0	0.0	0.0	72.9	40.8	-3.0	0.0	0.0	18.9	0.0	0.0	-75.1
992	611572.72	4816782.32	2.50	0	E	8000	39.2	6.5	0.0	0.0	0.0	72.9	145.5	-3.0	0.0	0.0	21.9	0.0	0.0	-191.6
995	611569.32	4816778.80	2.50	0	D	32	24.7	7.3	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-40.8
995	611569.32	4816778.80	2.50	0	D	63	38.3	7.3	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.1	0.0	0.0	-28.1
995	611569.32	4816778.80	2.50	0	D	125	47.0	7.3	0.0	0.0	0.0	72.9	0.5	0.4	0.0	0.0	7.3	0.0	0.0	-26.9
995	611569.32	4816778.80	2.50	0	D	250	51.5	7.3	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	10.0	0.0	0.0	-24.7
995	611569.32	4816778.80	2.50	0	D	500	53.9	7.3	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	12.6	0.0	0.0	-24.0
995	611569.32	4816778.80	2.50	0	D	1000	56.0	7.3	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	15.3	0.0	0.0	-26.5
995	611569.32	4816778.80	2.50	0	D	2000	52.1	7.3	0.0	0.0	0.0	72.9	12.1	-3.0	0.0	0.0	18.1	0.0	0.0	-40.7
995	611569.32	4816778.80	2.50	0	D	4000	48.0	7.3	0.0	0.0	0.0	72.9	40.9	-3.0	0.0	0.0	21.0	0.0	0.0	-76.5
995	611569.32	4816778.80	2.50	0	D	8000	39.2	7.3	0.0	0.0	0.0	72.9	145.8	-3.0	0.0	0.0	24.0	0.0	0.0	-193.2
995	611569.32	4816778.80	2.50	0	N	32	26.5	7.3	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-39.0
995	611569.32	4816778.80	2.50	0	N	63	40.0	7.3	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.1	0.0	0.0	-26.3
995	611569.32	4816778.80	2.50	0	N	125	48.7	7.3	0.0	0.0	0.0	72.9	0.5	0.4	0.0	0.0	7.3	0.0	0.0	-25.1
995	611569.32	4816778.80	2.50	0	N	250	53.3	7.3	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	10.0	0.0	0.0	-23.0
995	611569.32	4816778.80	2.50	0	N	500	55.7	7.3	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	12.6	0.0	0.0	-22.2
995	611569.32	4816778.80	2.50	0	N	1000	57.7	7.3	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	15.3	0.0	0.0	-24.7
995	611569.32	4816778.80	2.50	0	N	2000	53.8	7.3	0.0	0.0	0.0	72.9	12.1	-3.0	0.0	0.0	18.1	0.0	0.0	-39.0
995	611569.32	4816778.80	2.50	0	N	4000	49.8	7.3	0.0	0.0	0.0	72.9	40.9	-3.0	0.0	0.0	21.0	0.0	0.0	-74.7
995	611569.32	4816778.80	2.50	0	N	8000	40.9	7.3	0.0	0.0	0.0	72.9	145.8	-3.0	0.0	0.0	24.0	0.0	0.0	-191.5
995	611569.32	4816778.80	2.50	0	E	32	24.7	7.3	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-40.8
995	611569.32	4816778.80	2.50	0	E	63	38.3	7.3	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.1	0.0	0.0	-28.1
995	611569.32	4816778.80	2.50	0	E	125	47.0	7.3	0.0	0.0	0.0	72.9	0.5	0.4	0.0	0.0	7.3	0.0	0.0	-26.9
995	611569.32	4816778.80	2.50	0	E	250	51.5	7.3	0.0	0.0	0.0	72.9	1.3	-0.7	0.0	0.0	10.0	0.0	0.0	-24.7
995	611569.32	4816778.80	2.50	0	E	500	53.9	7.3	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	12.6	0.0	0.0	-24.0
995	611569.32	4816778.80	2.50	0	E	1000	56.0	7.3	0.0	0.0	0.0	72.9	4.6	-3.0	0.0	0.0	15.3	0.0	0.0	-26.5
995	611569.32	4816778.80	2.50	0	E	2000	52.1	7.3	0.0	0.0	0.0	72.9	12.1	-3.0	0.0	0.0	18.1	0.0	0.0	-40.7
995	611569.32	4816778.80	2.50	0	E	4000	48.0	7.3	0.0	0.0	0.0	72.9	40.9	-3.0	0.0	0.0	21.0	0.0	0.0	-76.5
995	611569.32	4816778.80	2.50	0	E	8000	39.2	7.3	0.0	0.0	0.0	72.9	145.8	-3.0	0.0	0.0	24.0	0.0	0.0	-193.2
998	611564.67	4816773.99	2.50	0	D	32	24.7	9.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.5	0.0	0.0	-39.2
998	611564.67	4816773.99	2.50	0	D	63	38.3	9.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.3	0.0	0.0	-26.5
998	611564.67	4816773.99	2.50	0	D	125	47.0	9.0	0.0	0.0	0.0	72.9	0.5	-0.3	0.0	0.0	7.8	0.0	0.0	-25.0
998	611564.67	4816773.99	2.50	0	D	250	51.5	9.0	0.0	0.0	0.0	72.9	1.3	-1.4	0.0	0.0	10.7	0.0	0.0	-23.0
998	611564.67	4816773.99	2.50	0	D	500	53.9	9.0	0.0	0.0	0.0	72.9	2.4	-3.0	0.0	0.0	14.1	0.0	0.0	-23.5
998	611564.67	4816773.99	2.50	0	D	1000	56.0	9.0	0.0	0.0	0.0	72.9	4.6	-3.2	0.0	0.0	17.3	0.0	0.0	-26.6
998	611564.67	4816773.99	2.50	0	D	2000	52.1	9.0	0.0	0.0	0.0	72.9	12.1	-3.2	0.0	0.0	20.3	0.0	0.0	-41.0
998	611564.67	4816773.99	2.50	0	D	4000	48.0	9.0	0.0	0.0	0.0	72.9	41.0	-3.2	0.0	0.0	23.3	0.0	0.0	-76.9
998	611564.67	4816773.99	2.50	0	D	8000	39.2	9.0	0.0	0.0	0.0	72.9	146.2	-3.2	0.0	0.0	25.0	0.0	0.0	-192.8
998	611564.67	4816773.99	2.50	0	N	32	26.5	9.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.5	0.0	0.0	-37.5
998	611564.67	4816773.99	2.50	0	N	63	40.0	9.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.3	0.0	0.0	-24.8
998	611564.67	4816773.99	2.50	0	N	125	48.7	9.0	0.0	0.0	0.0	72.9	0.5	-0.3	0.0	0.0	7.8	0.0	0.0	-23.2
998	611564.67	4816773.99	2.50	0	N	250	53.3	9.0	0.0	0.0	0.0	72.9	1.3	-1.4	0.0	0.0	10.7	0.0	0.0	-21.2
998	611564.67	4816773.99	2.50	0	N	500	55.7	9.0	0.0	0.0	0.0	72.9	2.4	-3.0	0.0	0.0	14.1	0.0	0.0	-21.7
998	611564.67	4816773.99	2.50	0	N	1000	57.7	9.0	0.0	0.0	0.0	72.9	4.6	-3.2	0.0	0.0	17.3	0.0	0.0	-24.8

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
998	611564.67	4816773.99	2.50	0	N	2000	53.8	9.0	0.0	0.0	0.0	72.9	12.1	-3.2	0.0	0.0	20.3	0.0	0.0	-39.3
998	611564.67	4816773.99	2.50	0	N	4000	49.8	9.0	0.0	0.0	0.0	72.9	41.0	-3.2	0.0	0.0	23.3	0.0	0.0	-75.2
998	611564.67	4816773.99	2.50	0	N	8000	40.9	9.0	0.0	0.0	0.0	72.9	146.2	-3.2	0.0	0.0	25.0	0.0	0.0	-191.0
998	611564.67	4816773.99	2.50	0	E	32	24.7	9.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.5	0.0	0.0	-39.2
998	611564.67	4816773.99	2.50	0	E	63	38.3	9.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	6.3	0.0	0.0	-26.5
998	611564.67	4816773.99	2.50	0	E	125	47.0	9.0	0.0	0.0	0.0	72.9	0.5	-0.3	0.0	0.0	7.8	0.0	0.0	-25.0
998	611564.67	4816773.99	2.50	0	E	250	51.5	9.0	0.0	0.0	0.0	72.9	1.3	-1.4	0.0	0.0	10.7	0.0	0.0	-23.0
998	611564.67	4816773.99	2.50	0	E	500	53.9	9.0	0.0	0.0	0.0	72.9	2.4	-3.0	0.0	0.0	14.1	0.0	0.0	-23.5
998	611564.67	4816773.99	2.50	0	E	1000	56.0	9.0	0.0	0.0	0.0	72.9	4.6	-3.2	0.0	0.0	17.3	0.0	0.0	-26.6
998	611564.67	4816773.99	2.50	0	E	2000	52.1	9.0	0.0	0.0	0.0	72.9	12.1	-3.2	0.0	0.0	20.3	0.0	0.0	-41.0
998	611564.67	4816773.99	2.50	0	E	4000	48.0	9.0	0.0	0.0	0.0	72.9	41.0	-3.2	0.0	0.0	23.3	0.0	0.0	-76.9
998	611564.67	4816773.99	2.50	0	E	8000	39.2	9.0	0.0	0.0	0.0	72.9	146.2	-3.2	0.0	0.0	25.0	0.0	0.0	-192.8
1001	611560.96	4816770.14	2.50	0	D	32	24.7	4.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.7	0.0	0.0	-44.2
1001	611560.96	4816770.14	2.50	0	D	63	38.3	4.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	7.1	0.0	0.0	-32.1
1001	611560.96	4816770.14	2.50	0	D	125	47.0	4.3	0.0	0.0	0.0	73.0	0.5	-0.7	0.0	0.0	9.2	0.0	0.0	-30.7
1001	611560.96	4816770.14	2.50	0	D	250	51.5	4.3	0.0	0.0	0.0	73.0	1.3	-1.9	0.0	0.0	11.6	0.0	0.0	-28.3
1001	611560.96	4816770.14	2.50	0	D	500	53.9	4.3	0.0	0.0	0.0	73.0	2.4	-3.2	0.0	0.0	14.2	0.0	0.0	-28.3
1001	611560.96	4816770.14	2.50	0	D	1000	56.0	4.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	17.0	0.0	0.0	-31.0
1001	611560.96	4816770.14	2.50	0	D	2000	52.1	4.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.9	0.0	0.0	-45.4
1001	611560.96	4816770.14	2.50	0	D	4000	48.0	4.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.8	0.0	0.0	-81.3
1001	611560.96	4816770.14	2.50	0	D	8000	39.2	4.3	0.0	0.0	0.0	73.0	146.5	-3.3	0.0	0.0	25.0	0.0	0.0	-197.8
1001	611560.96	4816770.14	2.50	0	N	32	26.5	4.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.7	0.0	0.0	-42.5
1001	611560.96	4816770.14	2.50	0	N	63	40.0	4.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	7.1	0.0	0.0	-30.4
1001	611560.96	4816770.14	2.50	0	N	125	48.7	4.3	0.0	0.0	0.0	73.0	0.5	-0.7	0.0	0.0	9.2	0.0	0.0	-29.0
1001	611560.96	4816770.14	2.50	0	N	250	53.3	4.3	0.0	0.0	0.0	73.0	1.3	-1.9	0.0	0.0	11.6	0.0	0.0	-26.5
1001	611560.96	4816770.14	2.50	0	N	500	55.7	4.3	0.0	0.0	0.0	73.0	2.4	-3.2	0.0	0.0	14.2	0.0	0.0	-26.5
1001	611560.96	4816770.14	2.50	0	N	1000	57.7	4.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	17.0	0.0	0.0	-29.3
1001	611560.96	4816770.14	2.50	0	N	2000	53.8	4.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.9	0.0	0.0	-43.6
1001	611560.96	4816770.14	2.50	0	N	4000	49.8	4.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.8	0.0	0.0	-79.6
1001	611560.96	4816770.14	2.50	0	N	8000	40.9	4.3	0.0	0.0	0.0	73.0	146.5	-3.3	0.0	0.0	25.0	0.0	0.0	-196.0
1001	611560.96	4816770.14	2.50	0	E	32	24.7	4.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.7	0.0	0.0	-44.2
1001	611560.96	4816770.14	2.50	0	E	63	38.3	4.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	7.1	0.0	0.0	-32.1
1001	611560.96	4816770.14	2.50	0	E	125	47.0	4.3	0.0	0.0	0.0	73.0	0.5	-0.7	0.0	0.0	9.2	0.0	0.0	-30.7
1001	611560.96	4816770.14	2.50	0	E	250	51.5	4.3	0.0	0.0	0.0	73.0	1.3	-1.9	0.0	0.0	11.6	0.0	0.0	-28.3
1001	611560.96	4816770.14	2.50	0	E	500	53.9	4.3	0.0	0.0	0.0	73.0	2.4	-3.2	0.0	0.0	14.2	0.0	0.0	-28.3
1001	611560.96	4816770.14	2.50	0	E	1000	56.0	4.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	17.0	0.0	0.0	-31.0
1001	611560.96	4816770.14	2.50	0	E	2000	52.1	4.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.9	0.0	0.0	-45.4
1001	611560.96	4816770.14	2.50	0	E	4000	48.0	4.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.8	0.0	0.0	-81.3
1001	611560.96	4816770.14	2.50	0	E	8000	39.2	4.3	0.0	0.0	0.0	73.0	146.5	-3.3	0.0	0.0	25.0	0.0	0.0	-197.8
1011	611558.54	4816767.63	2.50	0	D	32	24.7	6.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.6	0.0	0.0	-42.1
1011	611558.54	4816767.63	2.50	0	D	63	38.3	6.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	6.9	0.0	0.0	-29.9
1011	611558.54	4816767.63	2.50	0	D	125	47.0	6.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	8.7	0.0	0.0	-28.0
1011	611558.54	4816767.63	2.50	0	D	250	51.5	6.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	11.0	0.0	0.0	-25.3
1011	611558.54	4816767.63	2.50	0	D	500	53.9	6.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	13.6	0.0	0.0	-25.5
1011	611558.54	4816767.63	2.50	0	D	1000	56.0	6.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	16.3	0.0	0.0	-28.2
1011	611558.54	4816767.63	2.50	0	D	2000	52.1	6.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.1	0.0	0.0	-42.5
1011	611558.54	4816767.63	2.50	0	D	4000	48.0	6.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.1	0.0	0.0	-78.5
1011	611558.54	4816767.63	2.50	0	D	8000	39.2	6.3	0.0	0.0	0.0	73.0	146.8	-3.3	0.0	0.0	25.0	0.0	0.0	-195.9
1011	611558.54	4816767.63	2.50	0	N	32	26.5	6.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.6	0.0	0.0	-40.3
1011	611558.54	4816767.63	2.50	0	N	63	40.0	6.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	6.9	0.0	0.0	-28.1
1011	611558.54	4816767.63	2.50	0	N	125	48.7	6.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	8.7	0.0	0.0	-26.2
1011	611558.54	4816767.63	2.50	0	N	250	53.3	6.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	11.0	0.0	0.0	-23.6
1011	611558.54	4816767.63	2.50	0	N	500	55.7	6.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	13.6	0.0	0.0	-23.7
1011	611558.54	4816767.63	2.50	0	N	1000	57.7	6.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	16.3	0.0	0.0	-26.4
1011	611558.54	4816767.63	2.50	0	N	2000	53.8	6.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.1	0.0	0.0	-40.8
1011	611558.54	4816767.63	2.50	0	N	4000	49.8	6.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.1	0.0	0.0	-76.7
1011	611558.54	4816767.63	2.50	0	N	8000	40.9	6.3	0.0	0.0	0.0	73.0	146.8	-3.3	0.0	0.0	25.0	0.0	0.0	-194.1
1011	611558.54	4816767.63	2.50	0	E	32	24.7	6.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.6	0.0	0.0	-42.1
1011	611558.54	4816767.63	2.50	0	E	63	38.3	6.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	6.9	0.0	0.0	-29.9
1011	611558.54	4816767.63	2.50	0	E	125	47.0	6.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	8.7	0.0	0.0	-28.0
1011	611558.54	4816767.63	2.50	0	E	250	51.5	6.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	11.0	0.0	0.0	-25.3
1011	611558.54	4816767.63	2.50	0	E	500	53.9	6.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	13.6	0.0	0.0	-25.5
1011	611558.54	4816767.63	2.50	0	E	1000	56.0	6.3	0.0	0.0	0.0	73.0	4.6	-3.3	0.0	0.0	16.3	0.0	0.0	-28.2

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1011	611558.54	4816767.63	2.50	0	E	2000	52.1	6.3	0.0	0.0	0.0	73.0	12.1	-3.3	0.0	0.0	19.1	0.0	0.0	-42.5
1011	611558.54	4816767.63	2.50	0	E	4000	48.0	6.3	0.0	0.0	0.0	73.0	41.1	-3.3	0.0	0.0	22.1	0.0	0.0	-78.5
1011	611558.54	4816767.63	2.50	0	E	8000	39.2	6.3	0.0	0.0	0.0	73.0	146.8	-3.3	0.0	0.0	25.0	0.0	0.0	-195.9
1020	611552.96	4816761.86	2.50	0	D	32	24.7	10.7	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.2	0.0	0.0	-39.3
1020	611552.96	4816761.86	2.50	0	D	63	38.3	10.7	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.7	0.0	0.0	-28.4
1020	611552.96	4816761.86	2.50	0	D	125	47.0	10.7	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.6	0.0	0.0	-27.4
1020	611552.96	4816761.86	2.50	0	D	250	51.5	10.7	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.5	0.0	0.0	-25.4
1020	611552.96	4816761.86	2.50	0	D	500	53.9	10.7	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.4	0.0	0.0	-25.9
1020	611552.96	4816761.86	2.50	0	D	1000	56.0	10.7	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.3	0.0	0.0	-28.9
1020	611552.96	4816761.86	2.50	0	D	2000	52.1	10.7	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.3	0.0	0.0	-43.4
1020	611552.96	4816761.86	2.50	0	D	4000	48.0	10.7	0.0	0.0	0.0	73.0	41.3	-3.4	0.0	0.0	25.0	0.0	0.0	-77.2
1020	611552.96	4816761.86	2.50	0	D	8000	39.2	10.7	0.0	0.0	0.0	73.0	147.3	-3.4	0.0	0.0	25.0	0.0	0.0	-192.1
1020	611552.96	4816761.86	2.50	0	N	32	26.5	10.7	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.2	0.0	0.0	-37.6
1020	611552.96	4816761.86	2.50	0	N	63	40.0	10.7	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.7	0.0	0.0	-26.6
1020	611552.96	4816761.86	2.50	0	N	125	48.7	10.7	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.6	0.0	0.0	-25.7
1020	611552.96	4816761.86	2.50	0	N	250	53.3	10.7	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.5	0.0	0.0	-23.6
1020	611552.96	4816761.86	2.50	0	N	500	55.7	10.7	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.4	0.0	0.0	-24.2
1020	611552.96	4816761.86	2.50	0	N	1000	57.7	10.7	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.3	0.0	0.0	-27.1
1020	611552.96	4816761.86	2.50	0	N	2000	53.8	10.7	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.3	0.0	0.0	-41.6
1020	611552.96	4816761.86	2.50	0	N	4000	49.8	10.7	0.0	0.0	0.0	73.0	41.3	-3.4	0.0	0.0	25.0	0.0	0.0	-75.4
1020	611552.96	4816761.86	2.50	0	N	8000	40.9	10.7	0.0	0.0	0.0	73.0	147.3	-3.4	0.0	0.0	25.0	0.0	0.0	-190.3
1020	611552.96	4816761.86	2.50	0	E	32	24.7	10.7	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.2	0.0	0.0	-39.3
1020	611552.96	4816761.86	2.50	0	E	63	38.3	10.7	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.7	0.0	0.0	-28.4
1020	611552.96	4816761.86	2.50	0	E	125	47.0	10.7	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.6	0.0	0.0	-27.4
1020	611552.96	4816761.86	2.50	0	E	250	51.5	10.7	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.5	0.0	0.0	-25.4
1020	611552.96	4816761.86	2.50	0	E	500	53.9	10.7	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.4	0.0	0.0	-25.9
1020	611552.96	4816761.86	2.50	0	E	1000	56.0	10.7	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.3	0.0	0.0	-28.9
1020	611552.96	4816761.86	2.50	0	E	2000	52.1	10.7	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.3	0.0	0.0	-43.4
1020	611552.96	4816761.86	2.50	0	E	4000	48.0	10.7	0.0	0.0	0.0	73.0	41.3	-3.4	0.0	0.0	25.0	0.0	0.0	-77.2
1020	611552.96	4816761.86	2.50	0	E	8000	39.2	10.7	0.0	0.0	0.0	73.0	147.3	-3.4	0.0	0.0	25.0	0.0	0.0	-192.1
1073	611838.56	4816581.13	2.50	0	D	32	24.7	13.1	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-36.0
1073	611838.56	4816581.13	2.50	0	D	63	38.3	13.1	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-22.6
1073	611838.56	4816581.13	2.50	0	D	125	47.0	13.1	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-19.9
1073	611838.56	4816581.13	2.50	0	D	250	51.5	13.1	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-16.4
1073	611838.56	4816581.13	2.50	0	D	500	53.9	13.1	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-12.8
1073	611838.56	4816581.13	2.50	0	D	1000	56.0	13.1	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-12.9
1073	611838.56	4816581.13	2.50	0	D	2000	52.1	13.1	0.0	0.0	0.0	74.6	14.7	-2.9	0.0	0.0	4.8	0.0	0.0	-26.0
1073	611838.56	4816581.13	2.50	0	D	4000	48.0	13.1	0.0	0.0	0.0	74.6	49.7	-2.9	0.0	0.0	4.8	0.0	0.0	-65.0
1073	611838.56	4816581.13	2.50	0	D	8000	39.2	13.1	0.0	0.0	0.0	74.6	177.3	-2.9	0.0	0.0	4.8	0.0	0.0	-201.5
1073	611838.56	4816581.13	2.50	0	N	32	26.5	13.1	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.3
1073	611838.56	4816581.13	2.50	0	N	63	40.0	13.1	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-20.8
1073	611838.56	4816581.13	2.50	0	N	125	48.7	13.1	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-18.2
1073	611838.56	4816581.13	2.50	0	N	250	53.3	13.1	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-14.6
1073	611838.56	4816581.13	2.50	0	N	500	55.7	13.1	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-11.0
1073	611838.56	4816581.13	2.50	0	N	1000	57.7	13.1	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-11.2
1073	611838.56	4816581.13	2.50	0	N	2000	53.8	13.1	0.0	0.0	0.0	74.6	14.7	-2.9	0.0	0.0	4.8	0.0	0.0	-24.2
1073	611838.56	4816581.13	2.50	0	N	4000	49.8	13.1	0.0	0.0	0.0	74.6	49.7	-2.9	0.0	0.0	4.8	0.0	0.0	-63.3
1073	611838.56	4816581.13	2.50	0	N	8000	40.9	13.1	0.0	0.0	0.0	74.6	177.3	-2.9	0.0	0.0	4.8	0.0	0.0	-199.7
1073	611838.56	4816581.13	2.50	0	E	32	24.7	13.1	0.0	0.0	0.0	74.6	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-36.0
1073	611838.56	4816581.13	2.50	0	E	63	38.3	13.1	0.0	0.0	0.0	74.6	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-22.6
1073	611838.56	4816581.13	2.50	0	E	125	47.0	13.1	0.0	0.0	0.0	74.6	0.6	1.3	0.0	0.0	3.4	0.0	0.0	-19.9
1073	611838.56	4816581.13	2.50	0	E	250	51.5	13.1	0.0	0.0	0.0	74.6	1.6	0.2	0.0	0.0	4.5	0.0	0.0	-16.4
1073	611838.56	4816581.13	2.50	0	E	500	53.9	13.1	0.0	0.0	0.0	74.6	2.9	-2.5	0.0	0.0	4.8	0.0	0.0	-12.8
1073	611838.56	4816581.13	2.50	0	E	1000	56.0	13.1	0.0	0.0	0.0	74.6	5.5	-2.9	0.0	0.0	4.8	0.0	0.0	-12.9
1073	611838.56	4816581.13	2.50	0	E	2000	52.1	13.1	0.0	0.0	0.0	74.6	14.7	-2.9	0.0	0.0	4.8	0.0	0.0	-26.0
1073	611838.56	4816581.13	2.50	0	E	4000	48.0	13.1	0.0	0.0	0.0	74.6	49.7	-2.9	0.0	0.0	4.8	0.0	0.0	-65.0
1073	611838.56	4816581.13	2.50	0	E	8000	39.2	13.1	0.0	0.0	0.0	74.6	177.3	-2.9	0.0	0.0	4.8	0.0	0.0	-201.5
1077	611815.16	4816602.42	2.50	0	D	32	24.7	16.3	0.0	0.0	0.0	74.5	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-32.7
1077	611815.16	4816602.42	2.50	0	D	63	38.3	16.3	0.0	0.0	0.0	74.5	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.2
1077	611815.16	4816602.42	2.50	0	D	125	47.0	16.3	0.0	0.0	0.0	74.5	0.6	0.7	0.0	0.0	4.1	0.0	0.0	-16.6
1077	611815.16	4816602.42	2.50	0	D	250	51.5	16.3	0.0	0.0	0.0	74.5	1.6	-0.4	0.0	0.0	4.8	0.0	0.0	-12.6
1077	611815.16	4816602.42	2.50	0	D	500	53.9	16.3	0.0	0.0	0.0	74.5	2.9	-2.8	0.0	0.0	4.8	0.0	0.0	-9.1
1077	611815.16	4816602.42	2.50	0	D	1000	56.0	16.3	0.0	0.0	0.0	74.5	5.4	-3.1	0.0	0.0	4.9	0.0	0.0	-9.4

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1077	611815.16	4816602.42	2.50	0	D	2000	52.1	16.3	0.0	0.0	0.0	74.5	14.4	-3.1	0.0	0.0	5.0	0.0	0.0	-22.4
1077	611815.16	4816602.42	2.50	0	D	4000	48.0	16.3	0.0	0.0	0.0	74.5	48.8	-3.1	0.0	0.0	5.3	0.0	0.0	-61.1
1077	611815.16	4816602.42	2.50	0	D	8000	39.2	16.3	0.0	0.0	0.0	74.5	174.0	-3.1	0.0	0.0	5.8	0.0	0.0	-195.6
1077	611815.16	4816602.42	2.50	0	N	32	26.5	16.3	0.0	0.0	0.0	74.5	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-30.9
1077	611815.16	4816602.42	2.50	0	N	63	40.0	16.3	0.0	0.0	0.0	74.5	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-17.5
1077	611815.16	4816602.42	2.50	0	N	125	48.7	16.3	0.0	0.0	0.0	74.5	0.6	0.7	0.0	0.0	4.1	0.0	0.0	-14.8
1077	611815.16	4816602.42	2.50	0	N	250	53.3	16.3	0.0	0.0	0.0	74.5	1.6	-0.4	0.0	0.0	4.8	0.0	0.0	-10.8
1077	611815.16	4816602.42	2.50	0	N	500	55.7	16.3	0.0	0.0	0.0	74.5	2.9	-2.8	0.0	0.0	4.8	0.0	0.0	-7.4
1077	611815.16	4816602.42	2.50	0	N	1000	57.7	16.3	0.0	0.0	0.0	74.5	5.4	-3.1	0.0	0.0	4.9	0.0	0.0	-7.6
1077	611815.16	4816602.42	2.50	0	N	2000	53.8	16.3	0.0	0.0	0.0	74.5	14.4	-3.1	0.0	0.0	5.0	0.0	0.0	-20.6
1077	611815.16	4816602.42	2.50	0	N	4000	49.8	16.3	0.0	0.0	0.0	74.5	48.8	-3.1	0.0	0.0	5.3	0.0	0.0	-59.3
1077	611815.16	4816602.42	2.50	0	N	8000	40.9	16.3	0.0	0.0	0.0	74.5	174.0	-3.1	0.0	0.0	5.8	0.0	0.0	-193.9
1077	611815.16	4816602.42	2.50	0	E	32	24.7	16.3	0.0	0.0	0.0	74.5	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-32.7
1077	611815.16	4816602.42	2.50	0	E	63	38.3	16.3	0.0	0.0	0.0	74.5	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-19.2
1077	611815.16	4816602.42	2.50	0	E	125	47.0	16.3	0.0	0.0	0.0	74.5	0.6	0.7	0.0	0.0	4.1	0.0	0.0	-16.6
1077	611815.16	4816602.42	2.50	0	E	250	51.5	16.3	0.0	0.0	0.0	74.5	1.6	-0.4	0.0	0.0	4.8	0.0	0.0	-12.6
1077	611815.16	4816602.42	2.50	0	E	500	53.9	16.3	0.0	0.0	0.0	74.5	2.9	-2.8	0.0	0.0	4.8	0.0	0.0	-9.1
1077	611815.16	4816602.42	2.50	0	E	1000	56.0	16.3	0.0	0.0	0.0	74.5	5.4	-3.1	0.0	0.0	4.9	0.0	0.0	-9.4
1077	611815.16	4816602.42	2.50	0	E	2000	52.1	16.3	0.0	0.0	0.0	74.5	14.4	-3.1	0.0	0.0	5.0	0.0	0.0	-22.4
1077	611815.16	4816602.42	2.50	0	E	4000	48.0	16.3	0.0	0.0	0.0	74.5	48.8	-3.1	0.0	0.0	5.3	0.0	0.0	-61.1
1077	611815.16	4816602.42	2.50	0	E	8000	39.2	16.3	0.0	0.0	0.0	74.5	174.0	-3.1	0.0	0.0	5.8	0.0	0.0	-195.6
1174	611700.78	4816714.74	2.50	0	D	32	24.7	9.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-38.3
1174	611700.78	4816714.74	2.50	0	D	63	38.3	9.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-24.9
1174	611700.78	4816714.74	2.50	0	D	125	47.0	9.9	0.0	0.0	0.0	73.6	0.6	0.3	0.0	0.0	4.8	0.0	0.0	-22.3
1174	611700.78	4816714.74	2.50	0	D	250	51.5	9.9	0.0	0.0	0.0	73.6	1.4	-0.9	0.0	0.0	5.6	0.0	0.0	-18.3
1174	611700.78	4816714.74	2.50	0	D	500	53.9	9.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	6.6	0.0	0.0	-16.1
1174	611700.78	4816714.74	2.50	0	D	1000	56.0	9.9	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	8.1	0.0	0.0	-17.5
1174	611700.78	4816714.74	2.50	0	D	2000	52.1	9.9	0.0	0.0	0.0	73.6	13.0	-3.1	0.0	0.0	10.0	0.0	0.0	-31.4
1174	611700.78	4816714.74	2.50	0	D	4000	48.0	9.9	0.0	0.0	0.0	73.6	44.1	-3.1	0.0	0.0	12.3	0.0	0.0	-68.8
1174	611700.78	4816714.74	2.50	0	D	8000	39.2	9.9	0.0	0.0	0.0	73.6	157.1	-3.1	0.0	0.0	14.9	0.0	0.0	-193.4
1174	611700.78	4816714.74	2.50	0	N	32	26.5	9.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.5
1174	611700.78	4816714.74	2.50	0	N	63	40.0	9.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-23.1
1174	611700.78	4816714.74	2.50	0	N	125	48.7	9.9	0.0	0.0	0.0	73.6	0.6	0.3	0.0	0.0	4.8	0.0	0.0	-20.5
1174	611700.78	4816714.74	2.50	0	N	250	53.3	9.9	0.0	0.0	0.0	73.6	1.4	-0.9	0.0	0.0	5.6	0.0	0.0	-16.5
1174	611700.78	4816714.74	2.50	0	N	500	55.7	9.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	6.6	0.0	0.0	-14.3
1174	611700.78	4816714.74	2.50	0	N	1000	57.7	9.9	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	8.1	0.0	0.0	-15.7
1174	611700.78	4816714.74	2.50	0	N	2000	53.8	9.9	0.0	0.0	0.0	73.6	13.0	-3.1	0.0	0.0	10.0	0.0	0.0	-29.6
1174	611700.78	4816714.74	2.50	0	N	4000	49.8	9.9	0.0	0.0	0.0	73.6	44.1	-3.1	0.0	0.0	12.3	0.0	0.0	-67.0
1174	611700.78	4816714.74	2.50	0	N	8000	40.9	9.9	0.0	0.0	0.0	73.6	157.1	-3.1	0.0	0.0	14.9	0.0	0.0	-191.6
1174	611700.78	4816714.74	2.50	0	E	32	24.7	9.9	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-38.3
1174	611700.78	4816714.74	2.50	0	E	63	38.3	9.9	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.9	0.0	0.0	-24.9
1174	611700.78	4816714.74	2.50	0	E	125	47.0	9.9	0.0	0.0	0.0	73.6	0.6	0.3	0.0	0.0	4.8	0.0	0.0	-22.3
1174	611700.78	4816714.74	2.50	0	E	250	51.5	9.9	0.0	0.0	0.0	73.6	1.4	-0.9	0.0	0.0	5.6	0.0	0.0	-18.3
1174	611700.78	4816714.74	2.50	0	E	500	53.9	9.9	0.0	0.0	0.0	73.6	2.6	-2.9	0.0	0.0	6.6	0.0	0.0	-16.1
1174	611700.78	4816714.74	2.50	0	E	1000	56.0	9.9	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	8.1	0.0	0.0	-17.5
1174	611700.78	4816714.74	2.50	0	E	2000	52.1	9.9	0.0	0.0	0.0	73.6	13.0	-3.1	0.0	0.0	10.0	0.0	0.0	-31.4
1174	611700.78	4816714.74	2.50	0	E	4000	48.0	9.9	0.0	0.0	0.0	73.6	44.1	-3.1	0.0	0.0	12.3	0.0	0.0	-68.8
1174	611700.78	4816714.74	2.50	0	E	8000	39.2	9.9	0.0	0.0	0.0	73.6	157.1	-3.1	0.0	0.0	14.9	0.0	0.0	-193.4
1181	611697.15	4816719.29	2.50	0	D	32	24.7	2.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-45.9
1181	611697.15	4816719.29	2.50	0	D	63	38.3	2.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.2	0.0	0.0	-32.6
1181	611697.15	4816719.29	2.50	0	D	125	47.0	2.4	0.0	0.0	0.0	73.5	0.6	0.2	0.0	0.0	5.4	0.0	0.0	-30.2
1181	611697.15	4816719.29	2.50	0	D	250	51.5	2.4	0.0	0.0	0.0	73.5	1.4	-1.0	0.0	0.0	6.2	0.0	0.0	-26.2
1181	611697.15	4816719.29	2.50	0	D	500	53.9	2.4	0.0	0.0	0.0	73.5	2.6	-2.9	0.0	0.0	7.3	0.0	0.0	-24.2
1181	611697.15	4816719.29	2.50	0	D	1000	56.0	2.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	9.1	0.0	0.0	-26.0
1181	611697.15	4816719.29	2.50	0	D	2000	52.1	2.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	12.0	0.0	0.0	-40.8
1181	611697.15	4816719.29	2.50	0	D	4000	48.0	2.4	0.0	0.0	0.0	73.5	43.9	-3.2	0.0	0.0	15.9	0.0	0.0	-79.7
1181	611697.15	4816719.29	2.50	0	D	8000	39.2	2.4	0.0	0.0	0.0	73.5	156.5	-3.2	0.0	0.0	19.9	0.0	0.0	-205.2
1181	611697.15	4816719.29	2.50	0	N	32	26.5	2.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-44.1
1181	611697.15	4816719.29	2.50	0	N	63	40.0	2.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.2	0.0	0.0	-30.9
1181	611697.15	4816719.29	2.50	0	N	125	48.7	2.4	0.0	0.0	0.0	73.5	0.6	0.2	0.0	0.0	5.4	0.0	0.0	-28.4
1181	611697.15	4816719.29	2.50	0	N	250	53.3	2.4	0.0	0.0	0.0	73.5	1.4	-1.0	0.0	0.0	6.2	0.0	0.0	-24.4
1181	611697.15	4816719.29	2.50	0	N	500	55.7	2.4	0.0	0.0	0.0	73.5	2.6	-2.9	0.0	0.0	7.3	0.0	0.0	-22.4
1181	611697.15	4816719.29	2.50	0	N	1000	57.7	2.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	9.1	0.0	0.0	-24.2

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1181	611697.15	4816719.29	2.50	0	N	2000	53.8	2.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	12.0	0.0	0.0	-39.0
1181	611697.15	4816719.29	2.50	0	N	4000	49.8	2.4	0.0	0.0	0.0	73.5	43.9	-3.2	0.0	0.0	15.9	0.0	0.0	-78.0
1181	611697.15	4816719.29	2.50	0	N	8000	40.9	2.4	0.0	0.0	0.0	73.5	156.5	-3.2	0.0	0.0	19.9	0.0	0.0	-203.5
1181	611697.15	4816719.29	2.50	0	E	32	24.7	2.4	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-45.9
1181	611697.15	4816719.29	2.50	0	E	63	38.3	2.4	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.2	0.0	0.0	-32.6
1181	611697.15	4816719.29	2.50	0	E	125	47.0	2.4	0.0	0.0	0.0	73.5	0.6	0.2	0.0	0.0	5.4	0.0	0.0	-30.2
1181	611697.15	4816719.29	2.50	0	E	250	51.5	2.4	0.0	0.0	0.0	73.5	1.4	-1.0	0.0	0.0	6.2	0.0	0.0	-26.2
1181	611697.15	4816719.29	2.50	0	E	500	53.9	2.4	0.0	0.0	0.0	73.5	2.6	-2.9	0.0	0.0	7.3	0.0	0.0	-24.2
1181	611697.15	4816719.29	2.50	0	E	1000	56.0	2.4	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	9.1	0.0	0.0	-26.0
1181	611697.15	4816719.29	2.50	0	E	2000	52.1	2.4	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	12.0	0.0	0.0	-40.8
1181	611697.15	4816719.29	2.50	0	E	4000	48.0	2.4	0.0	0.0	0.0	73.5	43.9	-3.2	0.0	0.0	15.9	0.0	0.0	-79.7
1181	611697.15	4816719.29	2.50	0	E	8000	39.2	2.4	0.0	0.0	0.0	73.5	156.5	-3.2	0.0	0.0	19.9	0.0	0.0	-205.2
1185	611692.92	4816724.59	2.50	0	D	32	24.7	10.7	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-37.7
1185	611692.92	4816724.59	2.50	0	D	63	38.3	10.7	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-24.6
1185	611692.92	4816724.59	2.50	0	D	125	47.0	10.7	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.1	0.0	0.0	-22.3
1185	611692.92	4816724.59	2.50	0	D	250	51.5	10.7	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.5	0.0	0.0	-18.9
1185	611692.92	4816724.59	2.50	0	D	500	53.9	10.7	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.2	0.0	0.0	-18.6
1185	611692.92	4816724.59	2.50	0	D	1000	56.0	10.7	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.6	0.0	0.0	-22.1
1185	611692.92	4816724.59	2.50	0	D	2000	52.1	10.7	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	16.9	0.0	0.0	-37.3
1185	611692.92	4816724.59	2.50	0	D	4000	48.0	10.7	0.0	0.0	0.0	73.5	43.7	-3.2	0.0	0.0	20.0	0.0	0.0	-75.2
1185	611692.92	4816724.59	2.50	0	D	8000	39.2	10.7	0.0	0.0	0.0	73.5	155.8	-3.2	0.0	0.0	23.0	0.0	0.0	-199.1
1185	611692.92	4816724.59	2.50	0	N	32	26.5	10.7	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-35.9
1185	611692.92	4816724.59	2.50	0	N	63	40.0	10.7	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-22.8
1185	611692.92	4816724.59	2.50	0	N	125	48.7	10.7	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.1	0.0	0.0	-20.6
1185	611692.92	4816724.59	2.50	0	N	250	53.3	10.7	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.5	0.0	0.0	-17.1
1185	611692.92	4816724.59	2.50	0	N	500	55.7	10.7	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.2	0.0	0.0	-16.8
1185	611692.92	4816724.59	2.50	0	N	1000	57.7	10.7	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.6	0.0	0.0	-20.3
1185	611692.92	4816724.59	2.50	0	N	2000	53.8	10.7	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	16.9	0.0	0.0	-35.5
1185	611692.92	4816724.59	2.50	0	N	4000	49.8	10.7	0.0	0.0	0.0	73.5	43.7	-3.2	0.0	0.0	20.0	0.0	0.0	-73.4
1185	611692.92	4816724.59	2.50	0	N	8000	40.9	10.7	0.0	0.0	0.0	73.5	155.8	-3.2	0.0	0.0	23.0	0.0	0.0	-197.4
1185	611692.92	4816724.59	2.50	0	E	32	24.7	10.7	0.0	0.0	0.0	73.5	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-37.7
1185	611692.92	4816724.59	2.50	0	E	63	38.3	10.7	0.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	5.5	0.0	0.0	-24.6
1185	611692.92	4816724.59	2.50	0	E	125	47.0	10.7	0.0	0.0	0.0	73.5	0.5	-0.2	0.0	0.0	6.1	0.0	0.0	-22.3
1185	611692.92	4816724.59	2.50	0	E	250	51.5	10.7	0.0	0.0	0.0	73.5	1.4	-1.3	0.0	0.0	7.5	0.0	0.0	-18.9
1185	611692.92	4816724.59	2.50	0	E	500	53.9	10.7	0.0	0.0	0.0	73.5	2.6	-3.0	0.0	0.0	10.2	0.0	0.0	-18.6
1185	611692.92	4816724.59	2.50	0	E	1000	56.0	10.7	0.0	0.0	0.0	73.5	4.9	-3.2	0.0	0.0	13.6	0.0	0.0	-22.1
1185	611692.92	4816724.59	2.50	0	E	2000	52.1	10.7	0.0	0.0	0.0	73.5	12.9	-3.2	0.0	0.0	16.9	0.0	0.0	-37.3
1185	611692.92	4816724.59	2.50	0	E	4000	48.0	10.7	0.0	0.0	0.0	73.5	43.7	-3.2	0.0	0.0	20.0	0.0	0.0	-75.2
1185	611692.92	4816724.59	2.50	0	E	8000	39.2	10.7	0.0	0.0	0.0	73.5	155.8	-3.2	0.0	0.0	23.0	0.0	0.0	-199.1
1189	611686.96	4816732.07	2.50	0	D	32	24.7	8.6	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-39.9
1189	611686.96	4816732.07	2.50	0	D	63	38.3	8.6	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-27.0
1189	611686.96	4816732.07	2.50	0	D	125	47.0	8.6	0.0	0.0	0.0	73.4	0.5	-0.6	0.0	0.0	7.1	0.0	0.0	-24.9
1189	611686.96	4816732.07	2.50	0	D	250	51.5	8.6	0.0	0.0	0.0	73.4	1.4	-1.7	0.0	0.0	9.6	0.0	0.0	-22.5
1189	611686.96	4816732.07	2.50	0	D	500	53.9	8.6	0.0	0.0	0.0	73.4	2.6	-3.2	0.0	0.0	12.7	0.0	0.0	-23.0
1189	611686.96	4816732.07	2.50	0	D	1000	56.0	8.6	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.8	0.0	0.0	-26.1
1189	611686.96	4816732.07	2.50	0	D	2000	52.1	8.6	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.8	0.0	0.0	-41.0
1189	611686.96	4816732.07	2.50	0	D	4000	48.0	8.6	0.0	0.0	0.0	73.4	43.4	-3.3	0.0	0.0	21.7	0.0	0.0	-78.5
1189	611686.96	4816732.07	2.50	0	D	8000	39.2	8.6	0.0	0.0	0.0	73.4	154.7	-3.3	0.0	0.0	24.7	0.0	0.0	-201.7
1189	611686.96	4816732.07	2.50	0	N	32	26.5	8.6	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-38.1
1189	611686.96	4816732.07	2.50	0	N	63	40.0	8.6	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-25.3
1189	611686.96	4816732.07	2.50	0	N	125	48.7	8.6	0.0	0.0	0.0	73.4	0.5	-0.6	0.0	0.0	7.1	0.0	0.0	-23.1
1189	611686.96	4816732.07	2.50	0	N	250	53.3	8.6	0.0	0.0	0.0	73.4	1.4	-1.7	0.0	0.0	9.6	0.0	0.0	-20.8
1189	611686.96	4816732.07	2.50	0	N	500	55.7	8.6	0.0	0.0	0.0	73.4	2.6	-3.2	0.0	0.0	12.7	0.0	0.0	-21.2
1189	611686.96	4816732.07	2.50	0	N	1000	57.7	8.6	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.8	0.0	0.0	-24.4
1189	611686.96	4816732.07	2.50	0	N	2000	53.8	8.6	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.8	0.0	0.0	-39.2
1189	611686.96	4816732.07	2.50	0	N	4000	49.8	8.6	0.0	0.0	0.0	73.4	43.4	-3.3	0.0	0.0	21.7	0.0	0.0	-76.8
1189	611686.96	4816732.07	2.50	0	N	8000	40.9	8.6	0.0	0.0	0.0	73.4	154.7	-3.3	0.0	0.0	24.7	0.0	0.0	-200.0
1189	611686.96	4816732.07	2.50	0	E	32	24.7	8.6	0.0	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	5.3	0.0	0.0	-39.9
1189	611686.96	4816732.07	2.50	0	E	63	38.3	8.6	0.0	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	5.9	0.0	0.0	-27.0
1189	611686.96	4816732.07	2.50	0	E	125	47.0	8.6	0.0	0.0	0.0	73.4	0.5	-0.6	0.0	0.0	7.1	0.0	0.0	-24.9
1189	611686.96	4816732.07	2.50	0	E	250	51.5	8.6	0.0	0.0	0.0	73.4	1.4	-1.7	0.0	0.0	9.6	0.0	0.0	-22.5
1189	611686.96	4816732.07	2.50	0	E	500	53.9	8.6	0.0	0.0	0.0	73.4	2.6	-3.2	0.0	0.0	12.7	0.0	0.0	-23.0
1189	611686.96	4816732.07	2.50	0	E	1000	56.0	8.6	0.0	0.0	0.0	73.4	4.8	-3.3	0.0	0.0	15.8	0.0	0.0	-26.1

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1189	611686.96	4816732.07	2.50	0	E	2000	52.1	8.6	0.0	0.0	0.0	73.4	12.8	-3.3	0.0	0.0	18.8	0.0	0.0	-41.0
1189	611686.96	4816732.07	2.50	0	E	4000	48.0	8.6	0.0	0.0	0.0	73.4	43.4	-3.3	0.0	0.0	21.7	0.0	0.0	-78.5
1189	611686.96	4816732.07	2.50	0	E	8000	39.2	8.6	0.0	0.0	0.0	73.4	154.7	-3.3	0.0	0.0	24.7	0.0	0.0	-201.7
1192	611511.05	4816782.27	2.50	0	D	32	24.7	13.3	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.2
1192	611511.05	4816782.27	2.50	0	D	63	38.3	13.3	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-20.7
1192	611511.05	4816782.27	2.50	0	D	125	47.0	13.3	0.0	0.0	0.0	72.8	0.5	1.1	0.0	0.0	3.6	0.0	0.0	-17.8
1192	611511.05	4816782.27	2.50	0	D	250	51.5	13.3	0.0	0.0	0.0	72.8	1.3	0.0	0.0	0.0	4.7	0.0	0.0	-14.1
1192	611511.05	4816782.27	2.50	0	D	500	53.9	13.3	0.0	0.0	0.0	72.8	2.4	-2.5	0.0	0.0	4.8	0.0	0.0	-10.3
1192	611511.05	4816782.27	2.50	0	D	1000	56.0	13.3	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-10.1
1192	611511.05	4816782.27	2.50	0	D	2000	52.1	13.3	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.9	0.0	0.0	-21.4
1192	611511.05	4816782.27	2.50	0	D	4000	48.0	13.3	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	5.0	0.0	0.0	-54.0
1192	611511.05	4816782.27	2.50	0	D	8000	39.2	13.3	0.0	0.0	0.0	72.8	144.0	-2.8	0.0	0.0	5.1	0.0	0.0	-166.6
1192	611511.05	4816782.27	2.50	0	N	32	26.5	13.3	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-32.4
1192	611511.05	4816782.27	2.50	0	N	63	40.0	13.3	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-18.9
1192	611511.05	4816782.27	2.50	0	N	125	48.7	13.3	0.0	0.0	0.0	72.8	0.5	1.1	0.0	0.0	3.6	0.0	0.0	-16.1
1192	611511.05	4816782.27	2.50	0	N	250	53.3	13.3	0.0	0.0	0.0	72.8	1.3	0.0	0.0	0.0	4.7	0.0	0.0	-12.3
1192	611511.05	4816782.27	2.50	0	N	500	55.7	13.3	0.0	0.0	0.0	72.8	2.4	-2.5	0.0	0.0	4.8	0.0	0.0	-8.6
1192	611511.05	4816782.27	2.50	0	N	1000	57.7	13.3	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-8.3
1192	611511.05	4816782.27	2.50	0	N	2000	53.8	13.3	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.9	0.0	0.0	-19.7
1192	611511.05	4816782.27	2.50	0	N	4000	49.8	13.3	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	5.0	0.0	0.0	-52.2
1192	611511.05	4816782.27	2.50	0	N	8000	40.9	13.3	0.0	0.0	0.0	72.8	144.0	-2.8	0.0	0.0	5.1	0.0	0.0	-164.9
1192	611511.05	4816782.27	2.50	0	E	32	24.7	13.3	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.2
1192	611511.05	4816782.27	2.50	0	E	63	38.3	13.3	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-20.7
1192	611511.05	4816782.27	2.50	0	E	125	47.0	13.3	0.0	0.0	0.0	72.8	0.5	1.1	0.0	0.0	3.6	0.0	0.0	-17.8
1192	611511.05	4816782.27	2.50	0	E	250	51.5	13.3	0.0	0.0	0.0	72.8	1.3	0.0	0.0	0.0	4.7	0.0	0.0	-14.1
1192	611511.05	4816782.27	2.50	0	E	500	53.9	13.3	0.0	0.0	0.0	72.8	2.4	-2.5	0.0	0.0	4.8	0.0	0.0	-10.3
1192	611511.05	4816782.27	2.50	0	E	1000	56.0	13.3	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-10.1
1192	611511.05	4816782.27	2.50	0	E	2000	52.1	13.3	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.9	0.0	0.0	-21.4
1192	611511.05	4816782.27	2.50	0	E	4000	48.0	13.3	0.0	0.0	0.0	72.8	40.4	-2.8	0.0	0.0	5.0	0.0	0.0	-54.0
1192	611511.05	4816782.27	2.50	0	E	8000	39.2	13.3	0.0	0.0	0.0	72.8	144.0	-2.8	0.0	0.0	5.1	0.0	0.0	-166.6
1202	611793.45	4816623.66	2.50	0	D	32	24.7	12.5	0.0	0.0	0.0	74.3	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-36.3
1202	611793.45	4816623.66	2.50	0	D	63	38.3	12.5	0.0	0.0	0.0	74.3	0.2	-5.6	0.0	0.0	4.9	0.0	0.0	-22.9
1202	611793.45	4816623.66	2.50	0	D	125	47.0	12.5	0.0	0.0	0.0	74.3	0.6	0.5	0.0	0.0	4.5	0.0	0.0	-20.3
1202	611793.45	4816623.66	2.50	0	D	250	51.5	12.5	0.0	0.0	0.0	74.3	1.5	-0.7	0.0	0.0	5.1	0.0	0.0	-16.2
1202	611793.45	4816623.66	2.50	0	D	500	53.9	12.5	0.0	0.0	0.0	74.3	2.8	-2.9	0.0	0.0	5.4	0.0	0.0	-13.2
1202	611793.45	4816623.66	2.50	0	D	1000	56.0	12.5	0.0	0.0	0.0	74.3	5.3	-3.2	0.0	0.0	6.0	0.0	0.0	-13.9
1202	611793.45	4816623.66	2.50	0	D	2000	52.1	12.5	0.0	0.0	0.0	74.3	14.1	-3.2	0.0	0.0	7.0	0.0	0.0	-27.6
1202	611793.45	4816623.66	2.50	0	D	4000	48.0	12.5	0.0	0.0	0.0	74.3	47.9	-3.2	0.0	0.0	8.5	0.0	0.0	-66.8
1202	611793.45	4816623.66	2.50	0	D	8000	39.2	12.5	0.0	0.0	0.0	74.3	170.8	-3.2	0.0	0.0	10.4	0.0	0.0	-200.6
1202	611793.45	4816623.66	2.50	0	N	32	26.5	12.5	0.0	0.0	0.0	74.3	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.6
1202	611793.45	4816623.66	2.50	0	N	63	40.0	12.5	0.0	0.0	0.0	74.3	0.2	-5.6	0.0	0.0	4.9	0.0	0.0	-21.2
1202	611793.45	4816623.66	2.50	0	N	125	48.7	12.5	0.0	0.0	0.0	74.3	0.6	0.5	0.0	0.0	4.5	0.0	0.0	-18.6
1202	611793.45	4816623.66	2.50	0	N	250	53.3	12.5	0.0	0.0	0.0	74.3	1.5	-0.7	0.0	0.0	5.1	0.0	0.0	-14.4
1202	611793.45	4816623.66	2.50	0	N	500	55.7	12.5	0.0	0.0	0.0	74.3	2.8	-2.9	0.0	0.0	5.4	0.0	0.0	-11.4
1202	611793.45	4816623.66	2.50	0	N	1000	57.7	12.5	0.0	0.0	0.0	74.3	5.3	-3.2	0.0	0.0	6.0	0.0	0.0	-12.2
1202	611793.45	4816623.66	2.50	0	N	2000	53.8	12.5	0.0	0.0	0.0	74.3	14.1	-3.2	0.0	0.0	7.0	0.0	0.0	-25.8
1202	611793.45	4816623.66	2.50	0	N	4000	49.8	12.5	0.0	0.0	0.0	74.3	47.9	-3.2	0.0	0.0	8.5	0.0	0.0	-65.1
1202	611793.45	4816623.66	2.50	0	N	8000	40.9	12.5	0.0	0.0	0.0	74.3	170.8	-3.2	0.0	0.0	10.4	0.0	0.0	-198.8
1202	611793.45	4816623.66	2.50	0	E	32	24.7	12.5	0.0	0.0	0.0	74.3	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-36.3
1202	611793.45	4816623.66	2.50	0	E	63	38.3	12.5	0.0	0.0	0.0	74.3	0.2	-5.6	0.0	0.0	4.9	0.0	0.0	-22.9
1202	611793.45	4816623.66	2.50	0	E	125	47.0	12.5	0.0	0.0	0.0	74.3	0.6	0.5	0.0	0.0	4.5	0.0	0.0	-20.3
1202	611793.45	4816623.66	2.50	0	E	250	51.5	12.5	0.0	0.0	0.0	74.3	1.5	-0.7	0.0	0.0	5.1	0.0	0.0	-16.2
1202	611793.45	4816623.66	2.50	0	E	500	53.9	12.5	0.0	0.0	0.0	74.3	2.8	-2.9	0.0	0.0	5.4	0.0	0.0	-13.2
1202	611793.45	4816623.66	2.50	0	E	1000	56.0	12.5	0.0	0.0	0.0	74.3	5.3	-3.2	0.0	0.0	6.0	0.0	0.0	-13.9
1202	611793.45	4816623.66	2.50	0	E	2000	52.1	12.5	0.0	0.0	0.0	74.3	14.1	-3.2	0.0	0.0	7.0	0.0	0.0	-27.6
1202	611793.45	4816623.66	2.50	0	E	4000	48.0	12.5	0.0	0.0	0.0	74.3	47.9	-3.2	0.0	0.0	8.5	0.0	0.0	-66.8
1202	611793.45	4816623.66	2.50	0	E	8000	39.2	12.5	0.0	0.0	0.0	74.3	170.8	-3.2	0.0	0.0	10.4	0.0	0.0	-200.6
1204	611784.56	4816634.04	2.50	0	D	32	24.7	9.7	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-39.0
1204	611784.56	4816634.04	2.50	0	D	63	38.3	9.7	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-25.6
1204	611784.56	4816634.04	2.50	0	D	125	47.0	9.7	0.0	0.0	0.0	74.2	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-22.9
1204	611784.56	4816634.04	2.50	0	D	250	51.5	9.7	0.0	0.0	0.0	74.2	1.5	-0.9	0.0	0.0	4.8	0.0	0.0	-18.4
1204	611784.56	4816634.04	2.50	0	D	500	53.9	9.7	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-15.2
1204	611784.56	4816634.04	2.50	0	D	1000	56.0	9.7	0.0	0.0	0.0	74.2	5.3	-3.2	0.0	0.0	4.8	0.0	0.0	-15.4

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1204	611784.56	4816634.04	2.50	0	D	2000	52.1	9.7	0.0	0.0	0.0	74.2	14.0	-3.2	0.0	0.0	4.8	0.0	0.0	-28.0
1204	611784.56	4816634.04	2.50	0	D	4000	48.0	9.7	0.0	0.0	0.0	74.2	47.5	-3.2	0.0	0.0	4.8	0.0	0.0	-65.5
1204	611784.56	4816634.04	2.50	0	D	8000	39.2	9.7	0.0	0.0	0.0	74.2	169.3	-3.2	0.0	0.0	4.8	0.0	0.0	-196.2
1204	611784.56	4816634.04	2.50	0	N	32	26.5	9.7	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-37.3
1204	611784.56	4816634.04	2.50	0	N	63	40.0	9.7	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-23.8
1204	611784.56	4816634.04	2.50	0	N	125	48.7	9.7	0.0	0.0	0.0	74.2	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-21.1
1204	611784.56	4816634.04	2.50	0	N	250	53.3	9.7	0.0	0.0	0.0	74.2	1.5	-0.9	0.0	0.0	4.8	0.0	0.0	-16.7
1204	611784.56	4816634.04	2.50	0	N	500	55.7	9.7	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-13.4
1204	611784.56	4816634.04	2.50	0	N	1000	57.7	9.7	0.0	0.0	0.0	74.2	5.3	-3.2	0.0	0.0	4.8	0.0	0.0	-13.6
1204	611784.56	4816634.04	2.50	0	N	2000	53.8	9.7	0.0	0.0	0.0	74.2	14.0	-3.2	0.0	0.0	4.8	0.0	0.0	-26.2
1204	611784.56	4816634.04	2.50	0	N	4000	49.8	9.7	0.0	0.0	0.0	74.2	47.5	-3.2	0.0	0.0	4.8	0.0	0.0	-63.7
1204	611784.56	4816634.04	2.50	0	N	8000	40.9	9.7	0.0	0.0	0.0	74.2	169.3	-3.2	0.0	0.0	4.8	0.0	0.0	-194.4
1204	611784.56	4816634.04	2.50	0	E	32	24.7	9.7	0.0	0.0	0.0	74.2	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-39.0
1204	611784.56	4816634.04	2.50	0	E	63	38.3	9.7	0.0	0.0	0.0	74.2	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-25.6
1204	611784.56	4816634.04	2.50	0	E	125	47.0	9.7	0.0	0.0	0.0	74.2	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-22.9
1204	611784.56	4816634.04	2.50	0	E	250	51.5	9.7	0.0	0.0	0.0	74.2	1.5	-0.9	0.0	0.0	4.8	0.0	0.0	-18.4
1204	611784.56	4816634.04	2.50	0	E	500	53.9	9.7	0.0	0.0	0.0	74.2	2.8	-3.0	0.0	0.0	4.8	0.0	0.0	-15.2
1204	611784.56	4816634.04	2.50	0	E	1000	56.0	9.7	0.0	0.0	0.0	74.2	5.3	-3.2	0.0	0.0	4.8	0.0	0.0	-15.4
1204	611784.56	4816634.04	2.50	0	E	2000	52.1	9.7	0.0	0.0	0.0	74.2	14.0	-3.2	0.0	0.0	4.8	0.0	0.0	-28.0
1204	611784.56	4816634.04	2.50	0	E	4000	48.0	9.7	0.0	0.0	0.0	74.2	47.5	-3.2	0.0	0.0	4.8	0.0	0.0	-65.5
1204	611784.56	4816634.04	2.50	0	E	8000	39.2	9.7	0.0	0.0	0.0	74.2	169.3	-3.2	0.0	0.0	4.8	0.0	0.0	-196.2
1214	611719.88	4816695.98	2.50	0	D	32	24.7	3.3	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-45.0
1214	611719.88	4816695.98	2.50	0	D	63	38.3	3.3	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-31.6
1214	611719.88	4816695.98	2.50	0	D	125	47.0	3.3	0.0	0.0	0.0	73.7	0.6	0.2	0.0	0.0	4.6	0.0	0.0	-28.8
1214	611719.88	4816695.98	2.50	0	D	250	51.5	3.3	0.0	0.0	0.0	73.7	1.4	-0.9	0.0	0.0	4.8	0.0	0.0	-24.3
1214	611719.88	4816695.98	2.50	0	D	500	53.9	3.3	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	4.9	0.0	0.0	-21.2
1214	611719.88	4816695.98	2.50	0	D	1000	56.0	3.3	0.0	0.0	0.0	73.7	5.0	-3.2	0.0	0.0	5.0	0.0	0.0	-21.3
1214	611719.88	4816695.98	2.50	0	D	2000	52.1	3.3	0.0	0.0	0.0	73.7	13.2	-3.2	0.0	0.0	5.3	0.0	0.0	-33.7
1214	611719.88	4816695.98	2.50	0	D	4000	48.0	3.3	0.0	0.0	0.0	73.7	44.8	-3.2	0.0	0.0	5.8	0.0	0.0	-69.9
1214	611719.88	4816695.98	2.50	0	D	8000	39.2	3.3	0.0	0.0	0.0	73.7	159.9	-3.2	0.0	0.0	6.6	0.0	0.0	-194.6
1214	611719.88	4816695.98	2.50	0	N	32	26.5	3.3	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-43.2
1214	611719.88	4816695.98	2.50	0	N	63	40.0	3.3	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-29.8
1214	611719.88	4816695.98	2.50	0	N	125	48.7	3.3	0.0	0.0	0.0	73.7	0.6	0.2	0.0	0.0	4.6	0.0	0.0	-27.1
1214	611719.88	4816695.98	2.50	0	N	250	53.3	3.3	0.0	0.0	0.0	73.7	1.4	-0.9	0.0	0.0	4.8	0.0	0.0	-22.5
1214	611719.88	4816695.98	2.50	0	N	500	55.7	3.3	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	4.9	0.0	0.0	-19.4
1214	611719.88	4816695.98	2.50	0	N	1000	57.7	3.3	0.0	0.0	0.0	73.7	5.0	-3.2	0.0	0.0	5.0	0.0	0.0	-19.6
1214	611719.88	4816695.98	2.50	0	N	2000	53.8	3.3	0.0	0.0	0.0	73.7	13.2	-3.2	0.0	0.0	5.3	0.0	0.0	-32.0
1214	611719.88	4816695.98	2.50	0	N	4000	49.8	3.3	0.0	0.0	0.0	73.7	44.8	-3.2	0.0	0.0	5.8	0.0	0.0	-68.1
1214	611719.88	4816695.98	2.50	0	N	8000	40.9	3.3	0.0	0.0	0.0	73.7	159.9	-3.2	0.0	0.0	6.6	0.0	0.0	-192.9
1214	611719.88	4816695.98	2.50	0	E	32	24.7	3.3	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-45.0
1214	611719.88	4816695.98	2.50	0	E	63	38.3	3.3	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-31.6
1214	611719.88	4816695.98	2.50	0	E	125	47.0	3.3	0.0	0.0	0.0	73.7	0.6	0.2	0.0	0.0	4.6	0.0	0.0	-28.8
1214	611719.88	4816695.98	2.50	0	E	250	51.5	3.3	0.0	0.0	0.0	73.7	1.4	-0.9	0.0	0.0	4.8	0.0	0.0	-24.3
1214	611719.88	4816695.98	2.50	0	E	500	53.9	3.3	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	4.9	0.0	0.0	-21.2
1214	611719.88	4816695.98	2.50	0	E	1000	56.0	3.3	0.0	0.0	0.0	73.7	5.0	-3.2	0.0	0.0	5.0	0.0	0.0	-21.3
1214	611719.88	4816695.98	2.50	0	E	2000	52.1	3.3	0.0	0.0	0.0	73.7	13.2	-3.2	0.0	0.0	5.3	0.0	0.0	-33.7
1214	611719.88	4816695.98	2.50	0	E	4000	48.0	3.3	0.0	0.0	0.0	73.7	44.8	-3.2	0.0	0.0	5.8	0.0	0.0	-69.9
1214	611719.88	4816695.98	2.50	0	E	8000	39.2	3.3	0.0	0.0	0.0	73.7	159.9	-3.2	0.0	0.0	6.6	0.0	0.0	-194.6
1220	611713.46	4816701.95	2.50	0	D	32	24.7	11.9	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.4
1220	611713.46	4816701.95	2.50	0	D	63	38.3	11.9	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-22.9
1220	611713.46	4816701.95	2.50	0	D	125	47.0	11.9	0.0	0.0	0.0	73.7	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-20.2
1220	611713.46	4816701.95	2.50	0	D	250	51.5	11.9	0.0	0.0	0.0	73.7	1.4	-0.8	0.0	0.0	4.9	0.0	0.0	-15.8
1220	611713.46	4816701.95	2.50	0	D	500	53.9	11.9	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	5.1	0.0	0.0	-12.7
1220	611713.46	4816701.95	2.50	0	D	1000	56.0	11.9	0.0	0.0	0.0	73.7	5.0	-3.1	0.0	0.0	5.4	0.0	0.0	-13.1
1220	611713.46	4816701.95	2.50	0	D	2000	52.1	11.9	0.0	0.0	0.0	73.7	13.1	-3.1	0.0	0.0	6.0	0.0	0.0	-25.7
1220	611713.46	4816701.95	2.50	0	D	4000	48.0	11.9	0.0	0.0	0.0	73.7	44.6	-3.1	0.0	0.0	7.0	0.0	0.0	-62.2
1220	611713.46	4816701.95	2.50	0	D	8000	39.2	11.9	0.0	0.0	0.0	73.7	159.0	-3.1	0.0	0.0	8.4	0.0	0.0	-186.9
1220	611713.46	4816701.95	2.50	0	N	32	26.5	11.9	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.6
1220	611713.46	4816701.95	2.50	0	N	63	40.0	11.9	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.2
1220	611713.46	4816701.95	2.50	0	N	125	48.7	11.9	0.0	0.0	0.0	73.7	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-18.4
1220	611713.46	4816701.95	2.50	0	N	250	53.3	11.9	0.0	0.0	0.0	73.7	1.4	-0.8	0.0	0.0	4.9	0.0	0.0	-14.0
1220	611713.46	4816701.95	2.50	0	N	500	55.7	11.9	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	5.1	0.0	0.0	-11.0
1220	611713.46	4816701.95	2.50	0	N	1000	57.7	11.9	0.0	0.0	0.0	73.7	5.0	-3.1	0.0	0.0	5.4	0.0	0.0	-11.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1220	611713.46	4816701.95	2.50	0	N	2000	53.8	11.9	0.0	0.0	0.0	73.7	13.1	-3.1	0.0	0.0	6.0	0.0	0.0	-24.0
1220	611713.46	4816701.95	2.50	0	N	4000	49.8	11.9	0.0	0.0	0.0	73.7	44.6	-3.1	0.0	0.0	7.0	0.0	0.0	-60.4
1220	611713.46	4816701.95	2.50	0	N	8000	40.9	11.9	0.0	0.0	0.0	73.7	159.0	-3.1	0.0	0.0	8.4	0.0	0.0	-185.2
1220	611713.46	4816701.95	2.50	0	E	32	24.7	11.9	0.0	0.0	0.0	73.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-36.4
1220	611713.46	4816701.95	2.50	0	E	63	38.3	11.9	0.0	0.0	0.0	73.7	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-22.9
1220	611713.46	4816701.95	2.50	0	E	125	47.0	11.9	0.0	0.0	0.0	73.7	0.6	0.3	0.0	0.0	4.5	0.0	0.0	-20.2
1220	611713.46	4816701.95	2.50	0	E	250	51.5	11.9	0.0	0.0	0.0	73.7	1.4	-0.8	0.0	0.0	4.9	0.0	0.0	-15.8
1220	611713.46	4816701.95	2.50	0	E	500	53.9	11.9	0.0	0.0	0.0	73.7	2.6	-2.9	0.0	0.0	5.1	0.0	0.0	-12.7
1220	611713.46	4816701.95	2.50	0	E	1000	56.0	11.9	0.0	0.0	0.0	73.7	5.0	-3.1	0.0	0.0	5.4	0.0	0.0	-13.1
1220	611713.46	4816701.95	2.50	0	E	2000	52.1	11.9	0.0	0.0	0.0	73.7	13.1	-3.1	0.0	0.0	6.0	0.0	0.0	-25.7
1220	611713.46	4816701.95	2.50	0	E	4000	48.0	11.9	0.0	0.0	0.0	73.7	44.6	-3.1	0.0	0.0	7.0	0.0	0.0	-62.2
1220	611713.46	4816701.95	2.50	0	E	8000	39.2	11.9	0.0	0.0	0.0	73.7	159.0	-3.1	0.0	0.0	8.4	0.0	0.0	-186.9
1222	611705.83	4816709.04	2.50	0	D	32	24.7	7.3	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-40.9
1222	611705.83	4816709.04	2.50	0	D	63	38.3	7.3	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1222	611705.83	4816709.04	2.50	0	D	125	47.0	7.3	0.0	0.0	0.0	73.6	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-24.8
1222	611705.83	4816709.04	2.50	0	D	250	51.5	7.3	0.0	0.0	0.0	73.6	1.4	-0.6	0.0	0.0	5.2	0.0	0.0	-20.7
1222	611705.83	4816709.04	2.50	0	D	500	53.9	7.3	0.0	0.0	0.0	73.6	2.6	-2.8	0.0	0.0	5.7	0.0	0.0	-17.8
1222	611705.83	4816709.04	2.50	0	D	1000	56.0	7.3	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	6.5	0.0	0.0	-18.7
1222	611705.83	4816709.04	2.50	0	D	2000	52.1	7.3	0.0	0.0	0.0	73.6	13.1	-3.1	0.0	0.0	7.8	0.0	0.0	-32.0
1222	611705.83	4816709.04	2.50	0	D	4000	48.0	7.3	0.0	0.0	0.0	73.6	44.3	-3.1	0.0	0.0	9.5	0.0	0.0	-69.0
1222	611705.83	4816709.04	2.50	0	D	8000	39.2	7.3	0.0	0.0	0.0	73.6	158.0	-3.1	0.0	0.0	11.8	0.0	0.0	-193.8
1222	611705.83	4816709.04	2.50	0	N	32	26.5	7.3	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.1
1222	611705.83	4816709.04	2.50	0	N	63	40.0	7.3	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-25.7
1222	611705.83	4816709.04	2.50	0	N	125	48.7	7.3	0.0	0.0	0.0	73.6	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-23.0
1222	611705.83	4816709.04	2.50	0	N	250	53.3	7.3	0.0	0.0	0.0	73.6	1.4	-0.6	0.0	0.0	5.2	0.0	0.0	-19.0
1222	611705.83	4816709.04	2.50	0	N	500	55.7	7.3	0.0	0.0	0.0	73.6	2.6	-2.8	0.0	0.0	5.7	0.0	0.0	-16.1
1222	611705.83	4816709.04	2.50	0	N	1000	57.7	7.3	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	6.5	0.0	0.0	-16.9
1222	611705.83	4816709.04	2.50	0	N	2000	53.8	7.3	0.0	0.0	0.0	73.6	13.1	-3.1	0.0	0.0	7.8	0.0	0.0	-30.2
1222	611705.83	4816709.04	2.50	0	N	4000	49.8	7.3	0.0	0.0	0.0	73.6	44.3	-3.1	0.0	0.0	9.5	0.0	0.0	-67.2
1222	611705.83	4816709.04	2.50	0	N	8000	40.9	7.3	0.0	0.0	0.0	73.6	158.0	-3.1	0.0	0.0	11.8	0.0	0.0	-192.0
1222	611705.83	4816709.04	2.50	0	E	32	24.7	7.3	0.0	0.0	0.0	73.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-40.9
1222	611705.83	4816709.04	2.50	0	E	63	38.3	7.3	0.0	0.0	0.0	73.6	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1222	611705.83	4816709.04	2.50	0	E	125	47.0	7.3	0.0	0.0	0.0	73.6	0.6	0.5	0.0	0.0	4.4	0.0	0.0	-24.8
1222	611705.83	4816709.04	2.50	0	E	250	51.5	7.3	0.0	0.0	0.0	73.6	1.4	-0.6	0.0	0.0	5.2	0.0	0.0	-20.7
1222	611705.83	4816709.04	2.50	0	E	500	53.9	7.3	0.0	0.0	0.0	73.6	2.6	-2.8	0.0	0.0	5.7	0.0	0.0	-17.8
1222	611705.83	4816709.04	2.50	0	E	1000	56.0	7.3	0.0	0.0	0.0	73.6	4.9	-3.1	0.0	0.0	6.5	0.0	0.0	-18.7
1222	611705.83	4816709.04	2.50	0	E	2000	52.1	7.3	0.0	0.0	0.0	73.6	13.1	-3.1	0.0	0.0	7.8	0.0	0.0	-32.0
1222	611705.83	4816709.04	2.50	0	E	4000	48.0	7.3	0.0	0.0	0.0	73.6	44.3	-3.1	0.0	0.0	9.5	0.0	0.0	-69.0
1222	611705.83	4816709.04	2.50	0	E	8000	39.2	7.3	0.0	0.0	0.0	73.6	158.0	-3.1	0.0	0.0	11.8	0.0	0.0	-193.8
1225	611503.98	4816798.42	2.50	0	D	32	24.7	11.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.8
1225	611503.98	4816798.42	2.50	0	D	63	38.3	11.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-22.3
1225	611503.98	4816798.42	2.50	0	D	125	47.0	11.5	0.0	0.0	0.0	72.7	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-19.5
1225	611503.98	4816798.42	2.50	0	D	250	51.5	11.5	0.0	0.0	0.0	72.7	1.3	-0.0	0.0	0.0	4.8	0.0	0.0	-15.7
1225	611503.98	4816798.42	2.50	0	D	500	53.9	11.5	0.0	0.0	0.0	72.7	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-12.0
1225	611503.98	4816798.42	2.50	0	D	1000	56.0	11.5	0.0	0.0	0.0	72.7	4.4	-2.8	0.0	0.0	5.0	0.0	0.0	-11.8
1225	611503.98	4816798.42	2.50	0	D	2000	52.1	11.5	0.0	0.0	0.0	72.7	11.7	-2.8	0.0	0.0	5.2	0.0	0.0	-23.2
1225	611503.98	4816798.42	2.50	0	D	4000	48.0	11.5	0.0	0.0	0.0	72.7	39.8	-2.8	0.0	0.0	5.5	0.0	0.0	-55.6
1225	611503.98	4816798.42	2.50	0	D	8000	39.2	11.5	0.0	0.0	0.0	72.7	142.0	-2.8	0.0	0.0	6.1	0.0	0.0	-167.3
1225	611503.98	4816798.42	2.50	0	N	32	26.5	11.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-34.0
1225	611503.98	4816798.42	2.50	0	N	63	40.0	11.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-20.6
1225	611503.98	4816798.42	2.50	0	N	125	48.7	11.5	0.0	0.0	0.0	72.7	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-17.7
1225	611503.98	4816798.42	2.50	0	N	250	53.3	11.5	0.0	0.0	0.0	72.7	1.3	-0.0	0.0	0.0	4.8	0.0	0.0	-13.9
1225	611503.98	4816798.42	2.50	0	N	500	55.7	11.5	0.0	0.0	0.0	72.7	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-10.2
1225	611503.98	4816798.42	2.50	0	N	1000	57.7	11.5	0.0	0.0	0.0	72.7	4.4	-2.8	0.0	0.0	5.0	0.0	0.0	-10.0
1225	611503.98	4816798.42	2.50	0	N	2000	53.8	11.5	0.0	0.0	0.0	72.7	11.7	-2.8	0.0	0.0	5.2	0.0	0.0	-21.4
1225	611503.98	4816798.42	2.50	0	N	4000	49.8	11.5	0.0	0.0	0.0	72.7	39.8	-2.8	0.0	0.0	5.5	0.0	0.0	-53.8
1225	611503.98	4816798.42	2.50	0	N	8000	40.9	11.5	0.0	0.0	0.0	72.7	142.0	-2.8	0.0	0.0	6.1	0.0	0.0	-165.5
1225	611503.98	4816798.42	2.50	0	E	32	24.7	11.5	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.8
1225	611503.98	4816798.42	2.50	0	E	63	38.3	11.5	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-22.3
1225	611503.98	4816798.42	2.50	0	E	125	47.0	11.5	0.0	0.0	0.0	72.7	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-19.5
1225	611503.98	4816798.42	2.50	0	E	250	51.5	11.5	0.0	0.0	0.0	72.7	1.3	-0.0	0.0	0.0	4.8	0.0	0.0	-15.7
1225	611503.98	4816798.42	2.50	0	E	500	53.9	11.5	0.0	0.0	0.0	72.7	2.3	-2.5	0.0	0.0	4.9	0.0	0.0	-12.0
1225	611503.98	4816798.42	2.50	0	E	1000	56.0	11.5	0.0	0.0	0.0	72.7	4.4	-2.8	0.0	0.0	5.0	0.0	0.0	-11.8

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1225	611503.98	4816798.42	2.50	0	E	2000	52.1	11.5	0.0	0.0	0.0	72.7	11.7	-2.8	0.0	0.0	5.2	0.0	0.0	-23.2
1225	611503.98	4816798.42	2.50	0	E	4000	48.0	11.5	0.0	0.0	0.0	72.7	39.8	-2.8	0.0	0.0	5.5	0.0	0.0	-55.6
1225	611503.98	4816798.42	2.50	0	E	8000	39.2	11.5	0.0	0.0	0.0	72.7	142.0	-2.8	0.0	0.0	6.1	0.0	0.0	-167.3
1230	611526.54	4816763.38	2.50	0	D	32	24.7	11.6	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-36.3
1230	611526.54	4816763.38	2.50	0	D	63	38.3	11.6	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.6	0.0	0.0	-23.4
1230	611526.54	4816763.38	2.50	0	D	125	47.0	11.6	0.0	0.0	0.0	73.0	0.5	0.9	0.0	0.0	6.0	0.0	0.0	-21.7
1230	611526.54	4816763.38	2.50	0	D	250	51.5	11.6	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	8.6	0.0	0.0	-19.6
1230	611526.54	4816763.38	2.50	0	D	500	53.9	11.6	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-18.1
1230	611526.54	4816763.38	2.50	0	D	1000	56.0	11.6	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	13.3	0.0	0.0	-20.4
1230	611526.54	4816763.38	2.50	0	D	2000	52.1	11.6	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	16.1	0.0	0.0	-34.5
1230	611526.54	4816763.38	2.50	0	D	4000	48.0	11.6	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	18.9	0.0	0.0	-70.4
1230	611526.54	4816763.38	2.50	0	D	8000	39.2	11.6	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	21.8	0.0	0.0	-187.6
1230	611526.54	4816763.38	2.50	0	N	32	26.5	11.6	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-34.5
1230	611526.54	4816763.38	2.50	0	N	63	40.0	11.6	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.6	0.0	0.0	-21.6
1230	611526.54	4816763.38	2.50	0	N	125	48.7	11.6	0.0	0.0	0.0	73.0	0.5	0.9	0.0	0.0	6.0	0.0	0.0	-20.0
1230	611526.54	4816763.38	2.50	0	N	250	53.3	11.6	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	8.6	0.0	0.0	-17.8
1230	611526.54	4816763.38	2.50	0	N	500	55.7	11.6	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-16.4
1230	611526.54	4816763.38	2.50	0	N	1000	57.7	11.6	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	13.3	0.0	0.0	-18.6
1230	611526.54	4816763.38	2.50	0	N	2000	53.8	11.6	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	16.1	0.0	0.0	-32.8
1230	611526.54	4816763.38	2.50	0	N	4000	49.8	11.6	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	18.9	0.0	0.0	-68.6
1230	611526.54	4816763.38	2.50	0	N	8000	40.9	11.6	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	21.8	0.0	0.0	-185.8
1230	611526.54	4816763.38	2.50	0	E	32	24.7	11.6	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.1	0.0	0.0	-36.3
1230	611526.54	4816763.38	2.50	0	E	63	38.3	11.6	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.6	0.0	0.0	-23.4
1230	611526.54	4816763.38	2.50	0	E	125	47.0	11.6	0.0	0.0	0.0	73.0	0.5	0.9	0.0	0.0	6.0	0.0	0.0	-21.7
1230	611526.54	4816763.38	2.50	0	E	250	51.5	11.6	0.0	0.0	0.0	73.0	1.3	-0.3	0.0	0.0	8.6	0.0	0.0	-19.6
1230	611526.54	4816763.38	2.50	0	E	500	53.9	11.6	0.0	0.0	0.0	73.0	2.4	-2.6	0.0	0.0	10.8	0.0	0.0	-18.1
1230	611526.54	4816763.38	2.50	0	E	1000	56.0	11.6	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	13.3	0.0	0.0	-20.4
1230	611526.54	4816763.38	2.50	0	E	2000	52.1	11.6	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	16.1	0.0	0.0	-34.5
1230	611526.54	4816763.38	2.50	0	E	4000	48.0	11.6	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	18.9	0.0	0.0	-70.4
1230	611526.54	4816763.38	2.50	0	E	8000	39.2	11.6	0.0	0.0	0.0	73.0	146.5	-2.9	0.0	0.0	21.8	0.0	0.0	-187.6
1309	611518.69	4816813.48	2.50	0	D	32	24.7	7.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	7.8	0.0	0.0	-42.8
1309	611518.69	4816813.48	2.50	0	D	63	38.3	7.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	9.6	0.0	0.0	-31.1
1309	611518.69	4816813.48	2.50	0	D	125	47.0	7.5	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	12.0	0.0	0.0	-30.9
1309	611518.69	4816813.48	2.50	0	D	250	51.5	7.5	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	15.9	0.0	0.0	-29.8
1309	611518.69	4816813.48	2.50	0	D	500	53.9	7.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	20.2	0.0	0.0	-30.9
1309	611518.69	4816813.48	2.50	0	D	1000	56.0	7.5	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	24.1	0.0	0.0	-34.6
1309	611518.69	4816813.48	2.50	0	D	2000	52.1	7.5	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	25.0	0.0	0.0	-46.7
1309	611518.69	4816813.48	2.50	0	D	4000	48.0	7.5	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	25.0	0.0	0.0	-78.5
1309	611518.69	4816813.48	2.50	0	D	8000	39.2	7.5	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	25.0	0.0	0.0	-188.5
1309	611518.69	4816813.48	2.50	0	N	32	26.5	7.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	7.8	0.0	0.0	-41.0
1309	611518.69	4816813.48	2.50	0	N	63	40.0	7.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	9.6	0.0	0.0	-29.4
1309	611518.69	4816813.48	2.50	0	N	125	48.7	7.5	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	12.0	0.0	0.0	-29.1
1309	611518.69	4816813.48	2.50	0	N	250	53.3	7.5	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	15.9	0.0	0.0	-28.0
1309	611518.69	4816813.48	2.50	0	N	500	55.7	7.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	20.2	0.0	0.0	-29.2
1309	611518.69	4816813.48	2.50	0	N	1000	57.7	7.5	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	24.1	0.0	0.0	-32.8
1309	611518.69	4816813.48	2.50	0	N	2000	53.8	7.5	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	25.0	0.0	0.0	-44.9
1309	611518.69	4816813.48	2.50	0	N	4000	49.8	7.5	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	25.0	0.0	0.0	-76.7
1309	611518.69	4816813.48	2.50	0	N	8000	40.9	7.5	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	25.0	0.0	0.0	-186.7
1309	611518.69	4816813.48	2.50	0	E	32	24.7	7.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	7.8	0.0	0.0	-42.8
1309	611518.69	4816813.48	2.50	0	E	63	38.3	7.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	9.6	0.0	0.0	-31.1
1309	611518.69	4816813.48	2.50	0	E	125	47.0	7.5	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	12.0	0.0	0.0	-30.9
1309	611518.69	4816813.48	2.50	0	E	250	51.5	7.5	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	15.9	0.0	0.0	-29.8
1309	611518.69	4816813.48	2.50	0	E	500	53.9	7.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	20.2	0.0	0.0	-30.9
1309	611518.69	4816813.48	2.50	0	E	1000	56.0	7.5	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	24.1	0.0	0.0	-34.6
1309	611518.69	4816813.48	2.50	0	E	2000	52.1	7.5	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	25.0	0.0	0.0	-46.7
1309	611518.69	4816813.48	2.50	0	E	4000	48.0	7.5	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	25.0	0.0	0.0	-78.5
1309	611518.69	4816813.48	2.50	0	E	8000	39.2	7.5	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	25.0	0.0	0.0	-188.5
1315	611521.86	4816815.41	2.50	0	D	32	24.7	2.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	11.5	0.0	0.0	-51.3
1315	611521.86	4816815.41	2.50	0	D	63	38.3	2.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	14.6	0.0	0.0	-40.9
1315	611521.86	4816815.41	2.50	0	D	125	47.0	2.7	0.0	0.0	0.0	72.6	0.5	-0.3	0.0	0.0	18.6	0.0	0.0	-41.7
1315	611521.86	4816815.41	2.50	0	D	250	51.5	2.7	0.0	0.0	0.0	72.6	1.3	-1.4	0.0	0.0	23.0	0.0	0.0	-41.2
1315	611521.86	4816815.41	2.50	0	D	500	53.9	2.7	0.0	0.0	0.0	72.6	2.3	-3.0	0.0	0.0	25.0	0.0	0.0	-40.3
1315	611521.86	4816815.41	2.50	0	D	1000	56.0	2.7	0.0	0.0	0.0	72.6	4.4	-3.2	0.0	0.0	25.0	0.0	0.0	-40.1

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1315	611521.86	4816815.41	2.50	0	D	2000	52.1	2.7	0.0	0.0	0.0	72.6	11.6	-3.2	0.0	0.0	25.0	0.0	0.0	-51.3
1315	611521.86	4816815.41	2.50	0	D	4000	48.0	2.7	0.0	0.0	0.0	72.6	39.4	-3.2	0.0	0.0	25.0	0.0	0.0	-83.0
1315	611521.86	4816815.41	2.50	0	D	8000	39.2	2.7	0.0	0.0	0.0	72.6	140.4	-3.2	0.0	0.0	25.0	0.0	0.0	-193.0
1315	611521.86	4816815.41	2.50	0	N	32	26.5	2.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	11.5	0.0	0.0	-49.5
1315	611521.86	4816815.41	2.50	0	N	63	40.0	2.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	14.6	0.0	0.0	-39.1
1315	611521.86	4816815.41	2.50	0	N	125	48.7	2.7	0.0	0.0	0.0	72.6	0.5	-0.3	0.0	0.0	18.6	0.0	0.0	-40.0
1315	611521.86	4816815.41	2.50	0	N	250	53.3	2.7	0.0	0.0	0.0	72.6	1.3	-1.4	0.0	0.0	23.0	0.0	0.0	-39.4
1315	611521.86	4816815.41	2.50	0	N	500	55.7	2.7	0.0	0.0	0.0	72.6	2.3	-3.0	0.0	0.0	25.0	0.0	0.0	-38.5
1315	611521.86	4816815.41	2.50	0	N	1000	57.7	2.7	0.0	0.0	0.0	72.6	4.4	-3.2	0.0	0.0	25.0	0.0	0.0	-38.4
1315	611521.86	4816815.41	2.50	0	N	2000	53.8	2.7	0.0	0.0	0.0	72.6	11.6	-3.2	0.0	0.0	25.0	0.0	0.0	-49.5
1315	611521.86	4816815.41	2.50	0	N	4000	49.8	2.7	0.0	0.0	0.0	72.6	39.4	-3.2	0.0	0.0	25.0	0.0	0.0	-81.3
1315	611521.86	4816815.41	2.50	0	N	8000	40.9	2.7	0.0	0.0	0.0	72.6	140.4	-3.2	0.0	0.0	25.0	0.0	0.0	-191.2
1315	611521.86	4816815.41	2.50	0	E	32	24.7	2.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	11.5	0.0	0.0	-51.3
1315	611521.86	4816815.41	2.50	0	E	63	38.3	2.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	14.6	0.0	0.0	-40.9
1315	611521.86	4816815.41	2.50	0	E	125	47.0	2.7	0.0	0.0	0.0	72.6	0.5	-0.3	0.0	0.0	18.6	0.0	0.0	-41.7
1315	611521.86	4816815.41	2.50	0	E	250	51.5	2.7	0.0	0.0	0.0	72.6	1.3	-1.4	0.0	0.0	23.0	0.0	0.0	-41.2
1315	611521.86	4816815.41	2.50	0	E	500	53.9	2.7	0.0	0.0	0.0	72.6	2.3	-3.0	0.0	0.0	25.0	0.0	0.0	-40.3
1315	611521.86	4816815.41	2.50	0	E	1000	56.0	2.7	0.0	0.0	0.0	72.6	4.4	-3.2	0.0	0.0	25.0	0.0	0.0	-40.1
1315	611521.86	4816815.41	2.50	0	E	2000	52.1	2.7	0.0	0.0	0.0	72.6	11.6	-3.2	0.0	0.0	25.0	0.0	0.0	-51.3
1315	611521.86	4816815.41	2.50	0	E	4000	48.0	2.7	0.0	0.0	0.0	72.6	39.4	-3.2	0.0	0.0	25.0	0.0	0.0	-83.0
1315	611521.86	4816815.41	2.50	0	E	8000	39.2	2.7	0.0	0.0	0.0	72.6	140.4	-3.2	0.0	0.0	25.0	0.0	0.0	-193.0
1321	611536.01	4816757.00	2.50	0	D	32	24.7	8.8	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	6.3	0.0	0.0	-40.4
1321	611536.01	4816757.00	2.50	0	D	63	38.3	8.8	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	8.2	0.0	0.0	-28.8
1321	611536.01	4816757.00	2.50	0	D	125	47.0	8.8	0.0	0.0	0.0	73.0	0.5	-0.4	0.0	0.0	10.7	0.0	0.0	-28.1
1321	611536.01	4816757.00	2.50	0	D	250	51.5	8.8	0.0	0.0	0.0	73.0	1.3	-1.6	0.0	0.0	13.4	0.0	0.0	-25.9
1321	611536.01	4816757.00	2.50	0	D	500	53.9	8.8	0.0	0.0	0.0	73.0	2.4	-3.1	0.0	0.0	16.2	0.0	0.0	-25.9
1321	611536.01	4816757.00	2.50	0	D	1000	56.0	8.8	0.0	0.0	0.0	73.0	4.6	-3.2	0.0	0.0	19.1	0.0	0.0	-28.7
1321	611536.01	4816757.00	2.50	0	D	2000	52.1	8.8	0.0	0.0	0.0	73.0	12.2	-3.2	0.0	0.0	22.0	0.0	0.0	-43.1
1321	611536.01	4816757.00	2.50	0	D	4000	48.0	8.8	0.0	0.0	0.0	73.0	41.3	-3.2	0.0	0.0	25.0	0.0	0.0	-79.3
1321	611536.01	4816757.00	2.50	0	D	8000	39.2	8.8	0.0	0.0	0.0	73.0	147.4	-3.2	0.0	0.0	25.0	0.0	0.0	-194.3
1321	611536.01	4816757.00	2.50	0	N	32	26.5	8.8	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	6.3	0.0	0.0	-38.6
1321	611536.01	4816757.00	2.50	0	N	63	40.0	8.8	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	8.2	0.0	0.0	-27.1
1321	611536.01	4816757.00	2.50	0	N	125	48.7	8.8	0.0	0.0	0.0	73.0	0.5	-0.4	0.0	0.0	10.7	0.0	0.0	-26.3
1321	611536.01	4816757.00	2.50	0	N	250	53.3	8.8	0.0	0.0	0.0	73.0	1.3	-1.6	0.0	0.0	13.4	0.0	0.0	-24.1
1321	611536.01	4816757.00	2.50	0	N	500	55.7	8.8	0.0	0.0	0.0	73.0	2.4	-3.1	0.0	0.0	16.2	0.0	0.0	-24.1
1321	611536.01	4816757.00	2.50	0	N	1000	57.7	8.8	0.0	0.0	0.0	73.0	4.6	-3.2	0.0	0.0	19.1	0.0	0.0	-26.9
1321	611536.01	4816757.00	2.50	0	N	2000	53.8	8.8	0.0	0.0	0.0	73.0	12.2	-3.2	0.0	0.0	22.0	0.0	0.0	-41.4
1321	611536.01	4816757.00	2.50	0	N	4000	49.8	8.8	0.0	0.0	0.0	73.0	41.3	-3.2	0.0	0.0	25.0	0.0	0.0	-77.5
1321	611536.01	4816757.00	2.50	0	N	8000	40.9	8.8	0.0	0.0	0.0	73.0	147.4	-3.2	0.0	0.0	25.0	0.0	0.0	-192.5
1321	611536.01	4816757.00	2.50	0	E	32	24.7	8.8	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	6.3	0.0	0.0	-40.4
1321	611536.01	4816757.00	2.50	0	E	63	38.3	8.8	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	8.2	0.0	0.0	-28.8
1321	611536.01	4816757.00	2.50	0	E	125	47.0	8.8	0.0	0.0	0.0	73.0	0.5	-0.4	0.0	0.0	10.7	0.0	0.0	-28.1
1321	611536.01	4816757.00	2.50	0	E	250	51.5	8.8	0.0	0.0	0.0	73.0	1.3	-1.6	0.0	0.0	13.4	0.0	0.0	-25.9
1321	611536.01	4816757.00	2.50	0	E	500	53.9	8.8	0.0	0.0	0.0	73.0	2.4	-3.1	0.0	0.0	16.2	0.0	0.0	-25.9
1321	611536.01	4816757.00	2.50	0	E	1000	56.0	8.8	0.0	0.0	0.0	73.0	4.6	-3.2	0.0	0.0	19.1	0.0	0.0	-28.7
1321	611536.01	4816757.00	2.50	0	E	2000	52.1	8.8	0.0	0.0	0.0	73.0	12.2	-3.2	0.0	0.0	22.0	0.0	0.0	-43.1
1321	611536.01	4816757.00	2.50	0	E	4000	48.0	8.8	0.0	0.0	0.0	73.0	41.3	-3.2	0.0	0.0	25.0	0.0	0.0	-79.3
1321	611536.01	4816757.00	2.50	0	E	8000	39.2	8.8	0.0	0.0	0.0	73.0	147.4	-3.2	0.0	0.0	25.0	0.0	0.0	-194.3
1327	611532.21	4816758.47	2.50	0	D	32	24.7	-2.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-50.3
1327	611532.21	4816758.47	2.50	0	D	63	38.3	-2.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-37.2
1327	611532.21	4816758.47	2.50	0	D	125	47.0	-2.4	0.0	0.0	0.0	73.0	0.5	0.0	0.0	0.0	6.3	0.0	0.0	-35.2
1327	611532.21	4816758.47	2.50	0	D	250	51.5	-2.4	0.0	0.0	0.0	73.0	1.3	-1.1	0.0	0.0	7.7	0.0	0.0	-31.8
1327	611532.21	4816758.47	2.50	0	D	500	53.9	-2.4	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	9.6	0.0	0.0	-30.6
1327	611532.21	4816758.47	2.50	0	D	1000	56.0	-2.4	0.0	0.0	0.0	73.0	4.6	-3.1	0.0	0.0	11.8	0.0	0.0	-32.8
1327	611532.21	4816758.47	2.50	0	D	2000	52.1	-2.4	0.0	0.0	0.0	73.0	12.2	-3.1	0.0	0.0	14.4	0.0	0.0	-46.8
1327	611532.21	4816758.47	2.50	0	D	4000	48.0	-2.4	0.0	0.0	0.0	73.0	41.3	-3.1	0.0	0.0	17.2	0.0	0.0	-82.7
1327	611532.21	4816758.47	2.50	0	D	8000	39.2	-2.4	0.0	0.0	0.0	73.0	147.2	-3.1	0.0	0.0	20.1	0.0	0.0	-200.4
1327	611532.21	4816758.47	2.50	0	N	32	26.5	-2.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-48.5
1327	611532.21	4816758.47	2.50	0	N	63	40.0	-2.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-35.4
1327	611532.21	4816758.47	2.50	0	N	125	48.7	-2.4	0.0	0.0	0.0	73.0	0.5	0.0	0.0	0.0	6.3	0.0	0.0	-33.5
1327	611532.21	4816758.47	2.50	0	N	250	53.3	-2.4	0.0	0.0	0.0	73.0	1.3	-1.1	0.0	0.0	7.7	0.0	0.0	-30.1
1327	611532.21	4816758.47	2.50	0	N	500	55.7	-2.4	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	9.6	0.0	0.0	-28.8
1327	611532.21	4816758.47	2.50	0	N	1000	57.7	-2.4	0.0	0.0	0.0	73.0	4.6	-3.1	0.0	0.0	11.8	0.0	0.0	-31.0

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1327	611532.21	4816758.47	2.50	0	N	2000	53.8	-2.4	0.0	0.0	0.0	73.0	12.2	-3.1	0.0	0.0	14.4	0.0	0.0	-45.0
1327	611532.21	4816758.47	2.50	0	N	4000	49.8	-2.4	0.0	0.0	0.0	73.0	41.3	-3.1	0.0	0.0	17.2	0.0	0.0	-80.9
1327	611532.21	4816758.47	2.50	0	N	8000	40.9	-2.4	0.0	0.0	0.0	73.0	147.2	-3.1	0.0	0.0	20.1	0.0	0.0	-198.6
1327	611532.21	4816758.47	2.50	0	E	32	24.7	-2.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-50.3
1327	611532.21	4816758.47	2.50	0	E	63	38.3	-2.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	5.4	0.0	0.0	-37.2
1327	611532.21	4816758.47	2.50	0	E	125	47.0	-2.4	0.0	0.0	0.0	73.0	0.5	0.0	0.0	0.0	6.3	0.0	0.0	-35.2
1327	611532.21	4816758.47	2.50	0	E	250	51.5	-2.4	0.0	0.0	0.0	73.0	1.3	-1.1	0.0	0.0	7.7	0.0	0.0	-31.8
1327	611532.21	4816758.47	2.50	0	E	500	53.9	-2.4	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	9.6	0.0	0.0	-30.6
1327	611532.21	4816758.47	2.50	0	E	1000	56.0	-2.4	0.0	0.0	0.0	73.0	4.6	-3.1	0.0	0.0	11.8	0.0	0.0	-32.8
1327	611532.21	4816758.47	2.50	0	E	2000	52.1	-2.4	0.0	0.0	0.0	73.0	12.2	-3.1	0.0	0.0	14.4	0.0	0.0	-46.8
1327	611532.21	4816758.47	2.50	0	E	4000	48.0	-2.4	0.0	0.0	0.0	73.0	41.3	-3.1	0.0	0.0	17.2	0.0	0.0	-82.7
1327	611532.21	4816758.47	2.50	0	E	8000	39.2	-2.4	0.0	0.0	0.0	73.0	147.2	-3.1	0.0	0.0	20.1	0.0	0.0	-200.4
1357	611520.21	4816769.01	2.50	0	D	32	24.7	4.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-43.8
1357	611520.21	4816769.01	2.50	0	D	63	38.3	4.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-30.6
1357	611520.21	4816769.01	2.50	0	D	125	47.0	4.0	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	4.4	0.0	0.0	-28.2
1357	611520.21	4816769.01	2.50	0	D	250	51.5	4.0	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	6.2	0.0	0.0	-25.3
1357	611520.21	4816769.01	2.50	0	D	500	53.9	4.0	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	8.0	0.0	0.0	-23.0
1357	611520.21	4816769.01	2.50	0	D	1000	56.0	4.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	10.5	0.0	0.0	-25.2
1357	611520.21	4816769.01	2.50	0	D	2000	52.1	4.0	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	14.3	0.0	0.0	-40.4
1357	611520.21	4816769.01	2.50	0	D	4000	48.0	4.0	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	18.0	0.0	0.0	-77.0
1357	611520.21	4816769.01	2.50	0	D	8000	39.2	4.0	0.0	0.0	0.0	72.9	145.7	-2.8	0.0	0.0	21.3	0.0	0.0	-194.0
1357	611520.21	4816769.01	2.50	0	N	32	26.5	4.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-42.0
1357	611520.21	4816769.01	2.50	0	N	63	40.0	4.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-28.8
1357	611520.21	4816769.01	2.50	0	N	125	48.7	4.0	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	4.4	0.0	0.0	-26.4
1357	611520.21	4816769.01	2.50	0	N	250	53.3	4.0	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	6.2	0.0	0.0	-23.5
1357	611520.21	4816769.01	2.50	0	N	500	55.7	4.0	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	8.0	0.0	0.0	-21.2
1357	611520.21	4816769.01	2.50	0	N	1000	57.7	4.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	10.5	0.0	0.0	-23.5
1357	611520.21	4816769.01	2.50	0	N	2000	53.8	4.0	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	14.3	0.0	0.0	-38.6
1357	611520.21	4816769.01	2.50	0	N	4000	49.8	4.0	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	18.0	0.0	0.0	-75.2
1357	611520.21	4816769.01	2.50	0	N	8000	40.9	4.0	0.0	0.0	0.0	72.9	145.7	-2.8	0.0	0.0	21.3	0.0	0.0	-192.2
1357	611520.21	4816769.01	2.50	0	E	32	24.7	4.0	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	5.0	0.0	0.0	-43.8
1357	611520.21	4816769.01	2.50	0	E	63	38.3	4.0	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	5.3	0.0	0.0	-30.6
1357	611520.21	4816769.01	2.50	0	E	125	47.0	4.0	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	4.4	0.0	0.0	-28.2
1357	611520.21	4816769.01	2.50	0	E	250	51.5	4.0	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	6.2	0.0	0.0	-25.3
1357	611520.21	4816769.01	2.50	0	E	500	53.9	4.0	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	8.0	0.0	0.0	-23.0
1357	611520.21	4816769.01	2.50	0	E	1000	56.0	4.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	10.5	0.0	0.0	-25.2
1357	611520.21	4816769.01	2.50	0	E	2000	52.1	4.0	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	14.3	0.0	0.0	-40.4
1357	611520.21	4816769.01	2.50	0	E	4000	48.0	4.0	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	18.0	0.0	0.0	-77.0
1357	611520.21	4816769.01	2.50	0	E	8000	39.2	4.0	0.0	0.0	0.0	72.9	145.7	-2.8	0.0	0.0	21.3	0.0	0.0	-194.0
1361	611517.60	4816771.35	2.50	0	D	32	24.7	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.0
1361	611517.60	4816771.35	2.50	0	D	63	38.3	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1361	611517.60	4816771.35	2.50	0	D	125	47.0	6.5	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-24.7
1361	611517.60	4816771.35	2.50	0	D	250	51.5	6.5	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-20.9
1361	611517.60	4816771.35	2.50	0	D	500	53.9	6.5	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-17.2
1361	611517.60	4816771.35	2.50	0	D	1000	56.0	6.5	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-16.9
1361	611517.60	4816771.35	2.50	0	D	2000	52.1	6.5	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	4.8	0.0	0.0	-28.3
1361	611517.60	4816771.35	2.50	0	D	4000	48.0	6.5	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	4.9	0.0	0.0	-61.1
1361	611517.60	4816771.35	2.50	0	D	8000	39.2	6.5	0.0	0.0	0.0	72.9	145.4	-2.8	0.0	0.0	4.9	0.0	0.0	-174.7
1361	611517.60	4816771.35	2.50	0	N	32	26.5	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.2
1361	611517.60	4816771.35	2.50	0	N	63	40.0	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-25.7
1361	611517.60	4816771.35	2.50	0	N	125	48.7	6.5	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-22.9
1361	611517.60	4816771.35	2.50	0	N	250	53.3	6.5	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-19.2
1361	611517.60	4816771.35	2.50	0	N	500	55.7	6.5	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-15.5
1361	611517.60	4816771.35	2.50	0	N	1000	57.7	6.5	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-15.2
1361	611517.60	4816771.35	2.50	0	N	2000	53.8	6.5	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	4.8	0.0	0.0	-26.6
1361	611517.60	4816771.35	2.50	0	N	4000	49.8	6.5	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	4.9	0.0	0.0	-59.4
1361	611517.60	4816771.35	2.50	0	N	8000	40.9	6.5	0.0	0.0	0.0	72.9	145.4	-2.8	0.0	0.0	4.9	0.0	0.0	-173.0
1361	611517.60	4816771.35	2.50	0	E	32	24.7	6.5	0.0	0.0	0.0	72.9	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.0
1361	611517.60	4816771.35	2.50	0	E	63	38.3	6.5	0.0	0.0	0.0	72.9	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1361	611517.60	4816771.35	2.50	0	E	125	47.0	6.5	0.0	0.0	0.0	72.9	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-24.7
1361	611517.60	4816771.35	2.50	0	E	250	51.5	6.5	0.0	0.0	0.0	72.9	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-20.9
1361	611517.60	4816771.35	2.50	0	E	500	53.9	6.5	0.0	0.0	0.0	72.9	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-17.2
1361	611517.60	4816771.35	2.50	0	E	1000	56.0	6.5	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-16.9

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1361	611517.60	4816771.35	2.50	0	E	2000	52.1	6.5	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	4.8	0.0	0.0	-28.3
1361	611517.60	4816771.35	2.50	0	E	4000	48.0	6.5	0.0	0.0	0.0	72.9	40.8	-2.8	0.0	0.0	4.9	0.0	0.0	-61.1
1361	611517.60	4816771.35	2.50	0	E	8000	39.2	6.5	0.0	0.0	0.0	72.9	145.4	-2.8	0.0	0.0	4.9	0.0	0.0	-174.7
1366	611505.51	4816810.56	2.50	0	D	32	24.7	7.9	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.4
1366	611505.51	4816810.56	2.50	0	D	63	38.3	7.9	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-25.9
1366	611505.51	4816810.56	2.50	0	D	125	47.0	7.9	0.0	0.0	0.0	72.6	0.5	0.7	0.0	0.0	4.2	0.0	0.0	-23.1
1366	611505.51	4816810.56	2.50	0	D	250	51.5	7.9	0.0	0.0	0.0	72.6	1.3	-0.4	0.0	0.0	5.1	0.0	0.0	-19.2
1366	611505.51	4816810.56	2.50	0	D	500	53.9	7.9	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	5.5	0.0	0.0	-16.0
1366	611505.51	4816810.56	2.50	0	D	1000	56.0	7.9	0.0	0.0	0.0	72.6	4.4	-2.9	0.0	0.0	6.2	0.0	0.0	-16.4
1366	611505.51	4816810.56	2.50	0	D	2000	52.1	7.9	0.0	0.0	0.0	72.6	11.6	-2.9	0.0	0.0	7.3	0.0	0.0	-28.7
1366	611505.51	4816810.56	2.50	0	D	4000	48.0	7.9	0.0	0.0	0.0	72.6	39.4	-2.9	0.0	0.0	9.0	0.0	0.0	-62.1
1366	611505.51	4816810.56	2.50	0	D	8000	39.2	7.9	0.0	0.0	0.0	72.6	140.6	-2.9	0.0	0.0	11.1	0.0	0.0	-174.3
1366	611505.51	4816810.56	2.50	0	N	32	26.5	7.9	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-37.6
1366	611505.51	4816810.56	2.50	0	N	63	40.0	7.9	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-24.2
1366	611505.51	4816810.56	2.50	0	N	125	48.7	7.9	0.0	0.0	0.0	72.6	0.5	0.7	0.0	0.0	4.2	0.0	0.0	-21.4
1366	611505.51	4816810.56	2.50	0	N	250	53.3	7.9	0.0	0.0	0.0	72.6	1.3	-0.4	0.0	0.0	5.1	0.0	0.0	-17.4
1366	611505.51	4816810.56	2.50	0	N	500	55.7	7.9	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	5.5	0.0	0.0	-14.3
1366	611505.51	4816810.56	2.50	0	N	1000	57.7	7.9	0.0	0.0	0.0	72.6	4.4	-2.9	0.0	0.0	6.2	0.0	0.0	-14.7
1366	611505.51	4816810.56	2.50	0	N	2000	53.8	7.9	0.0	0.0	0.0	72.6	11.6	-2.9	0.0	0.0	7.3	0.0	0.0	-26.9
1366	611505.51	4816810.56	2.50	0	N	4000	49.8	7.9	0.0	0.0	0.0	72.6	39.4	-2.9	0.0	0.0	9.0	0.0	0.0	-60.4
1366	611505.51	4816810.56	2.50	0	N	8000	40.9	7.9	0.0	0.0	0.0	72.6	140.6	-2.9	0.0	0.0	11.1	0.0	0.0	-172.5
1366	611505.51	4816810.56	2.50	0	E	32	24.7	7.9	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.4
1366	611505.51	4816810.56	2.50	0	E	63	38.3	7.9	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-25.9
1366	611505.51	4816810.56	2.50	0	E	125	47.0	7.9	0.0	0.0	0.0	72.6	0.5	0.7	0.0	0.0	4.2	0.0	0.0	-23.1
1366	611505.51	4816810.56	2.50	0	E	250	51.5	7.9	0.0	0.0	0.0	72.6	1.3	-0.4	0.0	0.0	5.1	0.0	0.0	-19.2
1366	611505.51	4816810.56	2.50	0	E	500	53.9	7.9	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	5.5	0.0	0.0	-16.0
1366	611505.51	4816810.56	2.50	0	E	1000	56.0	7.9	0.0	0.0	0.0	72.6	4.4	-2.9	0.0	0.0	6.2	0.0	0.0	-16.4
1366	611505.51	4816810.56	2.50	0	E	2000	52.1	7.9	0.0	0.0	0.0	72.6	11.6	-2.9	0.0	0.0	7.3	0.0	0.0	-28.7
1366	611505.51	4816810.56	2.50	0	E	4000	48.0	7.9	0.0	0.0	0.0	72.6	39.4	-2.9	0.0	0.0	9.0	0.0	0.0	-62.1
1366	611505.51	4816810.56	2.50	0	E	8000	39.2	7.9	0.0	0.0	0.0	72.6	140.6	-2.9	0.0	0.0	11.1	0.0	0.0	-174.3
1371	611610.56	4816806.78	2.50	0	D	32	24.7	7.8	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-34.8
1371	611610.56	4816806.78	2.50	0	D	63	38.3	7.8	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-21.3
1371	611610.56	4816806.78	2.50	0	D	125	47.0	7.8	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.0
1371	611610.56	4816806.78	2.50	0	D	250	51.5	7.8	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-15.1
1371	611610.56	4816806.78	2.50	0	D	500	53.9	7.8	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-11.1
1371	611610.56	4816806.78	2.50	0	D	1000	56.0	7.8	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-10.7
1371	611610.56	4816806.78	2.50	0	D	2000	52.1	7.8	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-22.1
1371	611610.56	4816806.78	2.50	0	D	4000	48.0	7.8	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-54.5
1371	611610.56	4816806.78	2.50	0	D	8000	39.2	7.8	0.0	0.0	0.0	72.8	143.8	-2.7	0.0	0.0	0.0	0.0	0.0	-166.9
1371	611610.56	4816806.78	2.50	0	N	32	26.5	7.8	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-33.0
1371	611610.56	4816806.78	2.50	0	N	63	40.0	7.8	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-19.6
1371	611610.56	4816806.78	2.50	0	N	125	48.7	7.8	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-18.2
1371	611610.56	4816806.78	2.50	0	N	250	53.3	7.8	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-13.4
1371	611610.56	4816806.78	2.50	0	N	500	55.7	7.8	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-9.3
1371	611610.56	4816806.78	2.50	0	N	1000	57.7	7.8	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-9.0
1371	611610.56	4816806.78	2.50	0	N	2000	53.8	7.8	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-20.3
1371	611610.56	4816806.78	2.50	0	N	4000	49.8	7.8	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-52.7
1371	611610.56	4816806.78	2.50	0	N	8000	40.9	7.8	0.0	0.0	0.0	72.8	143.8	-2.7	0.0	0.0	0.0	0.0	0.0	-165.1
1371	611610.56	4816806.78	2.50	0	E	32	24.7	7.8	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-34.8
1371	611610.56	4816806.78	2.50	0	E	63	38.3	7.8	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-21.3
1371	611610.56	4816806.78	2.50	0	E	125	47.0	7.8	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.0
1371	611610.56	4816806.78	2.50	0	E	250	51.5	7.8	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-15.1
1371	611610.56	4816806.78	2.50	0	E	500	53.9	7.8	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-11.1
1371	611610.56	4816806.78	2.50	0	E	1000	56.0	7.8	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-10.7
1371	611610.56	4816806.78	2.50	0	E	2000	52.1	7.8	0.0	0.0	0.0	72.8	11.9	-2.7	0.0	0.0	0.0	0.0	0.0	-22.1
1371	611610.56	4816806.78	2.50	0	E	4000	48.0	7.8	0.0	0.0	0.0	72.8	40.3	-2.7	0.0	0.0	0.0	0.0	0.0	-54.5
1371	611610.56	4816806.78	2.50	0	E	8000	39.2	7.8	0.0	0.0	0.0	72.8	143.8	-2.7	0.0	0.0	0.0	0.0	0.0	-166.9
1376	611595.89	4816806.88	2.50	0	D	32	24.7	7.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.9
1376	611595.89	4816806.88	2.50	0	D	63	38.3	7.5	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-26.4
1376	611595.89	4816806.88	2.50	0	D	125	47.0	7.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-23.6
1376	611595.89	4816806.88	2.50	0	D	250	51.5	7.5	0.0	0.0	0.0	72.8	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-19.8
1376	611595.89	4816806.88	2.50	0	D	500	53.9	7.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-16.1
1376	611595.89	4816806.88	2.50	0	D	1000	56.0	7.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-15.8

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1376	611595.89	4816806.88	2.50	0	D	2000	52.1	7.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-27.1
1376	611595.89	4816806.88	2.50	0	D	4000	48.0	7.5	0.0	0.0	0.0	72.8	40.2	-2.8	0.0	0.0	4.8	0.0	0.0	-59.4
1376	611595.89	4816806.88	2.50	0	D	8000	39.2	7.5	0.0	0.0	0.0	72.8	143.3	-2.8	0.0	0.0	4.8	0.0	0.0	-171.5
1376	611595.89	4816806.88	2.50	0	N	32	26.5	7.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-38.1
1376	611595.89	4816806.88	2.50	0	N	63	40.0	7.5	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-24.7
1376	611595.89	4816806.88	2.50	0	N	125	48.7	7.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-21.8
1376	611595.89	4816806.88	2.50	0	N	250	53.3	7.5	0.0	0.0	0.0	72.8	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-18.1
1376	611595.89	4816806.88	2.50	0	N	500	55.7	7.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-14.4
1376	611595.89	4816806.88	2.50	0	N	1000	57.7	7.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-14.0
1376	611595.89	4816806.88	2.50	0	N	2000	53.8	7.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-25.3
1376	611595.89	4816806.88	2.50	0	N	4000	49.8	7.5	0.0	0.0	0.0	72.8	40.2	-2.8	0.0	0.0	4.8	0.0	0.0	-57.7
1376	611595.89	4816806.88	2.50	0	N	8000	40.9	7.5	0.0	0.0	0.0	72.8	143.3	-2.8	0.0	0.0	4.8	0.0	0.0	-169.7
1376	611595.89	4816806.88	2.50	0	E	32	24.7	7.5	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.9
1376	611595.89	4816806.88	2.50	0	E	63	38.3	7.5	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-26.4
1376	611595.89	4816806.88	2.50	0	E	125	47.0	7.5	0.0	0.0	0.0	72.8	0.5	1.4	0.0	0.0	3.4	0.0	0.0	-23.6
1376	611595.89	4816806.88	2.50	0	E	250	51.5	7.5	0.0	0.0	0.0	72.8	1.3	0.3	0.0	0.0	4.5	0.0	0.0	-19.8
1376	611595.89	4816806.88	2.50	0	E	500	53.9	7.5	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-16.1
1376	611595.89	4816806.88	2.50	0	E	1000	56.0	7.5	0.0	0.0	0.0	72.8	4.5	-2.8	0.0	0.0	4.8	0.0	0.0	-15.8
1376	611595.89	4816806.88	2.50	0	E	2000	52.1	7.5	0.0	0.0	0.0	72.8	11.9	-2.8	0.0	0.0	4.8	0.0	0.0	-27.1
1376	611595.89	4816806.88	2.50	0	E	4000	48.0	7.5	0.0	0.0	0.0	72.8	40.2	-2.8	0.0	0.0	4.8	0.0	0.0	-59.4
1376	611595.89	4816806.88	2.50	0	E	8000	39.2	7.5	0.0	0.0	0.0	72.8	143.3	-2.8	0.0	0.0	4.8	0.0	0.0	-171.5
1391	611542.21	4816755.77	2.50	0	D	32	24.7	7.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.1	0.0	0.0	-42.7
1391	611542.21	4816755.77	2.50	0	D	63	38.3	7.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.5	0.0	0.0	-31.7
1391	611542.21	4816755.77	2.50	0	D	125	47.0	7.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.3	0.0	0.0	-30.6
1391	611542.21	4816755.77	2.50	0	D	250	51.5	7.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	15.1	0.0	0.0	-28.5
1391	611542.21	4816755.77	2.50	0	D	500	53.9	7.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	17.9	0.0	0.0	-28.9
1391	611542.21	4816755.77	2.50	0	D	1000	56.0	7.3	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	20.9	0.0	0.0	-31.9
1391	611542.21	4816755.77	2.50	0	D	2000	52.1	7.3	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	23.8	0.0	0.0	-46.4
1391	611542.21	4816755.77	2.50	0	D	4000	48.0	7.3	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-80.8
1391	611542.21	4816755.77	2.50	0	D	8000	39.2	7.3	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-196.0
1391	611542.21	4816755.77	2.50	0	N	32	26.5	7.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.1	0.0	0.0	-40.9
1391	611542.21	4816755.77	2.50	0	N	63	40.0	7.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.5	0.0	0.0	-29.9
1391	611542.21	4816755.77	2.50	0	N	125	48.7	7.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.3	0.0	0.0	-28.9
1391	611542.21	4816755.77	2.50	0	N	250	53.3	7.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	15.1	0.0	0.0	-26.7
1391	611542.21	4816755.77	2.50	0	N	500	55.7	7.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	17.9	0.0	0.0	-27.2
1391	611542.21	4816755.77	2.50	0	N	1000	57.7	7.3	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	20.9	0.0	0.0	-30.1
1391	611542.21	4816755.77	2.50	0	N	2000	53.8	7.3	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	23.8	0.0	0.0	-44.6
1391	611542.21	4816755.77	2.50	0	N	4000	49.8	7.3	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-79.0
1391	611542.21	4816755.77	2.50	0	N	8000	40.9	7.3	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-194.2
1391	611542.21	4816755.77	2.50	0	E	32	24.7	7.3	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.1	0.0	0.0	-42.7
1391	611542.21	4816755.77	2.50	0	E	63	38.3	7.3	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	9.5	0.0	0.0	-31.7
1391	611542.21	4816755.77	2.50	0	E	125	47.0	7.3	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	12.3	0.0	0.0	-30.6
1391	611542.21	4816755.77	2.50	0	E	250	51.5	7.3	0.0	0.0	0.0	73.0	1.3	-2.1	0.0	0.0	15.1	0.0	0.0	-28.5
1391	611542.21	4816755.77	2.50	0	E	500	53.9	7.3	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	17.9	0.0	0.0	-28.9
1391	611542.21	4816755.77	2.50	0	E	1000	56.0	7.3	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	20.9	0.0	0.0	-31.9
1391	611542.21	4816755.77	2.50	0	E	2000	52.1	7.3	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	23.8	0.0	0.0	-46.4
1391	611542.21	4816755.77	2.50	0	E	4000	48.0	7.3	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-80.8
1391	611542.21	4816755.77	2.50	0	E	8000	39.2	7.3	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-196.0
1396	611603.13	4816811.53	2.50	0	D	32	24.7	5.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.5
1396	611603.13	4816811.53	2.50	0	D	63	38.3	5.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-24.1
1396	611603.13	4816811.53	2.50	0	D	125	47.0	5.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.7
1396	611603.13	4816811.53	2.50	0	D	250	51.5	5.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-17.9
1396	611603.13	4816811.53	2.50	0	D	500	53.9	5.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-13.8
1396	611603.13	4816811.53	2.50	0	D	1000	56.0	5.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-13.4
1396	611603.13	4816811.53	2.50	0	D	2000	52.1	5.1	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-24.7
1396	611603.13	4816811.53	2.50	0	D	4000	48.0	5.1	0.0	0.0	0.0	72.8	40.1	-2.7	0.0	0.0	0.0	0.0	0.0	-57.0
1396	611603.13	4816811.53	2.50	0	D	8000	39.2	5.1	0.0	0.0	0.0	72.8	143.0	-2.7	0.0	0.0	0.0	0.0	0.0	-168.8
1396	611603.13	4816811.53	2.50	0	N	32	26.5	5.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-35.8
1396	611603.13	4816811.53	2.50	0	N	63	40.0	5.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-22.3
1396	611603.13	4816811.53	2.50	0	N	125	48.7	5.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-20.9
1396	611603.13	4816811.53	2.50	0	N	250	53.3	5.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-16.1
1396	611603.13	4816811.53	2.50	0	N	500	55.7	5.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-12.0
1396	611603.13	4816811.53	2.50	0	N	1000	57.7	5.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-11.7

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1396	611603.13	4816811.53	2.50	0	N	2000	53.8	5.1	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-23.0
1396	611603.13	4816811.53	2.50	0	N	4000	49.8	5.1	0.0	0.0	0.0	72.8	40.1	-2.7	0.0	0.0	0.0	0.0	0.0	-55.2
1396	611603.13	4816811.53	2.50	0	N	8000	40.9	5.1	0.0	0.0	0.0	72.8	143.0	-2.7	0.0	0.0	0.0	0.0	0.0	-167.1
1396	611603.13	4816811.53	2.50	0	E	32	24.7	5.1	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-37.5
1396	611603.13	4816811.53	2.50	0	E	63	38.3	5.1	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-24.1
1396	611603.13	4816811.53	2.50	0	E	125	47.0	5.1	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-22.7
1396	611603.13	4816811.53	2.50	0	E	250	51.5	5.1	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-17.9
1396	611603.13	4816811.53	2.50	0	E	500	53.9	5.1	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-13.8
1396	611603.13	4816811.53	2.50	0	E	1000	56.0	5.1	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-13.4
1396	611603.13	4816811.53	2.50	0	E	2000	52.1	5.1	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-24.7
1396	611603.13	4816811.53	2.50	0	E	4000	48.0	5.1	0.0	0.0	0.0	72.8	40.1	-2.7	0.0	0.0	0.0	0.0	0.0	-57.0
1396	611603.13	4816811.53	2.50	0	E	8000	39.2	5.1	0.0	0.0	0.0	72.8	143.0	-2.7	0.0	0.0	0.0	0.0	0.0	-168.8
1401	611600.80	4816811.74	2.50	0	D	32	24.7	1.7	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-45.7
1401	611600.80	4816811.74	2.50	0	D	63	38.3	1.7	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-32.2
1401	611600.80	4816811.74	2.50	0	D	125	47.0	1.7	0.0	0.0	0.0	72.7	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-29.4
1401	611600.80	4816811.74	2.50	0	D	250	51.5	1.7	0.0	0.0	0.0	72.7	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-25.6
1401	611600.80	4816811.74	2.50	0	D	500	53.9	1.7	0.0	0.0	0.0	72.7	2.4	-2.3	0.0	0.0	4.8	0.0	0.0	-22.0
1401	611600.80	4816811.74	2.50	0	D	1000	56.0	1.7	0.0	0.0	0.0	72.7	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-21.6
1401	611600.80	4816811.74	2.50	0	D	2000	52.1	1.7	0.0	0.0	0.0	72.7	11.8	-2.7	0.0	0.0	4.8	0.0	0.0	-32.9
1401	611600.80	4816811.74	2.50	0	D	4000	48.0	1.7	0.0	0.0	0.0	72.7	40.1	-2.7	0.0	0.0	4.8	0.0	0.0	-65.1
1401	611600.80	4816811.74	2.50	0	D	8000	39.2	1.7	0.0	0.0	0.0	72.7	142.9	-2.7	0.0	0.0	4.8	0.0	0.0	-176.9
1401	611600.80	4816811.74	2.50	0	N	32	26.5	1.7	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-43.9
1401	611600.80	4816811.74	2.50	0	N	63	40.0	1.7	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-30.5
1401	611600.80	4816811.74	2.50	0	N	125	48.7	1.7	0.0	0.0	0.0	72.7	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-27.6
1401	611600.80	4816811.74	2.50	0	N	250	53.3	1.7	0.0	0.0	0.0	72.7	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-23.9
1401	611600.80	4816811.74	2.50	0	N	500	55.7	1.7	0.0	0.0	0.0	72.7	2.4	-2.3	0.0	0.0	4.8	0.0	0.0	-20.2
1401	611600.80	4816811.74	2.50	0	N	1000	57.7	1.7	0.0	0.0	0.0	72.7	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-19.8
1401	611600.80	4816811.74	2.50	0	N	2000	53.8	1.7	0.0	0.0	0.0	72.7	11.8	-2.7	0.0	0.0	4.8	0.0	0.0	-31.1
1401	611600.80	4816811.74	2.50	0	N	4000	49.8	1.7	0.0	0.0	0.0	72.7	40.1	-2.7	0.0	0.0	4.8	0.0	0.0	-63.4
1401	611600.80	4816811.74	2.50	0	N	8000	40.9	1.7	0.0	0.0	0.0	72.7	142.9	-2.7	0.0	0.0	4.8	0.0	0.0	-175.1
1401	611600.80	4816811.74	2.50	0	E	32	24.7	1.7	0.0	0.0	0.0	72.7	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-45.7
1401	611600.80	4816811.74	2.50	0	E	63	38.3	1.7	0.0	0.0	0.0	72.7	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-32.2
1401	611600.80	4816811.74	2.50	0	E	125	47.0	1.7	0.0	0.0	0.0	72.7	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-29.4
1401	611600.80	4816811.74	2.50	0	E	250	51.5	1.7	0.0	0.0	0.0	72.7	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-25.6
1401	611600.80	4816811.74	2.50	0	E	500	53.9	1.7	0.0	0.0	0.0	72.7	2.4	-2.3	0.0	0.0	4.8	0.0	0.0	-22.0
1401	611600.80	4816811.74	2.50	0	E	1000	56.0	1.7	0.0	0.0	0.0	72.7	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-21.6
1401	611600.80	4816811.74	2.50	0	E	2000	52.1	1.7	0.0	0.0	0.0	72.7	11.8	-2.7	0.0	0.0	4.8	0.0	0.0	-32.9
1401	611600.80	4816811.74	2.50	0	E	4000	48.0	1.7	0.0	0.0	0.0	72.7	40.1	-2.7	0.0	0.0	4.8	0.0	0.0	-65.1
1401	611600.80	4816811.74	2.50	0	E	8000	39.2	1.7	0.0	0.0	0.0	72.7	142.9	-2.7	0.0	0.0	4.8	0.0	0.0	-176.9
1405	611509.72	4816811.89	2.50	0	D	32	24.7	4.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-42.8
1405	611509.72	4816811.89	2.50	0	D	63	38.3	4.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-29.4
1405	611509.72	4816811.89	2.50	0	D	125	47.0	4.5	0.0	0.0	0.0	72.6	0.5	0.3	0.0	0.0	4.8	0.0	0.0	-26.8
1405	611509.72	4816811.89	2.50	0	D	250	51.5	4.5	0.0	0.0	0.0	72.6	1.3	-0.8	0.0	0.0	5.7	0.0	0.0	-22.7
1405	611509.72	4816811.89	2.50	0	D	500	53.9	4.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.5	0.0	0.0	-20.2
1405	611509.72	4816811.89	2.50	0	D	1000	56.0	4.5	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	7.8	0.0	0.0	-21.3
1405	611509.72	4816811.89	2.50	0	D	2000	52.1	4.5	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	9.6	0.0	0.0	-34.2
1405	611509.72	4816811.89	2.50	0	D	4000	48.0	4.5	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	11.8	0.0	0.0	-68.2
1405	611509.72	4816811.89	2.50	0	D	8000	39.2	4.5	0.0	0.0	0.0	72.6	140.5	-3.0	0.0	0.0	14.3	0.0	0.0	-180.8
1405	611509.72	4816811.89	2.50	0	N	32	26.5	4.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.0
1405	611509.72	4816811.89	2.50	0	N	63	40.0	4.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-27.6
1405	611509.72	4816811.89	2.50	0	N	125	48.7	4.5	0.0	0.0	0.0	72.6	0.5	0.3	0.0	0.0	4.8	0.0	0.0	-25.0
1405	611509.72	4816811.89	2.50	0	N	250	53.3	4.5	0.0	0.0	0.0	72.6	1.3	-0.8	0.0	0.0	5.7	0.0	0.0	-20.9
1405	611509.72	4816811.89	2.50	0	N	500	55.7	4.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.5	0.0	0.0	-18.5
1405	611509.72	4816811.89	2.50	0	N	1000	57.7	4.5	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	7.8	0.0	0.0	-19.5
1405	611509.72	4816811.89	2.50	0	N	2000	53.8	4.5	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	9.6	0.0	0.0	-32.4
1405	611509.72	4816811.89	2.50	0	N	4000	49.8	4.5	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	11.8	0.0	0.0	-66.5
1405	611509.72	4816811.89	2.50	0	N	8000	40.9	4.5	0.0	0.0	0.0	72.6	140.5	-3.0	0.0	0.0	14.3	0.0	0.0	-179.0
1405	611509.72	4816811.89	2.50	0	E	32	24.7	4.5	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-42.8
1405	611509.72	4816811.89	2.50	0	E	63	38.3	4.5	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-29.4
1405	611509.72	4816811.89	2.50	0	E	125	47.0	4.5	0.0	0.0	0.0	72.6	0.5	0.3	0.0	0.0	4.8	0.0	0.0	-26.8
1405	611509.72	4816811.89	2.50	0	E	250	51.5	4.5	0.0	0.0	0.0	72.6	1.3	-0.8	0.0	0.0	5.7	0.0	0.0	-22.7
1405	611509.72	4816811.89	2.50	0	E	500	53.9	4.5	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.5	0.0	0.0	-20.2
1405	611509.72	4816811.89	2.50	0	E	1000	56.0	4.5	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	7.8	0.0	0.0	-21.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1405	611509.72	4816811.89	2.50	0	E	2000	52.1	4.5	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	9.6	0.0	0.0	-34.2
1405	611509.72	4816811.89	2.50	0	E	4000	48.0	4.5	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	11.8	0.0	0.0	-68.2
1405	611509.72	4816811.89	2.50	0	E	8000	39.2	4.5	0.0	0.0	0.0	72.6	140.5	-3.0	0.0	0.0	14.3	0.0	0.0	-180.8
1409	611511.86	4816811.99	2.50	0	D	32	24.7	1.6	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.9	0.0	0.0	-45.7
1409	611511.86	4816811.99	2.50	0	D	63	38.3	1.6	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	5.0	0.0	0.0	-32.3
1409	611511.86	4816811.99	2.50	0	D	125	47.0	1.6	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-29.8
1409	611511.86	4816811.99	2.50	0	D	250	51.5	1.6	0.0	0.0	0.0	72.6	1.3	-0.9	0.0	0.0	6.0	0.0	0.0	-25.9
1409	611511.86	4816811.99	2.50	0	D	500	53.9	1.6	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	7.1	0.0	0.0	-23.7
1409	611511.86	4816811.99	2.50	0	D	1000	56.0	1.6	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	8.7	0.0	0.0	-25.0
1409	611511.86	4816811.99	2.50	0	D	2000	52.1	1.6	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	10.7	0.0	0.0	-38.2
1409	611511.86	4816811.99	2.50	0	D	4000	48.0	1.6	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	13.1	0.0	0.0	-72.4
1409	611511.86	4816811.99	2.50	0	D	8000	39.2	1.6	0.0	0.0	0.0	72.6	140.6	-3.0	0.0	0.0	15.8	0.0	0.0	-185.2
1409	611511.86	4816811.99	2.50	0	N	32	26.5	1.6	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.9	0.0	0.0	-43.9
1409	611511.86	4816811.99	2.50	0	N	63	40.0	1.6	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	5.0	0.0	0.0	-30.6
1409	611511.86	4816811.99	2.50	0	N	125	48.7	1.6	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-28.1
1409	611511.86	4816811.99	2.50	0	N	250	53.3	1.6	0.0	0.0	0.0	72.6	1.3	-0.9	0.0	0.0	6.0	0.0	0.0	-24.1
1409	611511.86	4816811.99	2.50	0	N	500	55.7	1.6	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	7.1	0.0	0.0	-21.9
1409	611511.86	4816811.99	2.50	0	N	1000	57.7	1.6	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	8.7	0.0	0.0	-23.3
1409	611511.86	4816811.99	2.50	0	N	2000	53.8	1.6	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	10.7	0.0	0.0	-36.4
1409	611511.86	4816811.99	2.50	0	N	4000	49.8	1.6	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	13.1	0.0	0.0	-70.7
1409	611511.86	4816811.99	2.50	0	N	8000	40.9	1.6	0.0	0.0	0.0	72.6	140.6	-3.0	0.0	0.0	15.8	0.0	0.0	-183.4
1409	611511.86	4816811.99	2.50	0	E	32	24.7	1.6	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.9	0.0	0.0	-45.7
1409	611511.86	4816811.99	2.50	0	E	63	38.3	1.6	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	5.0	0.0	0.0	-32.3
1409	611511.86	4816811.99	2.50	0	E	125	47.0	1.6	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-29.8
1409	611511.86	4816811.99	2.50	0	E	250	51.5	1.6	0.0	0.0	0.0	72.6	1.3	-0.9	0.0	0.0	6.0	0.0	0.0	-25.9
1409	611511.86	4816811.99	2.50	0	E	500	53.9	1.6	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	7.1	0.0	0.0	-23.7
1409	611511.86	4816811.99	2.50	0	E	1000	56.0	1.6	0.0	0.0	0.0	72.6	4.4	-3.0	0.0	0.0	8.7	0.0	0.0	-25.0
1409	611511.86	4816811.99	2.50	0	E	2000	52.1	1.6	0.0	0.0	0.0	72.6	11.6	-3.0	0.0	0.0	10.7	0.0	0.0	-38.2
1409	611511.86	4816811.99	2.50	0	E	4000	48.0	1.6	0.0	0.0	0.0	72.6	39.4	-3.0	0.0	0.0	13.1	0.0	0.0	-72.4
1409	611511.86	4816811.99	2.50	0	E	8000	39.2	1.6	0.0	0.0	0.0	72.6	140.6	-3.0	0.0	0.0	15.8	0.0	0.0	-185.2
1413	611606.53	4816810.11	2.50	0	D	32	24.7	6.4	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-36.2
1413	611606.53	4816810.11	2.50	0	D	63	38.3	6.4	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-22.7
1413	611606.53	4816810.11	2.50	0	D	125	47.0	6.4	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-21.3
1413	611606.53	4816810.11	2.50	0	D	250	51.5	6.4	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-16.5
1413	611606.53	4816810.11	2.50	0	D	500	53.9	6.4	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-12.4
1413	611606.53	4816810.11	2.50	0	D	1000	56.0	6.4	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-12.1
1413	611606.53	4816810.11	2.50	0	D	2000	52.1	6.4	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-23.4
1413	611606.53	4816810.11	2.50	0	D	4000	48.0	6.4	0.0	0.0	0.0	72.8	40.2	-2.7	0.0	0.0	0.0	0.0	0.0	-55.7
1413	611606.53	4816810.11	2.50	0	D	8000	39.2	6.4	0.0	0.0	0.0	72.8	143.3	-2.7	0.0	0.0	0.0	0.0	0.0	-167.7
1413	611606.53	4816810.11	2.50	0	N	32	26.5	6.4	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-34.4
1413	611606.53	4816810.11	2.50	0	N	63	40.0	6.4	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-20.9
1413	611606.53	4816810.11	2.50	0	N	125	48.7	6.4	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-19.6
1413	611606.53	4816810.11	2.50	0	N	250	53.3	6.4	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-14.7
1413	611606.53	4816810.11	2.50	0	N	500	55.7	6.4	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-10.7
1413	611606.53	4816810.11	2.50	0	N	1000	57.7	6.4	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-10.3
1413	611606.53	4816810.11	2.50	0	N	2000	53.8	6.4	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-21.6
1413	611606.53	4816810.11	2.50	0	N	4000	49.8	6.4	0.0	0.0	0.0	72.8	40.2	-2.7	0.0	0.0	0.0	0.0	0.0	-54.0
1413	611606.53	4816810.11	2.50	0	N	8000	40.9	6.4	0.0	0.0	0.0	72.8	143.3	-2.7	0.0	0.0	0.0	0.0	0.0	-166.0
1413	611606.53	4816810.11	2.50	0	E	32	24.7	6.4	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	-36.2
1413	611606.53	4816810.11	2.50	0	E	63	38.3	6.4	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-22.7
1413	611606.53	4816810.11	2.50	0	E	125	47.0	6.4	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	0.0	0.0	0.0	-21.3
1413	611606.53	4816810.11	2.50	0	E	250	51.5	6.4	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	0.0	0.0	0.0	-16.5
1413	611606.53	4816810.11	2.50	0	E	500	53.9	6.4	0.0	0.0	0.0	72.8	2.4	-2.3	0.0	0.0	0.0	0.0	0.0	-12.4
1413	611606.53	4816810.11	2.50	0	E	1000	56.0	6.4	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	0.0	0.0	0.0	-12.1
1413	611606.53	4816810.11	2.50	0	E	2000	52.1	6.4	0.0	0.0	0.0	72.8	11.8	-2.7	0.0	0.0	0.0	0.0	0.0	-23.4
1413	611606.53	4816810.11	2.50	0	E	4000	48.0	6.4	0.0	0.0	0.0	72.8	40.2	-2.7	0.0	0.0	0.0	0.0	0.0	-55.7
1413	611606.53	4816810.11	2.50	0	E	8000	39.2	6.4	0.0	0.0	0.0	72.8	143.3	-2.7	0.0	0.0	0.0	0.0	0.0	-167.7
1417	611502.24	4816807.22	2.50	0	D	32	24.7	6.3	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.0
1417	611502.24	4816807.22	2.50	0	D	63	38.3	6.3	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1417	611502.24	4816807.22	2.50	0	D	125	47.0	6.3	0.0	0.0	0.0	72.6	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-24.7
1417	611502.24	4816807.22	2.50	0	D	250	51.5	6.3	0.0	0.0	0.0	72.6	1.3	-0.0	0.0	0.0	4.9	0.0	0.0	-20.9
1417	611502.24	4816807.22	2.50	0	D	500	53.9	6.3	0.0	0.0	0.0	72.6	2.3	-2.5	0.0	0.0	5.0	0.0	0.0	-17.3
1417	611502.24	4816807.22	2.50	0	D	1000	56.0	6.3	0.0	0.0	0.0	72.6	4.4	-2.8	0.0	0.0	5.3	0.0	0.0	-17.3

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1417	611502.24	4816807.22	2.50	0	D	2000	52.1	6.3	0.0	0.0	0.0	72.6	11.7	-2.8	0.0	0.0	5.8	0.0	0.0	-29.0
1417	611502.24	4816807.22	2.50	0	D	4000	48.0	6.3	0.0	0.0	0.0	72.6	39.5	-2.8	0.0	0.0	6.7	0.0	0.0	-61.7
1417	611502.24	4816807.22	2.50	0	D	8000	39.2	6.3	0.0	0.0	0.0	72.6	140.9	-2.8	0.0	0.0	8.1	0.0	0.0	-173.3
1417	611502.24	4816807.22	2.50	0	N	32	26.5	6.3	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.2
1417	611502.24	4816807.22	2.50	0	N	63	40.0	6.3	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-25.8
1417	611502.24	4816807.22	2.50	0	N	125	48.7	6.3	0.0	0.0	0.0	72.6	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-22.9
1417	611502.24	4816807.22	2.50	0	N	250	53.3	6.3	0.0	0.0	0.0	72.6	1.3	-0.0	0.0	0.0	4.9	0.0	0.0	-19.2
1417	611502.24	4816807.22	2.50	0	N	500	55.7	6.3	0.0	0.0	0.0	72.6	2.3	-2.5	0.0	0.0	5.0	0.0	0.0	-15.5
1417	611502.24	4816807.22	2.50	0	N	1000	57.7	6.3	0.0	0.0	0.0	72.6	4.4	-2.8	0.0	0.0	5.3	0.0	0.0	-15.5
1417	611502.24	4816807.22	2.50	0	N	2000	53.8	6.3	0.0	0.0	0.0	72.6	11.7	-2.8	0.0	0.0	5.8	0.0	0.0	-27.2
1417	611502.24	4816807.22	2.50	0	N	4000	49.8	6.3	0.0	0.0	0.0	72.6	39.5	-2.8	0.0	0.0	6.7	0.0	0.0	-59.9
1417	611502.24	4816807.22	2.50	0	N	8000	40.9	6.3	0.0	0.0	0.0	72.6	140.9	-2.8	0.0	0.0	8.1	0.0	0.0	-171.6
1417	611502.24	4816807.22	2.50	0	E	32	24.7	6.3	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.0
1417	611502.24	4816807.22	2.50	0	E	63	38.3	6.3	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-27.5
1417	611502.24	4816807.22	2.50	0	E	125	47.0	6.3	0.0	0.0	0.0	72.6	0.5	1.1	0.0	0.0	3.7	0.0	0.0	-24.7
1417	611502.24	4816807.22	2.50	0	E	250	51.5	6.3	0.0	0.0	0.0	72.6	1.3	-0.0	0.0	0.0	4.9	0.0	0.0	-20.9
1417	611502.24	4816807.22	2.50	0	E	500	53.9	6.3	0.0	0.0	0.0	72.6	2.3	-2.5	0.0	0.0	5.0	0.0	0.0	-17.3
1417	611502.24	4816807.22	2.50	0	E	1000	56.0	6.3	0.0	0.0	0.0	72.6	4.4	-2.8	0.0	0.0	5.3	0.0	0.0	-17.3
1417	611502.24	4816807.22	2.50	0	E	2000	52.1	6.3	0.0	0.0	0.0	72.6	11.7	-2.8	0.0	0.0	5.8	0.0	0.0	-29.0
1417	611502.24	4816807.22	2.50	0	E	4000	48.0	6.3	0.0	0.0	0.0	72.6	39.5	-2.8	0.0	0.0	6.7	0.0	0.0	-61.7
1417	611502.24	4816807.22	2.50	0	E	8000	39.2	6.3	0.0	0.0	0.0	72.6	140.9	-2.8	0.0	0.0	8.1	0.0	0.0	-173.3
1421	611546.88	4816756.77	2.50	0	D	32	24.7	6.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.6	0.0	0.0	-44.0
1421	611546.88	4816756.77	2.50	0	D	63	38.3	6.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	10.2	0.0	0.0	-33.2
1421	611546.88	4816756.77	2.50	0	D	125	47.0	6.4	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	13.0	0.0	0.0	-32.2
1421	611546.88	4816756.77	2.50	0	D	250	51.5	6.4	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.9	0.0	0.0	-30.1
1421	611546.88	4816756.77	2.50	0	D	500	53.9	6.4	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.7	0.0	0.0	-30.6
1421	611546.88	4816756.77	2.50	0	D	1000	56.0	6.4	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.7	0.0	0.0	-33.6
1421	611546.88	4816756.77	2.50	0	D	2000	52.1	6.4	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.6	0.0	0.0	-48.1
1421	611546.88	4816756.77	2.50	0	D	4000	48.0	6.4	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-81.6
1421	611546.88	4816756.77	2.50	0	D	8000	39.2	6.4	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-196.8
1421	611546.88	4816756.77	2.50	0	N	32	26.5	6.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.6	0.0	0.0	-42.3
1421	611546.88	4816756.77	2.50	0	N	63	40.0	6.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	10.2	0.0	0.0	-31.4
1421	611546.88	4816756.77	2.50	0	N	125	48.7	6.4	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	13.0	0.0	0.0	-30.4
1421	611546.88	4816756.77	2.50	0	N	250	53.3	6.4	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.9	0.0	0.0	-28.3
1421	611546.88	4816756.77	2.50	0	N	500	55.7	6.4	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.7	0.0	0.0	-28.8
1421	611546.88	4816756.77	2.50	0	N	1000	57.7	6.4	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.7	0.0	0.0	-31.8
1421	611546.88	4816756.77	2.50	0	N	2000	53.8	6.4	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.6	0.0	0.0	-46.3
1421	611546.88	4816756.77	2.50	0	N	4000	49.8	6.4	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-79.9
1421	611546.88	4816756.77	2.50	0	N	8000	40.9	6.4	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-195.1
1421	611546.88	4816756.77	2.50	0	E	32	24.7	6.4	0.0	0.0	0.0	73.0	0.0	-5.5	0.0	0.0	7.6	0.0	0.0	-44.0
1421	611546.88	4816756.77	2.50	0	E	63	38.3	6.4	0.0	0.0	0.0	73.0	0.2	-5.5	0.0	0.0	10.2	0.0	0.0	-33.2
1421	611546.88	4816756.77	2.50	0	E	125	47.0	6.4	0.0	0.0	0.0	73.0	0.5	-1.0	0.0	0.0	13.0	0.0	0.0	-32.2
1421	611546.88	4816756.77	2.50	0	E	250	51.5	6.4	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	15.9	0.0	0.0	-30.1
1421	611546.88	4816756.77	2.50	0	E	500	53.9	6.4	0.0	0.0	0.0	73.0	2.4	-3.3	0.0	0.0	18.7	0.0	0.0	-30.6
1421	611546.88	4816756.77	2.50	0	E	1000	56.0	6.4	0.0	0.0	0.0	73.0	4.6	-3.4	0.0	0.0	21.7	0.0	0.0	-33.6
1421	611546.88	4816756.77	2.50	0	E	2000	52.1	6.4	0.0	0.0	0.0	73.0	12.2	-3.4	0.0	0.0	24.6	0.0	0.0	-48.1
1421	611546.88	4816756.77	2.50	0	E	4000	48.0	6.4	0.0	0.0	0.0	73.0	41.4	-3.4	0.0	0.0	25.0	0.0	0.0	-81.6
1421	611546.88	4816756.77	2.50	0	E	8000	39.2	6.4	0.0	0.0	0.0	73.0	147.7	-3.4	0.0	0.0	25.0	0.0	0.0	-196.8
1425	611514.45	4816812.03	2.50	0	D	32	24.7	5.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.6
1425	611514.45	4816812.03	2.50	0	D	63	38.3	5.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-28.2
1425	611514.45	4816812.03	2.50	0	D	125	47.0	5.7	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-25.6
1425	611514.45	4816812.03	2.50	0	D	250	51.5	5.7	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	5.8	0.0	0.0	-21.4
1425	611514.45	4816812.03	2.50	0	D	500	53.9	5.7	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.7	0.0	0.0	-19.2
1425	611514.45	4816812.03	2.50	0	D	1000	56.0	5.7	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	8.1	0.0	0.0	-20.3
1425	611514.45	4816812.03	2.50	0	D	2000	52.1	5.7	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	9.9	0.0	0.0	-33.3
1425	611514.45	4816812.03	2.50	0	D	4000	48.0	5.7	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	12.2	0.0	0.0	-67.4
1425	611514.45	4816812.03	2.50	0	D	8000	39.2	5.7	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	14.8	0.0	0.0	-180.1
1425	611514.45	4816812.03	2.50	0	N	32	26.5	5.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-39.8
1425	611514.45	4816812.03	2.50	0	N	63	40.0	5.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-26.4
1425	611514.45	4816812.03	2.50	0	N	125	48.7	5.7	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-23.9
1425	611514.45	4816812.03	2.50	0	N	250	53.3	5.7	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	5.8	0.0	0.0	-19.7
1425	611514.45	4816812.03	2.50	0	N	500	55.7	5.7	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.7	0.0	0.0	-17.4
1425	611514.45	4816812.03	2.50	0	N	1000	57.7	5.7	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	8.1	0.0	0.0	-18.5

Line Source, ISO 9613, Name: "Biosolids Truck Movement 1 (after expansion)", ID: "!01!BTME_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1425	611514.45	4816812.03	2.50	0	N	2000	53.8	5.7	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	9.9	0.0	0.0	-31.6
1425	611514.45	4816812.03	2.50	0	N	4000	49.8	5.7	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	12.2	0.0	0.0	-65.7
1425	611514.45	4816812.03	2.50	0	N	8000	40.9	5.7	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	14.8	0.0	0.0	-178.4
1425	611514.45	4816812.03	2.50	0	E	32	24.7	5.7	0.0	0.0	0.0	72.6	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.6
1425	611514.45	4816812.03	2.50	0	E	63	38.3	5.7	0.0	0.0	0.0	72.6	0.1	-5.5	0.0	0.0	4.9	0.0	0.0	-28.2
1425	611514.45	4816812.03	2.50	0	E	125	47.0	5.7	0.0	0.0	0.0	72.6	0.5	0.2	0.0	0.0	5.1	0.0	0.0	-25.6
1425	611514.45	4816812.03	2.50	0	E	250	51.5	5.7	0.0	0.0	0.0	72.6	1.3	-1.0	0.0	0.0	5.8	0.0	0.0	-21.4
1425	611514.45	4816812.03	2.50	0	E	500	53.9	5.7	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	6.7	0.0	0.0	-19.2
1425	611514.45	4816812.03	2.50	0	E	1000	56.0	5.7	0.0	0.0	0.0	72.6	4.4	-3.1	0.0	0.0	8.1	0.0	0.0	-20.3
1425	611514.45	4816812.03	2.50	0	E	2000	52.1	5.7	0.0	0.0	0.0	72.6	11.6	-3.1	0.0	0.0	9.9	0.0	0.0	-33.3
1425	611514.45	4816812.03	2.50	0	E	4000	48.0	5.7	0.0	0.0	0.0	72.6	39.4	-3.1	0.0	0.0	12.2	0.0	0.0	-67.4
1425	611514.45	4816812.03	2.50	0	E	8000	39.2	5.7	0.0	0.0	0.0	72.6	140.6	-3.1	0.0	0.0	14.8	0.0	0.0	-180.1
1433	611598.80	4816810.48	2.50	0	D	32	24.7	5.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.7
1433	611598.80	4816810.48	2.50	0	D	63	38.3	5.6	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-28.3
1433	611598.80	4816810.48	2.50	0	D	125	47.0	5.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-25.4
1433	611598.80	4816810.48	2.50	0	D	250	51.5	5.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-21.6
1433	611598.80	4816810.48	2.50	0	D	500	53.9	5.6	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-18.0
1433	611598.80	4816810.48	2.50	0	D	1000	56.0	5.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-17.6
1433	611598.80	4816810.48	2.50	0	D	2000	52.1	5.6	0.0	0.0	0.0	72.8	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-28.9
1433	611598.80	4816810.48	2.50	0	D	4000	48.0	5.6	0.0	0.0	0.0	72.8	40.1	-2.8	0.0	0.0	4.8	0.0	0.0	-61.2
1433	611598.80	4816810.48	2.50	0	D	8000	39.2	5.6	0.0	0.0	0.0	72.8	143.0	-2.8	0.0	0.0	4.8	0.0	0.0	-173.0
1433	611598.80	4816810.48	2.50	0	N	32	26.5	5.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-40.0
1433	611598.80	4816810.48	2.50	0	N	63	40.0	5.6	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-26.5
1433	611598.80	4816810.48	2.50	0	N	125	48.7	5.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-23.6
1433	611598.80	4816810.48	2.50	0	N	250	53.3	5.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-19.9
1433	611598.80	4816810.48	2.50	0	N	500	55.7	5.6	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-16.2
1433	611598.80	4816810.48	2.50	0	N	1000	57.7	5.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-15.9
1433	611598.80	4816810.48	2.50	0	N	2000	53.8	5.6	0.0	0.0	0.0	72.8	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-27.1
1433	611598.80	4816810.48	2.50	0	N	4000	49.8	5.6	0.0	0.0	0.0	72.8	40.1	-2.8	0.0	0.0	4.8	0.0	0.0	-59.4
1433	611598.80	4816810.48	2.50	0	N	8000	40.9	5.6	0.0	0.0	0.0	72.8	143.0	-2.8	0.0	0.0	4.8	0.0	0.0	-171.2
1433	611598.80	4816810.48	2.50	0	E	32	24.7	5.6	0.0	0.0	0.0	72.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-41.7
1433	611598.80	4816810.48	2.50	0	E	63	38.3	5.6	0.0	0.0	0.0	72.8	0.1	-5.5	0.0	0.0	4.8	0.0	0.0	-28.3
1433	611598.80	4816810.48	2.50	0	E	125	47.0	5.6	0.0	0.0	0.0	72.8	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-25.4
1433	611598.80	4816810.48	2.50	0	E	250	51.5	5.6	0.0	0.0	0.0	72.8	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-21.6
1433	611598.80	4816810.48	2.50	0	E	500	53.9	5.6	0.0	0.0	0.0	72.8	2.4	-2.4	0.0	0.0	4.8	0.0	0.0	-18.0
1433	611598.80	4816810.48	2.50	0	E	1000	56.0	5.6	0.0	0.0	0.0	72.8	4.5	-2.7	0.0	0.0	4.8	0.0	0.0	-17.6
1433	611598.80	4816810.48	2.50	0	E	2000	52.1	5.6	0.0	0.0	0.0	72.8	11.8	-2.8	0.0	0.0	4.8	0.0	0.0	-28.9
1433	611598.80	4816810.48	2.50	0	E	4000	48.0	5.6	0.0	0.0	0.0	72.8	40.1	-2.8	0.0	0.0	4.8	0.0	0.0	-61.2
1433	611598.80	4816810.48	2.50	0	E	8000	39.2	5.6	0.0	0.0	0.0	72.8	143.0	-2.8	0.0	0.0	4.8	0.0	0.0	-173.0

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 4", ID: "!0500!D9_M4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
723	611391.51	4816885.87	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	71.9	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.3
723	611391.51	4816885.87	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	71.9	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-10.9
723	611391.51	4816885.87	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	71.9	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.1
723	611391.51	4816885.87	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	71.9	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	-1.8
723	611391.51	4816885.87	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	71.9	2.1	-2.6	0.0	0.0	0.0	0.0	0.0	2.7
723	611391.51	4816885.87	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	71.9	4.1	-2.6	0.0	0.0	0.0	0.0	0.0	2.4
723	611391.51	4816885.87	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	71.9	10.7	-2.6	0.0	0.0	0.0	0.0	0.0	-10.4
723	611391.51	4816885.87	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	71.9	36.4	-2.6	0.0	0.0	0.0	0.0	0.0	-36.8
723	611391.51	4816885.87	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	71.9	130.0	-2.6	0.0	0.0	0.0	0.0	0.0	-136.7

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 5", ID: "!0500!D9_M5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
730	611380.70	4816876.12	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.0	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.3
730	611380.70	4816876.12	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.0	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-10.9
730	611380.70	4816876.12	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.2
730	611380.70	4816876.12	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.0	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	-1.9
730	611380.70	4816876.12	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.0	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.7
730	611380.70	4816876.12	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.0	4.1	-2.6	0.0	0.0	0.0	0.0	0.0	2.3
730	611380.70	4816876.12	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.0	10.8	-2.6	0.0	0.0	0.0	0.0	0.0	-10.5

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 5", ID: "!0500!D9_M5"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
730	611380.70	4816876.12	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.0	36.7	-2.6	0.0	0.0	0.0	0.0	0.0	-37.1
730	611380.70	4816876.12	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.0	131.0	-2.6	0.0	0.0	0.0	0.0	0.0	-137.8

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 1", ID: "!0500!D9_M1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
737	611392.14	4816874.21	7.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.0	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.4
737	611392.14	4816874.21	7.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.0	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.0
737	611392.14	4816874.21	7.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	-4.7
737	611392.14	4816874.21	7.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.0	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-1.8
737	611392.14	4816874.21	7.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.0	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	2.6
737	611392.14	4816874.21	7.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.0	4.1	-2.5	0.0	0.0	0.0	0.0	0.0	2.2
737	611392.14	4816874.21	7.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.0	10.9	-2.5	0.0	0.0	0.0	0.0	0.0	-10.6
737	611392.14	4816874.21	7.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.0	36.8	-2.5	0.0	0.0	0.0	0.0	0.0	-37.3
737	611392.14	4816874.21	7.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.0	131.4	-2.5	0.0	0.0	0.0	0.0	0.0	-138.2

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 3", ID: "!0500!D9_M3"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
743	611404.54	4816874.11	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.0	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.4
743	611404.54	4816874.11	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.0	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.0
743	611404.54	4816874.11	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.2
743	611404.54	4816874.11	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.0	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-1.9
743	611404.54	4816874.11	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.0	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.6
743	611404.54	4816874.11	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.0	4.1	-2.6	0.0	0.0	0.0	0.0	0.0	2.3
743	611404.54	4816874.11	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.0	10.9	-2.6	0.0	0.0	0.0	0.0	0.0	-10.6
743	611404.54	4816874.11	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.0	36.9	-2.6	0.0	0.0	0.0	0.0	0.0	-37.3
743	611404.54	4816874.11	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.0	131.5	-2.6	0.0	0.0	0.0	0.0	0.0	-138.3

Point Source, ISO 9613, Name: "Digester 9 sludge mixer motor 2", ID: "!0500!D9_M2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
750	611393.31	4816861.81	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.1	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.5
750	611393.31	4816861.81	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.1	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.1
750	611393.31	4816861.81	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.1	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.3
750	611393.31	4816861.81	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.1	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.0
750	611393.31	4816861.81	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.1	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.5
750	611393.31	4816861.81	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.1	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.2
750	611393.31	4816861.81	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.1	11.0	-2.6	0.0	0.0	0.0	0.0	0.0	-10.8
750	611393.31	4816861.81	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.1	37.2	-2.6	0.0	0.0	0.0	0.0	0.0	-37.7
750	611393.31	4816861.81	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.1	132.8	-2.6	0.0	0.0	0.0	0.0	0.0	-139.7

Point Source, ISO 9613, Name: "Digester 8 sludge mixer motor 4", ID: "!0500!D8_M4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
752	611363.11	4816857.26	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.1	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.5
752	611363.11	4816857.26	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.1	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.1
752	611363.11	4816857.26	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.1	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.3
752	611363.11	4816857.26	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.1	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.0
752	611363.11	4816857.26	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.1	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.5
752	611363.11	4816857.26	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.1	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.1
752	611363.11	4816857.26	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.1	11.0	-2.6	0.0	0.0	0.0	0.0	0.0	-10.8
752	611363.11	4816857.26	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.1	37.3	-2.6	0.0	0.0	0.0	0.0	0.0	-37.8
752	611363.11	4816857.26	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.1	133.1	-2.6	0.0	0.0	0.0	0.0	0.0	-140.0

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 4", ID: "!0500!D7_M4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
754	611423.59	4816854.69	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.2	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-23.3
754	611423.59	4816854.69	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.2	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-15.9
754	611423.59	4816854.69	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.2	0.5	0.4	0.0	0.0	4.4	0.0	0.0	-9.5
754	611423.59	4816854.69	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.2	1.2	-1.9	0.0	0.0	4.8	0.0	0.0	-6.8
754	611423.59	4816854.69	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.2	2.2	-2.7	0.0	0.0	4.8	0.0	0.0	-2.3

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 4", ID: "!0500!D7_M4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
754	611423.59	4816854.69	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.2	4.2	-2.7	0.0	0.0	4.8	0.0	0.0	-2.7
754	611423.59	4816854.69	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.2	11.1	-2.7	0.0	0.0	4.8	0.0	0.0	-15.7
754	611423.59	4816854.69	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.2	37.6	-2.7	0.0	0.0	4.9	0.0	0.0	-43.0
754	611423.59	4816854.69	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.2	134.0	-2.7	0.0	0.0	5.1	0.0	0.0	-146.0

Point Source, ISO 9613, Name: "Digester 8 sludge mixer motor 3", ID: "!0500!D8_M3"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
761	611351.55	4816847.08	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.2	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.5
761	611351.55	4816847.08	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.2	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.1
761	611351.55	4816847.08	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.2	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.4
761	611351.55	4816847.08	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.2	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.1
761	611351.55	4816847.08	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.2	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.4
761	611351.55	4816847.08	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.2	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.0
761	611351.55	4816847.08	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.2	11.1	-2.6	0.0	0.0	0.0	0.0	0.0	-11.0
761	611351.55	4816847.08	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.2	37.6	-2.6	0.0	0.0	0.0	0.0	0.0	-38.2
761	611351.55	4816847.08	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.2	134.2	-2.6	0.0	0.0	0.0	0.0	0.0	-141.1

Point Source, ISO 9613, Name: "Digester 8 sludge mixer motor 1", ID: "!0500!D8_M1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
802	611363.92	4816844.51	7.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.2	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.6
802	611363.92	4816844.51	7.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.2	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.2
802	611363.92	4816844.51	7.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	-4.9
802	611363.92	4816844.51	7.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.2	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.1
802	611363.92	4816844.51	7.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.2	2.2	-2.5	0.0	0.0	0.0	0.0	0.0	2.3
802	611363.92	4816844.51	7.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.2	4.2	-2.5	0.0	0.0	0.0	0.0	0.0	2.0
802	611363.92	4816844.51	7.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.2	11.1	-2.5	0.0	0.0	0.0	0.0	0.0	-11.1
802	611363.92	4816844.51	7.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.2	37.7	-2.5	0.0	0.0	0.0	0.0	0.0	-38.4
802	611363.92	4816844.51	7.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.2	134.5	-2.5	0.0	0.0	0.0	0.0	0.0	-141.6

Point Source, ISO 9613, Name: "Digester 8 sludge mixer motor 5", ID: "!0500!D8_M5"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
820	611374.76	4816844.65	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.2	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.6
820	611374.76	4816844.65	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.2	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.2
820	611374.76	4816844.65	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.2	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.4
820	611374.76	4816844.65	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.2	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.1
820	611374.76	4816844.65	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.2	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.4
820	611374.76	4816844.65	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.2	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.0
820	611374.76	4816844.65	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.2	11.1	-2.6	0.0	0.0	0.0	0.0	0.0	-11.0
820	611374.76	4816844.65	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.2	37.7	-2.6	0.0	0.0	0.0	0.0	0.0	-38.3
820	611374.76	4816844.65	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.2	134.6	-2.6	0.0	0.0	0.0	0.0	0.0	-141.6

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 5", ID: "!0500!D7_M5"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
823	611412.35	4816842.61	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.6
823	611412.35	4816842.61	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.2
823	611412.35	4816842.61	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.3	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.4
823	611412.35	4816842.61	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.3	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.2
823	611412.35	4816842.61	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.3	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.3
823	611412.35	4816842.61	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.3	4.2	-2.6	0.0	0.0	0.0	0.0	0.0	1.9
823	611412.35	4816842.61	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.3	11.2	-2.6	0.0	0.0	0.0	0.0	0.0	-11.1
823	611412.35	4816842.61	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.3	37.9	-2.6	0.0	0.0	0.0	0.0	0.0	-38.6
823	611412.35	4816842.61	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.3	135.3	-2.6	0.0	0.0	0.0	0.0	0.0	-142.3

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 1", ID: "!0500!D7_M1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
826	611424.86	4816841.86	7.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.3	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-23.5
826	611424.86	4816841.86	7.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.3	0.1	-5.1	0.0	0.0	4.8	0.0	0.0	-16.1
826	611424.86	4816841.86	7.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.3	0.5	0.1	0.0	0.0	4.7	0.0	0.0	-9.6

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 1", ID: "!0500!D7_M1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
826	611424.86	4816841.86	7.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.3	1.2	-1.9	0.0	0.0	4.8	0.0	0.0	-6.9
826	611424.86	4816841.86	7.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.3	2.2	-2.6	0.0	0.0	4.8	0.0	0.0	-2.5
826	611424.86	4816841.86	7.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.3	4.2	-2.6	0.0	0.0	4.8	0.0	0.0	-2.9
826	611424.86	4816841.86	7.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.3	11.2	-2.6	0.0	0.0	4.8	0.0	0.0	-15.9
826	611424.86	4816841.86	7.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.3	38.0	-2.6	0.0	0.0	4.8	0.0	0.0	-43.4
826	611424.86	4816841.86	7.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.3	135.5	-2.6	0.0	0.0	4.8	0.0	0.0	-147.4

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 3", ID: "!0500!D7_M3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
829	611437.05	4816842.71	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-23.4
829	611437.05	4816842.71	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-16.0
829	611437.05	4816842.71	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.3	0.5	0.2	0.0	0.0	4.6	0.0	0.0	-9.6
829	611437.05	4816842.71	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.3	1.2	-2.0	0.0	0.0	4.8	0.0	0.0	-6.8
829	611437.05	4816842.71	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.3	2.2	-2.8	0.0	0.0	4.8	0.0	0.0	-2.3
829	611437.05	4816842.71	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.3	4.2	-2.8	0.0	0.0	4.8	0.0	0.0	-2.7
829	611437.05	4816842.71	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.3	11.2	-2.8	0.0	0.0	4.9	0.0	0.0	-15.9
829	611437.05	4816842.71	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.3	38.0	-2.8	0.0	0.0	4.9	0.0	0.0	-43.5
829	611437.05	4816842.71	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.3	135.6	-2.8	0.0	0.0	5.1	0.0	0.0	-147.6

Point Source, ISO 9613, Name: "Digester 8 sludge mixer motor 2", ID: "!0500!D8_M2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
831	611364.70	4816833.10	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.3	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.6
831	611364.70	4816833.10	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.3	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.2
831	611364.70	4816833.10	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.3	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.5
831	611364.70	4816833.10	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.3	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.2
831	611364.70	4816833.10	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.3	2.2	-2.6	0.0	0.0	0.0	0.0	0.0	2.3
831	611364.70	4816833.10	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.3	4.3	-2.6	0.0	0.0	0.0	0.0	0.0	1.9
831	611364.70	4816833.10	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.3	11.2	-2.6	0.0	0.0	0.0	0.0	0.0	-11.2
831	611364.70	4816833.10	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.3	38.1	-2.6	0.0	0.0	0.0	0.0	0.0	-38.8
831	611364.70	4816833.10	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.3	135.9	-2.6	0.0	0.0	0.0	0.0	0.0	-143.0

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 4", ID: "!0500!D6_M4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
834	611395.41	4816826.66	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.4	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.7
834	611395.41	4816826.66	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.4	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.3
834	611395.41	4816826.66	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	-5.3
834	611395.41	4816826.66	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.4	1.2	-1.9	0.0	0.0	0.0	0.0	0.0	-2.2
834	611395.41	4816826.66	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.4	2.3	-2.7	0.0	0.0	0.0	0.0	0.0	2.3
834	611395.41	4816826.66	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.4	4.3	-2.7	0.0	0.0	0.0	0.0	0.0	1.9
834	611395.41	4816826.66	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.4	11.3	-2.7	0.0	0.0	0.0	0.0	0.0	-11.3
834	611395.41	4816826.66	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.4	38.4	-2.7	0.0	0.0	0.0	0.0	0.0	-39.0
834	611395.41	4816826.66	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.4	136.9	-2.7	0.0	0.0	0.0	0.0	0.0	-144.0

Point Source, ISO 9613, Name: "Digester 7 sludge mixer motor 2", ID: "!0500!D7_M2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
837	611425.92	4816829.15	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.4	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-23.5
837	611425.92	4816829.15	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.4	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-16.1
837	611425.92	4816829.15	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.4	0.5	0.4	0.0	0.0	4.4	0.0	0.0	-9.7
837	611425.92	4816829.15	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.4	1.2	-1.9	0.0	0.0	4.8	0.0	0.0	-7.0
837	611425.92	4816829.15	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.4	2.3	-2.7	0.0	0.0	4.8	0.0	0.0	-2.5
837	611425.92	4816829.15	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.4	4.3	-2.7	0.0	0.0	4.8	0.0	0.0	-2.9
837	611425.92	4816829.15	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.4	11.3	-2.7	0.0	0.0	4.8	0.0	0.0	-16.1
837	611425.92	4816829.15	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.4	38.4	-2.7	0.0	0.0	4.8	0.0	0.0	-43.9
837	611425.92	4816829.15	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.4	137.0	-2.7	0.0	0.0	4.8	0.0	0.0	-148.9

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 3", ID: "!0500!D6_M3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
843	611382.73	4816815.04	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.5	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.8

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 3", ID: "!0500!D6_M3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
843	611382.73	4816815.04	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.5	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.4
843	611382.73	4816815.04	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.5	0.5	0.6	0.0	0.0	0.0	0.0	0.0	-5.6
843	611382.73	4816815.04	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.5	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.4
843	611382.73	4816815.04	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.5	2.3	-2.6	0.0	0.0	0.0	0.0	0.0	2.1
843	611382.73	4816815.04	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.5	4.3	-2.6	0.0	0.0	0.0	0.0	0.0	1.7
843	611382.73	4816815.04	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.5	11.4	-2.6	0.0	0.0	0.0	0.0	0.0	-11.5
843	611382.73	4816815.04	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.5	38.7	-2.6	0.0	0.0	0.0	0.0	0.0	-39.6
843	611382.73	4816815.04	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.5	138.2	-2.6	0.0	0.0	0.0	0.0	0.0	-145.4

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 1", ID: "!0500!D6_M1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
846	611395.54	4816813.41	7.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.5	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-18.9
846	611395.54	4816813.41	7.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.5	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-11.5
846	611395.54	4816813.41	7.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	-5.0
846	611395.54	4816813.41	7.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.5	1.2	-1.9	0.0	0.0	0.0	0.0	0.0	-2.3
846	611395.54	4816813.41	7.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.5	2.3	-2.6	0.0	0.0	0.0	0.0	0.0	2.1
846	611395.54	4816813.41	7.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.5	4.3	-2.6	0.0	0.0	0.0	0.0	0.0	1.7
846	611395.54	4816813.41	7.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.5	11.4	-2.6	0.0	0.0	0.0	0.0	0.0	-11.5
846	611395.54	4816813.41	7.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.5	38.8	-2.6	0.0	0.0	0.0	0.0	0.0	-39.6
846	611395.54	4816813.41	7.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.5	138.5	-2.6	0.0	0.0	0.0	0.0	0.0	-145.7

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 5", ID: "!0500!D6_M5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
849	611408.09	4816813.44	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.5	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.8
849	611408.09	4816813.44	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.5	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.4
849	611408.09	4816813.44	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	-5.5
849	611408.09	4816813.44	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.5	1.2	-1.8	0.0	0.0	0.0	0.0	0.0	-2.3
849	611408.09	4816813.44	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.5	2.3	-2.6	0.0	0.0	0.0	0.0	0.0	2.1
849	611408.09	4816813.44	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.5	4.3	-2.6	0.0	0.0	0.0	0.0	0.0	1.7
849	611408.09	4816813.44	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.5	11.5	-2.6	0.0	0.0	0.0	0.0	0.0	-11.6
849	611408.09	4816813.44	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.5	38.9	-2.6	0.0	0.0	0.0	0.0	0.0	-39.7
849	611408.09	4816813.44	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.5	138.6	-2.6	0.0	0.0	0.0	0.0	0.0	-145.8

Point Source, ISO 9613, Name: "Digester 6 sludge mixer motor 2", ID: "!0500!D6_M2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
863	611396.48	4816801.29	6.28	0	DEN	32	48.5	0.0	0.0	0.0	0.0	72.6	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-18.9
863	611396.48	4816801.29	6.28	0	DEN	63	56.0	0.0	0.0	0.0	0.0	72.6	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-11.5
863	611396.48	4816801.29	6.28	0	DEN	125	67.9	0.0	0.0	0.0	0.0	72.6	0.5	0.4	0.0	0.0	0.0	0.0	0.0	-5.5
863	611396.48	4816801.29	6.28	0	DEN	250	69.5	0.0	0.0	0.0	0.0	72.6	1.2	-1.9	0.0	0.0	0.0	0.0	0.0	-2.4
863	611396.48	4816801.29	6.28	0	DEN	500	74.2	0.0	0.0	0.0	0.0	72.6	2.3	-2.7	0.0	0.0	0.0	0.0	0.0	2.1
863	611396.48	4816801.29	6.28	0	DEN	1000	75.8	0.0	0.0	0.0	0.0	72.6	4.4	-2.7	0.0	0.0	0.0	0.0	0.0	1.6
863	611396.48	4816801.29	6.28	0	DEN	2000	69.7	0.0	0.0	0.0	0.0	72.6	11.6	-2.7	0.0	0.0	0.0	0.0	0.0	-11.7
863	611396.48	4816801.29	6.28	0	DEN	4000	69.0	0.0	0.0	0.0	0.0	72.6	39.2	-2.7	0.0	0.0	0.0	0.0	0.0	-40.0
863	611396.48	4816801.29	6.28	0	DEN	8000	62.6	0.0	0.0	0.0	0.0	72.6	139.9	-2.7	0.0	0.0	0.0	0.0	0.0	-147.1

Point Source, ISO 9613, Name: "Control building exhaust air fan 4", ID: "!0607!CB_FAN95480"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
889	611445.89	4816780.26	5.64	0	DEN	32	46.8	0.0	0.0	0.0	0.0	72.8	0.0	-5.3	0.0	0.0	4.8	0.0	0.0	-25.5
889	611445.89	4816780.26	5.64	0	DEN	63	53.6	0.0	0.0	0.0	0.0	72.8	0.1	-5.3	0.0	0.0	4.8	0.0	0.0	-18.8
889	611445.89	4816780.26	5.64	0	DEN	125	65.6	0.0	0.0	0.0	0.0	72.8	0.5	0.1	0.0	0.0	4.7	0.0	0.0	-12.4
889	611445.89	4816780.26	5.64	0	DEN	250	71.6	0.0	0.0	0.0	0.0	72.8	1.3	-2.0	0.0	0.0	4.8	0.0	0.0	-5.2
889	611445.89	4816780.26	5.64	0	DEN	500	74.3	0.0	0.0	0.0	0.0	72.8	2.4	-2.9	0.0	0.0	4.8	0.0	0.0	-2.7
889	611445.89	4816780.26	5.64	0	DEN	1000	73.9	0.0	0.0	0.0	0.0	72.8	4.5	-2.9	0.0	0.0	4.8	0.0	0.0	-5.2
889	611445.89	4816780.26	5.64	0	DEN	2000	73.6	0.0	0.0	0.0	0.0	72.8	11.8	-2.9	0.0	0.0	4.8	0.0	0.0	-12.9
889	611445.89	4816780.26	5.64	0	DEN	4000	69.1	0.0	0.0	0.0	0.0	72.8	40.1	-2.9	0.0	0.0	4.8	0.0	0.0	-45.6
889	611445.89	4816780.26	5.64	0	DEN	8000	60.0	0.0	0.0	0.0	0.0	72.8	143.0	-2.9	0.0	0.0	4.8	0.0	0.0	-157.6

vert. Area Source, ISO 9613, Name: "Biosolids Complex makeup air unit (east)", ID: "!0604!BC_MAUe"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
892	611561.23	4816797.24	9.00	0	DEN	32	36.2	5.9	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-22.7
892	611561.23	4816797.24	9.00	0	DEN	63	48.3	5.9	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-10.7
892	611561.23	4816797.24	9.00	0	DEN	125	55.6	5.9	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	-8.3
892	611561.23	4816797.24	9.00	0	DEN	250	62.6	5.9	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	0.0	0.0	0.0	-0.6
892	611561.23	4816797.24	9.00	0	DEN	500	64.0	5.9	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	0.0	0.0	0.0	0.4
892	611561.23	4816797.24	9.00	0	DEN	1000	65.6	5.9	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	0.0	0.0	0.0	-0.1
892	611561.23	4816797.24	9.00	0	DEN	2000	61.1	5.9	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	0.0	0.0	0.0	-12.0
892	611561.23	4816797.24	9.00	0	DEN	4000	54.4	5.9	0.0	3.0	0.0	72.8	40.2	-2.6	0.0	0.0	0.0	0.0	0.0	-47.1
892	611561.23	4816797.24	9.00	0	DEN	8000	52.6	5.9	0.0	3.0	0.0	72.8	143.5	-2.6	0.0	0.0	0.0	0.0	0.0	-152.1
900	611562.93	4816795.51	9.00	0	DEN	32	36.2	-0.3	0.0	3.0	0.0	72.8	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	-28.9
900	611562.93	4816795.51	9.00	0	DEN	63	48.3	-0.3	0.0	3.0	0.0	72.8	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	-17.0
900	611562.93	4816795.51	9.00	0	DEN	125	55.6	-0.3	0.0	3.0	0.0	72.8	0.5	-0.5	0.0	0.0	0.0	0.0	0.0	-14.5
900	611562.93	4816795.51	9.00	0	DEN	250	62.6	-0.3	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	0.0	0.0	0.0	-6.9
900	611562.93	4816795.51	9.00	0	DEN	500	64.0	-0.3	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	0.0	0.0	0.0	-5.9
900	611562.93	4816795.51	9.00	0	DEN	1000	65.6	-0.3	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	0.0	0.0	0.0	-6.4
900	611562.93	4816795.51	9.00	0	DEN	2000	61.1	-0.3	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	0.0	0.0	0.0	-18.3
900	611562.93	4816795.51	9.00	0	DEN	4000	54.4	-0.3	0.0	3.0	0.0	72.8	40.3	-2.6	0.0	0.0	0.0	0.0	0.0	-53.4
900	611562.93	4816795.51	9.00	0	DEN	8000	52.6	-0.3	0.0	3.0	0.0	72.8	143.7	-2.6	0.0	0.0	0.0	0.0	0.0	-158.6
908	611561.23	4816797.24	8.00	0	DEN	32	36.2	5.9	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-22.6
908	611561.23	4816797.24	8.00	0	DEN	63	48.3	5.9	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-10.6
908	611561.23	4816797.24	8.00	0	DEN	125	55.6	5.9	0.0	3.0	0.0	72.8	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	-8.5
908	611561.23	4816797.24	8.00	0	DEN	250	62.6	5.9	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	0.0	0.0	0.0	-0.6
908	611561.23	4816797.24	8.00	0	DEN	500	64.0	5.9	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	0.0	0.0	0.0	0.4
908	611561.23	4816797.24	8.00	0	DEN	1000	65.6	5.9	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	0.0	0.0	0.0	-0.1
908	611561.23	4816797.24	8.00	0	DEN	2000	61.1	5.9	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	0.0	0.0	0.0	-12.0
908	611561.23	4816797.24	8.00	0	DEN	4000	54.4	5.9	0.0	3.0	0.0	72.8	40.2	-2.6	0.0	0.0	0.0	0.0	0.0	-47.0
908	611561.23	4816797.24	8.00	0	DEN	8000	52.6	5.9	0.0	3.0	0.0	72.8	143.5	-2.6	0.0	0.0	0.0	0.0	0.0	-152.1
930	611562.93	4816795.51	8.00	0	DEN	32	36.2	-0.3	0.0	3.0	0.0	72.8	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	-28.9
930	611562.93	4816795.51	8.00	0	DEN	63	48.3	-0.3	0.0	3.0	0.0	72.8	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-16.9
930	611562.93	4816795.51	8.00	0	DEN	125	55.6	-0.3	0.0	3.0	0.0	72.8	0.5	-0.3	0.0	0.0	0.0	0.0	0.0	-14.7
930	611562.93	4816795.51	8.00	0	DEN	250	62.6	-0.3	0.0	3.0	0.0	72.8	1.3	-1.9	0.0	0.0	0.0	0.0	0.0	-6.9
930	611562.93	4816795.51	8.00	0	DEN	500	64.0	-0.3	0.0	3.0	0.0	72.8	2.4	-2.6	0.0	0.0	0.0	0.0	0.0	-5.8
930	611562.93	4816795.51	8.00	0	DEN	1000	65.6	-0.3	0.0	3.0	0.0	72.8	4.5	-2.6	0.0	0.0	0.0	0.0	0.0	-6.4
930	611562.93	4816795.51	8.00	0	DEN	2000	61.1	-0.3	0.0	3.0	0.0	72.8	11.9	-2.6	0.0	0.0	0.0	0.0	0.0	-18.3
930	611562.93	4816795.51	8.00	0	DEN	4000	54.4	-0.3	0.0	3.0	0.0	72.8	40.3	-2.6	0.0	0.0	0.0	0.0	0.0	-53.4
930	611562.93	4816795.51	8.00	0	DEN	8000	52.6	-0.3	0.0	3.0	0.0	72.8	143.7	-2.6	0.0	0.0	0.0	0.0	0.0	-158.6

Point Source, ISO 9613, Name: "Digester 4 sludge mixer motor 3", ID: "!0606!D4_48003"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
933	611412.86	4816784.12	6.28	0	DEN	32	41.7	0.0	0.0	0.0	0.0	72.7	0.0	-5.2	0.0	0.0	0.0	0.0	0.0	-25.8
933	611412.86	4816784.12	6.28	0	DEN	63	49.4	0.0	0.0	0.0	0.0	72.7	0.1	-5.2	0.0	0.0	0.0	0.0	0.0	-18.2
933	611412.86	4816784.12	6.28	0	DEN	125	60.3	0.0	0.0	0.0	0.0	72.7	0.5	0.5	0.0	0.0	0.0	0.0	0.0	-13.4
933	611412.86	4816784.12	6.28	0	DEN	250	65.5	0.0	0.0	0.0	0.0	72.7	1.3	-1.8	0.0	0.0	0.0	0.0	0.0	-6.6
933	611412.86	4816784.12	6.28	0	DEN	500	67.8	0.0	0.0	0.0	0.0	72.7	2.3	-2.7	0.0	0.0	0.0	0.0	0.0	-4.6
933	611412.86	4816784.12	6.28	0	DEN	1000	73.0	0.0	0.0	0.0	0.0	72.7	4.4	-2.7	0.0	0.0	0.0	0.0	0.0	-1.5
933	611412.86	4816784.12	6.28	0	DEN	2000	77.2	0.0	0.0	0.0	0.0	72.7	11.7	-2.7	0.0	0.0	0.0	0.0	0.0	-4.6
933	611412.86	4816784.12	6.28	0	DEN	4000	66.2	0.0	0.0	0.0	0.0	72.7	39.8	-2.7	0.0	0.0	0.0	0.0	0.0	-43.7
933	611412.86	4816784.12	6.28	0	DEN	8000	54.0	0.0	0.0	0.0	0.0	72.7	142.1	-2.7	0.0	0.0	0.0	0.0	0.0	-158.1

Point Source, ISO 9613, Name: "Digester 5 sludge mixer motor 4", ID: "!0605!D5_49004"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1025	611453.49	4816826.75	6.28	0	DEN	32	46.6	0.0	0.0	0.0	0.0	72.4	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-25.5
1025	611453.49	4816826.75	6.28	0	DEN	63	52.1	0.0	0.0	0.0	0.0	72.4	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-20.1
1025	611453.49	4816826.75	6.28	0	DEN	125	64.5	0.0	0.0	0.0	0.0	72.4	0.5	-0.0	0.0	0.0	4.8	0.0	0.0	-13.1
1025	611453.49	4816826.75	6.28	0	DEN	250	65.5	0.0	0.0	0.0	0.0	72.4	1.2	-2.1	0.0	0.0	4.8	0.0	0.0	-10.9
1025	611453.49	4816826.75	6.28	0	DEN	500	71.9	0.0	0.0	0.0	0.0	72.4	2.3	-2.8	0.0	0.0	4.8	0.0	0.0	-4.7
1025	611453.49	4816826.75	6.28	0	DEN	1000	71.2	0.0	0.0	0.0	0.0	72.4	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	-7.5
1025	611453.49	4816826.75	6.28	0	DEN	2000	75.0	0.0	0.0	0.0	0.0	72.4	11.4	-2.8	0.0	0.0	4.8	0.0	0.0	-10.8
1025	611453.49	4816826.75	6.28	0	DEN	4000	68.2	0.0	0.0	0.0	0.0	72.4	38.6	-2.8	0.0	0.0	4.8	0.0	0.0	-44.8
1025	611453.49	4816826.75	6.28	0	DEN	8000	58.0	0.0	0.0	0.0	0.0	72.4	137.7	-2.8	0.0	0.0	4.9	0.0	0.0	-154.2

Point Source, ISO 9613, Name: "Biosolids complex roof mitsubishi outdoor unit ", ID: "!0604!BC_RTU1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1029	611540.64	4816814.40	10.00	0	DEN	32	43.7	0.0	0.0	0.0	0.0	72.6	0.0	-4.9	0.0	0.0	7.8	0.0	0.0	-31.9
1029	611540.64	4816814.40	10.00	0	DEN	63	51.7	0.0	0.0	0.0	0.0	72.6	0.1	-4.9	0.0	0.0	9.8	0.0	0.0	-26.0
1029	611540.64	4816814.40	10.00	0	DEN	125	58.6	0.0	0.0	0.0	0.0	72.6	0.5	-0.6	0.0	0.0	12.9	0.0	0.0	-26.8
1029	611540.64	4816814.40	10.00	0	DEN	250	64.7	0.0	0.0	0.0	0.0	72.6	1.3	-1.9	0.0	0.0	17.0	0.0	0.0	-24.3
1029	611540.64	4816814.40	10.00	0	DEN	500	70.8	0.0	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	21.0	0.0	0.0	-22.6
1029	611540.64	4816814.40	10.00	0	DEN	1000	73.6	0.0	0.0	0.0	0.0	72.6	4.4	-2.6	0.0	0.0	24.4	0.0	0.0	-25.2
1029	611540.64	4816814.40	10.00	0	DEN	2000	73.2	0.0	0.0	0.0	0.0	72.6	11.7	-2.6	0.0	0.0	25.0	0.0	0.0	-33.5
1029	611540.64	4816814.40	10.00	0	DEN	4000	70.4	0.0	0.0	0.0	0.0	72.6	39.5	-2.6	0.0	0.0	25.0	0.0	0.0	-64.2
1029	611540.64	4816814.40	10.00	0	DEN	8000	64.4	0.0	0.0	0.0	0.0	72.6	141.0	-2.6	0.0	0.0	25.0	0.0	0.0	-171.7

Point Source, ISO 9613, Name: "Biosolids complex roof twin city fan & blower 4", ID: "!0604!BC_F97630"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1033	611536.13	4816776.33	8.00	0	DEN	32	60.6	0.0	0.0	0.0	0.0	72.9	0.0	-5.1	0.0	0.0	5.0	0.0	0.0	-12.3
1033	611536.13	4816776.33	8.00	0	DEN	63	67.3	0.0	0.0	0.0	0.0	72.9	0.2	-5.1	0.0	0.0	5.3	0.0	0.0	-5.9
1033	611536.13	4816776.33	8.00	0	DEN	125	71.2	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	6.0	0.0	0.0	-7.8
1033	611536.13	4816776.33	8.00	0	DEN	250	70.9	0.0	0.0	0.0	0.0	72.9	1.3	-2.1	0.0	0.0	7.7	0.0	0.0	-8.9
1033	611536.13	4816776.33	8.00	0	DEN	500	73.8	0.0	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	10.0	0.0	0.0	-8.7
1033	611536.13	4816776.33	8.00	0	DEN	1000	69.7	0.0	0.0	0.0	0.0	72.9	4.5	-2.8	0.0	0.0	12.6	0.0	0.0	-17.6
1033	611536.13	4816776.33	8.00	0	DEN	2000	68.2	0.0	0.0	0.0	0.0	72.9	12.0	-2.8	0.0	0.0	15.3	0.0	0.0	-29.3
1033	611536.13	4816776.33	8.00	0	DEN	4000	67.3	0.0	0.0	0.0	0.0	72.9	40.7	-2.8	0.0	0.0	18.2	0.0	0.0	-61.7
1033	611536.13	4816776.33	8.00	0	DEN	8000	58.4	0.0	0.0	0.0	0.0	72.9	145.2	-2.8	0.0	0.0	21.1	0.0	0.0	-178.0

Point Source, ISO 9613, Name: "Biosolids complex roof twin city fan & blower 3", ID: "!0604!BC_F97650"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1038	611539.50	4816772.00	8.00	0	DEN	32	60.6	0.0	0.0	0.0	0.0	72.9	0.0	-5.1	0.0	0.0	5.0	0.0	0.0	-12.3
1038	611539.50	4816772.00	8.00	0	DEN	63	67.3	0.0	0.0	0.0	0.0	72.9	0.2	-5.1	0.0	0.0	5.3	0.0	0.0	-5.9
1038	611539.50	4816772.00	8.00	0	DEN	125	71.2	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	6.1	0.0	0.0	-7.8
1038	611539.50	4816772.00	8.00	0	DEN	250	70.9	0.0	0.0	0.0	0.0	72.9	1.3	-2.1	0.0	0.0	7.7	0.0	0.0	-8.9
1038	611539.50	4816772.00	8.00	0	DEN	500	73.8	0.0	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	9.8	0.0	0.0	-8.6
1038	611539.50	4816772.00	8.00	0	DEN	1000	69.7	0.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	12.3	0.0	0.0	-17.3
1038	611539.50	4816772.00	8.00	0	DEN	2000	68.2	0.0	0.0	0.0	0.0	72.9	12.1	-2.8	0.0	0.0	14.9	0.0	0.0	-28.9
1038	611539.50	4816772.00	8.00	0	DEN	4000	67.3	0.0	0.0	0.0	0.0	72.9	40.9	-2.8	0.0	0.0	17.7	0.0	0.0	-61.4
1038	611539.50	4816772.00	8.00	0	DEN	8000	58.4	0.0	0.0	0.0	0.0	72.9	145.8	-2.8	0.0	0.0	20.6	0.0	0.0	-178.2

Point Source, ISO 9613, Name: "Biosolids complex roof twin city fan & blower 5", ID: "!0604!BC_F97610"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1042	611541.60	4816770.82	8.00	0	DEN	32	60.6	0.0	0.0	0.0	0.0	72.9	0.0	-5.1	0.0	0.0	5.0	0.0	0.0	-12.3
1042	611541.60	4816770.82	8.00	0	DEN	63	67.3	0.0	0.0	0.0	0.0	72.9	0.2	-5.1	0.0	0.0	5.4	0.0	0.0	-6.0
1042	611541.60	4816770.82	8.00	0	DEN	125	71.2	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	6.3	0.0	0.0	-8.0
1042	611541.60	4816770.82	8.00	0	DEN	250	70.9	0.0	0.0	0.0	0.0	72.9	1.3	-2.1	0.0	0.0	8.0	0.0	0.0	-9.2
1042	611541.60	4816770.82	8.00	0	DEN	500	73.8	0.0	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	10.1	0.0	0.0	-8.8
1042	611541.60	4816770.82	8.00	0	DEN	1000	69.7	0.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	12.5	0.0	0.0	-17.6
1042	611541.60	4816770.82	8.00	0	DEN	2000	68.2	0.0	0.0	0.0	0.0	72.9	12.1	-2.8	0.0	0.0	15.2	0.0	0.0	-29.2
1042	611541.60	4816770.82	8.00	0	DEN	4000	67.3	0.0	0.0	0.0	0.0	72.9	40.9	-2.8	0.0	0.0	18.0	0.0	0.0	-61.8
1042	611541.60	4816770.82	8.00	0	DEN	8000	58.4	0.0	0.0	0.0	0.0	72.9	146.0	-2.8	0.0	0.0	20.9	0.0	0.0	-178.7

Point Source, ISO 9613, Name: "Digester 5 sludge mixer motor 1", ID: "!0605!D5_49001"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1047	611452.96	4816814.88	7.28	0	DEN	32	46.6	0.0	0.0	0.0	0.0	72.5	0.0	-5.1	0.0	0.0	4.8	0.0	0.0	-25.6
1047	611452.96	4816814.88	7.28	0	DEN	63	54.1	0.0	0.0	0.0	0.0	72.5	0.1	-5.1	0.0	0.0	4.8	0.0	0.0	-18.2
1047	611452.96	4816814.88	7.28	0	DEN	125	66.0	0.0	0.0	0.0	0.0	72.5	0.5	-0.3	0.0	0.0	4.8	0.0	0.0	-11.5
1047	611452.96	4816814.88	7.28	0	DEN	250	67.6	0.0	0.0	0.0	0.0	72.5	1.2	-2.0	0.0	0.0	4.8	0.0	0.0	-8.9
1047	611452.96	4816814.88	7.28	0	DEN	500	72.3	0.0	0.0	0.0	0.0	72.5	2.3	-2.8	0.0	0.0	4.8	0.0	0.0	-4.5
1047	611452.96	4816814.88	7.28	0	DEN	1000	73.9	0.0	0.0	0.0	0.0	72.5	4.4	-2.8	0.0	0.0	4.8	0.0	0.0	-5.0
1047	611452.96	4816814.88	7.28	0	DEN	2000	67.8	0.0	0.0	0.0	0.0	72.5	11.5	-2.8	0.0	0.0	4.8	0.0	0.0	-18.2
1047	611452.96	4816814.88	7.28	0	DEN	4000	67.1	0.0	0.0	0.0	0.0	72.5	39.0	-2.8	0.0	0.0	4.8	0.0	0.0	-46.4
1047	611452.96	4816814.88	7.28	0	DEN	8000	60.7	0.0	0.0	0.0	0.0	72.5	139.1	-2.8	0.0	0.0	4.8	0.0	0.0	-152.9

Point Source, ISO 9613, Name: "Digester 3 sludge mixer motor 4", ID: "!0607!D3_47004"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1064	611454.66	4816752.80	6.90	0	DEN	32	44.9	0.0	0.0	0.0	0.0	73.0	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-27.7
1064	611454.66	4816752.80	6.90	0	DEN	63	55.3	0.0	0.0	0.0	0.0	73.0	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-17.4
1064	611454.66	4816752.80	6.90	0	DEN	125	68.4	0.0	0.0	0.0	0.0	73.0	0.5	-0.4	0.0	0.0	4.8	0.0	0.0	-9.5
1064	611454.66	4816752.80	6.90	0	DEN	250	68.9	0.0	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	4.8	0.0	0.0	-8.0
1064	611454.66	4816752.80	6.90	0	DEN	500	70.3	0.0	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	4.8	0.0	0.0	-6.9
1064	611454.66	4816752.80	6.90	0	DEN	1000	73.5	0.0	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-5.9
1064	611454.66	4816752.80	6.90	0	DEN	2000	70.4	0.0	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-16.5
1064	611454.66	4816752.80	6.90	0	DEN	4000	64.1	0.0	0.0	0.0	0.0	73.0	41.0	-2.9	0.0	0.0	4.8	0.0	0.0	-51.8
1064	611454.66	4816752.80	6.90	0	DEN	8000	59.5	0.0	0.0	0.0	0.0	73.0	146.3	-2.9	0.0	0.0	4.8	0.0	0.0	-161.6

Point Source, ISO 9613, Name: "New Admin Building Mitsubishi Electric condensing unit 2", ID: "!0601!ACCU_201"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1069	611930.65	4816787.13	10.97	0	DEN	32	43.7	0.0	0.0	0.0	0.0	73.7	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	-29.9
1069	611930.65	4816787.13	10.97	0	DEN	63	51.7	0.0	0.0	0.0	0.0	73.7	0.2	-5.0	0.0	0.0	4.8	0.0	0.0	-22.0
1069	611930.65	4816787.13	10.97	0	DEN	125	58.6	0.0	0.0	0.0	0.0	73.7	0.6	-0.7	0.0	0.0	4.8	0.0	0.0	-19.8
1069	611930.65	4816787.13	10.97	0	DEN	250	64.7	0.0	0.0	0.0	0.0	73.7	1.4	-1.9	0.0	0.0	4.8	0.0	0.0	-13.3
1069	611930.65	4816787.13	10.97	0	DEN	500	70.8	0.0	0.0	0.0	0.0	73.7	2.6	-2.6	0.0	0.0	4.8	0.0	0.0	-7.7
1069	611930.65	4816787.13	10.97	0	DEN	1000	73.6	0.0	0.0	0.0	0.0	73.7	5.0	-2.6	0.0	0.0	4.8	0.0	0.0	-7.3
1069	611930.65	4816787.13	10.97	0	DEN	2000	73.2	0.0	0.0	0.0	0.0	73.7	13.2	-2.6	0.0	0.0	4.8	0.0	0.0	-15.9
1069	611930.65	4816787.13	10.97	0	DEN	4000	70.4	0.0	0.0	0.0	0.0	73.7	44.8	-2.6	0.0	0.0	4.8	0.0	0.0	-50.3
1069	611930.65	4816787.13	10.97	0	DEN	8000	64.4	0.0	0.0	0.0	0.0	73.7	159.9	-2.6	0.0	0.0	4.8	0.0	0.0	-171.4

vert. Area Source, ISO 9613, Name: "Biolsolids complex west bay door", ID: "!0603!BC_BDw"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1080	611531.98	4816782.77	3.50	0	DEN	32	28.3	6.0	0.0	3.0	0.0	72.8	0.0	-5.4	0.0	0.0	11.3	0.0	0.0	-41.3
1080	611531.98	4816782.77	3.50	0	DEN	63	40.5	6.0	0.0	3.0	0.0	72.8	0.2	-5.4	0.0	0.0	15.1	0.0	0.0	-33.2
1080	611531.98	4816782.77	3.50	0	DEN	125	51.4	6.0	0.0	3.0	0.0	72.8	0.5	-0.6	0.0	0.0	18.8	0.0	0.0	-31.1
1080	611531.98	4816782.77	3.50	0	DEN	250	57.6	6.0	0.0	3.0	0.0	72.8	1.3	-2.1	0.0	0.0	22.1	0.0	0.0	-27.6
1080	611531.98	4816782.77	3.50	0	DEN	500	63.2	6.0	0.0	3.0	0.0	72.8	2.4	-3.2	0.0	0.0	25.0	0.0	0.0	-24.7
1080	611531.98	4816782.77	3.50	0	DEN	1000	64.0	6.0	0.0	3.0	0.0	72.8	4.5	-3.2	0.0	0.0	25.0	0.0	0.0	-26.1
1080	611531.98	4816782.77	3.50	0	DEN	2000	60.1	6.0	0.0	3.0	0.0	72.8	11.9	-3.2	0.0	0.0	25.0	0.0	0.0	-37.4
1080	611531.98	4816782.77	3.50	0	DEN	4000	56.5	6.0	0.0	3.0	0.0	72.8	40.5	-3.2	0.0	0.0	25.0	0.0	0.0	-69.6
1080	611531.98	4816782.77	3.50	0	DEN	8000	49.3	6.0	0.0	3.0	0.0	72.8	144.4	-3.2	0.0	0.0	25.0	0.0	0.0	-180.7
1085	611531.98	4816782.77	2.50	0	DEN	32	28.3	6.0	0.0	3.0	0.0	72.8	0.0	-5.5	0.0	0.0	11.8	0.0	0.0	-41.8
1085	611531.98	4816782.77	2.50	0	DEN	63	40.5	6.0	0.0	3.0	0.0	72.8	0.2	-5.5	0.0	0.0	15.8	0.0	0.0	-33.7
1085	611531.98	4816782.77	2.50	0	DEN	125	51.4	6.0	0.0	3.0	0.0	72.8	0.5	-1.0	0.0	0.0	19.5	0.0	0.0	-31.4
1085	611531.98	4816782.77	2.50	0	DEN	250	57.6	6.0	0.0	3.0	0.0	72.8	1.3	-2.2	0.0	0.0	22.8	0.0	0.0	-28.1
1085	611531.98	4816782.77	2.50	0	DEN	500	63.2	6.0	0.0	3.0	0.0	72.8	2.4	-3.3	0.0	0.0	25.0	0.0	0.0	-24.7
1085	611531.98	4816782.77	2.50	0	DEN	1000	64.0	6.0	0.0	3.0	0.0	72.8	4.5	-3.4	0.0	0.0	25.0	0.0	0.0	-26.0
1085	611531.98	4816782.77	2.50	0	DEN	2000	60.1	6.0	0.0	3.0	0.0	72.8	11.9	-3.4	0.0	0.0	25.0	0.0	0.0	-37.3
1085	611531.98	4816782.77	2.50	0	DEN	4000	56.5	6.0	0.0	3.0	0.0	72.8	40.5	-3.4	0.0	0.0	25.0	0.0	0.0	-69.4
1085	611531.98	4816782.77	2.50	0	DEN	8000	49.3	6.0	0.0	3.0	0.0	72.8	144.4	-3.4	0.0	0.0	25.0	0.0	0.0	-180.6
1092	611531.98	4816782.77	1.50	0	DEN	32	28.3	6.0	0.0	3.0	0.0	72.8	0.0	-5.6	0.0	0.0	12.3	0.0	0.0	-42.2
1092	611531.98	4816782.77	1.50	0	DEN	63	40.5	6.0	0.0	3.0	0.0	72.8	0.2	-5.6	0.0	0.0	16.3	0.0	0.0	-34.2
1092	611531.98	4816782.77	1.50	0	DEN	125	51.4	6.0	0.0	3.0	0.0	72.8	0.5	-1.3	0.0	0.0	20.1	0.0	0.0	-31.6
1092	611531.98	4816782.77	1.50	0	DEN	250	57.6	6.0	0.0	3.0	0.0	72.8	1.3	-2.5	0.0	0.0	23.4	0.0	0.0	-28.4
1092	611531.98	4816782.77	1.50	0	DEN	500	63.2	6.0	0.0	3.0	0.0	72.8	2.4	-3.3	0.0	0.0	25.0	0.0	0.0	-24.7
1092	611531.98	4816782.77	1.50	0	DEN	1000	64.0	6.0	0.0	3.0	0.0	72.8	4.5	-3.5	0.0	0.0	25.0	0.0	0.0	-25.9
1092	611531.98	4816782.77	1.50	0	DEN	2000	60.1	6.0	0.0	3.0	0.0	72.8	11.9	-3.5	0.0	0.0	25.0	0.0	0.0	-37.1
1092	611531.98	4816782.77	1.50	0	DEN	4000	56.5	6.0	0.0	3.0	0.0	72.8	40.5	-3.5	0.0	0.0	25.0	0.0	0.0	-69.3
1092	611531.98	4816782.77	1.50	0	DEN	8000	49.3	6.0	0.0	3.0	0.0	72.8	144.4	-3.5	0.0	0.0	25.0	0.0	0.0	-180.4
1096	611531.98	4816782.77	0.50	0	DEN	32	28.3	6.0	0.0	3.0	0.0	72.8	0.0	-5.6	0.0	0.0	12.7	0.0	0.0	-42.6
1096	611531.98	4816782.77	0.50	0	DEN	63	40.5	6.0	0.0	3.0	0.0	72.8	0.2	-5.6	0.0	0.0	16.8	0.0	0.0	-34.6
1096	611531.98	4816782.77	0.50	0	DEN	125	51.4	6.0	0.0	3.0	0.0	72.8	0.5	-1.3	0.0	0.0	20.6	0.0	0.0	-32.2
1096	611531.98	4816782.77	0.50	0	DEN	250	57.6	6.0	0.0	3.0	0.0	72.8	1.3	-2.3	0.0	0.0	23.9	0.0	0.0	-29.1
1096	611531.98	4816782.77	0.50	0	DEN	500	63.2	6.0	0.0	3.0	0.0	72.8	2.4	-2.8	0.0	0.0	25.0	0.0	0.0	-25.2
1096	611531.98	4816782.77	0.50	0	DEN	1000	64.0	6.0	0.0	3.0	0.0	72.8	4.5	-3.3	0.0	0.0	25.0	0.0	0.0	-26.0
1096	611531.98	4816782.77	0.50	0	DEN	2000	60.1	6.0	0.0	3.0	0.0	72.8	11.9	-3.5	0.0	0.0	25.0	0.0	0.0	-37.1
1096	611531.98	4816782.77	0.50	0	DEN	4000	56.5	6.0	0.0	3.0	0.0	72.8	40.5	-3.5	0.0	0.0	25.0	0.0	0.0	-69.2
1096	611531.98	4816782.77	0.50	0	DEN	8000	49.3	6.0	0.0	3.0	0.0	72.8	144.4	-3.5	0.0	0.0	25.0	0.0	0.0	-180.4

Point Source, ISO 9613, Name: "Methane bubble exhaust 2", ID: "!0601!MB_EX2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1109	611435.95	4816713.14	2.50	0	DEN	32	38.6	0.0	0.0	0.0	0.0	73.2	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-33.9
1109	611435.95	4816713.14	2.50	0	DEN	63	51.1	0.0	0.0	0.0	0.0	73.2	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-21.5
1109	611435.95	4816713.14	2.50	0	DEN	125	60.2	0.0	0.0	0.0	0.0	73.2	0.5	1.5	0.0	0.0	3.3	0.0	0.0	-18.3
1109	611435.95	4816713.14	2.50	0	DEN	250	65.1	0.0	0.0	0.0	0.0	73.2	1.3	0.4	0.0	0.0	4.4	0.0	0.0	-14.3
1109	611435.95	4816713.14	2.50	0	DEN	500	70.0	0.0	0.0	0.0	0.0	73.2	2.5	-2.4	0.0	0.0	4.8	0.0	0.0	-8.1
1109	611435.95	4816713.14	2.50	0	DEN	1000	72.2	0.0	0.0	0.0	0.0	73.2	4.7	-2.8	0.0	0.0	4.8	0.0	0.0	-7.8
1109	611435.95	4816713.14	2.50	0	DEN	2000	71.0	0.0	0.0	0.0	0.0	73.2	12.5	-2.8	0.0	0.0	4.8	0.0	0.0	-16.7
1109	611435.95	4816713.14	2.50	0	DEN	4000	70.5	0.0	0.0	0.0	0.0	73.2	42.2	-2.8	0.0	0.0	4.8	0.0	0.0	-47.0
1109	611435.95	4816713.14	2.50	0	DEN	8000	66.1	0.0	0.0	0.0	0.0	73.2	150.6	-2.8	0.0	0.0	4.9	0.0	0.0	-159.8

Point Source, ISO 9613, Name: "Digester 3 sludge mixer motor 1", ID: "!0607!D3_47001"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1115	611462.24	4816760.33	6.90	0	DEN	32	44.8	0.0	0.0	0.0	0.0	72.9	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-27.7
1115	611462.24	4816760.33	6.90	0	DEN	63	53.8	0.0	0.0	0.0	0.0	72.9	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-18.9
1115	611462.24	4816760.33	6.90	0	DEN	125	66.0	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	4.8	0.0	0.0	-11.7
1115	611462.24	4816760.33	6.90	0	DEN	250	65.7	0.0	0.0	0.0	0.0	72.9	1.3	-2.2	0.0	0.0	4.9	0.0	0.0	-11.2
1115	611462.24	4816760.33	6.90	0	DEN	500	70.5	0.0	0.0	0.0	0.0	72.9	2.4	-2.9	0.0	0.0	5.0	0.0	0.0	-7.0
1115	611462.24	4816760.33	6.90	0	DEN	1000	72.1	0.0	0.0	0.0	0.0	72.9	4.6	-2.9	0.0	0.0	5.3	0.0	0.0	-7.7
1115	611462.24	4816760.33	6.90	0	DEN	2000	70.9	0.0	0.0	0.0	0.0	72.9	12.0	-2.9	0.0	0.0	5.7	0.0	0.0	-16.9
1115	611462.24	4816760.33	6.90	0	DEN	4000	64.3	0.0	0.0	0.0	0.0	72.9	40.8	-2.9	0.0	0.0	6.5	0.0	0.0	-53.0
1115	611462.24	4816760.33	6.90	0	DEN	8000	57.0	0.0	0.0	0.0	0.0	72.9	145.6	-2.9	0.0	0.0	7.8	0.0	0.0	-166.3

Point Source, ISO 9613, Name: "PRC tank containment area 4 supply air fan", ID: "!0601!PRC_FAN"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1124	611746.67	4816691.29	2.50	0	DEN	32	38.0	0.0	0.0	0.0	0.0	73.8	0.0	-5.5	0.0	0.0	4.8	0.0	0.0	-35.1
1124	611746.67	4816691.29	2.50	0	DEN	63	48.6	0.0	0.0	0.0	0.0	73.8	0.2	-5.5	0.0	0.0	4.8	0.0	0.0	-24.6
1124	611746.67	4816691.29	2.50	0	DEN	125	57.1	0.0	0.0	0.0	0.0	73.8	0.6	-1.1	0.0	0.0	4.8	0.0	0.0	-21.0
1124	611746.67	4816691.29	2.50	0	DEN	250	64.4	0.0	0.0	0.0	0.0	73.8	1.4	-2.2	0.0	0.0	4.8	0.0	0.0	-13.5
1124	611746.67	4816691.29	2.50	0	DEN	500	67.4	0.0	0.0	0.0	0.0	73.8	2.7	-3.4	0.0	0.0	4.9	0.0	0.0	-10.5
1124	611746.67	4816691.29	2.50	0	DEN	1000	71.6	0.0	0.0	0.0	0.0	73.8	5.1	-3.5	0.0	0.0	5.0	0.0	0.0	-8.7
1124	611746.67	4816691.29	2.50	0	DEN	2000	71.5	0.0	0.0	0.0	0.0	73.8	13.4	-3.5	0.0	0.0	5.2	0.0	0.0	-17.3
1124	611746.67	4816691.29	2.50	0	DEN	4000	72.9	0.0	0.0	0.0	0.0	73.8	45.3	-3.5	0.0	0.0	5.5	0.0	0.0	-48.2
1124	611746.67	4816691.29	2.50	0	DEN	8000	66.8	0.0	0.0	0.0	0.0	73.8	161.5	-3.5	0.0	0.0	6.2	0.0	0.0	-171.2

Point Source, ISO 9613, Name: "Control building exhaust air fan 3", ID: "!0607!CB_FAN95630"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1133	611459.85	4816769.62	4.94	0	DEN	32	38.4	0.0	0.0	0.0	0.0	72.8	0.0	-5.3	0.0	0.0	7.9	0.0	0.0	-37.1
1133	611459.85	4816769.62	4.94	0	DEN	63	52.9	0.0	0.0	0.0	0.0	72.8	0.2	-5.3	0.0	0.0	10.1	0.0	0.0	-24.9
1133	611459.85	4816769.62	4.94	0	DEN	125	64.8	0.0	0.0	0.0	0.0	72.8	0.5	-0.1	0.0	0.0	12.5	0.0	0.0	-21.0
1133	611459.85	4816769.62	4.94	0	DEN	250	68.7	0.0	0.0	0.0	0.0	72.8	1.3	-2.1	0.0	0.0	15.2	0.0	0.0	-18.6
1133	611459.85	4816769.62	4.94	0	DEN	500	71.5	0.0	0.0	0.0	0.0	72.8	2.4	-3.0	0.0	0.0	18.0	0.0	0.0	-18.7
1133	611459.85	4816769.62	4.94	0	DEN	1000	71.2	0.0	0.0	0.0	0.0	72.8	4.5	-3.0	0.0	0.0	20.9	0.0	0.0	-24.1
1133	611459.85	4816769.62	4.94	0	DEN	2000	67.4	0.0	0.0	0.0	0.0	72.8	11.9	-3.0	0.0	0.0	23.9	0.0	0.0	-38.3
1133	611459.85	4816769.62	4.94	0	DEN	4000	65.6	0.0	0.0	0.0	0.0	72.8	40.5	-3.0	0.0	0.0	25.0	0.0	0.0	-69.7
1133	611459.85	4816769.62	4.94	0	DEN	8000	60.7	0.0	0.0	0.0	0.0	72.8	144.5	-3.0	0.0	0.0	25.0	0.0	0.0	-178.6

Point Source, ISO 9613, Name: "Operations Building HVAC 48TCDA06", ID: "!0601!OB_HVAC1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1137	611702.70	4816691.15	7.01	0	DEN	32	44.6	0.0	0.0	0.0	0.0	73.7	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-28.7
1137	611702.70	4816691.15	7.01	0	DEN	63	57.8	0.0	0.0	0.0	0.0	73.7	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-15.6
1137	611702.70	4816691.15	7.01	0	DEN	125	66.1	0.0	0.0	0.0	0.0	73.7	0.6	-0.8	0.0	0.0	4.8	0.0	0.0	-12.2
1137	611702.70	4816691.15	7.01	0	DEN	250	67.7	0.0	0.0	0.0	0.0	73.7	1.4	-2.4	0.0	0.0	4.8	0.0	0.0	-9.9
1137	611702.70	4816691.15	7.01	0	DEN	500	71.6	0.0	0.0	0.0	0.0	73.7	2.6	-3.1	0.0	0.0	4.8	0.0	0.0	-6.5
1137	611702.70	4816691.15	7.01	0	DEN	1000	72.5	0.0	0.0	0.0	0.0	73.7	5.0	-3.1	0.0	0.0	4.8	0.0	0.0	-7.9
1137	611702.70	4816691.15	7.01	0	DEN	2000	70.0	0.0	0.0	0.0	0.0	73.7	13.2	-3.1	0.0	0.0	4.9	0.0	0.0	-18.7
1137	611702.70	4816691.15	7.01	0	DEN	4000	66.6	0.0	0.0	0.0	0.0	73.7	44.8	-3.1	0.0	0.0	5.0	0.0	0.0	-53.8
1137	611702.70	4816691.15	7.01	0	DEN	8000	60.7	0.0	0.0	0.0	0.0	73.7	159.8	-3.1	0.0	0.0	5.2	0.0	0.0	-175.0

Point Source, ISO 9613, Name: "Digester 3 sludge mixer motor 2", ID: "!0607!D3_47002"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1144	611469.90	4816752.76	6.90	0	DEN	32	41.8	0.0	0.0	0.0	0.0	73.0	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-30.8
1144	611469.90	4816752.76	6.90	0	DEN	63	52.1	0.0	0.0	0.0	0.0	73.0	0.2	-5.2	0.0	0.0	4.8	0.0	0.0	-20.6
1144	611469.90	4816752.76	6.90	0	DEN	125	62.3	0.0	0.0	0.0	0.0	73.0	0.5	-0.4	0.0	0.0	4.8	0.0	0.0	-15.6
1144	611469.90	4816752.76	6.90	0	DEN	250	65.2	0.0	0.0	0.0	0.0	73.0	1.3	-2.2	0.0	0.0	4.8	0.0	0.0	-11.7
1144	611469.90	4816752.76	6.90	0	DEN	500	69.4	0.0	0.0	0.0	0.0	73.0	2.4	-2.9	0.0	0.0	4.8	0.0	0.0	-7.8
1144	611469.90	4816752.76	6.90	0	DEN	1000	73.0	0.0	0.0	0.0	0.0	73.0	4.6	-2.9	0.0	0.0	4.8	0.0	0.0	-6.4
1144	611469.90	4816752.76	6.90	0	DEN	2000	70.5	0.0	0.0	0.0	0.0	73.0	12.1	-2.9	0.0	0.0	4.8	0.0	0.0	-16.6
1144	611469.90	4816752.76	6.90	0	DEN	4000	63.7	0.0	0.0	0.0	0.0	73.0	41.1	-2.9	0.0	0.0	4.9	0.0	0.0	-52.3
1144	611469.90	4816752.76	6.90	0	DEN	8000	60.8	0.0	0.0	0.0	0.0	73.0	146.6	-2.9	0.0	0.0	5.0	0.0	0.0	-160.9

Point Source, ISO 9613, Name: "Office Building HVAC 48TCDA06", ID: "!0601!OB_HVAC3"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1148	611662.23	4816670.44	5.50	0	DEN	32	44.6	0.0	0.0	0.0	0.0	73.8	0.0	-5.3	0.0	0.0	4.8	0.0	0.0	-28.6
1148	611662.23	4816670.44	5.50	0	DEN	63	57.8	0.0	0.0	0.0	0.0	73.8	0.2	-5.3	0.0	0.0	4.8	0.0	0.0	-15.6
1148	611662.23	4816670.44	5.50	0	DEN	125	66.1	0.0	0.0	0.0	0.0	73.8	0.6	0.7	0.0	0.0	4.1	0.0	0.0	-13.0
1148	611662.23	4816670.44	5.50	0	DEN	250	67.7	0.0	0.0	0.0	0.0	73.8	1.4	-1.8	0.0	0.0	4.8	0.0	0.0	-10.5
1148	611662.23	4816670.44	5.50	0	DEN	500	71.6	0.0	0.0	0.0	0.0	73.8	2.7	-2.7	0.0	0.0	4.8	0.0	0.0	-6.8
1148	611662.23	4816670.44	5.50	0	DEN	1000	72.5	0.0	0.0	0.0	0.0	73.8	5.0	-2.7	0.0	0.0	4.8	0.0	0.0	-8.3
1148	611662.23	4816670.44	5.50	0	DEN	2000	70.0	0.0	0.0	0.0	0.0	73.8	13.3	-2.7	0.0	0.0	4.8	0.0	0.0	-19.1
1148	611662.23	4816670.44	5.50	0	DEN	4000	66.6	0.0	0.0	0.0	0.0	73.8	45.1	-2.7	0.0	0.0	4.8	0.0	0.0	-54.3
1148	611662.23	4816670.44	5.50	0	DEN	8000	60.7	0.0	0.0	0.0	0.0	73.8	160.8	-2.7	0.0	0.0	4.8	0.0	0.0	-175.9

Point Source, ISO 9613, Name: "Office Building HVAC 48TCDA06", ID: "!0601!OB_HVAC2"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1151	611657.82	4816666.30	5.50	0	DEN	32	44.6	0.0	0.0	0.0	0.0	73.8	0.0	-5.3	0.0	0.0	4.8	0.0	0.0	-28.7
1151	611657.82	4816666.30	5.50	0	DEN	63	57.8	0.0	0.0	0.0	0.0	73.8	0.2	-5.3	0.0	0.0	4.8	0.0	0.0	-15.6
1151	611657.82	4816666.30	5.50	0	DEN	125	66.1	0.0	0.0	0.0	0.0	73.8	0.6	0.7	0.0	0.0	4.1	0.0	0.0	-13.0
1151	611657.82	4816666.30	5.50	0	DEN	250	67.7	0.0	0.0	0.0	0.0	73.8	1.4	-1.8	0.0	0.0	4.8	0.0	0.0	-10.5
1151	611657.82	4816666.30	5.50	0	DEN	500	71.6	0.0	0.0	0.0	0.0	73.8	2.7	-2.7	0.0	0.0	4.8	0.0	0.0	-6.9
1151	611657.82	4816666.30	5.50	0	DEN	1000	72.5	0.0	0.0	0.0	0.0	73.8	5.0	-2.7	0.0	0.0	4.8	0.0	0.0	-8.4
1151	611657.82	4816666.30	5.50	0	DEN	2000	70.0	0.0	0.0	0.0	0.0	73.8	13.3	-2.7	0.0	0.0	4.8	0.0	0.0	-19.1
1151	611657.82	4816666.30	5.50	0	DEN	4000	66.6	0.0	0.0	0.0	0.0	73.8	45.2	-2.7	0.0	0.0	4.8	0.0	0.0	-54.4
1151	611657.82	4816666.30	5.50	0	DEN	8000	60.7	0.0	0.0	0.0	0.0	73.8	161.1	-2.7	0.0	0.0	4.8	0.0	0.0	-176.2

Point Source, ISO 9613, Name: "Control building exhaust air fan 6", ID: "!0607!CB_FAN95710"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1166	611454.45	4816795.26	5.19	0	DEN	32	38.3	0.0	0.0	0.0	0.0	72.7	0.0	-5.3	0.0	0.0	5.1	0.0	0.0	-34.3
1166	611454.45	4816795.26	5.19	0	DEN	63	46.8	0.0	0.0	0.0	0.0	72.7	0.1	-5.3	0.0	0.0	5.6	0.0	0.0	-26.3
1166	611454.45	4816795.26	5.19	0	DEN	125	63.8	0.0	0.0	0.0	0.0	72.7	0.5	-0.0	0.0	0.0	6.3	0.0	0.0	-15.7
1166	611454.45	4816795.26	5.19	0	DEN	250	71.4	0.0	0.0	0.0	0.0	72.7	1.3	-2.0	0.0	0.0	7.5	0.0	0.0	-8.0
1166	611454.45	4816795.26	5.19	0	DEN	500	70.3	0.0	0.0	0.0	0.0	72.7	2.3	-3.0	0.0	0.0	9.2	0.0	0.0	-10.9
1166	611454.45	4816795.26	5.19	0	DEN	1000	66.4	0.0	0.0	0.0	0.0	72.7	4.4	-3.0	0.0	0.0	11.4	0.0	0.0	-19.1
1166	611454.45	4816795.26	5.19	0	DEN	2000	66.1	0.0	0.0	0.0	0.0	72.7	11.7	-3.0	0.0	0.0	13.9	0.0	0.0	-29.2
1166	611454.45	4816795.26	5.19	0	DEN	4000	67.4	0.0	0.0	0.0	0.0	72.7	39.6	-3.0	0.0	0.0	16.6	0.0	0.0	-58.6
1166	611454.45	4816795.26	5.19	0	DEN	8000	62.1	0.0	0.0	0.0	0.0	72.7	141.4	-3.0	0.0	0.0	19.5	0.0	0.0	-168.5

Point Source, ISO 9613, Name: "Digester 4 sludge mixer motor 5", ID: "!0606!D4_48004"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1170	611435.81	4816786.26	6.28	0	DEN	32	42.4	0.0	0.0	0.0	0.0	72.7	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-29.9
1170	611435.81	4816786.26	6.28	0	DEN	63	51.6	0.0	0.0	0.0	0.0	72.7	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-20.8
1170	611435.81	4816786.26	6.28	0	DEN	125	61.0	0.0	0.0	0.0	0.0	72.7	0.5	0.3	0.0	0.0	4.4	0.0	0.0	-17.0
1170	611435.81	4816786.26	6.28	0	DEN	250	62.2	0.0	0.0	0.0	0.0	72.7	1.3	-1.9	0.0	0.0	4.8	0.0	0.0	-14.6
1170	611435.81	4816786.26	6.28	0	DEN	500	65.9	0.0	0.0	0.0	0.0	72.7	2.3	-2.7	0.0	0.0	4.8	0.0	0.0	-11.2
1170	611435.81	4816786.26	6.28	0	DEN	1000	71.3	0.0	0.0	0.0	0.0	72.7	4.4	-2.7	0.0	0.0	4.8	0.0	0.0	-7.9
1170	611435.81	4816786.26	6.28	0	DEN	2000	71.8	0.0	0.0	0.0	0.0	72.7	11.8	-2.7	0.0	0.0	4.8	0.0	0.0	-14.7
1170	611435.81	4816786.26	6.28	0	DEN	4000	66.2	0.0	0.0	0.0	0.0	72.7	39.9	-2.7	0.0	0.0	4.8	0.0	0.0	-48.4
1170	611435.81	4816786.26	6.28	0	DEN	8000	53.8	0.0	0.0	0.0	0.0	72.7	142.1	-2.7	0.0	0.0	4.8	0.0	0.0	-163.1

Point Source, ISO 9613, Name: "Disinfection chemical building supply air fan", ID: "!0600!DCB_FAN99710"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1196	611773.38	4816664.68	2.50	0	DEN	32	38.5	0.0	0.0	0.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.8
1196	611773.38	4816664.68	2.50	0	DEN	63	52.3	0.0	0.0	0.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-21.1
1196	611773.38	4816664.68	2.50	0	DEN	125	61.2	0.0	0.0	0.0	0.0	74.0	0.6	-0.9	0.0	0.0	4.8	0.0	0.0	-17.3
1196	611773.38	4816664.68	2.50	0	DEN	250	66.2	0.0	0.0	0.0	0.0	74.0	1.5	-2.0	0.0	0.0	4.8	0.0	0.0	-12.0
1196	611773.38	4816664.68	2.50	0	DEN	500	71.1	0.0	0.0	0.0	0.0	74.0	2.7	-3.4	0.0	0.0	4.8	0.0	0.0	-7.1
1196	611773.38	4816664.68	2.50	0	DEN	1000	68.9	0.0	0.0	0.0	0.0	74.0	5.2	-3.5	0.0	0.0	4.8	0.0	0.0	-11.6
1196	611773.38	4816664.68	2.50	0	DEN	2000	67.4	0.0	0.0	0.0	0.0	74.0	13.7	-3.5	0.0	0.0	4.8	0.0	0.0	-21.6
1196	611773.38	4816664.68	2.50	0	DEN	4000	64.9	0.0	0.0	0.0	0.0	74.0	46.4	-3.5	0.0	0.0	4.8	0.0	0.0	-56.8
1196	611773.38	4816664.68	2.50	0	DEN	8000	57.0	0.0	0.0	0.0	0.0	74.0	165.5	-3.5	0.0	0.0	4.8	0.0	0.0	-183.8

Point Source, ISO 9613, Name: "Digester 5 sludge mixer motor 5", ID: "!0605!D5_49005"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1199	611440.95	4816814.81	6.28	0	DEN	32	44.4	0.0	0.0	0.0	0.0	72.5	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-27.7
1199	611440.95	4816814.81	6.28	0	DEN	63	49.4	0.0	0.0	0.0	0.0	72.5	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-22.8
1199	611440.95	4816814.81	6.28	0	DEN	125	57.3	0.0	0.0	0.0	0.0	72.5	0.5	0.2	0.0	0.0	4.6	0.0	0.0	-20.5
1199	611440.95	4816814.81	6.28	0	DEN	250	63.3	0.0	0.0	0.0	0.0	72.5	1.2	-2.0	0.0	0.0	4.8	0.0	0.0	-13.3
1199	611440.95	4816814.81	6.28	0	DEN	500	69.2	0.0	0.0	0.0	0.0	72.5	2.3	-2.8	0.0	0.0	4.8	0.0	0.0	-7.6
1199	611440.95	4816814.81	6.28	0	DEN	1000	68.3	0.0	0.0	0.0	0.0	72.5	4.3	-2.8	0.0	0.0	4.8	0.0	0.0	-10.6
1199	611440.95	4816814.81	6.28	0	DEN	2000	65.7	0.0	0.0	0.0	0.0	72.5	11.5	-2.8	0.0	0.0	4.8	0.0	0.0	-20.3
1199	611440.95	4816814.81	6.28	0	DEN	4000	63.2	0.0	0.0	0.0	0.0	72.5	38.9	-2.8	0.0	0.0	4.8	0.0	0.0	-50.3
1199	611440.95	4816814.81	6.28	0	DEN	8000	59.2	0.0	0.0	0.0	0.0	72.5	138.9	-2.8	0.0	0.0	4.8	0.0	0.0	-154.2

Point Source, ISO 9613, Name: "Biosolids complex roof twin city fan & blower 2", ID: "!0604!BC_F97640"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1236	611544.04	4816773.30	8.00	0	DEN	32	43.1	0.0	0.0	0.0	0.0	72.9	0.0	-5.1	0.0	0.0	5.0	0.0	0.0	-29.8
1236	611544.04	4816773.30	8.00	0	DEN	63	52.4	0.0	0.0	0.0	0.0	72.9	0.2	-5.1	0.0	0.0	5.4	0.0	0.0	-20.9
1236	611544.04	4816773.30	8.00	0	DEN	125	64.0	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	6.4	0.0	0.0	-15.3
1236	611544.04	4816773.30	8.00	0	DEN	250	64.9	0.0	0.0	0.0	0.0	72.9	1.3	-2.1	0.0	0.0	8.1	0.0	0.0	-15.3
1236	611544.04	4816773.30	8.00	0	DEN	500	66.8	0.0	0.0	0.0	0.0	72.9	2.4	-2.8	0.0	0.0	10.3	0.0	0.0	-16.1
1236	611544.04	4816773.30	8.00	0	DEN	1000	65.8	0.0	0.0	0.0	0.0	72.9	4.6	-2.8	0.0	0.0	12.8	0.0	0.0	-21.7
1236	611544.04	4816773.30	8.00	0	DEN	2000	62.8	0.0	0.0	0.0	0.0	72.9	12.1	-2.8	0.0	0.0	15.5	0.0	0.0	-34.8
1236	611544.04	4816773.30	8.00	0	DEN	4000	60.7	0.0	0.0	0.0	0.0	72.9	40.9	-2.8	0.0	0.0	18.3	0.0	0.0	-68.6
1236	611544.04	4816773.30	8.00	0	DEN	8000	53.9	0.0	0.0	0.0	0.0	72.9	145.8	-2.8	0.0	0.0	21.2	0.0	0.0	-183.2

Point Source, ISO 9613, Name: "Biosolids complex roof Mitsubishi Electric mr slim condensing unit", ID: "!0604!CAN97903"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1242	611551.90	4816782.67	8.00	0	DEN	32	50.4	0.0	0.0	0.0	0.0	72.9	0.0	-5.1	0.0	0.0	5.0	0.0	0.0	-22.5
1242	611551.90	4816782.67	8.00	0	DEN	63	57.0	0.0	0.0	0.0	0.0	72.9	0.2	-5.1	0.0	0.0	5.3	0.0	0.0	-16.3
1242	611551.90	4816782.67	8.00	0	DEN	125	63.9	0.0	0.0	0.0	0.0	72.9	0.5	-0.5	0.0	0.0	5.8	0.0	0.0	-14.8
1242	611551.90	4816782.67	8.00	0	DEN	250	65.1	0.0	0.0	0.0	0.0	72.9	1.3	-2.0	0.0	0.0	6.7	0.0	0.0	-13.7
1242	611551.90	4816782.67	8.00	0	DEN	500	66.4	0.0	0.0	0.0	0.0	72.9	2.4	-2.7	0.0	0.0	8.6	0.0	0.0	-14.8
1242	611551.90	4816782.67	8.00	0	DEN	1000	64.9	0.0	0.0	0.0	0.0	72.9	4.5	-2.7	0.0	0.0	11.8	0.0	0.0	-21.5
1242	611551.90	4816782.67	8.00	0	DEN	2000	63.5	0.0	0.0	0.0	0.0	72.9	12.0	-2.7	0.0	0.0	15.4	0.0	0.0	-34.0
1242	611551.90	4816782.67	8.00	0	DEN	4000	58.6	0.0	0.0	0.0	0.0	72.9	40.6	-2.7	0.0	0.0	18.6	0.0	0.0	-70.7
1242	611551.90	4816782.67	8.00	0	DEN	8000	56.6	0.0	0.0	0.0	0.0	72.9	144.9	-2.7	0.0	0.0	21.7	0.0	0.0	-180.0

Point Source, ISO 9613, Name: "Digester 4 sludge mixer motor 4", ID: "!0606!D4_48004"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1248	611424.07	4816797.46	6.28	0	DEN	32	45.5	0.0	0.0	0.0	0.0	72.6	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-26.7
1248	611424.07	4816797.46	6.28	0	DEN	63	51.5	0.0	0.0	0.0	0.0	72.6	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-20.8
1248	611424.07	4816797.46	6.28	0	DEN	125	59.9	0.0	0.0	0.0	0.0	72.6	0.5	0.6	0.0	0.0	4.2	0.0	0.0	-18.0
1248	611424.07	4816797.46	6.28	0	DEN	250	61.9	0.0	0.0	0.0	0.0	72.6	1.3	-1.8	0.0	0.0	4.8	0.0	0.0	-14.9
1248	611424.07	4816797.46	6.28	0	DEN	500	65.8	0.0	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	4.8	0.0	0.0	-11.3
1248	611424.07	4816797.46	6.28	0	DEN	1000	66.0	0.0	0.0	0.0	0.0	72.6	4.4	-2.6	0.0	0.0	4.8	0.0	0.0	-13.2
1248	611424.07	4816797.46	6.28	0	DEN	2000	65.4	0.0	0.0	0.0	0.0	72.6	11.6	-2.6	0.0	0.0	4.8	0.0	0.0	-21.0
1248	611424.07	4816797.46	6.28	0	DEN	4000	61.7	0.0	0.0	0.0	0.0	72.6	39.4	-2.6	0.0	0.0	4.8	0.0	0.0	-52.5
1248	611424.07	4816797.46	6.28	0	DEN	8000	57.6	0.0	0.0	0.0	0.0	72.6	140.7	-2.6	0.0	0.0	4.8	0.0	0.0	-157.8

Point Source, ISO 9613, Name: "Biosolids complex roof twin city fan & blower 1", ID: "!0604!BC_F97620"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1254	611544.35	4816825.15	8.00	0	DEN	32	40.8	0.0	0.0	0.0	0.0	72.6	0.0	-5.1	0.0	0.0	6.1	0.0	0.0	-32.9
1254	611544.35	4816825.15	8.00	0	DEN	63	50.6	0.0	0.0	0.0	0.0	72.6	0.1	-5.1	0.0	0.0	7.3	0.0	0.0	-24.3
1254	611544.35	4816825.15	8.00	0	DEN	125	61.2	0.0	0.0	0.0	0.0	72.6	0.5	-0.2	0.0	0.0	9.4	0.0	0.0	-21.0
1254	611544.35	4816825.15	8.00	0	DEN	250	64.4	0.0	0.0	0.0	0.0	72.6	1.2	-1.9	0.0	0.0	12.8	0.0	0.0	-20.4
1254	611544.35	4816825.15	8.00	0	DEN	500	68.7	0.0	0.0	0.0	0.0	72.6	2.3	-2.6	0.0	0.0	16.6	0.0	0.0	-20.2
1254	611544.35	4816825.15	8.00	0	DEN	1000	62.4	0.0	0.0	0.0	0.0	72.6	4.4	-2.6	0.0	0.0	19.9	0.0	0.0	-31.8
1254	611544.35	4816825.15	8.00	0	DEN	2000	60.1	0.0	0.0	0.0	0.0	72.6	11.6	-2.6	0.0	0.0	23.0	0.0	0.0	-44.4
1254	611544.35	4816825.15	8.00	0	DEN	4000	58.7	0.0	0.0	0.0	0.0	72.6	39.2	-2.6	0.0	0.0	25.0	0.0	0.0	-75.5
1254	611544.35	4816825.15	8.00	0	DEN	8000	52.5	0.0	0.0	0.0	0.0	72.6	139.8	-2.6	0.0	0.0	25.0	0.0	0.0	-182.3

Point Source, ISO 9613, Name: "Digester 5 sludge mixer motor 2", ID: "!0605!D5_49002"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1260	611453.36	4816801.47	6.28	0	DEN	32	41.1	0.0	0.0	0.0	0.0	72.6	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-31.1
1260	611453.36	4816801.47	6.28	0	DEN	63	50.5	0.0	0.0	0.0	0.0	72.6	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-21.8
1260	611453.36	4816801.47	6.28	0	DEN	125	61.4	0.0	0.0	0.0	0.0	72.6	0.5	-0.1	0.0	0.0	4.8	0.0	0.0	-16.4
1260	611453.36	4816801.47	6.28	0	DEN	250	62.6	0.0	0.0	0.0	0.0	72.6	1.3	-2.1	0.0	0.0	4.8	0.0	0.0	-14.0
1260	611453.36	4816801.47	6.28	0	DEN	500	66.2	0.0	0.0	0.0	0.0	72.6	2.3	-2.8	0.0	0.0	4.8	0.0	0.0	-10.7
1260	611453.36	4816801.47	6.28	0	DEN	1000	65.1	0.0	0.0	0.0	0.0	72.6	4.4	-2.8	0.0	0.0	4.8	0.0	0.0	-13.8
1260	611453.36	4816801.47	6.28	0	DEN	2000	63.3	0.0	0.0	0.0	0.0	72.6	11.6	-2.8	0.0	0.0	4.8	0.0	0.0	-22.9
1260	611453.36	4816801.47	6.28	0	DEN	4000	58.3	0.0	0.0	0.0	0.0	72.6	39.4	-2.8	0.0	0.0	4.8	0.0	0.0	-55.7
1260	611453.36	4816801.47	6.28	0	DEN	8000	52.2	0.0	0.0	0.0	0.0	72.6	140.7	-2.8	0.0	0.0	4.8	0.0	0.0	-163.0

Point Source, ISO 9613, Name: "Phosphorus Removal Building Mitsubishi Electric mr slim condensing unit", ID: "!0601!CU96701"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1272	611715.09	4816714.12	0.50	0	DEN	32	50.4	0.0	0.0	0.0	0.0	73.6	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-22.4
1272	611715.09	4816714.12	0.50	0	DEN	63	57.0	0.0	0.0	0.0	0.0	73.6	0.2	-5.7	0.0	0.0	4.9	0.0	0.0	-16.0
1272	611715.09	4816714.12	0.50	0	DEN	125	63.9	0.0	0.0	0.0	0.0	73.6	0.6	1.8	0.0	0.0	3.3	0.0	0.0	-15.4
1272	611715.09	4816714.12	0.50	0	DEN	250	65.1	0.0	0.0	0.0	0.0	73.6	1.4	1.9	0.0	0.0	3.8	0.0	0.0	-15.6
1272	611715.09	4816714.12	0.50	0	DEN	500	66.4	0.0	0.0	0.0	0.0	73.6	2.6	3.2	0.0	0.0	3.6	0.0	0.0	-16.7
1272	611715.09	4816714.12	0.50	0	DEN	1000	64.9	0.0	0.0	0.0	0.0	73.6	4.9	-1.0	0.0	0.0	8.4	0.0	0.0	-21.0
1272	611715.09	4816714.12	0.50	0	DEN	2000	63.5	0.0	0.0	0.0	0.0	73.6	13.0	-3.0	0.0	0.0	10.4	0.0	0.0	-30.6
1272	611715.09	4816714.12	0.50	0	DEN	4000	58.6	0.0	0.0	0.0	0.0	73.6	44.2	-3.0	0.0	0.0	12.8	0.0	0.0	-69.0
1272	611715.09	4816714.12	0.50	0	DEN	8000	56.6	0.0	0.0	0.0	0.0	73.6	157.7	-3.0	0.0	0.0	15.5	0.0	0.0	-187.2

Point Source, ISO 9613, Name: "Admin Building Mitsubishi Electric condensing unit 1", ID: "!0601!ACCU_101"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1278	611926.32	4816797.03	0.50	0	DEN	32	50.4	0.0	0.0	0.0	0.0	73.7	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-22.4
1278	611926.32	4816797.03	0.50	0	DEN	63	57.0	0.0	0.0	0.0	0.0	73.7	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-16.0
1278	611926.32	4816797.03	0.50	0	DEN	125	63.9	0.0	0.0	0.0	0.0	73.7	0.6	1.9	0.0	0.0	2.8	0.0	0.0	-15.1
1278	611926.32	4816797.03	0.50	0	DEN	250	65.1	0.0	0.0	0.0	0.0	73.7	1.4	2.0	0.0	0.0	2.8	0.0	0.0	-14.7
1278	611926.32	4816797.03	0.50	0	DEN	500	66.4	0.0	0.0	0.0	0.0	73.7	2.6	3.4	0.0	0.0	1.4	0.0	0.0	-14.7
1278	611926.32	4816797.03	0.50	0	DEN	1000	64.9	0.0	0.0	0.0	0.0	73.7	5.0	-0.9	0.0	0.0	4.8	0.0	0.0	-17.6
1278	611926.32	4816797.03	0.50	0	DEN	2000	63.5	0.0	0.0	0.0	0.0	73.7	13.1	-2.9	0.0	0.0	4.8	0.0	0.0	-25.2
1278	611926.32	4816797.03	0.50	0	DEN	4000	58.6	0.0	0.0	0.0	0.0	73.7	44.5	-2.9	0.0	0.0	4.8	0.0	0.0	-61.4
1278	611926.32	4816797.03	0.50	0	DEN	8000	56.6	0.0	0.0	0.0	0.0	73.7	158.7	-2.9	0.0	0.0	4.8	0.0	0.0	-177.6

Point Source, ISO 9613, Name: "Workshop Mitsubishi Electric mr slim condensing unit", ID: "!0601!A/C_1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1290	611629.81	4816642.73	0.50	0	DEN	32	50.4	0.0	0.0	0.0	0.0	73.9	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-22.6
1290	611629.81	4816642.73	0.50	0	DEN	63	57.0	0.0	0.0	0.0	0.0	73.9	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-16.2
1290	611629.81	4816642.73	0.50	0	DEN	125	63.9	0.0	0.0	0.0	0.0	73.9	0.6	1.9	0.0	0.0	2.9	0.0	0.0	-15.3
1290	611629.81	4816642.73	0.50	0	DEN	250	65.1	0.0	0.0	0.0	0.0	73.9	1.5	2.0	0.0	0.0	2.8	0.0	0.0	-15.0
1290	611629.81	4816642.73	0.50	0	DEN	500	66.4	0.0	0.0	0.0	0.0	73.9	2.7	3.3	0.0	0.0	1.5	0.0	0.0	-15.0
1290	611629.81	4816642.73	0.50	0	DEN	1000	64.9	0.0	0.0	0.0	0.0	73.9	5.1	-0.9	0.0	0.0	4.8	0.0	0.0	-17.9
1290	611629.81	4816642.73	0.50	0	DEN	2000	63.5	0.0	0.0	0.0	0.0	73.9	13.5	-2.9	0.0	0.0	4.8	0.0	0.0	-25.7
1290	611629.81	4816642.73	0.50	0	DEN	4000	58.6	0.0	0.0	0.0	0.0	73.9	45.7	-2.9	0.0	0.0	4.8	0.0	0.0	-62.8
1290	611629.81	4816642.73	0.50	0	DEN	8000	56.6	0.0	0.0	0.0	0.0	73.9	162.9	-2.9	0.0	0.0	4.8	0.0	0.0	-182.0

Point Source, ISO 9613, Name: "Disinfection chemical building condensing unit", ID: "!0600!AC99720"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1296	611789.42	4816677.15	0.50	0	DEN	32	50.4	0.0	0.0	0.0	0.0	74.0	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-22.7
1296	611789.42	4816677.15	0.50	0	DEN	63	57.0	0.0	0.0	0.0	0.0	74.0	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-16.3
1296	611789.42	4816677.15	0.50	0	DEN	125	63.9	0.0	0.0	0.0	0.0	74.0	0.6	1.8	0.0	0.0	3.0	0.0	0.0	-15.5
1296	611789.42	4816677.15	0.50	0	DEN	250	65.1	0.0	0.0	0.0	0.0	74.0	1.5	1.9	0.0	0.0	2.9	0.0	0.0	-15.1
1296	611789.42	4816677.15	0.50	0	DEN	500	66.4	0.0	0.0	0.0	0.0	74.0	2.7	3.2	0.0	0.0	1.6	0.0	0.0	-15.1
1296	611789.42	4816677.15	0.50	0	DEN	1000	64.9	0.0	0.0	0.0	0.0	74.0	5.2	-1.0	0.0	0.0	4.8	0.0	0.0	-17.9
1296	611789.42	4816677.15	0.50	0	DEN	2000	63.5	0.0	0.0	0.0	0.0	74.0	13.6	-3.0	0.0	0.0	4.8	0.0	0.0	-25.8
1296	611789.42	4816677.15	0.50	0	DEN	4000	58.6	0.0	0.0	0.0	0.0	74.0	46.2	-3.0	0.0	0.0	4.8	0.0	0.0	-63.3
1296	611789.42	4816677.15	0.50	0	DEN	8000	56.6	0.0	0.0	0.0	0.0	74.0	164.8	-3.0	0.0	0.0	4.8	0.0	0.0	-183.8

vert. Area Source, ISO 9613, Name: "Disinfection chemical building north bay door", ID: "!0602!DCB_BD"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1333	611779.95	4816669.40	2.50	0	DEN	32	31.3	4.8	0.0	3.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.2
1333	611779.95	4816669.40	2.50	0	DEN	63	42.1	4.8	0.0	3.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-23.5
1333	611779.95	4816669.40	2.50	0	DEN	125	48.6	4.8	0.0	3.0	0.0	74.0	0.6	-0.8	0.0	0.0	4.8	0.0	0.0	-22.1
1333	611779.95	4816669.40	2.50	0	DEN	250	52.8	4.8	0.0	3.0	0.0	74.0	1.5	-2.0	0.0	0.0	4.8	0.0	0.0	-17.6
1333	611779.95	4816669.40	2.50	0	DEN	500	57.0	4.8	0.0	3.0	0.0	74.0	2.7	-3.3	0.0	0.0	4.8	0.0	0.0	-13.3
1333	611779.95	4816669.40	2.50	0	DEN	1000	58.6	4.8	0.0	3.0	0.0	74.0	5.2	-3.5	0.0	0.0	4.8	0.0	0.0	-14.1
1333	611779.95	4816669.40	2.50	0	DEN	2000	56.5	4.8	0.0	3.0	0.0	74.0	13.7	-3.5	0.0	0.0	4.8	0.0	0.0	-24.6
1333	611779.95	4816669.40	2.50	0	DEN	4000	50.9	4.8	0.0	3.0	0.0	74.0	46.3	-3.5	0.0	0.0	4.8	0.0	0.0	-62.9
1333	611779.95	4816669.40	2.50	0	DEN	8000	41.8	4.8	0.0	3.0	0.0	74.0	165.2	-3.5	0.0	0.0	4.8	0.0	0.0	-190.9
1339	611779.95	4816669.40	0.50	0	DEN	32	31.3	4.8	0.0	3.0	0.0	74.0	0.0	-5.7	0.0	0.0	4.8	0.0	0.0	-34.0
1339	611779.95	4816669.40	0.50	0	DEN	63	42.1	4.8	0.0	3.0	0.0	74.0	0.2	-5.7	0.0	0.0	4.8	0.0	0.0	-23.3
1339	611779.95	4816669.40	0.50	0	DEN	125	48.6	4.8	0.0	3.0	0.0	74.0	0.6	1.7	0.0	0.0	3.0	0.0	0.0	-23.0
1339	611779.95	4816669.40	0.50	0	DEN	250	52.8	4.8	0.0	3.0	0.0	74.0	1.5	1.8	0.0	0.0	3.0	0.0	0.0	-19.6
1339	611779.95	4816669.40	0.50	0	DEN	500	57.0	4.8	0.0	3.0	0.0	74.0	2.7	3.2	0.0	0.0	1.6	0.0	0.0	-16.7
1339	611779.95	4816669.40	0.50	0	DEN	1000	58.6	4.8	0.0	3.0	0.0	74.0	5.2	-1.1	0.0	0.0	4.8	0.0	0.0	-16.4
1339	611779.95	4816669.40	0.50	0	DEN	2000	56.5	4.8	0.0	3.0	0.0	74.0	13.7	-3.1	0.0	0.0	4.8	0.0	0.0	-25.0
1339	611779.95	4816669.40	0.50	0	DEN	4000	50.9	4.8	0.0	3.0	0.0	74.0	46.3	-3.1	0.0	0.0	4.8	0.0	0.0	-63.2
1339	611779.95	4816669.40	0.50	0	DEN	8000	41.8	4.8	0.0	3.0	0.0	74.0	165.2	-3.1	0.0	0.0	4.8	0.0	0.0	-191.3
1345	611779.95	4816669.40	1.50	0	DEN	32	31.3	4.8	0.0	3.0	0.0	74.0	0.0	-5.6	0.0	0.0	4.8	0.0	0.0	-34.1
1345	611779.95	4816669.40	1.50	0	DEN	63	42.1	4.8	0.0	3.0	0.0	74.0	0.2	-5.6	0.0	0.0	4.8	0.0	0.0	-23.4
1345	611779.95	4816669.40	1.50	0	DEN	125	48.6	4.8	0.0	3.0	0.0	74.0	0.6	-0.2	0.0	0.0	4.8	0.0	0.0	-22.7
1345	611779.95	4816669.40	1.50	0	DEN	250	52.8	4.8	0.0	3.0	0.0	74.0	1.5	-1.0	0.0	0.0	4.8	0.0	0.0	-18.6
1345	611779.95	4816669.40	1.50	0	DEN	500	57.0	4.8	0.0	3.0	0.0	74.0	2.7	-2.2	0.0	0.0	4.8	0.0	0.0	-14.4
1345	611779.95	4816669.40	1.50	0	DEN	1000	58.6	4.8	0.0	3.0	0.0	74.0	5.2	-3.2	0.0	0.0	4.8	0.0	0.0	-14.3
1345	611779.95	4816669.40	1.50	0	DEN	2000	56.5	4.8	0.0	3.0	0.0	74.0	13.7	-3.4	0.0	0.0	4.8	0.0	0.0	-24.7
1345	611779.95	4816669.40	1.50	0	DEN	4000	50.9	4.8	0.0	3.0	0.0	74.0	46.3	-3.4	0.0	0.0	4.8	0.0	0.0	-62.9
1345	611779.95	4816669.40	1.50	0	DEN	8000	41.8	4.8	0.0	3.0	0.0	74.0	165.2	-3.4	0.0	0.0	4.8	0.0	0.0	-191.0

Point Source, ISO 9613, Name: "Digester 5 sludge mixer motor 3", ID: "!0605!D5_49003"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1351	611464.23	4816813.81	6.28	0	DEN	32	43.4	0.0	0.0	0.0	0.0	72.5	0.0	-5.2	0.0	0.0	4.8	0.0	0.0	-28.8
1351	611464.23	4816813.81	6.28	0	DEN	63	48.0	0.0	0.0	0.0	0.0	72.5	0.1	-5.2	0.0	0.0	4.8	0.0	0.0	-24.3
1351	611464.23	4816813.81	6.28	0	DEN	125	60.3	0.0	0.0	0.0	0.0	72.5	0.5	0.1	0.0	0.0	4.7	0.0	0.0	-17.5
1351	611464.23	4816813.81	6.28	0	DEN	250	61.1	0.0	0.0	0.0	0.0	72.5	1.2	-2.0	0.0	0.0	4.8	0.0	0.0	-15.4
1351	611464.23	4816813.81	6.28	0	DEN	500	64.0	0.0	0.0	0.0	0.0	72.5	2.3	-2.8	0.0	0.0	4.8	0.0	0.0	-12.8
1351	611464.23	4816813.81	6.28	0	DEN	1000	62.5	0.0	0.0	0.0	0.0	72.5	4.4	-2.8	0.0	0.0	4.8	0.0	0.0	-16.4
1351	611464.23	4816813.81	6.28	0	DEN	2000	60.9	0.0	0.0	0.0	0.0	72.5	11.5	-2.8	0.0	0.0	4.8	0.0	0.0	-25.1
1351	611464.23	4816813.81	6.28	0	DEN	4000	56.3	0.0	0.0	0.0	0.0	72.5	39.1	-2.8	0.0	0.0	4.8	0.0	0.0	-57.3
1351	611464.23	4816813.81	6.28	0	DEN	8000	48.9	0.0	0.0	0.0	0.0	72.5	139.4	-2.8	0.0	0.0	4.8	0.0	0.0	-165.0

Limitations

Limitations

3. The work performed in the preparation of this report and the conclusions presented herein are subject to the following:

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Appendix E:

Stage 1 and 2 Archaeological Assessment Reports

E1: Stage 1 Archaeological Assessment for the Clarkson WRRF and G.E. Booth WRRF

ARCHEOWORKS INC.

Stage 1 Archaeological Assessment:
Class Environmental Assessments and Conceptual Designs for Proposed Capacity Expansions of the South Peel Wastewater Treatment Plants
Within Lots 5-7 and 31-32, Concession 3 South of Dundas Street
Geographic Township of Toronto
Former County of Peel
Now the City of Mississauga
Regional Municipality of Peel
Ontario

Project #: 047-MI2726-20
Licensee (#): Kassandra Aldridge (P439)
PIF#: P439-0095-2020

Original Report

March 29, 2021

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EXECUTIVE SUMMARY

Archeoworks Inc. was retained by *GM BluePlan Engineering Limited* on behalf of the *Regional Municipality of Peel* to conduct a Stage 1 Archaeological Assessment (AA) in support of proposed capacity expansions to the Clarkson and G.E. Booth Wastewater Treatment Plants, both located in the City of Mississauga, Regional Municipality of Peel, Ontario. The two facilities (collectively referred to as the "study area") encompass Lots 5-7 (G.E. Booth WWTP) and 31-32 (Clarkson WWTP), Concession 3 South of Dundas Street, Geographic Township of Toronto, Former County of Peel.

Stage 1 AA background research established potential for the recovery of archaeologically significant materials within the study area due to the presence of water sources and historical Euro-Canadian settlement. However, a review of aerial imagery, supplemented by on-site inspection, determined that much of the study area had been subjected to extensive disturbance; only small pockets of land retaining archaeological potential will therefore require a Stage 2 AA.

Based on the findings of the Stage 1 AA study, the following recommendations are presented:

1. In accordance with findings from the relevant previous archaeological assessments, areas within the G.E. Booth WWTP study area determined to no longer retain archaeological potential and/or warrant no further work, are recommended to be exempted from further assessment.

2. The low-lying and permanently wet area along the east margin of Clarkson WWTP is considered to be low archaeological potential and may be exempted from further assessment. No further work is recommended for this area.

3. Areas demonstrated in historical aerial imagery, indicated in the site plans, and confirmed visually on-site to have been previously disturbed extensively, no longer retain archaeological potential and may be exempted from further assessment. No further work is recommended for these areas, with the exception of the area below:
    i. Per MCFN request, a portion of the southwest corner of the Clarkson WWTP must be subjected to judgmental test pit survey in accordance with the standards set within *Section 2.1.8* of the *2011 S&G*.

4. A Stage 2 AA test pit survey at five-metre intervals must be undertaken in all other portions of the study area which retain archaeological potential, in accordance with the standards set within *Section 2.1.2* of the *2011 S&G*. These specifically include:
    i. At Clarkson WWTP: grassed and/or treed areas in the northwest, northeast and southeast corners, and a grassed area along the west margin.
    ii. At G.E. Booth WWTP: wooded area in the northwest corner, flanking both sides of the extant access road.

No construction activities shall take place within the study area prior to the *MHSTCI* (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

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PROJECT PERSONNEL

Project Director .... Kassandra Aldridge – MHSTCI licence P439

Field Director and Archaeologist .... Lee Templeton – MHSTCI licence R454

Report Preparation .... Jay Allen Villapando

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1.0 PROJECT CONTEXT

1.1 Objective

The objectives of a Stage 1 Archaeological Assessment (AA), as outlined by the 2011 *Standards and Guidelines for Consultant Archaeologists* (*'2011 S&G'*) published by the *Ministry of Heritage, Sport, Tourism and Culture Industries* (*MHSTCI*) (2011), are as follows:

- To provide information about the property's geography, history, previous archaeological fieldwork and current land condition;
- To evaluate in detail the property's archaeological potential, which will support recommendations for Stage 2 survey for all or parts of the property; and
- To recommend appropriate strategies for Stage 2 survey.

1.2 Development Context

In order to address forecasted increases in population and wastewater flow as identified in the 2013 Water and Wastewater Master Plan and recent ongoing updates, the *Regional Municipality of Peel* is proposing to make upgrades at its two southern wastewater treatment plant (WWTP) facilities:

1.) G.E. Booth (Lakeview) WWTP, which receives wastewater from Peel Region's east trunk sewer system, located at municipal address 1300 Lakeshore Road East, City of Mississauga; and

2.) Clarkson WWTP, which receives wastewater from Peel Region's west trunk sewer system, located at municipal address 2307 Lakeshore Road West, City of Mississauga.

Archeoworks Inc. was retained by *GM BluePlan Engineering Limited* on behalf of the *Region of Peel* to conduct a Stage 1 AA in support of the Schedule "C" Municipal Class Environmental Assessments (EAs) and conceptual designs for the proposed capacity expansions in the two aforementioned South Peel WWTPs (***see Appendix A – Map 1***). The subject facilities – henceforth referred to as the "study area" – lie within historical Lots 5 through 7 (Clarkson) and Lots 31 through 32 (G.E. Booth), Concession 3 South of Dundas Street (SDS), Geographic Township of Toronto, Former County of Peel.

This study was triggered by the *Ontario Environmental Assessment Act* in support of the *Municipal Class Environmental Assessment* regulatory process. This Stage 1 AA was conducted pre-submission under the project direction of Ms. Kassandra Aldridge under the archaeological consultant licence number P439, in accordance with the *Ontario Heritage Act* (2009). Permission to investigate the study area was granted by *GM BluePlan Engineering Limited* on May 4, 2020.

1.3 Historical Context

To establish the historical context and archaeological potential of the study area, *Archeoworks Inc.* conducted a review of Aboriginal and Euro-Canadian settlement history, and a review of available historical mapping and aerial imagery. The results of this background research are documented below and summarized in **Appendix B – Summary of Background Research**.

1.3.1 Pre-Contact Period

The Pre-Contact Period of Southern Ontario covers the earliest period of human habitation in the region. It is broadly divided into the Paleo-Indian, Archaic and Woodland Periods. A summary is provided in **Table 1**.

Table 1: Pre-Contact Period

Period	Date	Overview and Attributes
PALEO-INDIAN		
Early	ca. 11000 to 8500 BC	Small groups of nomadic hunter-gathers use seasonal and naturally available resources; sites are rare; hunted in small family groups who periodically gathered into larger groups/bands during favourable periods in the hunting cycle; campsites used during travel episodes and found in well-drained soils in elevated locations; sites found primarily along glacial strandlines per current understanding of regional geological history; artifacts include fluted and lanceolate stone points, scrapers, dart heads. - Gainey, Barnes, Crowfield Fluted Points (Early Paleo-Indian) - Holcombe, Hi-Lo, Lanceolates (Late Paleo-Indian) (Ellis and Deller, 1990, pp.37-64; Wright, 1994, p.25).
Late	ca. 8500 to 7500 BC	
ARCHAIC		
Early	ca. 7800 to 6000 BC	Descendants of Paleo-Indians; lithic scatters are the most commonly encountered site type; trade networks appear; artifacts include reformed fluted and lanceolate stone points with notched bases to attach to wooden shafts; ground-stone tools shaped by grinding and polishing; stone axes, adzes and bow and arrow; introduction of copper tools by Shield Archaic culture in Northern Ontario. - Side-notched, corner-notched, bifurcate projectile points (Early Archaic) - Stemmed, Otter Creek/Other Side-notched, Brewerton side and corner-notched projectile points (Middle Archaic) - Narrow Point, Broad Point, Small Point projectile points (Late Archaic) (Dawson, 1983, pp.8-14; Ellis et al., 1990, pp.65-124; Ellis, 2013, pp.41-46; Wright, 1994, pp.26-28).
Middle	ca. 6000 to 2000 BC	
Late	ca. 2500 to 500 BC	
WOODLAND		
Early	ca. 800 BC to 0	Evolved out of Late Archaic Period; introduction of pottery (ceramic), earliest of which were coil-formed, under-fired and likely utilitarian; two primary cultural complexes: Meadowood (broad extent of occupation in southern Ontario) and Middlesex (restricted to Eastern Ontario); poorly understood settlement-subsistence patterns; artifacts include cache blades, and side-notched points that were often recycled into other tool forms; primarily Onondaga chert; commonly associated with Saugeen and Point Peninsula complexes. - Meadowood side-notched projectile points (Spence et al., 1990, pp.125-142; Wright, 1994, pp.29-30; Ferris and Spence, 1995, pp.89-97; Williamson, 2013, pp.48-61).

Period	Date	Overview and Attributes
Middle	ca. 200 BC to AD 700	Three primary cultural complexes: Point Peninsula (generally south-central and eastern Ontario), Saugeen (generally southwestern Ontario), and Couture (southwestern-most part of Ontario); introduction of large “house” structures; settlements have dense debris cover indicating increased degree of sedentism; incipient horticulture; burial mounds present; shared preference for stamped, scallop-edged or tooth-like decoration, but each cultural complex had distinct pottery forms; Laurel Culture (ca. 500 BC to AD 1000) established in the boreal forests of Northern Ontario. - Saugeen Point projectile points (Saugeen) - Vanport Point projectile points (Couture) - Snyder Point projectile points - Laurel stemmed and corner-notched projectile points (Dawson, 1983, pp.15-19; Ferris and Spence, 1995, pp.97-102; Gagné, 2012; Hessel, 1993, p.9; Spence et al., 1990, pp.142-170; Williamson, 2013, pp.48-61; Wright, 1994, pp.28-33; Wright, 1999, pp.629-649).
Late (Transitional)	ca. AD 600 to 1000	Algonquian-speaking Anishinaabe peoples such as the Odawa and *Michi Saagig* (Mississauga) inhabit southern Ontario and used territories northward for hunting and trapping during winter months; Mississauga oral traditions speak of Iroquoian people coming into their territory around AD 500-1000, establishing settlements and growing maize; treaties were made and the newcomers were allowed to stay in their traditional territories. Earliest Iroquoian development in Ontario: Princess Point culture, which exhibits few continuities from earlier developments with no apparent predecessors, and hypothesized to have migrated into Ontario; settlement data is limited, but oval houses are present; artifacts include ‘Princess Point Ware’ vessels that are cord-roughened, with horizontal lines and exterior punctation; smoking pipes and ground stone tools are rare; introduction of maize/corn horticulture; continuity between Princess Point and Late Woodland cultural groups. - Triangular projectile points (Fox, 1990, pp.171-188; Ferris and Spence, 1995, pp.102-106; Gitiga Migizi and Kapyrka, 2015, p.1).
Early Late	ca. AD 900 to 1300	Two primary Iroquoian cultures: Glen Meyer (primarily southwestern Ontario from Long Point on Lake Erie to southwestern shore of Lake Huron) and Pickering (north of Lake Ontario to Georgian Bay and Lake Nipissing); well-made and thin-walled clay vessels with stamping, incising and punctation; multi-family longhouses and some small, semi-permanent palisade villages; increase in corn-yielding sites; crudely made smoking pipes, and worked bone/antler present; evolution of ossuary burials - Triangular-shaped, basally concave projectile points with downward projecting corners or spurs (Williamson, 1990, pp.291-320; Ferris and Spence, 1995, pp.106-109).
Middle Late	ca. AD 1300 to 1400	Two primary Iroquoian cultures: Uren and Middleport; decorated clay vessels decrease; well-developed clay pipe complex that includes effigy pipes; increase in village sizes (0.5 to 1.7 ha) and campsites (0.1 to 0.6 ha) appear with some palisades; classic longhouse takes form; increasing reliance on maize and other cultigens such as beans and squash; intensive exploitation of local land and water resources; from Middleport emerged the Huron-Wendat, Petun, Neutral and Erie. - Triangular and (side of corner or corner removed) notched projectile points - Middleport Triangular and Middleport Notched projectile points (Dodd el al., 1990, pp.321-360; Ferris and Spence, 1995, pp.109-115).

Period	Date	Overview and Attributes
Late Late	ca. AD 1400 to 1600	Algonquian-speaking groups (e.g., Mississauga, Odawa) maintain stable relations with Iroquoian-speaking groups (e.g., Huron-Wendat, Petun, Neutral), who continued to establish settlements in southern Ontario. Two Iroquoian groups: the Neutral to the west of the Niagara Escarpment, and Huron-Wendat to the east. Huron-Wendat sites occur in the valleys and basins of the Humber, Rouge and Duffin Creek, upper and lower Trent, Lake Scugog and Simcoe County; longhouses; villages enlarged to 100 longhouses clustered together as horticulture (maize, squash, and beans) gained importance in subsistence patterns; villages chosen for proximity to water, arable soils, available fire wood and defendable position; diet supplemented with fish; ossuaries; tribe/band formation; relocation of some Iroquois groups to north of Lake Simcoe; Neutral sites found around the western end of Lake Ontario and eastward across the Niagara Peninsula; Neutrals (called Attiewandaron by the Huron-Wendat) distributed west of the Niagara Escarpment as far as Milton; their settlements range from villages up to five acres in size to isolated fishing cabins; villages tend to be located along smaller creeks, headwaters and marshlands; diet dependent on hunting, gathering, fishing and farming; longhouses present. - Huron-Wendat projectile points are limited but change from predominantly side-notched to unnotched triangular - Neutral projectile points are typically small but long and narrow, frequently side-notched (Ferris and Spence, 1995, pp.115-122; Heidenreich, 1978, pp.368-388; Lennox and Fitzgerald, 1990, pp.405-456; Gitiga Migizi and Kapyrka, 2015, p.1; Ramsden, 1990, pp.361-384; Warrick, 2000, pp.446-454; Warrick, 2008, p.15).

1.3.2 Contact Period

The Contact Period of Southern Ontario encompasses the two centuries following the arrival of the first Europeans to the region. **Table 2** provides a summary of some of the main developments that occurred during this time.

Table 2: Contact Period

Period	Date Range	Overview and Attributes
European Contact	ca. AD 1600s	Algonquian-speaking groups such as the Anishinaabe (Mississauga, Chippewa, Ojibwe, Odawa, Nippissing, etc.) continue to inhabit Ontario, alongside Iroquoian-speaking groups such as the Huron-Wendat north of Lake Simcoe and the Neutral (Attiewandaron) in the Niagara Peninsula; inter-marriage; French arrival into Ontario; trade relationship between the Huron-Wendat and the French established; trade goods begin to replace traditional tools/items; Jesuit and Recollect missionaries; epidemics; Mississauga oral tradition speaks of Anishinaabe “paddling away” to their northern hunting territories to escape disease and warfare in southern Ontario at this time (Fox and Garrad, 2004, p.124; Jury, 1974, pp.3-4; McMillan and Yellowhorn, 2004, pp.110-111; Lennox and Fitzgerald, 1990, pp.405-456; Gitiga Migizi and Kapyrka, 2015, p.1; Trigger, 1994, pp.47-55; White, 1978, pp.407-411).

Period	Date Range	Overview and Attributes
Haudenosaunee Arrival	ca. AD 1650s	The Five (later Six) Nations of Iroquois ("Haudenosaunee"), originally located south of the Great Lakes, engaged in warfare with other Iroquois groups in southern Ontario, as their territory no longer yielded enough furs; numerous Huron-Wendat, Petun and Neutral villages attacked and destroyed in 1649-50s; small groups that remained became widely dispersed throughout Great Lakes region, with some resettling in what are now Quebec, southwestern Ontario and the United States; Haudenosaunee, particularly the Seneca, established settlements along the Lake Ontario shoreline at strategic locations along canoe-and-portage routes — including Ganatsekwyagon at the mouth of the Rouge River, Teiaiagon at a bend near the mouth of the Humber River, and the length of the Niagara River — and used territory extensively for fur trade; European trade and exploration continues (Gitiga Migizi and Kapyrka, 2015, p.1; Robinson, 1965, pp.15-16; Schmalz, 1991, pp.12-34; Trigger, 1994, p.53-59; Williamson, 2013, p.60).
Anishinaabe Return	ca. AD 1650s to 1700	Anishinaabe groups return to southern Ontario in the 1690s; battles fought throughout, resulting in the Haudenosaunee being driven out and returning to homelands south of the Great Lakes; '*Mississauga*' term applied to Anishinaabe bands living on the north shore of Lake Ontario; they were focused on hunting/fishing/gathering with little emphasis on agriculture; temporary and moveable houses (wigwam) left little archaeological material behind; Credit River became a favoured location of trade between Mississauga and European traders; Mississauga settlement near Port Credit (Gibson, 2006, pp.35-41; Hathaway, 1930, p.433; Johnston, 2004, pp.9-10; Skeoch, 2000, pp.20-21; Smith, 2013, pp.16-20; Williamson, 2013, p.60).
Trade, Peace and Conflict	ca. AD 1700 to 1770s	Great Peace of 1701 in Montreal established peace among First Nations groups around the Great Lakes, and secured their neutrality in case of conflict between France and Britain; European commerce and exploration resumed; Anishinaabe continued to trade with both the English and the French; genesis of the Métis; skirmishes between France and Britain as well as their respective First Nations allies erupt in 1754 ("French and Indian Wars") and form part of the larger Seven Years' War; French defeat transferred the territory of New France to British control; Treaty of Paris signed in 1763; Royal Proclamation of 1763 established framework for negotiation of treaties with First Nations and administration of North American territories ceded by France to Britain; uprising by several First Nations groups against British ("Pontiac's War"); fur trade continued until Euro-Canadian settlement (Hall, 2015; Jaenen, 2013; Johnston, 2004, pp.13-14; Schmalz, 1991, pp.35-62, 81; Surtees, 1994, pp.92-97).
Early British Administration	ca. AD 1770s to 1800s	American Revolutionary War (1775-1783) drove large numbers of United Empire Loyalists, military claimants, and groups who faced persecution in the United States to re-settle in southern Ontario; Treaty of Paris signed in 1783/1784 and formally recognized the independence of the United States; Province of Quebec divided in 1791 into sparsely populated Upper Canada (now southern Ontario) and culturally French Lower Canada (now southern Quebec); Jay's Treaty of 1795 establishes American—Canadian border along the Great Lakes; large parts of Upper Canada opened to settlement from the British Isles and continental Europe after land cession treaties were negotiated by the British Crown with various First Nations groups (Department of Indian Affairs, 1891; Government of Ontario, 2020; Hall, 2019; Jaenen, 2014; Sprague, 2015; Surtees, 1994, p.110; Sutherland, 2014).

1.3.3 Euro-Canadian Settlement Period (1800s to present)

1.3.3.1 Toronto Township

In 1805 a tract of land 26 miles long, between Etobicoke Creek and Burlington Bay, stretching back from the Lake Ontario shoreline for about five to six miles (roughly corresponding to present-day Eglinton Avenue) was agreed to be ceded by the certain Mississauga groups in what is known as the "First Purchase" or Treaty 13A. One mile on either side of the Credit River and the 'flat lands' bordering the Etobicoke Creek were to remain property of the Mississauga, and they were to obtain £1000 worth of goods and the right to retain their fishery sites at the mouths of the Credit River, Sixteen Mile Creek, and Twelve Mile Creek as part of the treaty (Fix, 1967, p.13; Heritage Mississauga, 2018d; Weaver, 1913, p.65).

In September 1806, representatives of the Crown and certain Mississauga groups signed Treaty 14, or the "Head of the Lake Purchase," confirming the cession of lands along the north shore of Lake Ontario that had been agreed upon the previous year. These lands were surveyed and constituted into townships – the preferred unit of land division by British administrators (Loverseed, 1987, p.23). The survey of the portion of Toronto Township lying south of what is now Eglinton Avenue ("Old Survey" lands), where the study area lies, was completed in 1806 by Samuel Wilmot, Deputy Surveyor (Walker and Miles, 1877, p.86). Dundas Street, a military road established by orders of Lieutenant-Governor John Graves Simcoe and constructed by the Queen's Rangers following a trail used by First Nations, was the only road at this time. It consequently became the main east-west roadway through the newly-established Province of Upper Canada. The road penetrated the dense forest in Toronto Township, and until settlers arrived, it remained a wagon-width trail (Clarkson, 1977, p.8; Riendeau, 2002, p.123). Initial settlement in the Township of Toronto was along Dundas Street, and these first settlers were experienced farmers, many of which were United Empire Loyalists and Late Loyalists (Riendeau, 2002, pp.123-124).

Even though the lands within Toronto Township had become available for settlement, Napoleonic Wars in Europe slowed immigration from the British Isles; only 175 individuals are listed in the 1809 Census Record (Riendeau, 2002, p.125). After the War of 1812, there was mounting pressure for new land to accommodate the "increasing amount of new settlers from the British Isles, to meet the demands of the demobilized military personnel for their promised land grants, and to provide the necessary land for children of the United Empire Loyalists who had settled in eastern Ontario and on the Niagara Frontier a generation earlier" (McKinney, 1967, p.244). To accommodate this influx of settlers, the remainder of the Mississauga Tract, within what is now Peel Region, was negotiated by William Claus in 1818. The area belonged to the Credit River Mississauga who found themselves victim to encroachment on their lands and fisheries by Euro-Canadian settlers (Surtees, 1994, p.116). Under the leadership of Chief Ajetance, the Mississauga settled for goods in the value of £522.10 annually per person in exchange for 648,000 acres of land, including some land along the Credit River. This Second Purchase, known as the Ajetance Purchase or Treaty 19, ceded the lands north of Eglinton Avenue and form the 'New Survey' of the Township of Toronto (Department of Indian Affairs, 1891, p.lv; Surtees, 1994, p.117; Riendeau, 2002, pp.123,127).

In 1826, the Mississauga village at the mouth of the Credit River was relocated to the Credit Mission, located on the site of what is now the Mississauga Golf and Country Club on Mississauga Road (Heritage Mississauga, 2018b; Riendeau, 2002, p.125). By 1837, the Mississauga population was decimated by contagious diseases, such as smallpox, tuberculosis and measles, killing nearly two-thirds of the Mississaugas at the western end of Lake Ontario (Smith, 2002, p.110; Riendeau, 2002, p.125). Further constricted by the pressures of the Euro-Canadian settler, the Mississaugas of the Credit River were relocated again to the Grand River Reserve (Riendeau, 2002, p.125).

By 1842, the population of the Township of Toronto included 5,377 individuals, and 28,468 of 59,260 acres taken up were under cultivation. There were four grist mills and 21 saw mills in the township. European settlement in the Township of Toronto continued along the Credit River, as well as the Etobicoke River; numerous mills were constructed along their entirety (Smith, 1846, pp. 192-193; Martin, 1967, p.273).

1.3.3.2 History of Clarkson

The Clarkson WWTP facility takes its name from the historic community of Clarkson, centred along Lakeshore Road, west of Southdown Road. Clarkson is the considered one of the oldest settled villages in Peel Region, having been first settled in 1808 by Thomas Marigold and Benjamin Monger and their families. In 1811, an inn was opened on Middle Road (present-day Queen Elizabeth Way), and in 1819, Warren Clarkson purchased 200 acres around the community. By 1835, Clarkson Road, which originally followed a trail leading into the hamlet, had been constructed. An inn, store and a burying ground were established along this road. In 1853, the Great Western Railway, purchased land from Warren Clarkson to construct the railway. Originally, the hamlet was called ‘Marigold’s Point,’ it was changed to ‘Clarkson’s Corners’ and then ‘Clarkson’ when the train station on the Great Western Railway was completed in 1855. In 1875, the Clarkson post office was opened. By the end of the nineteenth century, fruit growing, packing, storing and shipping became an important industry in the community (Smith, 1846, pp.192-193; Martin, 1967, p.273; Heritage Mississauga, 2018a).

1.3.3.3 History of Lakeview

The vicinity of the G.E. Booth WWTP facility is located within an area called Lakeview. Though not officially named so until 1922, Lakeview was among the earliest settled parts of Toronto Township. The first recorded European settler is Thomas Ingersoll, who moved to the area in 1805, followed in the next years by Philip Cody (1806) and Daniel Harris (1807) (Hicks, 2005, p. XII). The area remained rural for most of the 19th century, with settlers engaging in mixed agriculture (TRCA, 2013a, pp. 12-13). Beginning in the 1890s, much of the land south of Lakeshore Road came under the possession of the Ontario Militia Department, who among other things established a rifle range. The federal government also built Canada’s first aerodrome and flying school in the Lakeview area in 1915. During the Second World War the Department of National Defence took over the rifle range property for military training, while also establishing the Canada Arms School, Small Arms Militia Training Centre, and factories for ammunition and small arms. Lakeview thus became a military-oriented community. After the war the federal government sold off the parcels for public (power generation, parks, water and sewerage works) and private (commercial and industrial) use (Hicks, 2005, pp. 46-49; Heritage Mississauga, 2018c).

1.3.4 Past Land Use

To further assess the study area's potential for the recovery of Euro-Canadian remains, local histories, historical maps and aerial photographs were consulted to gain an understanding of the land use history.

1.3.4.1 Clarkson WWTP

The Clarkson WWTP facility is situated on the south parts of Lots 31 and 32, Concession 3 SDS. The 1859 *Tremaine's Map of the County of Peel* and the 1877 *Illustrated Historical Atlas of the County of Peel* (***see Maps 2-3***) depict at least two locations within the facility which hosted the farmsteads of Captain C.H. Scholefield ca. 1859, and, later, Rev. George Evans ca. 1877.

In 1893 the land on which the Clarkson WWTP sits was acquired by Toronto businessman George Horace Gooderham of the Gooderham family, whose name appears in Gooderham & Worts, the world's second-largest whisky distillery in the early 1900s. At one point described as one of the finest farms in Ontario, the Gooderham Estate produced large quantities of fruits and vegetables, and contained, at its height four barns, four houses and a dedicated rail spur. The houses that stood on the farm included: a family residence ("Manor House"), a house for the farm manager (the first of which was Harold Scholefield), and two boarding houses for workers. Some of these structures can be seen in the early 20th century military topographic maps of the area (***see Map 4***). The estate was sold off in parcels beginning in the 1940s for business and residential uses. One of the buildings was converted into Greyscher House, a nursing home for seniors, in 1947. After the Township of Toronto purchased the property in 1955, the Greyscher House and one of the dwelling houses respectively became the new administration buildings for the township's parks department and the Clarkson Sewage Disposal Plant, the forerunner of today's Clarkson WWTP facility (Hicks, 2003, pp. 87-89; City of Mississauga, 2011).

Aerial photographs show that, while new features (buildings, graded areas, sewer and utility lines, etc.) kept being added, much of the land within the current Clarkson WWTP facility limits remained undeveloped or in agricultural use until the early 1970s (***see Maps 5-6***). Massive expansion upgrades in the mid-1970s resulted in much of the facility being subjected to soil disturbance, including the valley lands associated with the Lakeside Creek in the property's southwest corner, which was piped underground ca. 1973 (***see Map 6***). Review of available post-1975 aerial photographs at the City of Mississauga's mapping service[1] provide further evidence of large-scale soil grading and construction within the Clarkson WWTP grounds, especially in the period 2004 to 2019, therefore leaving only few pockets of land undisturbed.

1.3.4.2 G.E. Booth (Lakeview) WWTP

The G.E. Booth WWTP facility sits on parts of Lots 5 to 7, Concession 3 SDS. A review of the facility's land use history is detailed in the TRCA Stage 1 AA report that was conducted in support of Lakeview Waterfront Connection Project (TRCA, 2013a). The report found that Lot 5 was

[1] Due to copyright conditions, orthorectified aerial imagery from Mississauga Maps cannot be provided within this report. Historical aerial imagery of the vicinity of the G.E. Booth WWTP can be accessed via the following link: ***http://www6.mississauga.ca/missmaps/maps.aspx#map=15/-8863100.07/5387809.82/0.9075712110370514***

originally a Crown Reserve which was first reserved for Valentine Harding in 1810 but later granted to Col. Samuel Smith, a United Empire Loyalist, in 1817. Lots 6 and 7 were granted to Thomas Lucas who by 1809 had cleared five acres and built a house on the property. Lot 6 was then later sold to Samuel Smith in 1818. In the 1859 *Tremaine's Map of the County of Peel* the Lot 5 is still identified as being property of the Smith Estate, while Lots 6 and 7 were owned by R.J. Polley and Michael Barnes (***see Map 7***). By 1877, Lots 5 and 6 had been united under the ownership of James Hamilton, while the widow of Michael Barnes retained Lot 7 (***see Map 8***). Neither historical map, however, depict any structure within the G.E. Booth study area limits.

Information about the occupants of Lots 5 to 7 indicate that the area of the current WWTP facility was actively being used for mixed farming until the 1890s, when a rifle range was established (TRCA, 2013a). The property was purchased by the federal government in 1935 and used by the Department of National Defence for military purposes until 1955, when Toronto Township purchased 35 acres on Lot 6 to build the Lakeview Sewage Disposal Plant (the forerunner of G.E. Booth WWTP) which was opened in 1957. Major expansions to the facility took place in the 1970s (which enlarged the facility footprint to include Lot 5) and the 2000s[2] (Hicks, 2005, pp. 46-49; pp. 266-267). Note that a review of the Lakeview area's 20th century aerial imagery and land use history has already been presented in a previous Stage 1 AA report by the Toronto and Region Conservation Authority (TRCA, 2013a).

1.3.4.3 Lakeshore Road

Both WWTP facilities lie along Lakeshore Road, a historic thoroughfare opened in 1804 which roughly followed the path of an older First Nations trail. It was improved as a corduroyed road in the 1820s and became Canada's first road to be designated a cemented highway in 1914 (Hicks, 2005, pp. XVII-XVIII).

1.3.4.4 Summary

In Ontario, the *2011 S&G* considers areas of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes, early wharf or dock complexes, pioneer churches, and early cemeteries), early historic transportation routes (e.g., trails, passes, roads, railways, portage routes), and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations are considered features or characteristics that indicate archaeological potential (per *Section 1.3.1* of the *2011 S&G*). Therefore, based on the presence of early Euro-Canadian settlements, and the proximity of early historic transportation routes, this feature contributes in establishing the archaeological potential of the study area.

1.3.5 Present Land Use

Under the City of Mississauga's Official Plan, the land use for the entire Clarkson WWTP facility is categorized as Utility. The G.E. Booth study area is also mostly categorized as Utility, except for

[2] Due to copyright conditions, orthorectified aerial imagery from Mississauga Maps cannot be provided within this report. Historical aerial imagery of the vicinity of the G.E. Booth WWTP can be accessed via the following link: ***http://www6.mississauga.ca/missmaps/maps.aspx#map=15/-8855066.23/5400062.43/0.9075712110370514***

the Lake Ontario shoreline, and the immediate vicinities of the Serson and Applewood Creeks which are Greenlands. These latter areas, and a wooded portion in the northwest, are also considered to be areas of Natural Hazard (City of Mississauga, 2019).

1.4 Archaeological Context

To establish the archaeological context and further establish the archaeological potential of the study area, *Archeoworks Inc*. conducted a comprehensive review of designated and listed heritage properties, commemorative markers and pioneer churches and early cemeteries in relation to the study area. Furthermore, an examination of registered archaeological sites and previous AAs in proximity to the study area limits, and a review of the physiography of the study area were performed. The results of this background research are documented below and summarized in **Appendix B – Summary of Background Research**.

1.4.1 Designated and Listed Cultural Heritage Resources

Per *Section 1.3.1* of the *2011 S&G*, properties listed on a municipal register or designated under the *Ontario Heritage Act*, or that is a federal, provincial, or municipal historic landmark or site, are considered features or characteristics that indicate archaeological potential. Several heritage resources are located within 300 metres of the G.E. Booth WWTP study area (***see Table 3***). No properties of cultural heritage value or interest lie within 300 metres of the Clarkson WWTP.

Table 3: Cultural Heritage Properties Located within 300 metres of the Study Area

Address	Date	Description	Status
1300 Lakeshore Road East	1940	Long Branch Indoor Rifle Range: single-storey, partially subterranean rectangular structure used for World War II militia training; still in active civilian use (City of Mississauga, 2020c). *Note:* Partially encompassed within the study area.	Designated under By-Law 170-2012
	1910	Long Branch Outdoor Rifle Range: sixteen wooden baffles and one concrete backstop dating to 1910, but area has been used for militia training since 1891 (City of Mississauga, 2020d; Ontario Heritage Trust, 2020a)	Designated under By-Law 0144-2017
1352 + 1400 + 1440 Lakeshore Road East	1941	Small Arms Limited Building: low-lying H-shaped facility, part of a larger complex dedicated to government firearms manufacture during World War II (City of Mississauga, 2020e)	Designated under By-Law 258-2009
	-	Arsenal Lands Water Tower: last visible remnant of former munitions plant that stood on the site (City of Mississauga, 2020f)	
811 Lakefront Promenade / 800 + 985 Hydro Road	-	Lakeview Generating Station: one of five hydro generation plants along north shore of Lake Ontario with strong architectural massing and distinct visual impact (City of Mississauga, 2020b)	Previously listed; Now demolished/ unlisted

However, it must be noted that due to the late timeframe of construction (i.e., post-1900) of the aforementioned properties of cultural heritage value or interest, these properties do not directly contribute to elevated potential to encounter historic (i.e., pre-1900) archaeological resources.

1.4.2 Heritage Conservation Districts

Per *Section 1.3.1* of the *2011 S&G*, heritage resources listed on a municipal register or designated under the *Ontario Heritage Act* are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a Heritage Conservation District (City of Mississauga, 2020a). Therefore, this feature does not contribute in establishing the archaeological potential of the study area.

1.4.3 Commemorative Plaques or Monuments

Per *Section 1.3.1* of the *2011 S&G,* commemorative markers of Aboriginal and Euro-Canadian settlements and history which may include local, provincial, or federal monuments, cairns or plaques, or heritage parks are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a commemorative plaque or monument (Ontario Historic Plaques, 2019; Ontario Heritage Trust, 2020b). Therefore, this feature does not contribute in establishing the archaeological potential of the study area.

1.4.4 Pioneer/Historic Cemeteries

Per *Section 1.3.1* of the *2011 S&G,* pioneer churches and early cemeteries are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a pioneer/historic cemetery or church (Ontario Genealogical Society, 2019). Therefore, this feature does not contribute in establishing the archaeological potential of the study area.

1.4.5 Registered Archaeological Sites

Per *Section 1.1, Standard 1* and *Section 7.5.8, Standard 1* of the *2011* S&G, the *Ontario Archaeological Sites Database* (OASD) maintained by the *MHSTCI* was consulted in order to provide a summary of registered or known archaeological sites within a minimum one-kilometre distance of the study area limits. According to the OASD, there are no registered archaeological sites within a one-kilometre radius of the study area (MHSTCI, 2020). This feature therefore does not contribute to establishing archaeological potential of the study area.

1.4.6 Previous Archaeological Assessments

Per *Section 1.1, Standard 1* and *Section 7.5.8, Standards 4-5* of the *2011* S&G, to further establish the archaeological context of the study area, a review of previous AAs carried out within the limits of, or immediately adjacent (i.e., within 50 metres) to the study area — as documented by all available reports — was undertaken. Eight reports were identified (***see Table 4***).

Table 4: Previous Archaeological Assessments

Company	Stage of Work	Relation to Study Area	Details and Recommendation
Previous Archaeological Assessments Tied to Current Development Project:			
Scarlett Janusas Archaeology Inc., 2020	Marine AA	G.E. Booth WWTP offshore	220 hectares of Lake Ontario shore fronting WWTP facility considered to exhibit low archaeological potential. No further AA recommended.

Company	Stage of Work	Relation to Study Area	Details and Recommendation
Previous Archaeological Assessments Tied to Other Development Projects:			
Timmins Martelle Heritage Consultants Inc., 2007	Stage 1-2 AA	Immediately north of Clarkson WWTP	Assessment in support of development of 551 Avonhead Road. Stage 2 visual and test pit survey found no archaeological resources. No further AA recommended.
Scarlett Janusas Archaeological and Heritage Consulting and Education, 2012	Marine AA	G.E. Booth WWTP offshore	Marine AA for Lake Ontario shore between Lakeview Generating Station and Etobicoke Creek, including shore off G.E. Booth WWTP, in support of Lakeview Waterfront Connection (LWC) revitalization project. No cultural materials located for portion fronting WWTP.
Toronto and Region Conservation Authority, 2013a	Stage 1 AA	Encompasses entire G.E. Booth WWTP	Land-based AA in support of LWC Project, covering lands south of Lakeshore Road, west of Etobicoke Creek and east of Serson Creek; includes G.E. Booth WWTP. Background research determined much of WWTP facility to be extensively disturbed. No further AA recommended for disturbed areas. Some areas within WWTP facility found to retain archaeological potential and recommended to be subjected to Stage 2 test pit survey.
Toronto and Region Conservation Authority, 2013b	Stage 2 AA	Encompasses part of G.E. Booth WWTP	Assessment of four areas within larger Lakeview Waterfront Connection Project, one of which (“Area A”) is situated in the northwest woodlot of the WWTP facility. Combination of visual inspection and test pit survey found no archaeological resources. No further AA recommended.
Toronto and Region Conservation Authority, 2016	Stage 1-2 AA	Encompasses part of G.E. Booth WWTP	Assessment of proposed construction access road spanning G.E. Booth WWTP and Ontario Power Generation lands, as part of the larger Lakeview Waterfront Connection Project. Combination of visual inspection and test pit survey found no archaeological resources. No further AA recommended.
Archaeological Research Associates Ltd., 2017	Stage 1-2 AA	Immediately east of G.E. Booth WWTP	Much of former Lakeview Generating Station property (Ontario Power Generation lands) found to be extensively disturbed; undisturbed lands subjected to Stage 2 test pit survey. No archaeological resources found; no further AA recommended.
Archeoworks Inc., 2019	Stage 1 AA	Encompasses entire Clarkson WWTP	Assessment in support of Southdown District Stormwater Servicing and Environmental Management Plan, covering a large part of the City of Mississauga, including Clarkson WWTP. Stage 2 test pit survey specifically recommended for lands within WWTP facility.

1.4.7 Physical Features

1.4.7.1 Physiographic Region

Both WWTP facilities are situated within the Iroquois Plain physiographic region of Southern Ontario. This physiographic region consists of undulating till plains above the old shorelines of Lake Iroquois, the extensive lake that covered the Lake Ontario region when the last glacier was receding. The old shoreline is “well-marked by bluffs or gravel bars;” immediately below is a strip of “boulder pavement and sandy offshore deposits” that are “not very productive” for agriculture. Until 1940, the Iroquois Plain was a general farming area, with a tendency for horticulture and growth of canning crops. However, since the Second World War, the remaining farms have become larger while much of the land has been put to urban uses (Chapman and Putnam, 1984, pp.190-196).

1.4.7.2 Soil Types and Topography

Prior to developmental activities in the 20th and 21st centuries, the native soil within the G.E. Booth WWTP was Chinguacousy clay loam, while Berrien sandy loam and Cooksville clay loam could be found in the Clarkson WWTP (Ontario Agricultural College, 1953). A summary of their characteristics is presented in **Table 5**.

Table 5: Study Area Soil Types

Series, Soil Type	Great Soil Group	Soil Materials	Drainage	Topography	Surface Stoniness
G.E. Booth WWTP					
Chinguacousy, clay loam	Grey-Brown Podzolic	Heavy textured till. Shale and limestone	Imperfect	Smooth gently sloping	Few stones
Clarkson WWTP					
Berrien, sandy loam	Grey-Brown Podzolic	Sandy outwash over heavy till	Imperfect	Smooth, very gently sloping	Stonefree
Cooksville, clay loam	Grey-Brown Podzolic	Shallow soil over bedrock. Over grey shale	Imperfect	Smooth gently sloping	Few stones

1.4.7.3 Hydrological Features

Hydrological features such as primary water sources (i.e. lakes, rivers, creeks, streams) and secondary water sources (i.e. intermittent streams and creeks, springs, marshes, swamps) would have helped supply plant and food resources to the surrounding area and are indicators of archaeological potential (per *Section 1.3.1* of the *2011 S&G*). The G.E. Booth WWTP is flanked by Applewood Creek to the east, Lake Ontario to the south and Serson Creek to the west, while Lakeside Creek flows through Clarkson WWTP. Given the presence of these water sources, archaeological potential can be established within the study area. However, it must be noted that post-1950 developments have artificially altered the areas surrounding the aforementioned creeks, as well as the Lake Ontario shoreline.

1.4.8 Current Land Conditions

Both the Clarkson WWTP and G.E. Booth WWTP facilities are mostly dominated by buildings, installations and structures; many open surfaces have been either graded and/or paved over. The natural topography has been greatly altered at both facilities. Wooded and areas of overgrown vegetation exist in the valley lands associated with Applewood and Serson Creeks at G.E. Booth WWTP. Shrubbed and overgrown areas also exist along the margins of the Clarkson WWTP; some cover soil heaps from previous site expansion/improvement works. Reclamation work along the Lake Ontario shore is also taking place south of G.E. Booth WWTP.

1.4.9 Date of Property Inspection

A field review (“property inspection”) was carried out on June 29, 2020. The purpose of the property inspection is to: identify and describe areas of high potential requiring additional archaeological research; identify and describe areas of no/low potential not warranting further archaeological concern; and to help gather information in order to formulate appropriate Stage 2 AA strategies. Details of the property inspection are presented in **Section 2.0**.

1.5 Confirmation of Archaeological Potential

Based on the information gathered from the background research documented in the preceding sections, there is elevated archaeological potential within the study area limits. Features that contribute to archaeological potential are summarized in **Appendix B**.

However, it must be noted that post-1900 developments can negate the possibility of encountering intact archaeological deposits due to deep and extensive soil disturbance. Succeeding **Sections 2.0** and **3.0** will provide further details regarding which areas will no longer require further work due to previous disturbance, and which undisturbed areas will require further Stage 2 AA.

2.0 PROPERTY INSPECTION

This property inspection was conducted in compliance with the standards set forth in *Section 1.2* of the *2011 S&G*, published by the *MHSTCI*. The weather condition at the time of inspection was sunny, with a daily high temperature of 25°C, permitting good visibility of all features within the study area.

Inspection was carried out by taking photographs of the general surroundings within the study area, with the exception of lands previously determined as no longer warranting further archaeological concern (***see Section 3.1***). Attention was paid to documenting a range of land alterations and features affecting the assessment of archaeological potential. Areas believed to have been untouched by previous development was were also inspected to determine suitability for further archaeological testing.

Photographic images of the study area are presented within **Appendix C**. Location and orientation information associated with all photographs taken in the field is provided within **Maps 9-10.** An inventory of the documentary record generated in the field can be found within **Appendix D**.

2.1 Identification & Documentation of Physiographic Features Affecting Assessment Strategies

A review of historical and recent aerial imagery has revealed that the courses and/or banks of the Lakeside Creek at Clarkson WWTP, and Applewood and Serson Creeks at G.E. Booth WWTP, were heavily altered in the second half of the 20th century as part of the development of both facilities (***see Section 1.3.4***). None of the physiographic features encountered within the study area (e.g., slopes, watercourses) were confirmed to be natural; rather they are considered disturbed (***see Section 2.2 below***). At the Clarkson WWTP, however, it was observed that the graded landscape drains the rainwater into the property's east margin (***see Images 1-2***), resulting in low-lying waterlogged locations.

2.2 Identification & Documentation of Structures and Built Features Affecting Assessment Strategies

Most of the lands within the study area appear to have been subject to extensive and deep (i.e, to below subsoil) post-1950 alterations. These include: extant (and former) footprints of built structures and installations, gravel and paved surfaces, graded landscapes, and artificial berms/soil piles (***see Images 3-31***). The site plan of each facility also indicates that an extensive network of buried utility and servicing lines exists throughout, including the pipes conveying Lakeside Creek underground at Clarkson WWTP.

2.3 Identification & Documentation of Additional Features Contributing to Archaeological Potential

During the Stage 1 property inspection no additional features contributing to archaeological potential were identified.

2.4 Confirmation of Previously Identified Features of Archaeological Potential

Only small portions of the study area retain archaeological potential as no extensive soil disturbance was observed in these areas, both in reviewed post-1950 aerial imagery and during the on-site property inspection (***see Images 32-34***).

2.5 Indigenous Engagement

In response to an initiative set forth by the MHSTCI, wherein active project information is released to Indigenous communities who request this data, the *Mississaugas of the Credit First Nation* (MCFN) have requested participation and project information for all archaeological assessment work occurring within their treaty territory; this project falling within such lands. Communication details with the MCFN regarding their participation in this project have been documented within the **Indigenous Engagement Document** as per *Section 7.6.2* of the *2011 S&G*.

3.0 ANALYSIS AND CONCLUSIONS

In combination with data gathered from the background research (***see Sections 1.3 and 1.4***) and reviews of a series of maps and aerial imagery, an evaluation of the established archaeological potential was performed. The resulting Stage 1 AA map is presented as **Maps 9-10**. A selection of photographs taken in the field is presented in **Appendix C** as **Images 1-34**, and their locations are accordingly marked in the maps.

3.1 Previously Assessed Areas

Two Marine AAs (SJAHCE, 2012; SJAI, 2020), and four Stage 1 and/or 2 AAs (TRCA, 2013a, 2013b, 2016; ARA Ltd., 2017), have already sufficiently assessed the archaeological concerns in the majority of the G.E. Booth WWTP study area (***see Section 1.4.6***). These portions can be exempted from further Stage 2 archaeological testing.

3.2 Physiographic Features of No or Low Archaeological Potential

The study area was also evaluated for physical features of no or low archaeological potential. These usually include but are not limited to: permanently wet areas, exposed bedrock, and steep slopes (greater than 20^{o}) except in locations likely to contain pictographs or petroglyphs, as per *Section 2.1, Standard 2.a.* of the 2011 *S&G.*

The low-lying and permanently wet area along the east margin of the Clarkson WWTP facility is considered to be of low archaeological potential (***see Section 2.1***). It is therefore recommended to be exempt from further archaeological investigation.

3.3 Identified Deep and Extensive Disturbances

The study area was evaluated for extensive disturbances that have removed archaeological potential. Disturbances may include but are not limited to: quarrying, major landscaping involving grading below topsoil, building footprints, or sewage and infrastructure development. *Section 1.3.2* of the *2011 S&G* considers infrastructure development among those "features indicating that archaeological potential has been removed."

Heavy post-1950 land alterations were noted throughout much of the two WWTP facilities. As documented in historical aerial imagery (***see Section 1.3.4***) and current site plans, and also confirmed during property inspection (***see Section 2.2***), these deep and extensive disturbances would have resulted in severe damage to the integrity of any archaeological resources which may have been present within their footprints. These areas may be exempted from further archaeological investigation.

3.3.1 MCFN Engagement

The Department of Consultation and Accommodation (DOCA) of the Mississaugas of the Credit First Nation (MCFN) has requested that the wooded area and manicured lawn at the southwest corner of the Clarkson WWTP be subjected to judgmental test pitting (***see Indigenous Engagement Document***).

3.4 Identified Areas of Archaeological Potential

Desktop review of historical aerial imagery, combined with on-site property inspection, indicate that pockets of land within the two WWTP facilities neither exhibit extensively disturbed conditions nor contain physical features of low to no archaeological potential. Specifically, these include (***see Maps 9-10***):

1) Wooded portions in the northwest angle of the G.E. Booth WWTP study area, flanking the access road; and
2) Four grassed/treed/overgrown portions of the Clarkson WWTP study area, namely: along the west margin, and at the northwest, northeast and southeast corners.

These lands are considered to retain archaeological potential and are in suitable condition for Stage 2 test pit survey at standard five-metre intervals.

4.0 RECOMMENDATIONS

Considering the findings detailed in preceding sections, the following recommendations are presented (***see Maps 9-10***):

1. In accordance with findings from the relevant previous archaeological assessments, areas within the G.E. Booth WWTP study area determined to no longer retain archaeological potential and/or warrant no further work, are recommended to be exempted from further assessment.

2. The low-lying and permanently wet area along the east margin of Clarkson WWTP is considered to be low archaeological potential and may be exempted from further assessment. No further work is recommended for this area.

3. Areas demonstrated in historical aerial imagery, indicated in the site plans, and confirmed visually on-site to have been previously disturbed extensively, no longer retain archaeological potential and may be exempted from further assessment. No further work is recommended for these areas, with the exception of the area below:
   i. Per MCFN request, a portion of the southwest corner of the Clarkson WWTP must be subjected to judgmental test pit survey in accordance with the standards set within *Section 2.1.8* of the *2011 S&G*.

4. A Stage 2 AA test pit survey at five-metre intervals must be undertaken in all other portions of the study area which retain archaeological potential, in accordance with the standards set within *Section 2.1.2* of the *2011 S&G*. These specifically include:
   i. At Clarkson WWTP: grassed and/or treed areas in the northwest, northeast and southeast corners, and a grassed area along the west margin.
   ii. At G.E. Booth WWTP: wooded area in the northwest corner, flanking both sides of the extant access road.

No construction activities shall take place within the study area prior to the *MHSTCI* (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

1. This report is submitted to the *MHSTCI* as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the *MHSTCI*, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

2. It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

3. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

4. The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the *Ministry of Consumer Services*.

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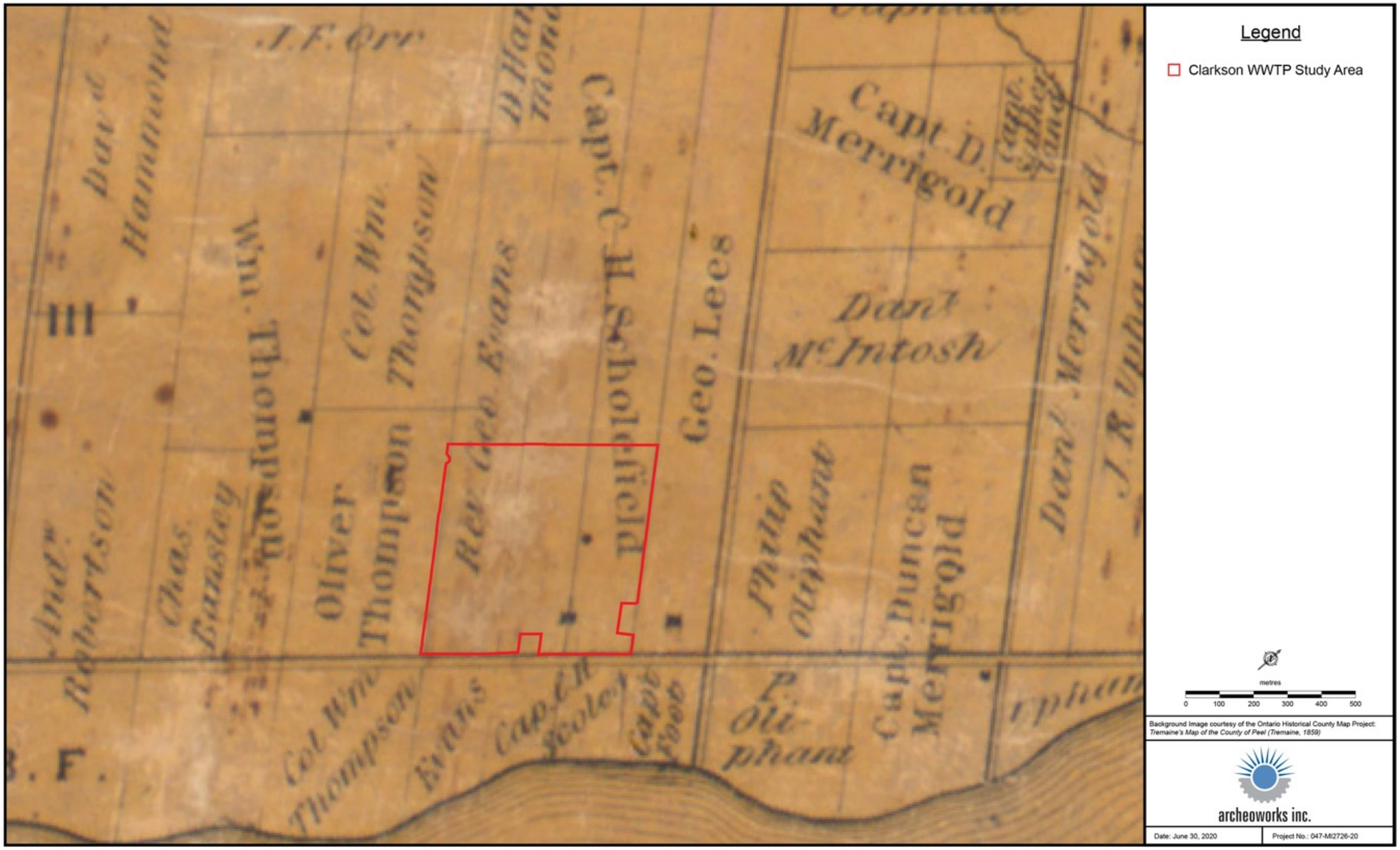
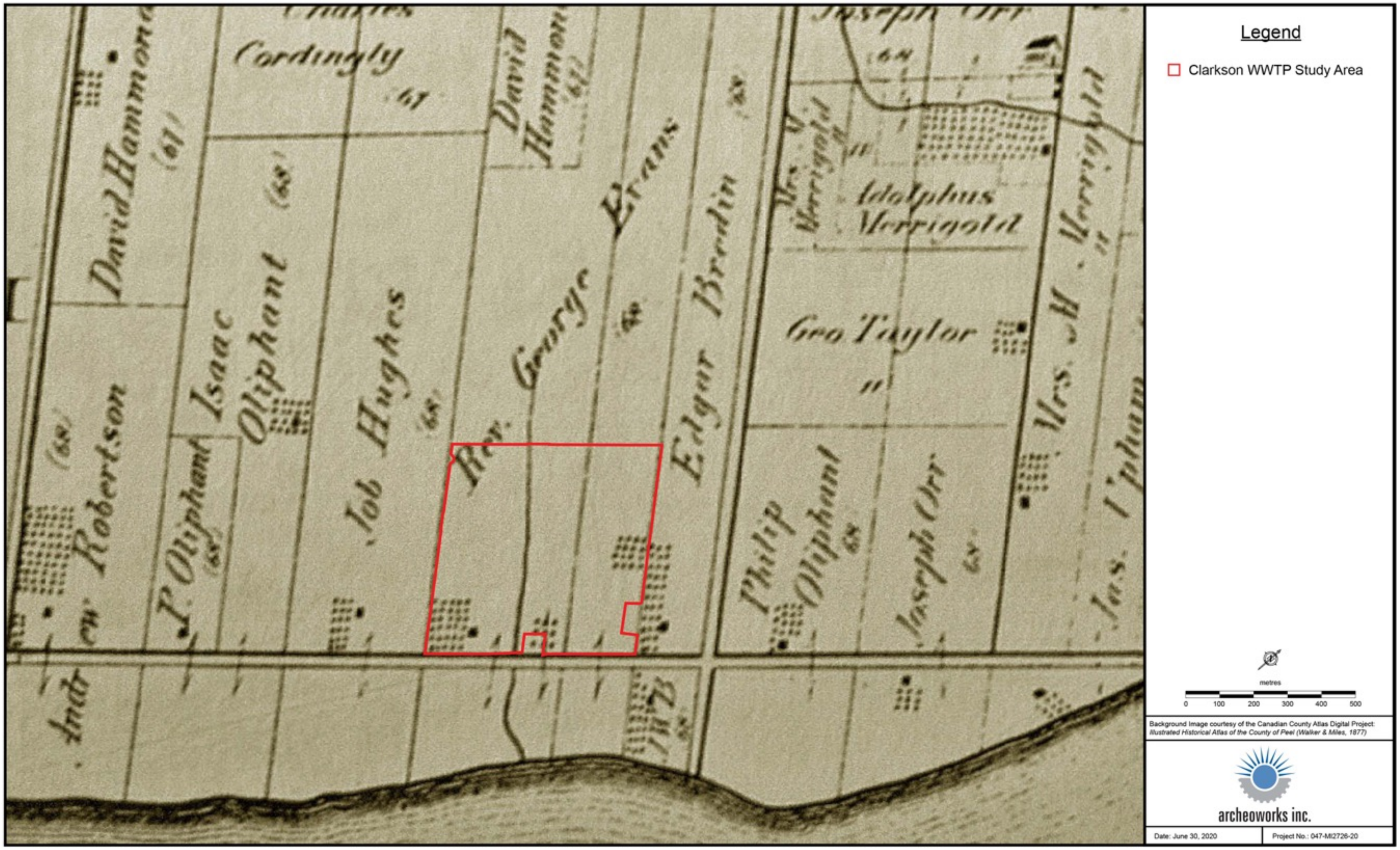
APPENDICES

APPENDIX A: MAPS

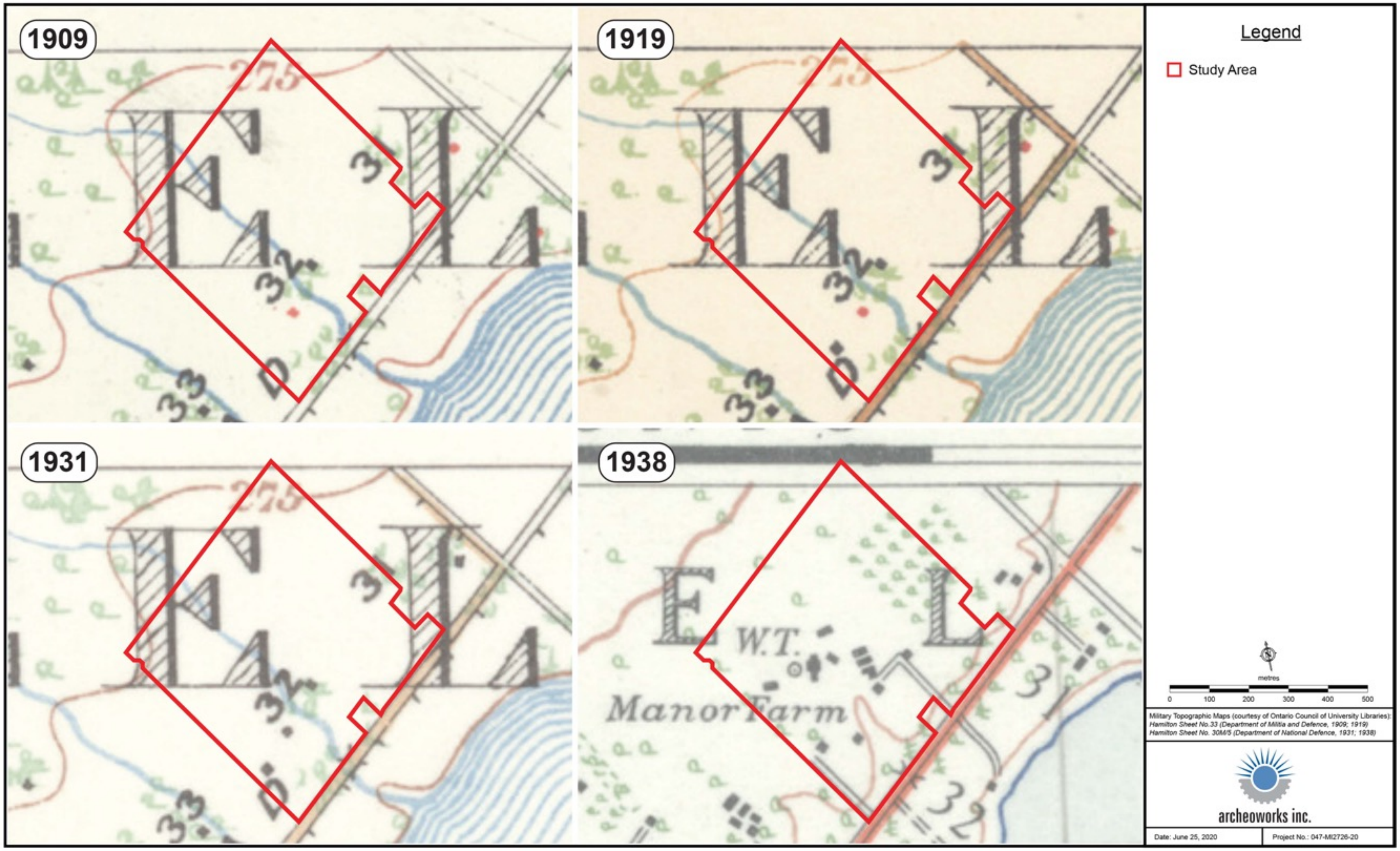
Map 1: Topographic map section identifying the Stage 1 AA study area limits.



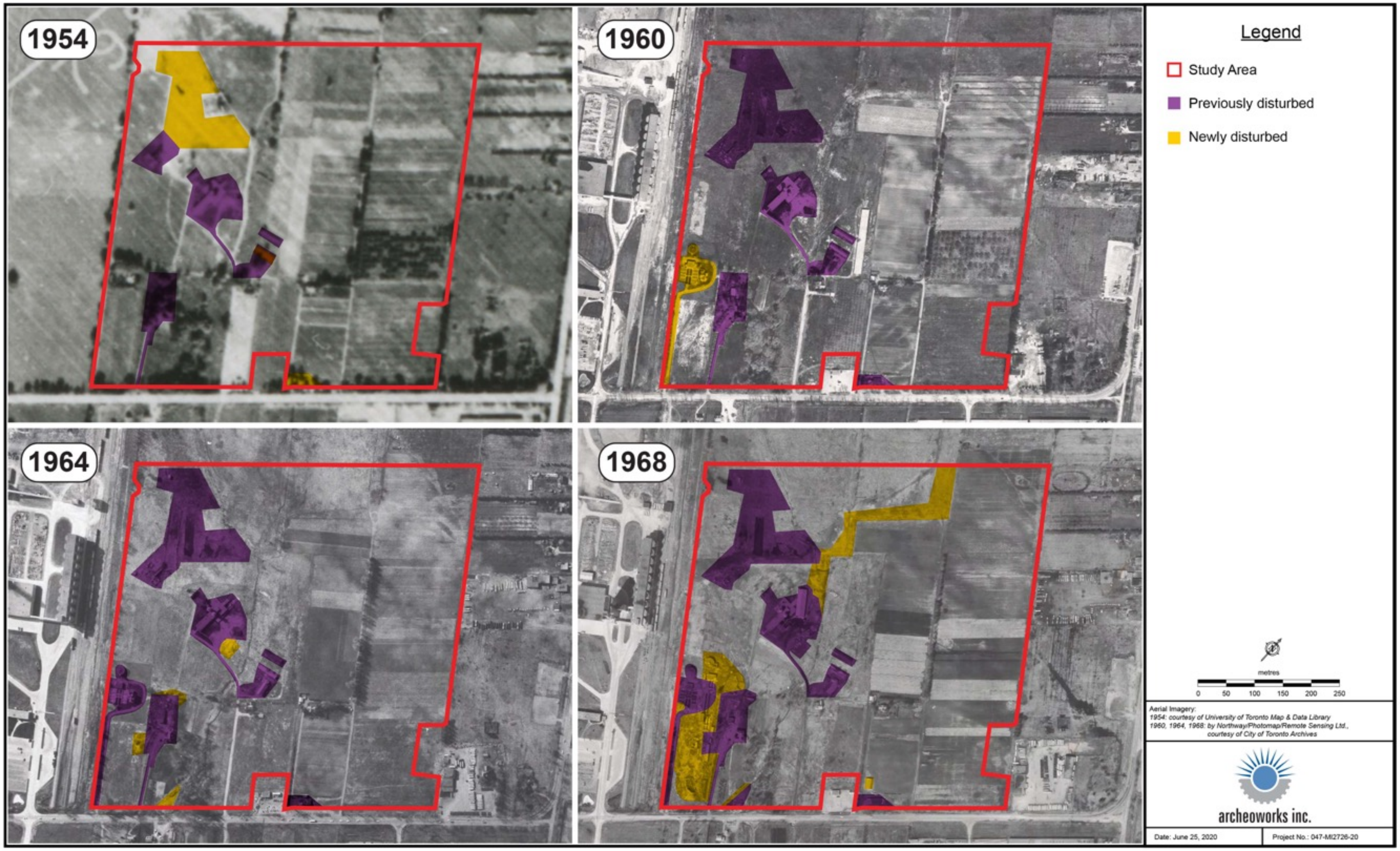
Map 2: Clarkson WWTP study area within the 1859 *Tremaine's Map of the County of Peel*.



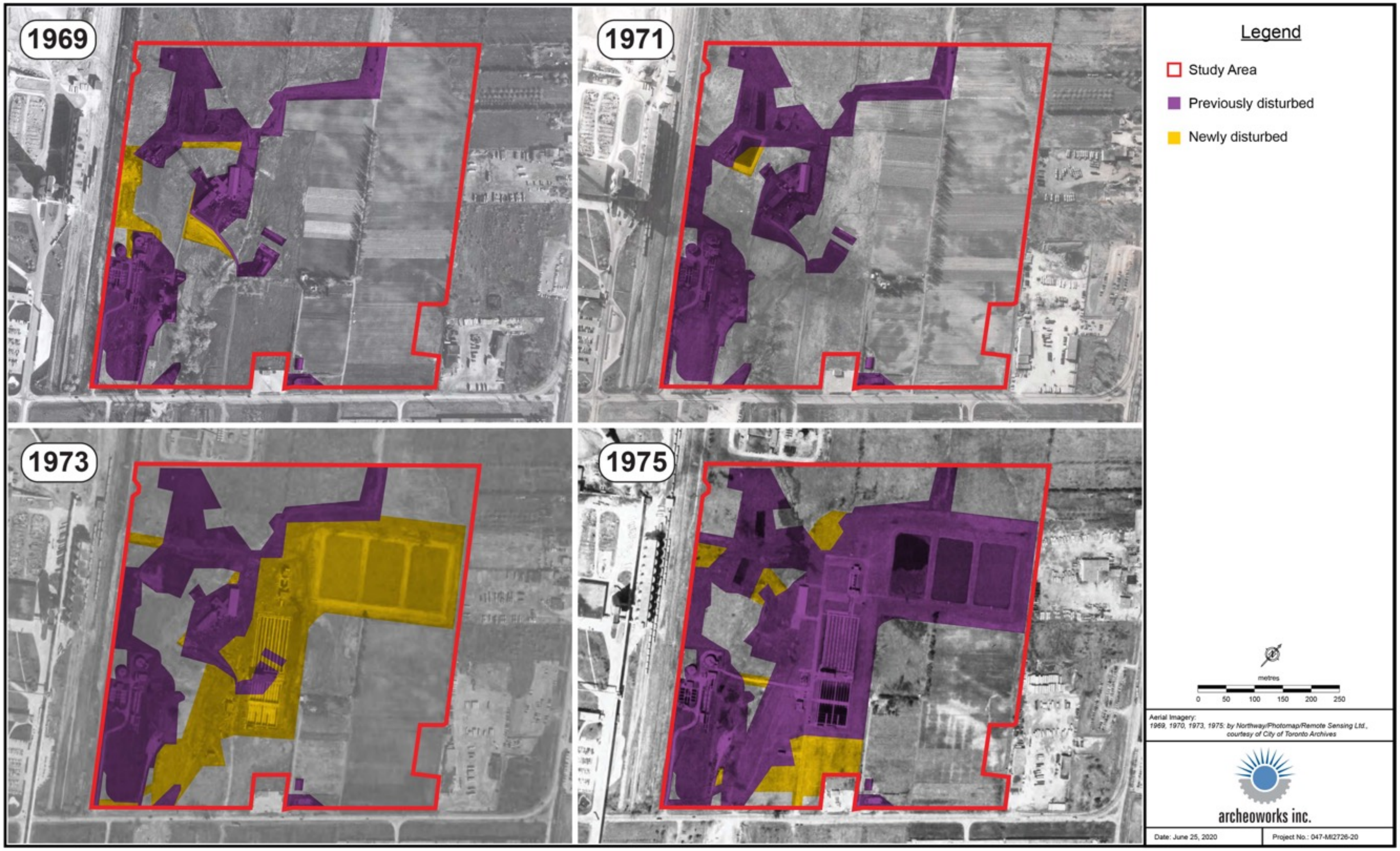
Map 3: Clarkson WWTP study area within the 1877 *Illustrated Historical Atlas of the County of Peel*.



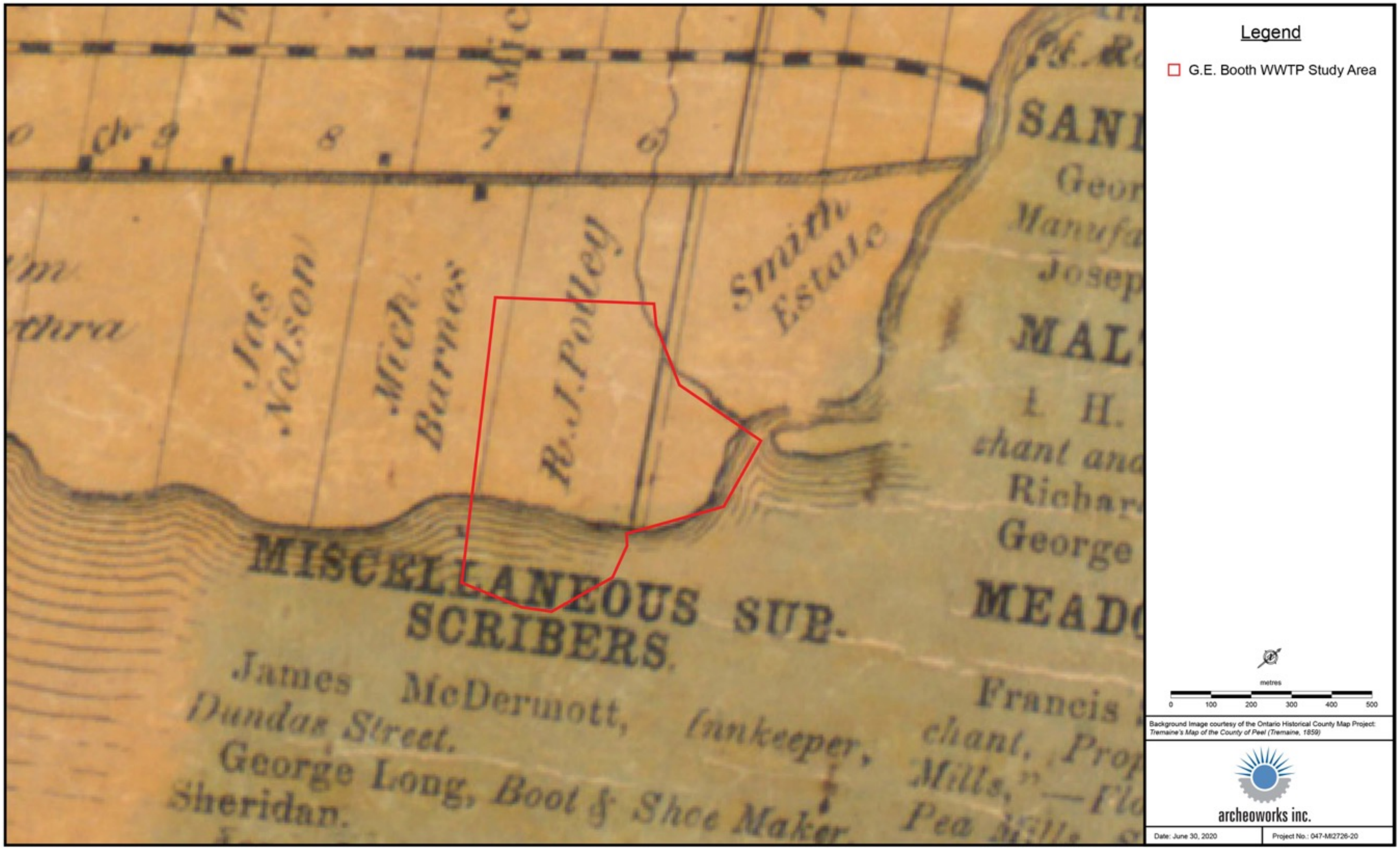
Map 4: Clarkson WWTP study area within early 20th century military topographic maps (1909-1938).



Map 5: Clarkson WWTP study area within a series of aerial photographs from 1954 to 1968, showing extent of disturbances over time.

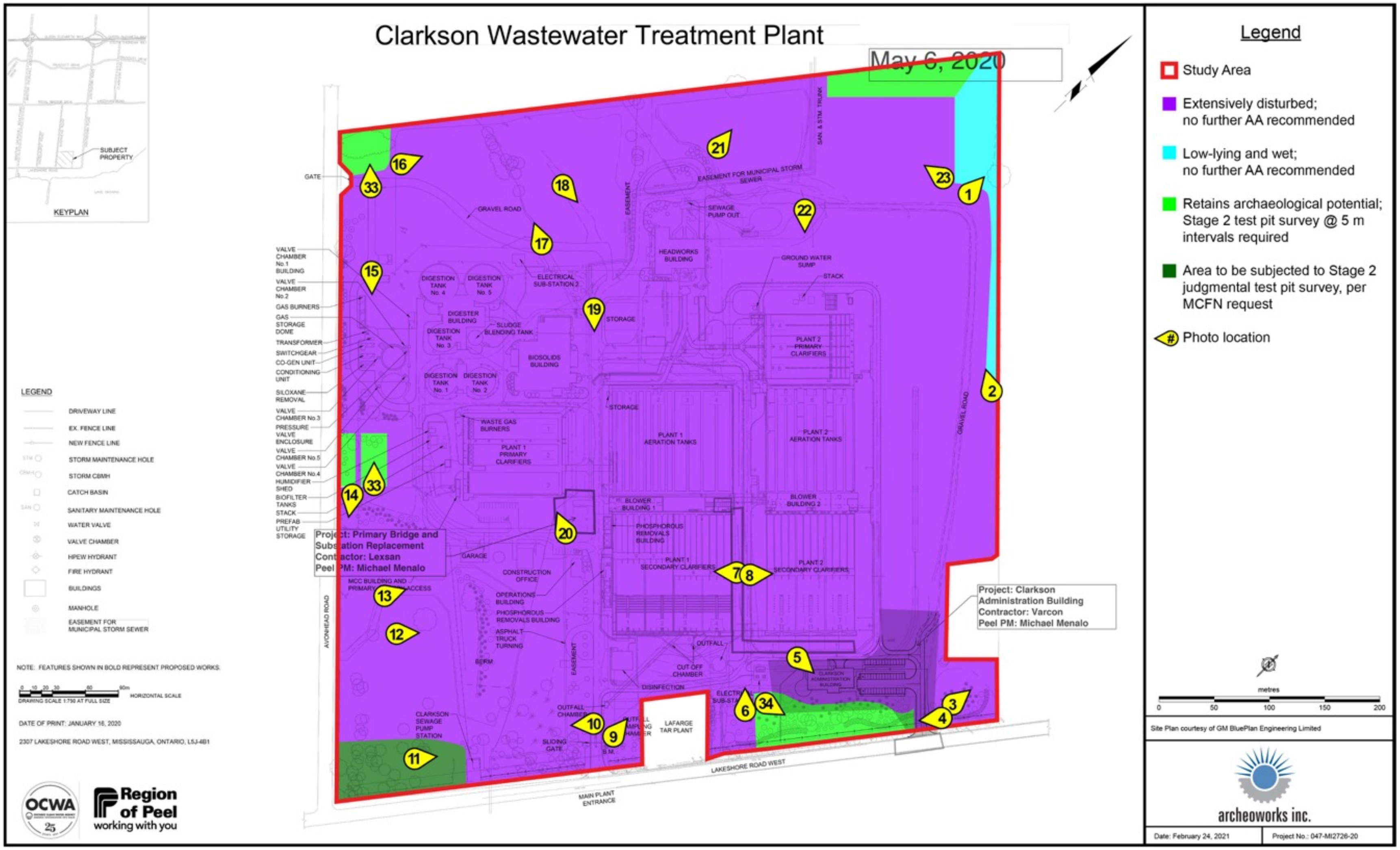


Map 6: Clarkson WWTP study area within a series of aerial photographs from 1969 to 1975, showing extent of disturbances over time.

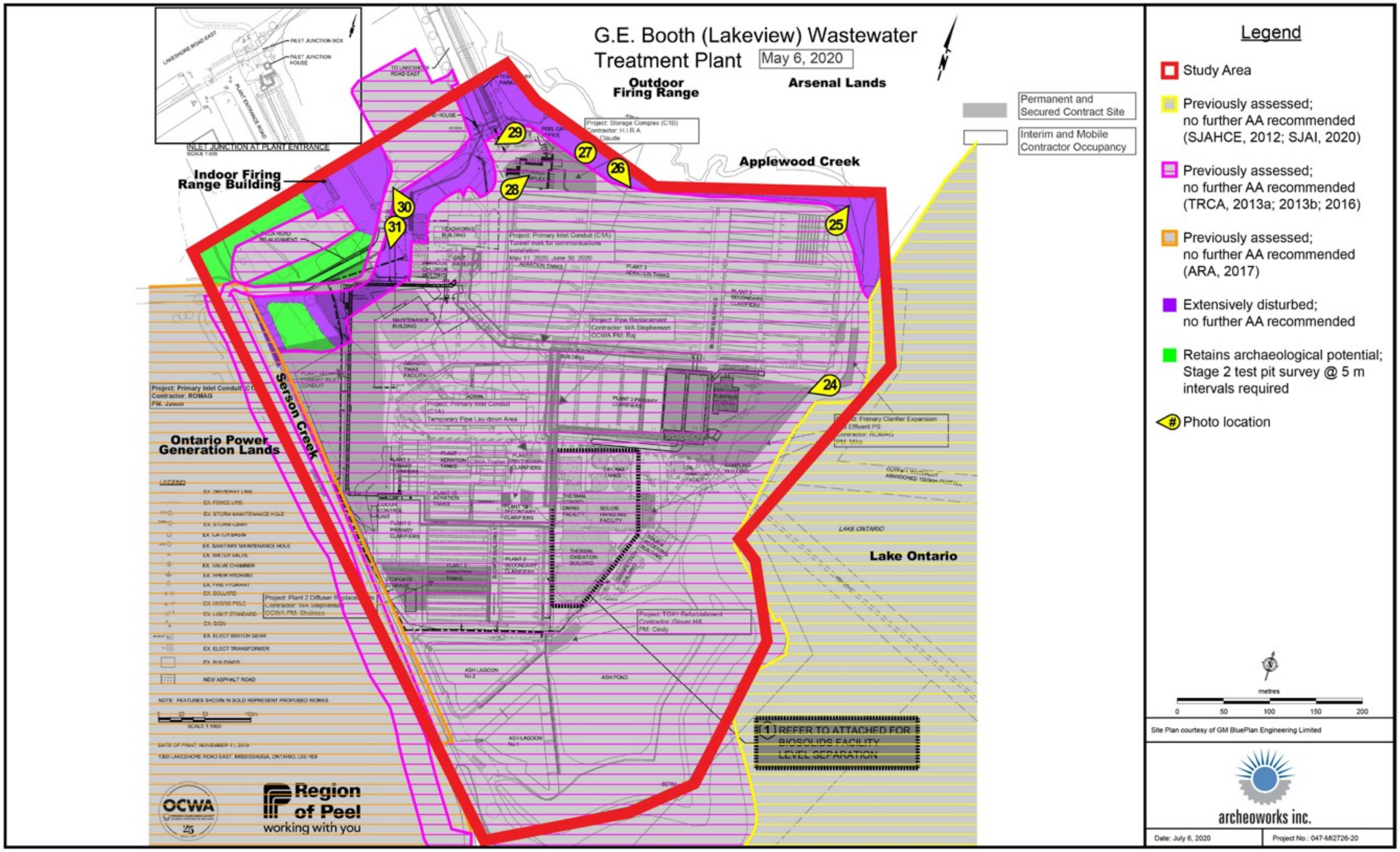


Map 7: G.E. Booth WWTP study area within the 1859 *Tremaine's Map of the County of Peel*.

Map 8: G.E. Booth WWTP study area within the 1877 *Illustrated Historical Atlas of the County of Peel*.



Map 9: Stage 1 AA results for Clarkson WWTP study area, with photo locations indicated.



Map 10: Stage 1 AA results for G.E. Booth WWTP study area, with photo locations indicated.

APPENDIX B: SUMMARY OF BACKGROUND RESEARCH

Feature of Archaeological Potential		Yes	No	Unknown	Comment
1	Known archaeological sites within 300 m?		X		If Yes, potential confirmed
Physical Features		**Yes**	**No**	**Unknown**	**Comment**
2	Is there water on or adjacent to the property?	X			If Yes, potential confirmed
2a	Presence of primary water source within 300 metres of the study area (lakes, rivers, streams, creeks)	X			If Yes, potential confirmed
2b	Presence of secondary water source within 300 metres of the study area (intermittent creeks and streams, springs, marshes, swamps)	X			If Yes, potential confirmed
2c	Features indicating past presence of water source within 300 metres (former shorelines, relic water channels, beach ridges)		X		If Yes, potential confirmed
2d	Accessible or inaccessible shoreline (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)		X		If Yes, potential confirmed
3	Elevated topography (knolls, drumlins, eskers, plateaus, etc.)		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
4	Pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
5	Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.)		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
Cultural Features		**Yes**	**No**	**Unknown**	**Comment**
6	Is there a known burial site or cemetery that is registered with the Cemeteries Regulation Unit on or directly adjacent to the property?		X		If Yes, potential confirmed
7	Associated with food or scarce resource harvest areas (traditional fishing locations, food extraction areas, raw material outcrops, etc.)		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
8	Indications of early Euro-Canadian settlement (monuments, cemeteries, structures, etc.) within 300 metres	X			If Yes to two or more of 3-5 or 7-10, potential confirmed
9	Associated with historic transportation route (historic road, trail, portage, rail corridor, etc.) within 100 metres of the property	X			If Yes to two or more of 3-5 or 7-10, potential confirmed
Property-specific Information		**Yes**	**No**	**Unknown**	**Comment**
10	Contains property designated under the Ontario Heritage Act	X			If Yes, potential confirmed
11	Local knowledge (aboriginal communities, heritage organizations, municipal heritage committees, etc.)		X		If Yes, potential confirmed
12	Recent ground disturbance, not including agricultural cultivation (post-1960, extensive and deep land alterations)	X – in some parts			If Yes, low archaeological potential is determined

APPENDIX C: IMAGES

Image 1: View of low-lying wet area along east margin of Clarkson WWTP

Image 2: View of low-lying wet area along east margin of Clarkson WWTP.

Image 3: View of artificial berm in southeast corner of Clarkson WWTP.

Image 4: View of access road under construction and flagged utility line (bottom left) near southeast corner of Clarkson WWTP.

Image 5: View of recently constructed administration building.

Image 6: View of extant buildings, installations and utilities, and graded soil at Clarkson WWTP.

Image 7: View of extant structures and disturbed landscape at Clarkson WWTP.

Image 8: View of extant structures and disturbed landscape at Clarkson WWTP.

Image 9: View of graded landscape and extant building near entrance of Clarkson WWTP.

Image 10: View of graded rolling landscape and extant buildings around the southwest open area of Clarkson WWTP.

Image 11: View of extant pumping station building (right), markers (left) and solar panel installations (background, centre) within the landscaped area in the southwest portion of Clarkson WWTP

Image 12: View of former valley of Lakeside Creek, now piped underground (not visible). Note artificial berm/soil pile (centre) resulting from landscaping activities in surrounding areas.


Image 13: View of graded rolling landscape and extant buildings in western area of Clarkson WWTP.


Image 14: View of graded landscape sloping down to Avonhead Road, along west margin of Clarkson WWTP.


Image 15: View of extant buildings, installations, paved surfaces and graded landscapes in west of Clarkson WWTP.


Image 16: View of recently disturbed lands along the north of Clarkson WWTP.

Image 17: View of graded soils and artificial berms in former Lakeside Creek course (now piped underground) at Clarkson WWTP.

Image 18: View of graded area and buildings in north of Clarkson WWTP.

Image 19: View of extant paved surfaces and buildings near centre of Clarkson WWTP.

Image 20: View of graded landscape and existing structures near centre of Clarkson WWTP.

Image 21: View of tall artificial berm/soil pile resulting from landscaping activities along north margins of Clarkson WWTP.

Image 22: View of extant paved surfaces and structures in the east of Clarkson WWTP.

Image 23: View of low artificial berms/soil piles in northeast of Clarkson WWTP.

Image 24: View of extant paved road and artificial landscape at G.E. Booth WWTP, with ongoing Lake Ontario reclamation works visible.

Image 25: View of exposed graded soils forming artificial tableland just above mouth of Applewood Creek, within G.E. Booth WWTP.

Image 26: View of graded margins and extant structures at G.E. Booth WWTP.

Image 27: Closeup view of gravelly fill comprising the artificial tableland west of Applewood Creek, within G.E. Booth WWTP.

Image 28: View of storage complex under construction at G.E. Booth WWTP.

Image 29: View of heaving graded landscape, paved areas and extant buildings and installations around the entrance to G.E. Booth WWTP.

Image 30: View of artificial berms (background, left) and graded landscape (foreground) within G.E. Booth WWTP.

Image 31: View of graded landscape and extant buildings and installations in northwest of G.E. Booth WWTP.

Image 32: View of testable undisturbed area along west margin of Clarkson WWTP.

Image 33: View of testable undisturbed area at northwest corner of Clarkson WWTP.

Image 34: View of testable undisturbed area near southeast corner of Clarkson WWTP.

APPENDIX D: INVENTORY OF DOCUMENTARY AND MATERIAL RECORD

Project Information:				
Project Number:		047-MI2726-20		
Licensee:		Kassandra Aldridge (P439)		
MHSTCI PIF:		P439-0095-2020		
Document/ Material			**Location**	**Comments**
1	Research/ Analysis/ Reporting Material	Digital files stored in: /2020/047-MI2726-20 - South Peel WWTP - Mississauga/Stage 1	Archeoworks Inc., 16715-12 Yonge St., Suite 1029, Newmarket, ON, Canada L3X 1X4	Stored on Archeoworks network servers
2	Field Paperwork	Annotated maps and notes: 3 pages	Archeoworks Inc., 16715-12 Yonge St., Suite 1029, Newmarket, ON, Canada L3X 1X4	Scanned and stored on Archeoworks network servers
3	Fieldwork Photographs	Digital Images: 22 images	Archeoworks Inc., 16715-12 Yonge St., Suite 1029, Newmarket, ON, Canada L3X 1X4	Stored on Archeoworks network servers

Under the Section 14 of the Terms and Conditions for Archaeological Licences issued under the *Ontario Heritage Act*, "the licensee shall hold in safekeeping all artifacts and records of archaeological fieldwork carried out under this licence, except where those artifacts and records are transferred by the licensee to Her Majesty the Queen in right of Ontario or the licensee is directed to deposit them in a public institution in accordance with subsection 66(1) of the Act." The collections are being stored at Archeoworks Inc. on the licensee's behalf.

Appendix E:

Stage 1 and 2 Archaeological Assessment Reports

E2: Stage 2 Archaeological Assessment for the Clarkson WRRF

ARCHEOWORKS INC.

Stage 2 Archaeological Assessment:
Class Environmental Assessments and Design Concept for Proposed Capacity Expansion of the South Peel Wastewater Treatment Plant - Within the Clarkson Waste Water Treatment Plant (WWTP) Property Within Lot 32, Concession 3 South of Dundas Street Geographic Township of Toronto Former County of Peel Now the City of Mississauga Regional Municipality of Peel Ontario

Project #: 047-MI2726-20
Licensee (#): Kim Slocki (P029)
PIF #: P029-1062-2022

Original Report

October 10, 2022

Presented to:
GM BluePlan Engineering Limited
Royal Centre, 3300 Highway No. 7, Suite 402
Vaughan, Ontario
L4K 4M3
T: 416.703.0667
F: 416.703.2501

Prepared by:
Archeoworks Inc.
16715-12 Yonge Street, Suite 1029
Newmarket, Ontario
L3X 1X4
T: 416.676.5597
F: 647.436.1938

EXECUTIVE SUMMARY

In order to address forecasted increases in population and wastewater flow as identified in the 2013 Water and Wastewater Master Plan and recent ongoing updates, the *Regional Municipality of Peel* is proposing to expand the Clarkson Wastewater Treatment Plant (WWTP), which receives wastewater from Peel Region's west trunk sewer system, located at municipal address 2307 Lakeshore Road West, City of Mississauga. *Archeoworks Inc*. was previously retained by *GM BluePlan Engineering Limited* on behalf of the *Region of Peel* to conduct a Stage 1 AA in support of the conceptual design for the proposed capacity expansions of the Clarkson WWTP. The subject facility is located within Lots 31 through 32, Concession 3 South of Dundas Street (SDS), Geographic Township of Toronto, Former County of Peel, now the City of Mississauga, Regional Municipality of Peel, Ontario (herein referred to as the "Stage 1 subject area"). The Stage 1 AA established archaeological potential to exist within several parcels of land within the Stage 1 subject area, and Stage 2 AA was recommended.

Upon the development of the design concept, construction impacts may encroach on a parcel of land located at the northwest corner of the Stage 1 subject area that retained archaeological potential. As such, *Archeoworks Inc.* was subsequently retained by *GM BluePlan Engineering Limited* to conduct a Stage 2 AA at the northwest corner of the Stage 1 subject area. This property will herein be referred to as the "study area." The study area is located at within the Clarkson WWTP, in part of Lot 32, Concession 3 SDS, in the Geographic Township of Toronto, Former County of Peel, now the City of Mississauga, Regional Municipality of Peel, Ontario.

The study area was subjected to a Stage 2 AA as required by the *2011 Standards and Guidelines for Consultant Archaeologists ('2011 S&G')* published by the *Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)*. The Stage 2 AA resulted in the identification of extensive disturbances within parts of the study area wherein systematic survey was not undertaken. The remaining balance of the study area was subjected to test pit survey at five and 10-metre intervals. No archaeological resources were encountered during the Stage 2 AA.

Considering the study areas testing negative for archaeological resources, the following recommendation is presented:

1. The study areas are considered free of archaeological concern. No further archaeological assessment is required.

No construction activities shall take place within the study areas prior to the *MHSTCI* (Archaeology Programs Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

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LIST OF TABLES

PROJECT PERSONNEL

Project Director.. Kim Slocki – MHSTCI licence P029

Field Director...Diana Hutsulak-Alonso – MHSTCI licence R1202

Field Archaeologists ....Mitchell Baird
Jenna Sheppard
Guy Taylor

Report Preparation and Graphics .... Lee Templeton – MHSTCI licence R454

Report Review... Kim Slocki

1.0 PROJECT CONTEXT

1.1 Objectives

The objectives of a Stage 2 Archaeological Assessment (AA), as outlined by the 2011 *Standards and Guidelines for Consultant Archaeologists* (‘*2011 S&G’*) published by the *Ministry of Heritage, Sport, Tourism and Culture Industries* (*MHSTCI*) (2011), are as follows:

- To document all archaeological resources on the property;
- To determine whether the property contains archaeological resources requiring further assessment; and,
- To recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

1.2 Development Context

In order to address forecasted increases in population and wastewater flow as identified in the 2013 Water and Wastewater Master Plan and recent ongoing updates, the *Regional Municipality of Peel* is proposing to expand the Clarkson Wastewater Treatment Plant (WWTP), which receives wastewater from Peel Region’s west trunk sewer system, located at municipal address 2307 Lakeshore Road West, City of Mississauga. *Archeoworks Inc*. was previously retained by *GM BluePlan Engineering Limited* on behalf of the *Region of Peel* to conduct a Stage 1 AA in support of the conceptual design for the proposed capacity expansions of the Clarkson WWTP. The subject facility is located within Lots 31 through 32, Concession 3 South of Dundas Street (SDS), Geographic Township of Toronto, Former County of Peel, now the City of Mississauga, Regional Municipality of Peel, Ontario (herein referred to as the “Stage 1 subject area”).

An optional property inspection was undertaken for the Stage 1 AA which determined several small parcels of land within the Stage 1 AA subject area retained archaeological potential and Stage 2 AA was recommended (Archeoworks Inc., 2021). The Stage 1 AA report is currently awaiting review from the *MHSTCI* and has yet to be entered into the *Ontario Public Register of Archaeological Reports*.

Upon the development of the design concept, construction impacts may encroach on a parcel of land located at the northwest corner of the Stage 1 subject area that retained archaeological potential. As such, *Archeoworks Inc.* was subsequently retained by *GM BluePlan Engineering Limited* to conduct a Stage 2 AA at the northwest corner of the Stage 1 subject area. This property will herein be referred to as the “study area.” The study area is located at within the Clarkson WWTP, in part of Lot 32, Concession 3 SDS, in the Geographic Township of Toronto, Former County of Peel, now the City of Mississauga, Regional Municipality of Peel, Ontario (***see Appendix A – Maps 1-2***).

This study was triggered by the *Ontario Environmental Assessment Act* in support of Schedule "C" of the Municipal Class Environmental Assessment (EA) regulatory process. This Stage 2 AA was conducted under the project direction of Ms. Kim Slocki under the archaeological consultant licence number P029, in accordance with the *Ontario Heritage Act* (1990; amended 2021) and *2011 S&G*. Permission to investigate the study area was granted by *GM BluePlan Engineering Limited* on March 7 2022.

1.3 Historical Context

To establish the historical context and archaeological potential of the study area, *Archeoworks Inc.* previously conducted the Stage 1 AA (Archeoworks Inc., 2021). This report included a review of Indigenous and Euro-Canadian settlement history, available historical mapping, topographic mapping, and aerial imagery. The results of this background research, along with updated information, are summarized below.

1.3.1 Pre-Contact Period

The pre-contact period of Southern Ontario includes numerous Indigenous groups that continually progressed and developed within the environment they inhabited (Ferris, 2013, p.13). **Table 1** includes a brief overview and summary of the pre-contact Indigenous history of Southern Ontario.

Table 1: Pre-Contact Period

<table>
<tr><th>Period</th><th>Date</th><th>Overview and Attributes</th></tr>
<tr><th colspan="3">PALEO-INDIAN (Early)</th></tr>
<tr><td>Early</td><td>ca. 11000 to 8500 BC</td><td rowspan="2">Small groups of nomadic hunter-gatherers who utilized seasonal and naturally available resources; sites are rare; hunted in small family groups who periodically gathered into larger groups/bands during favourable periods in the hunting cycle; campsites used during travel episodes and found in well-drained soils in elevated situations; sites also found along glacial features (e.g., glacial lake shorelines/strandlines) due to current understanding of regional geological history; artifacts include fluted and lanceolate stone points, scrapers and dart heads.
- Gainey, Barnes, Crowfield Fluted Points (Early Paleo-Indian)
- Holcombe, Hi-Lo, Lanceolates (Late Paleo-Indian)
(Ellis and Deller, 1990, pp.37-64; Ellis, 2013, p.37; Wright, 1994, p.25).</td></tr>
<tr><td>Late</td><td>ca. 8500 to 7500 BC</td></tr>
<tr><th colspan="3">ARCHAIC (Middle)</th></tr>
<tr><td>Early</td><td>ca. 7800 to 6000 BC</td><td rowspan="2">Descendants of Paleo-Indian ancestors; lithic scatters are the most commonly encountered site type; trade networks appear; artifacts include reformed fluted and lanceolate stone points with notched bases to attach to wooden shaft; ground-stone tools shaped by grinding and polishing; stone axes, adzes and bow and arrow; Shield Archaic in Northern Ontario introduced copper tools; oral traditions of the Algonquian-speaking Michi Saagiig (Mississauga Anishinaabeg) assert that they, "are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods" (Gitiga Migizi and Kapyrka, 2015, p.1).
- Side-notched, corner-notched, bifurcate projectile points (Early Archaic)</td></tr>
<tr><td>Middle</td><td>ca. 6000 to 2000 BC</td></tr>
</table>

Period	Date	Overview and Attributes
Late	ca. 2500 to 500 BC	- Stemmed, Otter Creek/Other Side-notched, Brewerton side and corner-notched projectile points (Middle Archaic) - Narrow Point, Broad Point, Small Point projectile points (Late Archaic) (Dawson, 1983, pp.8-14; Ellis et al., 1990, pp.65-124; Ellis, 2013, pp.41-46; Wright, 1994, pp.26-28).
WOODLAND (Late)		
Early	ca. 800 to AD 1	Evolved out of the Late Archaic Period; introduction of pottery (ceramic) where the earliest were coil-formed, under fired and likely utility usage; two primary cultural complexes: Meadowood (broad extent of occupation in Southern Ontario) and Middlesex (restricted to Eastern Ontario); poorly understood settlement-subsistence patterns; artifacts include cache blades, and side-notched points that were often recycled into other tool forms; primarily Onondaga chert; intensive exploitation of quarries in southeastern Ontario; commonly associated with Saugeen and Point Peninsula complexes. - Meadowood side-notched projectile points (Dawson, 1983, pp.15-19; Ferris and Spence, 1995, pp.89-97; Gagné, 2015; Spence et al., 1990, pp.125-142; Williamson, 2013, pp.48-61; Wright, 1994, pp.29-30).
Middle	ca. 200 BC to AD 700	Three primary cultural complexes in Southern Ontario: Point Peninsula (generally located throughout south-central and eastern Southern Ontario), Saugeen (generally located southwestern Southern Ontario), and Couture (generally located in southwestern-most part of Ontario); "given the dynamics of hunter-gatherer societies, with high levels of interaction and intermarriage among neighbouring groups, one would not expect the existence of discrete cultures" and the "homogeneity of these complexes have been challenged" (Ferris and Spence, 1995, p.98); introduction of large "house" structures and substantial middens; settlements have dense debris cover indicating increased degree of sedentism; incipient horticulture; burial mounds present; shared preference for stamped, scallop-edged or tooth-like decoration, but each cultural complex had distinct pottery forms; Laurel Culture (ca. 500 BC to AD 1000) established in boreal forests of Northern Ontario. - Saugeen Point projectile points (Saugeen) - Vanport Point projectile points (Couture) - Snyder Point projectile points - Laurel stemmed and corner-notched projectile points (Dawson, 1983, pp.15-19; Ferris and Spence, 1995, pp.97-102; Gagné, 2015; Hessel, 1993, pp.8-9; Spence et al., 1990, pp.142-170; Williamson, 2013, pp.48-61; Wright, 1994, pp.28-33; Wright, 1999, pp.629-649).
Late Woodland		

Period	Date	Overview and Attributes
Late (Transitional)	ca. AD 600 to 1000	According to their oral traditions, the north shore of Lake Ontario in Southern Ontario was occupied throughout the entire Late Woodland Period by the *Michi Saagiig* (Mississauga Anishinaabeg); however, this oral tradition is not supported by other First Nation communities based on both archaeological evidence and oral traditions (***see Appendix B***); the traditional territory of the Mississauga Anishinaabeg extended north where they would hunt and trap during the winter months, followed by a return to Lake Ontario in the spring and summer; "the traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands" (Gitiga Migizi and Kapyrka, 2015, p.1); oral traditions speak of people (the Iroquois) coming into their territory between AD 500-1000 who wished to establish villages and grow corn; treaties were made allowing the Iroquois to stay in their traditional territories; the Mississaugas of the Credit First Nation state they, "were the original owners of the territory embraced in the following description, namely commencing at Long Point on Lake Erie thence eastward along the shore of the Lake to the Niagara River. Then down the River to Lake Ontario, then northward along the shore of the Lake to the River Rouge east of Toronto then up that river to the dividing ridge to the head waters of the River Thames then southward to Long Point the place of the beginning" (MCFN, 2017); the study area falls within land encompassed within the Mississauga of the Credit First Nation territory (MCFN, 2017). Earliest Iroquoian development in Southern Ontario is Princess Point which exhibits few continuities from earlier developments with no apparent predecessors; hypothesized to have migrated into Ontario, but more recent research of ceramic data from the Rice Lake-Trent River region determined early Iroquoian development to be an *in situ* cultural development (Curtis, 2014, p.190); the settlement data is limited, but oval houses are present; introduction of maize/corn horticulture; artifacts include 'Princess Point Ware' vessels that are cord roughened, with horizontal lines and exterior punctation; smoking pipes and ground stone tools are rare; continuity of Princess Point and Late Woodland Iroquoian groups. - Triangular projectile points (Ferris and Spence, 1995, pp.102-106; Fox, 1990, pp.171-188; Gitiga Migizi and Kapyrka, 2015, pp.1-3; MCFN, 2017).
Early	ca. AD 900 to 1300	Two Iroquoian cultures in Southern Ontario: Glen Meyer (located primarily in southwestern Ontario from Long Point on Lake Erie to southwestern shore of Lake Huron) and Pickering (encompassed north of Lake Ontario to Georgian Bay and Lake Nipissing); the abandonment of these two phases "were expressed early on, with the recognition that local site sequences were more or less continuous through what has been classified as distinct phases" (Birch, 2015, p.271); early houses were small and elliptical; developed into multi-family longhouses and some small, semi-permanent palisade villages; adoption of greater variety of harvest goods; increase in corn-yielding sites; well-made and thin-walled clay vessels with stamping, incising and punctation; crudely made smoking pipes, and worked bone/antler present; evolution of ossuary burials; grave goods are rare and not usually associated with a specific individual. - Triangular-shaped, basally concave projectile points with downward projecting corners or spurs (Ferris and Spence, 1995, pp.106-109; Williamson, 1990, pp.291-320).

Period	Date	Overview and Attributes
Middle	ca. AD 1300 to 1400	Two Iroquoian cultures in Southern Ontario: Uren and Middleport; increase in village sizes (0.5 to 1.7 hectares) and campsites (0.1 to 0.6 hectares) appear; some with palisades; classic longhouse takes form; increasing reliance on maize and other cultigens such as beans and squash; intensive exploitation of locally available land and water resources; decorated clay vessels decrease; well-developed clay pipe complex that includes effigy pipes; from Middleport emerged the Huron-Wendat, Petun, Neutral Natives and the Erie. - Triangular and (side of corner or corner removed) notched projectile points - Middleport Triangular and Middleport Notched projectile points (Dodd et al., 1990, pp.321-360; Ferris and Spence, 1995, pp.109-115).
Late	ca. AD 1400 to 1600	Algonquian-speaking groups of the Anishinaabeg (e.g., Mississauga, Ojibway, Chippewa, Odawa, Algonquin, and others) maintained stable relations with Iroquoian-speaking groups (e.g., Huron-Wendat, Neutral, Petun) who continued to establish settlements in Southern Ontario, according to *Michi Saagiig* oral tradition (Gitiga Migizi and Kapyrka, 2015, p.1). Iroquoian groups include the Huron-Wendat to the east of the Niagara Escarpment, the Neutral Natives to the west of the Niagara Escarpment and the Petun in the Blue Mountain region; Huron-Wendat "villages are distributed in clusters along the north shore of Lake Ontario from just west of Toronto to Belleville and north in a triangular area bounded on the Northeast by the Trent River system, and on the west roughly by the Niagara escarpment" (Ramsden, 1990, p.363); within this large area, Huron-Wendat "concentrations of sites occur in the areas of the Humber River valley, the Rouge and Duffin Creek valleys, the lower Trent valley, Lake Scugog, the upper Trent River and Simcoe County" (Ramsden, 1990, p.363); longhouses; villages enlarged to 100 longhouses clustered together as horticulture (maize, squash and beans) gained importance in subsistence patterns; villages chosen for proximity to water, arable soils, available fire wood and defendable position; diet supplemented with fish; ossuaries; tribe/band formation; gradual relocation to north of Lake Simcoe. Neutral (called *Attiewandaron* by the Huron-Wendat) Natives distributed west of the Niagara Escarpment, around the western end of Lake Ontario and eastward across the Niagara Peninsula to Lake Erie; sites also found in the Grand River area and as far as Milton in the east; varying settlements include villages up to five acres in size to isolated fishing cabins; villages tend to be located along smaller creeks, headwaters and marshlands; diet dependent on hunting, gathering, fishing and farming; longhouses present; ossuaries; tribe/band formation; theorized that Credit River may have functioned as a boundary marker between the ancestral Neutral Natives and Huron-Wendat peoples. - Huron-Wendat projectile points are limited but change from predominantly side-notched to unnotched triangular - Neutral projectile points are typically small but long and narrow, frequently side-notched - many trails used throughout the area including the Toronto Carrying Place Trail which travelled along the Humber River and the Rouge River connecting Lake Ontario to Lake Simcoe. (Ferris and Spence, 1995, pp.115-122; Gitiga Migizi and Kapyrka, 2015, pp.1-3; Heidenreich, 1978, pp.368-388; Lennox and Fitzgerald, 1990, pp.405-456; Ramsden, 1990, pp.361-384; TRCA, 2007, p.9; Warrick, 2000, p.446; Warrick, 2008, p.15).

1.3.2 Contact Period

The contact period of Southern Ontario is defined by European arrival, interaction and influence with the established Indigenous communities of Southern Ontario. **Table 2** includes an overview of some of the main developments that occurred during the contact period of Southern Ontario.

Table 2: Contact Period

Period	Date Range	Overview and Attributes
European Contact	ca. AD 1600s	The Anishinaabeg continued to inhabit Ontario, alongside the Iroquois; inter-marriage between Anishinaabeg and the Iroquois; Mississauga Anishinaabeg oral traditions tell of groups wintering with Iroquoian neighbours, resulting in a complex archaeological record; oral traditions also speak of Anishinaabeg "paddling away" to their northern hunting territories to escape disease and warfare in Southern Ontario at this time; French arrival into Ontario; numerous Huron-Wendat villages north of Lake Simcoe in and around the City of Barrie ("Huronia"); extensive trade relationship with Huron-Wendat and French established; Neutral Natives clustered in the Niagara Peninsula; Neutral Natives referred to as *la Nation neutre* by Samuel de Champlain but limited European contact with Neutrals; trade goods begin to replace traditional tools/items; Jesuit and Récollets missionaries; epidemics (Fox and Garrad, 2004, p.124; Gitiga Migizi and Kapyrka, 2015, pp.1-3; Heidenreich, 1978, pp.368-388; Jury, 1974, pp.3-4; Lennox and Fitzgerald, 1990, pp.405-456; Trigger, 1994, pp.47-55; Warrick, 2008, pp.12, 245; White, 1978, pp.407-411).
Five Nations of Iroquois (Haudenosaunee)	ca. AD 1650s	The Five (later Six) Nations (Mohawk, Seneca, Oneida, Onondaga and Cayuga; later included the Tuscarora) of Iroquois (or Haudenosaunee), originally located south of the Great Lakes, engaged in warfare with Huron-Wendat neighbours as their territory no longer yielded enough furs; the Five Nations, armed with Dutch firearms, attacked and destroyed numerous Huron-Wendat villages in 1649-50; the groups that remained became widely dispersed throughout the Great Lakes region but remained an independent Nation; the Huron-Wendat ultimately resettled near Quebec City (forming the oldest First Nations community in Canada), in southwestern Ontario and in America; to prevent the revival of Huron-Wendat settlements, the Five Nations attacked and destroyed the villages of the Huron-Wendat allies, the Petun Natives; in 1650, what remained of the Petun Natives migrated through Neutral Native territory (and eventually to Oklahoma in the United States); the Five Nations attacked Neutrals ca.1650s and caused their dispersal; the Five Nations established settlements along the northern shoreline of Lake Ontario at strategic locations along canoe-and-portage routes and used territory for extensive fur trade; European fur trade and exploration continued (Abler and Tooker, 1978, p.506; Gitiga Migizi and Kapyrka, 2015, p.2; Robinson, 1965, pp.15-16; Schmalz, 1991, pp.12-34; Trigger, 1994, pp.53-59; Williamson, 2013, p.60).

Period	Date Range	Overview and Attributes
Anishinaabeg Return (and Arrival)	ca. AD 1650s to 1700s	Some narratives tell of Anishinaabeg groups either returning (Gitiga Migizi and Kapyrka, 2015, p.2) or moving into Southern Ontario by military conquest (MCFN, 2017) by the 1690s; many battles fought ultimately resulting in most of the Five Nations being driven out of Southern Ontario and returning to their lands south of the Great Lakes (and some remained in parts of Southern Ontario); the English referred to those Algonquian-speaking groups that settled in the area bounded by Lakes Ontario, Erie, and Huron as Chippewas or Ojibwas (Smith, 2002, p.107); '*Mississauga'* term applied to Anishinaabeg bands living on the north shore of Lake Ontario; they were focused on hunting/fishing/gathering with little emphasis on agriculture; temporary and moveable houses (wigwam) left little archaeological material behind; Credit River became a favoured location of trade between Mississauga and European traders; Mississauga settlement near Port Credit (Gibson, 2006, pp.35-41; Hathaway, 1930, p.433; Johnston, 2004, pp.9-10; Loverseed, 1987, pp.11, 17; McMillan and Yellowhorn, 2004, pp.110-111; Skeoch, 2000, pp.20-21; Smith, 2013, pp.16-20; TRCA, 1998, p.18; Trigger, 1994, pp.57-59; Williamson, 2013, p.60).
Trade, Peace and Conflict	ca. AD 1700 to 1770s	Great Peace negotiations of 1701 in Montreal established peace around the Great Lakes; collectively referred to the Anishinaabeg and Five Nations of Iroquois as the First Nations; European commerce and exploration resumed; the Anishinaabeg continued to trade with both the English and the French; beginnings of the Métis and their communities; skirmishes between France and Britain as well as their respective First Nations allies erupt in 1754 ("French and Indian Wars") and forms part of the larger Seven Years' War; French defeat transferred the territory of New France to British control; Treaty of Paris (1763); Royal Proclamation of 1763 "states explicitly that Indigenous people reserved all land not ceded by or purchased from them" (Hall, 2019a); the Proclamation established framework for how treaties were negotiated (by only the King or an assigned representative of the King, and only at a public meeting called for this specific purpose) and established the "constitutional basis for the future negotiations of Indigenous treaties in British North America" (Hall, 2019a); the Proclamation established the British administration of North American territories ceded by France to Britain; uprising by several First Nations groups against British ("Pontiac's War"); fur trade continued until Euro-Canadian settlement (Abler and Tooker, 1978, pp.505-517; Hall, 2019a; Jaenen, 2013; Johnston, 2004, pp.13-14; Schmalz, 1991, pp.35-62, 81; Surtees, 1994, pp.92-97).
Early British Administration and Euro-Canadian Settlement	ca. AD 1770s to 1790s	American Revolutionary War (1775-1783) drove large numbers of United Empire Loyalists (those who were loyal to the British Crown), military petitioners, and groups who faced persecution in the United States to re-settle in Upper Canada; Treaty of Paris (1783) formally recognized the independence of the United States; Province of Quebec divided in 1791 into sparsely populated Upper Canada (now southern Ontario) and culturally French Lower Canada (now southern Quebec); Jay's Treaty of 1795 establishes American/Canadian border along the Great Lakes; large parts of Upper Canada opened to settlement from the British Isles and continental Europe after land cession treaties were negotiated by the British Crown with various First Nations groups (Government of Ontario, 2021; Hall, 2019b; Jaenen, 2014; Surtees, 1994, p.110; Sutherland, 2014).

1.3.3 Euro-Canadian Settlement Period (AD 1800s to present)

1.3.3.1 First Nation Land Treaties and the Township of Toronto

In 1805 a tract of land 26 miles long, between Etobicoke Creek and Burlington Bay, stretching back from the Lake Ontario shoreline for about five to six miles (roughly corresponding to present-day Eglinton Avenue) was agreed to be ceded by the certain Mississauga groups in what is known as the "First Purchase" or Treaty 13A. One mile on either side of the Credit River and the 'flat lands' bordering the Etobicoke Creek were to remain property of the Mississauga, and they were to obtain £1000 worth of goods and the right to retain their fishery sites at the mouths of the Credit River, Sixteen Mile Creek, and Twelve Mile Creek as part of the treaty (Fix, 1967, p.13; Heritage Mississauga, 2018a; Weaver, 1913, p.65).

In September 1806, representatives of the Crown and certain Mississauga groups signed Treaty 14, or the "Head of the Lake Purchase," confirming the cession of lands along the north shore of Lake Ontario that had been agreed upon the previous year. These lands were surveyed and constituted into townships – the preferred unit of land division by British administrators (Loverseed, 1987, p.23). The survey of the portion of Toronto Township lying south of what is now Eglinton Avenue ("Old Survey" lands), where the study area lies, was completed in 1806 by Samuel Wilmot, Deputy Surveyor (Pope, 1877, p.86). Dundas Street, a military road established by orders of Lieutenant-Governor John Graves Simcoe and constructed by the Queen's Rangers following a trail used by First Nations, was the only road at this time. It consequently became the main east-west roadway through the newly established Province of Upper Canada. The road penetrated the dense forest in Toronto Township, and until settlers arrived, it remained a wagon-width trail (Clarkson, 1977, p.8; Riendeau, 2002, p.123). Initial settlement in the Township of Toronto was along Dundas Street, and these first settlers were experienced farmers, many of which were United Empire Loyalists and Late Loyalists (Riendeau, 2002, pp.123-124).

Even though the lands within Toronto Township had become available for settlement, Napoleonic Wars in Europe slowed immigration from the British Isles; only 175 individuals are listed in the 1809 Census Record (Riendeau, 2002, p.125). After the War of 1812, there was mounting pressure for new land to accommodate the "increasing amount of new settlers from the British Isles, to meet the demands of the demobilized military personnel for their promised land grants, and to provide the necessary land for children of the United Empire Loyalists who had settled in eastern Ontario and on the Niagara Frontier a generation earlier" (McKinney, 1967, p.244). To accommodate this influx of settlers, the remainder of the Mississauga Tract, within what is now Peel Region, was negotiated by William Claus in 1818. The area belonged to the Credit River Mississauga who found themselves victim to encroachment on their lands and fisheries by Euro-Canadian settlers (Surtees, 1994, p.116). Under the leadership of Chief Ajetance, the Mississauga settled for goods in the value of £522.10 annually per person in exchange for 648,000 acres of land, including some land along the Credit River. This Second Purchase, known as the Ajetance Purchase or Treaty 19, ceded the lands north of Eglinton Avenue and form the 'New Survey' of the Township of Toronto (Department of Indian Affairs, 1891, p.lv; Surtees, 1994, p.117; Riendeau, 2002, pp.123,127).

In 1826, the Mississauga village at the mouth of the Credit River was relocated to the Credit Mission, located on the site of what is now the Mississauga Golf and Country Club on Mississauga Road (Heritage Mississauga, 2018b; Riendeau, 2002, p.125). By 1837, the Mississauga population was decimated by contagious diseases, such as smallpox, tuberculosis and measles, killing nearly two-thirds of the Mississaugas at the western end of Lake Ontario (Smith, 2002, p.110; Riendeau, 2002, p.125). Further constricted by the pressures of the Euro-Canadian settler, the Mississaugas of the Credit River were relocated again to the Grand River Reserve (Riendeau, 2002, p.125).

By 1842, the population of the Township of Toronto included 5,377 individuals, and 28,468 of 59,260 acres taken up were under cultivation. There were four grist mills and 21 saw mills in the township. European settlement in the Township of Toronto continued along the Credit River, as well as the Etobicoke River; numerous mills were constructed along their entirety (Smith, 1846, pp. 192-193; Martin, 1967, p.273).

1.3.3.2 History of Clarkson

The study area is located southwest of the village of Clarkson, centred along Lakeshore Road, west of Southdown Road. The Clarkson WWTP facility takes its name from the historic community of Clarkson. Clarkson is the considered one of the oldest settled villages in Peel Region, having been first settled in 1808 by Thomas Marigold and Benjamin Monger and their families. In 1811, an inn was opened on Middle Road (present-day Queen Elizabeth Way), and in 1819, Warren Clarkson purchased 200 acres around the community. By 1835, Clarkson Road, which originally followed a trail leading into the hamlet, had been constructed. An inn, store and a burying ground were established along this road. In 1853, the Great Western Railway, purchased land from Warren Clarkson to construct the railway. Originally, the hamlet was called 'Marigold's Point,' it was changed to 'Clarkson's Corners' and then 'Clarkson' when the train station on the Great Western Railway was completed in 1855. In 1875, the Clarkson post office was opened. By the end of the nineteenth century, fruit growing, packing, storing and shipping became an important industry in the community (Smith, 1846, pp.192-193; Martin, 1967, p.273; Heritage Mississauga, 2018a).

1.3.4 Study Area Land Use History (AD 1800s to present)

To further assess the study area's potential for the recovery of Euro-Canadian remains, local histories, historical maps, topographic maps, aerial photographs, and orthophotographs were consulted to gain an understanding of the land use history.

1.3.4.1 Clarkson WWTP

The study area is located within the Clarkson WWTP facility which is situated on the southern parts of Lots 31 and 32, Concession 3 SDS. The 1859 *Tremaine's Map of the County of Peel* and the 1877 *Illustrated Historical Atlas of the County of Peel* (***see Maps 3-4***) depict at least two locations within the facility property which hosted the farmsteads of Captain C.H. Scholefield ca.1859, and, later, Rev. George Evans ca.1877. No historic structures (e.g., homesteads) are depicted in or within 300 metres of the study area.

In 1893 the land on which the Clarkson WWTP sits was acquired by Toronto businessman George Horace Gooderham of the Gooderham family, whose name appears in Gooderham & Worts, the world's second-largest whisky distillery in the early 1900s. At one point described as one of the finest farms in Ontario, the Gooderham Estate produced large quantities of fruits and vegetables, and contained, at its height four barns, four houses and a dedicated rail spur. The houses that stood on the farm included: a family residence ("Manor House"), a house for the farm manager (the first of which was Harold Scholefield), and two boarding houses for workers. Some of these structures can be seen in the early 20th century military topographic maps of the area (***see Map 5***). No structures are depicted in the study area. The estate was sold off in parcels beginning in the 1940s for business and residential uses. One of the buildings was converted into Greyscher House, a nursing home for seniors, in 1947. After the Township of Toronto purchased the property in 1955, the Greyscher House and one of the dwelling houses respectively became the new administration buildings for the township's parks department and the Clarkson Sewage Disposal Plant, the forerunner of today's Clarkson WWTP facility (Hicks, 2003, pp.87-89; City of Mississauga, 2011).

Aerial photographs show that, while new features (buildings, graded areas, sewer and utility lines, etc.) kept being added, much of the land within the current Clarkson WWTP facility limits remained undeveloped or in agricultural use until the early 1970s (***see Maps 6-7***). The study area was located within agriculturally productive lands that was dotted with trees. Beginning in 1960, construction began along the western limit of the Clarkson WWTP that was likely associated with the installation of the Enbridge Gas Line; the western limits of the study area was subject to construction grading at this time. Massive expansion upgrades to the Clarkson WWTP in the mid-1970s resulted in much of the facility being subjected to soil disturbance, including the valley lands associated with the Lakeside Creek, which was piped underground ca.1973 (***see Map 7***). By 1964, vegetation has returned to the study area which encompassed land that was overgrown and dotted with trees, and by 1973, a structure was constructed north of the study area.

Review of available post-1975 aerial photographs at the City of Mississauga's mapping service[1] provide further evidence of large-scale soil grading and construction within the Clarkson WWTP grounds, especially in the period 2004 to 2019, therefore leaving only few pockets of land undisturbed. From 2007 to 2008, construction grading occurred at the southeastern portion of the study area, and by 2009, vegetation had returned to this section of the study area (***see Map 8***). After this time, the study area encompassed an area over overgrown vegetation and a cluster of trees (***see Maps 8-9***).

1.3.4.2 Lakeshore Road

The Clarkson WWTP facility, and the study area, lies along Lakeshore Road, a historic thoroughfare opened in 1804 which roughly followed the path of an older First Nations trail. It

[1] Due to copyright conditions, orthophotographs from Mississauga Maps cannot be provided within this report. Historical aerial imagery of the vicinity of the G.E. Booth WWTP can be accessed via the following link: *http://www6.mississauga.ca/missmaps/maps.aspx#map=15/-8863100.07/5387809.82/0.9075712110370514*

was improved as a corduroyed road in the 1820s and became Canada's first road to be designated a cemented highway in 1914 (Hicks, 2005, pp.XVII-XVIII).

1.3.5 Present Land Use

Under the City of Mississauga's Official Plan, the land use for the entire study area is categorized as Utility (City of Mississauga, 2019).

1.4 Archaeological Context

To establish the archaeological context and further establish the archaeological potential of the study area, *Archeoworks Inc*. previously conducted a comprehensive review of the municipal archaeological management plan, designated and listed cultural heritage resources, heritage conservation districts, commemorative markers and pioneer churches and early cemeteries in relation to the study area; furthermore, an examination of registered archaeological sites and previous AAs within proximity to the study area limits, and a review of the physiography of the study area were performed (Archeoworks Inc., 2021). The results of this background research, along with updated information, are summarized below.

1.4.1 Designated and Listed Cultural Heritage Resources

Per *Section 1.3.1* of the *2011 S&G*, properties listed on a municipal register or designated under the *Ontario Heritage Act*, or that is a federal, provincial, or municipal historic landmark or site, are considered features or characteristics that indicate archaeological potential. No designated or listed cultural heritage resources lie within 300 metres of the study area.

1.4.2 Heritage Conservation Districts

Per *Section 1.3.1* of the *2011 S&G*, heritage resources listed on a municipal register or designated under the *Ontario Heritage Act* are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a Heritage Conservation District (City of Mississauga, 2020).

1.4.3 Commemorative Plaques or Monuments

Per *Section 1.3.1* of the *2011 S&G,* commemorative markers of Aboriginal and Euro-Canadian settlements and history which may include local, provincial, or federal monuments, cairns or plaques, or heritage parks are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a commemorative plaque or monument (Read the Plaque, 2022).

1.4.4 Pioneer/Historic Cemeteries

Per *Section 1.3.1* of the *2011 S&G,* pioneer churches and early cemeteries are considered features or characteristics that indicate archaeological potential. The study area is not located in or within 300 metres of a pioneer/historic cemetery or church (OGS, 2019).

1.4.5 Registered Archaeological Sites

Per *Section 1.1, Standard 1* and *Section 7.5.8, Standard 1* of the *2011* S&G, the *Ontario Archaeological Sites Database* (OASD) maintained by the *MHSTCI* was consulted in order to provide a summary of registered or known archaeological sites within a minimum one-kilometre distance of the study area limits. According to the OASD, there are no registered archaeological sites within a one-kilometre radius of the study area (MHSTCI, 2022).

1.4.6 Previous Archaeological Assessments

Per *Section 1.1, Standard 1* and *Section 7.5.8, Standards 4-5* of the *2011* S&G, to further establish the archaeological context of the study area, a review of previous AAs carried out within the limits of, or immediately adjacent (i.e., within 50 metres) to the study area — as documented by all available reports — was undertaken. Three reports were identified (***see Table 3***).

Table 3: Previous Archaeological Assessments

Company, Year	Stage of Work	Relation to Study Area	Details and Recommendation
Previous Archaeological Assessments Tied to Current Development Project:			
Archeoworks Inc., 2021	1-2 AA	Encompassing the study area	Stage 1 AA recommended on all portions of the subject area that retain archaeological potential.
Previous Archaeological Assessments Tied to Other Development Projects:			
Timmins Martelle Heritage Consultants Inc., 2007	1-2 AA	Within 50 metres of the study area	Assessment in support of development of 551 Avonhead Road. Stage 2 visual and test pit survey found no archaeological resources. No further AA recommended.
Archeoworks Inc., 2019	1 AA	Encompasses entire study area	Assessment in support of Southdown District Stormwater Servicing and Environmental Management Plan, covering a large part of the City of Mississauga, including Clarkson WWTP. Stage 2 test pit survey specifically recommended for lands within WWTP facility.

1.4.7 Physical Features

1.4.7.1 Physiographic Region

The study area is situated within the Iroquois Plain physiographic region of Southern Ontario. This physiographic region consists of undulating till plains above the old shorelines of Lake Iroquois, the extensive lake that covered the Lake Ontario region when the last glacier was receding. The old shoreline is “well-marked by bluffs or gravel bars;” immediately below is a strip of “boulder pavement and sandy offshore deposits” that are “not very productive” for agriculture. Until 1940, the Iroquois Plain was a general farming area, with a tendency for horticulture and growth of canning crops. However, since the Second World War, the remaining farms have become larger while much of the land has been put to urban uses (Chapman and Putnam, 1984, pp.190-196).

1.4.7.2 Soil Types and Topography

Prior to developmental activities in the 20th and 21st centuries, the native soil within the study area was Berrien sandy loam and Cooksville clay loam could be found (Ontario Agricultural College, 1953). A summary of their characteristics is presented in **Table 4**.

Table 4: Study Area Soil Types

Series, Soil Type	Great Soil Group	Soil Materials	Drainage	Topography	Surface Stoniness
Berrien, sandy loam	Grey-Brown Podzolic	Sandy outwash over heavy till	Imperfect	Smooth, very gently sloping	Stonefree
Cooksville, clay loam	Grey-Brown Podzolic	Shallow soil over bedrock. Over grey shale	Imperfect	Smooth gently sloping	Few stones

1.4.7.3 Hydrological Features

Hydrological features such as primary water sources (i.e. lakes, rivers, creeks, streams) and secondary water sources (i.e. intermittent streams and creeks, springs, marshes, swamps) would have helped supply plant and food resources to the surrounding area and are indicators of archaeological potential (per *Section 1.3.1* of the *2011 S&G*). Lakeside Creek flows through Clarkson WWTP, and within 300 metres of the study area. However, it must be noted that post-1950 developments have artificially altered the areas surrounding the aforementioned creek, as well as the Lake Ontario shoreline.

1.4.8 Current Land Conditions

The study area forms part of the Clarkson WWTP facility and encompasses an overgrown area dotted with trees at the northwest corner of the facility property (the Stage 1 subject area).

1.4.9 Date of Fieldwork

The Stage 2 AA of the study area was undertaken on June 2nd, 2022. The weather and lighting conditions — sunny with a temperature of 22°C — permitted good visibility of all parts of the study area and were conducive to the identification and recovery of archaeological resources (per *Section 2.1, Standard 3* of the *2011 S&G*).

1.4.10 Stage 2 Fieldwork Strategy

The recommended Stage 2 fieldwork strategy presented in the draft Stage 1 AA report (Archeoworks Inc., 2021) is as follows:

1. “In accordance with findings from the relevant previous archaeological assessments, areas within the G.E. Booth WWTP study area determined to no longer retain archaeological potential and/or warrant no further work, are recommended to be exempted from further assessment.

2. The low-lying and permanently wet area along the east margin of Clarkson WWTP is considered to be low archaeological potential and may be exempted from further assessment. No further work is recommended for this area.

3. Areas demonstrated in historical aerial imagery, indicated in the site plans, and confirmed visually on-site to have been previously disturbed extensively, no longer retain archaeological potential and may be exempted from further assessment. No further work is recommended for these areas, with the exception of the area below:
   i. Per MCFN request, a portion of the southwest corner of the Clarkson WWTP must be subjected to judgmental test pit survey in accordance with the standards set within *Section 2.1.8* of the *2011 S&G*.

4. A Stage 2 AA test pit survey at five-metre intervals must be undertaken in all other portions of the study area which retain archaeological potential, in accordance with the standards set within *Section 2.1.2* of the *2011 S&G*. These specifically include:
   i. At Clarkson WWTP: grassed and/or treed areas in the northwest, northeast and southeast corners, and a grassed area along the west margin.
   ii. At G.E. Booth WWTP: wooded area in the northwest corner, flanking both sides of the extant access road."

These recommendations, as they pertain to the study area in Clarkson WWTP, were adhered to during the Stage 2 AA.

2.0 FIELD METHODS

This field assessment was conducted in compliance with the *2011 S&G*. The results of the Stage 2 AA are provided within **Map 10**. A representative sample of photographic images documenting field conditions during the Stage 2 property assessment of the study area are presented within **Appendix C** and photographic image locations are presented within **Map 11**. The study area is approximately 0.21 hectares in size.

2.1 Indigenous Engagement

Per recommendations presented in the Stage 1 AA report, the *Mississaugas of the Credit First Nation* (MCFN) requested participation in this project. Engagement details with this community are provided in the ***Indigenous Engagement Document***.

2.2 Deep and Extensive Disturbances

The study area was also evaluated for the presence of deep and extensive land alterations – commonly referred to as disturbances – that have severely impacted the integrity of any archaeological resources. Per *Section 1.3.2* of the *2011 S&G*, these include, but are not limited to: quarrying, major landscaping involving grading below topsoil, building footprints, or sewage and infrastructure development.

Disturbances within the study area include gravel driveways, construction berms, and buried utilities (Enbridge Gas Line and its 15-metre buffer that had been previously subjected to construction grading) (***see Section 1.3.4.1; Images 1-3***).

The disturbances identified above have removed the archaeological potential within their respective portions of the study area and the systematic survey of these areas was not undertaken due to their no archaeological potential classification. Disturbances amounted to approximately 0.09 hectares or 45.00% of the study area.

2.3 Test Pit Survey

The remaining balance of the study area consisted of overgrown area dotted with trees. Per *Section 2.1.2, Standard 1* of the *2011 S&G*, due to the presence of buried utilities and existing landscape, ploughing was not viable, and as such, these areas were subjected to a test pit form of survey (***see Images 4-5***).

A test pit form of survey involves the systematic walking of an area, excavating 30-centimetre diameter pits by hand, and examining their contents. The test pit survey was performed in a grid pattern at five-metre intervals. The topsoil was screened through six-millimetre wire mesh to facilitate the recovery of artifacts. All test pits were examined for stratigraphy, cultural features, and evidence of fill and were test-pitted to within one metre of built structures, where encountered, or until test pits showed evidence of recent ground disturbance. All test pits were excavated into the first five centimetres of subsoil and all test pits were backfilled (per *Section 2.1.2, Standards 2, 4-7* and *9* of the *2011 S&G*).

Disturbed ground conditions consisting of silt soils with granular material was encountered within portions of the study area from previous grading and construction activities (***see Section 1.3.4.1; Maps 8-9; Images 6-8***). When disturbances were encountered during the test pit survey, test pit survey intervals were increased to ten-metre intervals to confirm the extent of disturbance. When disturbed ground conditions were no longer apparent, test pit survey intervals returned to five metres.

Approximately 0.05 hectares or 25.00% of the study area was subjected to shovel test-pit survey at five-metre intervals. Within this, approximately 25 test pits were excavated to depths of 15 centimetres in sandy loam soil. Approximately 0.06 hectares or 30.00% of the study area was subjected to shovel test-pit survey at 10-metre intervals. Within this, approximately 10 test pits were excavated in silt soil to depths of 10 to 20 centimetres.

3.0 RECORD OF FINDS

No archaeological resources were identified during the Stage 2 AA. An inventory of the documentary record generated in the field can be found within **Appendix D**.

4.0 ANALYSIS AND CONCLUSIONS

No archaeological sites were identified during the Stage 2 AA. The study area is considered free of further archaeological concern.

5.0 RECOMMENDATIONS

Considering the findings outlined within this report, the following recommendation is presented:

1. The study areas are considered free of archaeological concern. No further archaeological assessment is required.

No construction activities shall take place within the study area prior to the *MHSTCI* (Archaeology Programs Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

1. This report is submitted to the *MHSTCI* as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the *MHSTCI*, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

2. It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

3. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

4. The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Burial Sites at the *Ministry of Government and Consumer Services*.

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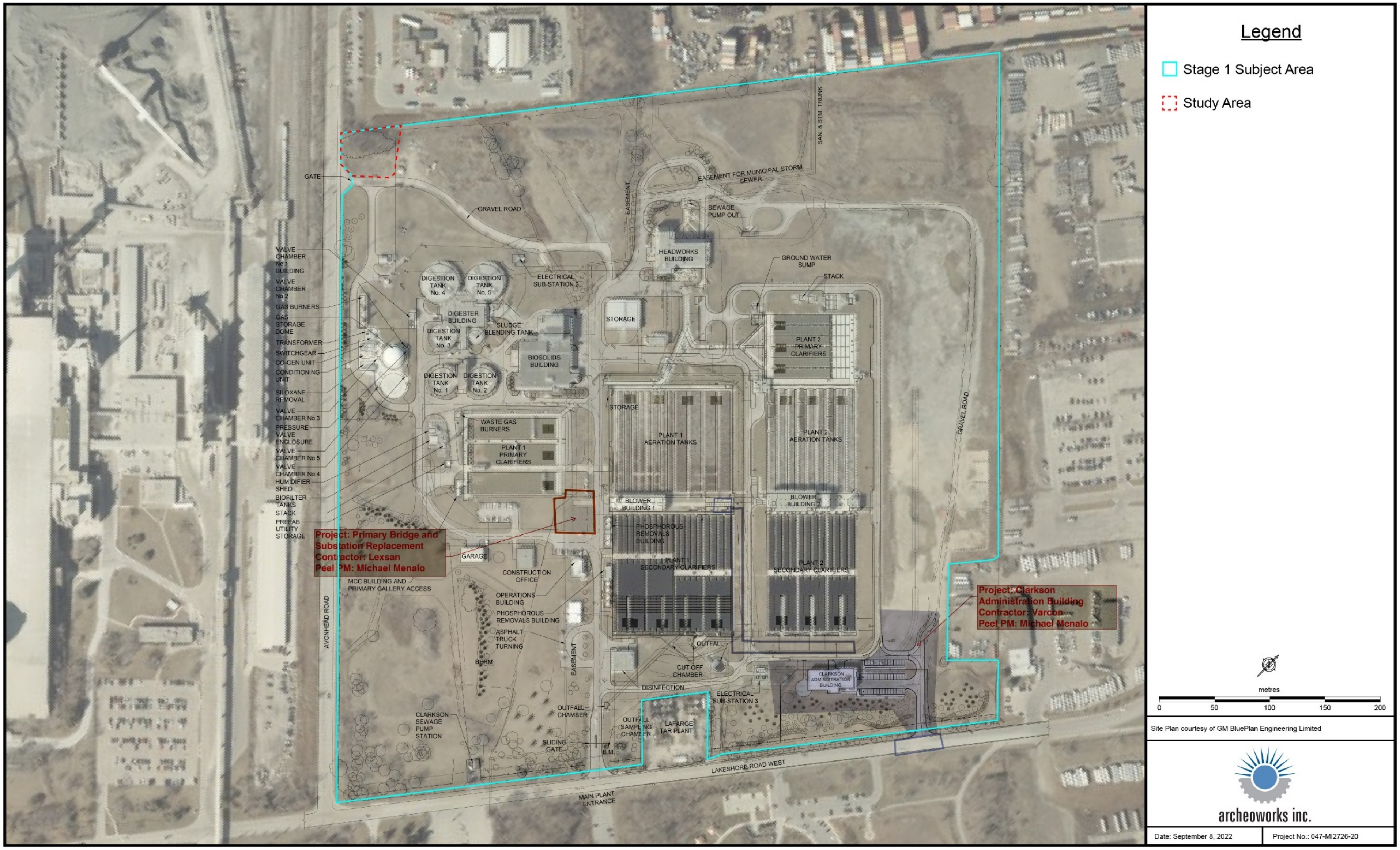
- 2002, 2007, 2008, 2009, 2010, 2012, 2015 and 2021 orthophotographs. [Online]. Available at: https://vumap.firstbasesolutions.com/ [Accessed 08 September 2022].

APPENDICES

APPENDIX A: MAPS

Map 1: National Topographic Map, 1:30,000, Brampton 030M12 and Hamilton-Burlington 030M05 identifying the Stage 2 AA study area.



Map 2: The Stage 2 AA study area within the Stage 1 subject area.

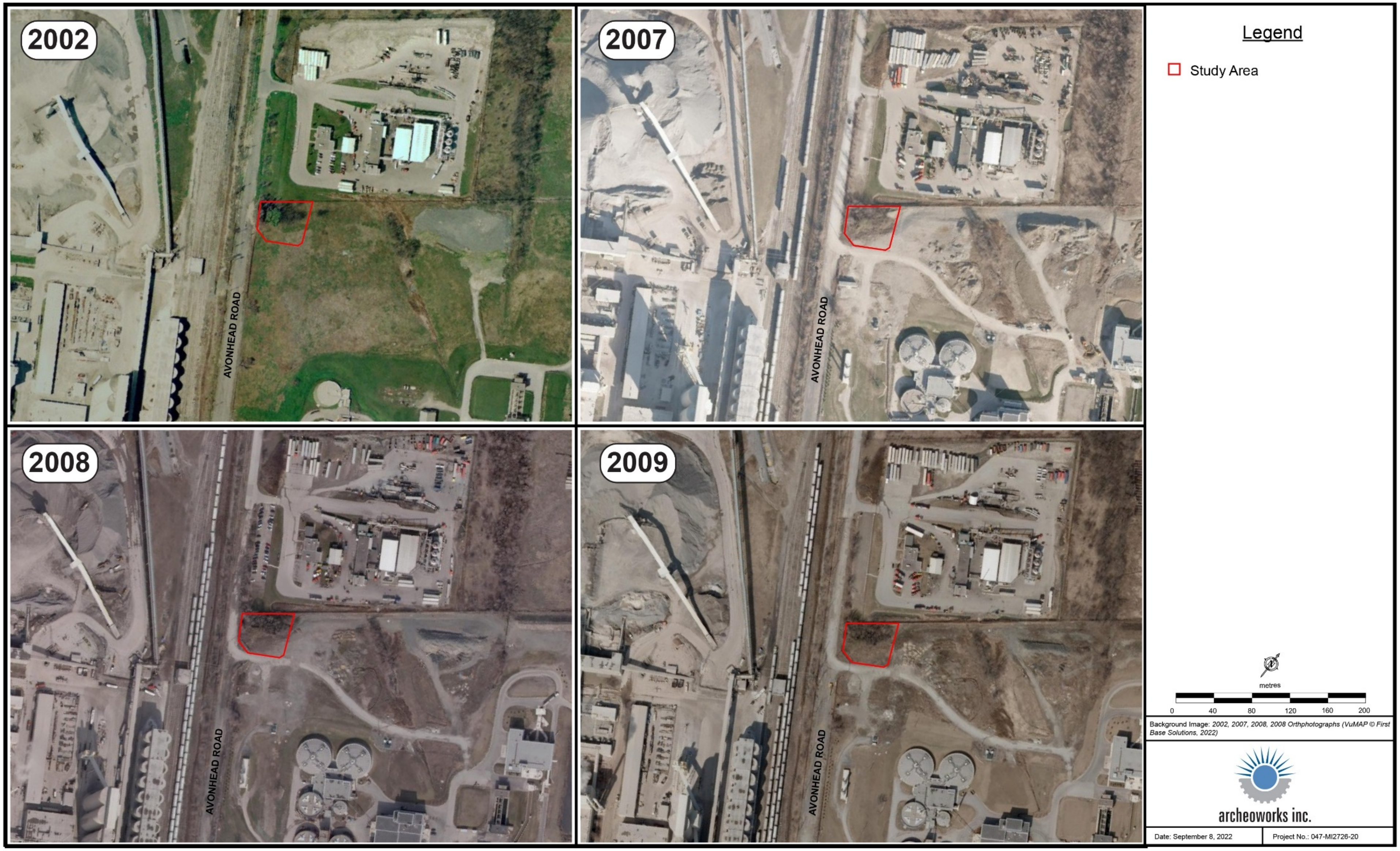
Map 3: Stage 2 AA study area within the 1859 *Tremaine's Map of the County of Peel – Township of Toronto.*

Map 4: Stage 2 AA study area within the 1877 *Illustrated Historical Atlas of the County of Peel – Township of Toronto*.

Map 5: Stage 2 AA study area within 1909, 1919, 1931 and 1938 topographic maps.

Map 6: Stage 2 AA study area within 1954, 1960, 1964 and 1968 aerial images.

Map 7: Stage 2 AA study area within 1969, 1971, 1973 and 1975 aerial images.



Map 8: Stage 2 AA study area within 2002, 2007, 2008 and 2009 orthophotographs.

Map 9: Stage 2 AA study area within 2010, 2012, 2015 and 2021 orthophotographs.

Map 10: Stage 2 AA results.

Map 11: Stage 2 AA results with photo locations depicted.

APPENDIX B: HISTORY OF THE HURON-WENDAT NATION

ANNEX

History of the Nation Huronne-Wendat

As an ancient people, traditionally, the Huron-Wendat, a great Iroquoian civilization of farmers and fishermen-hunter-gatherers and also the masters of trade and diplomacy, represented several thousand individuals. They lived in a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence and up along the Saint Lawrence Valley on both sides of the Saint Lawrence River all the way to the Great Lakes. Huronia, included in Wendake South, represents a part of the ancestral territory of the Huron-Wendat Nation in Ontario. It extends from Lake Nipissing in the North to Lake Ontario in the South and Île Perrot in the East to around Owend Sound in the West. This territory is today marked by several hundred archaeological sites, listed to date, testifying to this strong occupation of the territory by the Nation. It is an invaluable heritage for the Huron-Wendat Nation and the largest archaeological heritage related to a First Nation in Canada.

According to our own traditions and customs, the Huron-Wendat are intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Huron-Wendat formed alliances and traded goods with other First Nations among the networks that stretched across the continent.

Today, the population of the Huron-Wendat Nation is composed of more than 4000 members distributed on-reserve and off-reserve.

The Huron-Wendat Nation band council (CNHW) is headquartered in Wendake, the oldest First Nations community in Canada, located on the outskirts of Quebec City (20 km north of the city) on the banks of the Saint Charles River. There is only one Huron-Wendat community, whose ancestral territory is called the Nionwentsïo, which translates to "our beautiful land" in the Wendat language.

The Huron-Wendat Nation is also the only authority that have the authority and rights to protect and take care of her ancestral sites in Wendake South.

APPENDIX C: IMAGES

Image 1: View of disturbances associated with gravel driveway.

Image 2: View of disturbances associated with construction berm.

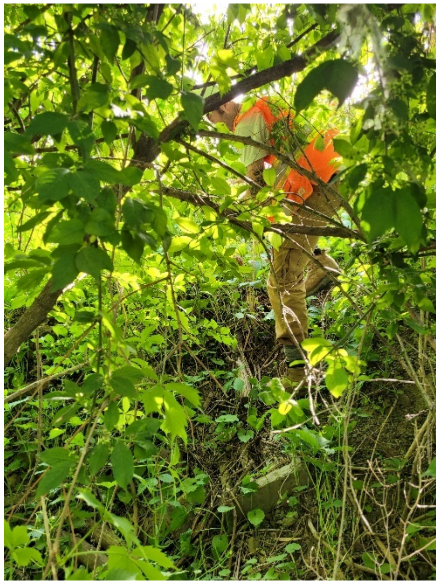


Image 3: View of disturbances associated with construction berm.

Image 4: View of test pit survey conducted at five-metre intervals.

Image 5: View of soil stratigraphy encountered during test pit survey conducted at five-metre intervals.

Image 6: View of test pit survey conducted at 10-metre intervals.

Image 7: View of test pit survey conducted at 10-metre intervals.

Image 8: View of soil stratigraphy encountered during test pit survey conducted at 10-metre intervals.

APPENDIX D: INVENTORY OF DOCUMENTARY AND MATERIAL RECORD

Project Information:				
Project Number:		047-MI2726-20		
Licensee:		Kim Slocki (P029)		
MHSTCI PIF:		P029-1062-2022		
Document/ Material		**Details**	**Location**	
1.	Research/ Analysis/ Reporting Material	Digital files stored in: /2020/ 047-MI2726-20 - South Peel WWTP - Mississauga/ Stage 2	Archeoworks Inc., 16715-12 Yonge Street, Suite 1029, Newmarket, ON, Canada, L3X 1X4	Stored on Archeoworks network servers
2.	Written Field Notes/ Annotated Field Maps	Field Notes: Three (3) pages Field Maps: Two (2) pages	Archeoworks Inc., 16715-12 Yonge Street, Suite 1029, Newmarket, ON, Canada, L3X 1X4	Stored on Archeoworks network servers
3.	Fieldwork Photographs	Digital Images: 57 digital photos	Archeoworks Inc., 16715-12 Yonge Street, Suite 1029, Newmarket, ON, Canada, L3X 1X4	Stored on Archeoworks network servers

Under Section 14 of the Terms and Conditions for Archaeological Licences issued under the *Ontario Heritage Act*, “the licensee shall hold in safekeeping all artifacts and records of archaeological fieldwork carried out under this licence, except where those artifacts and records are transferred by the licensee to Her Majesty the Queen in right of Ontario or the licensee is directed to deposit them in a public institution in accordance with subsection 66(1) of the Act." The collections are being stored at *Archeoworks Inc.* on the licensee's behalf.

Appendix F:

Hydrogeological and Geotechnical Background Information

Clarkson Wastewater Treatment Plant
Hydrogeological and Geotechnical Conditions
Supporting Baseline Mapping & Boreholes

The included mapping, boreholes and figures enclosed are being provided in support of Section 5.2.2 of the Phase 2 – Draft Technical Memorandum 1, Study Area, Baseline Natural Features and Servicing Conditions report for the Clarkson Wastewater Treatment Plant Schedule C Class Environmental Assessment. Enclosed are the following:

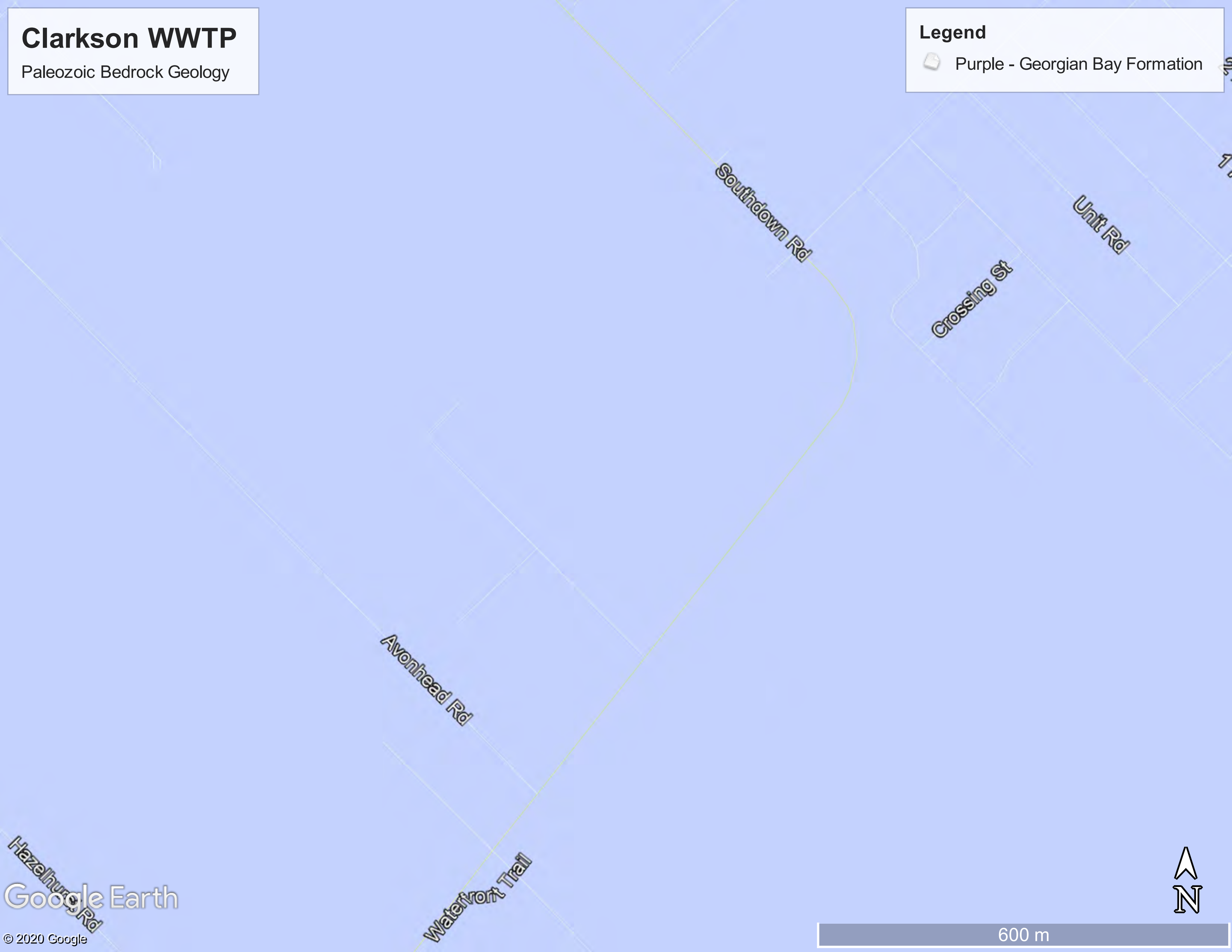
- Enclosure 1: Ontario Geological Survey Surficial Geology and Paleozoic Bedrock Geology Maps
  - Reference: Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV.
  - Reference: Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219.
- Enclosure 2: MECP Well Map and Well Records
  - Ministry of Environment, Conservation and Parks. https://www.ontario.ca/environment-and-energy/map-well-records. Updated January 24, 2020.
- Enclosure 3: MTO Foundation Library Borehole Logs and Plans
  - Ministry of Transportation of Ontario. http://www.mto.gov.on.ca/FoundationLibrary/map. Last modified April 28, 2020.
  - *"Foundation Investigation Report for Sheridan Creek Diversion Structures for C.N.R., Highway 122 & Highway 2, District 6, Toronto."* Job No. 65-F-36, W.P. 114-65, dated May 5, 1965.
  - *"Foundation Investigation Report for "GO" Transit Bridge, Clarkson – County of Peel, District No. 6 (Toronto)."* Job No. 69-F-66, W.P. 23-69-2, dated August 25, 1969.
- Enclosure 4: Ontario Geotechnical Boreholes Map from MENDM
  - Reference: Ministry of Energy, Northern Development and Mines, Mines and Minerals Division, Ontario Geological Survey. Ontario geotechnical boreholes. Last modified May 23, 2017.

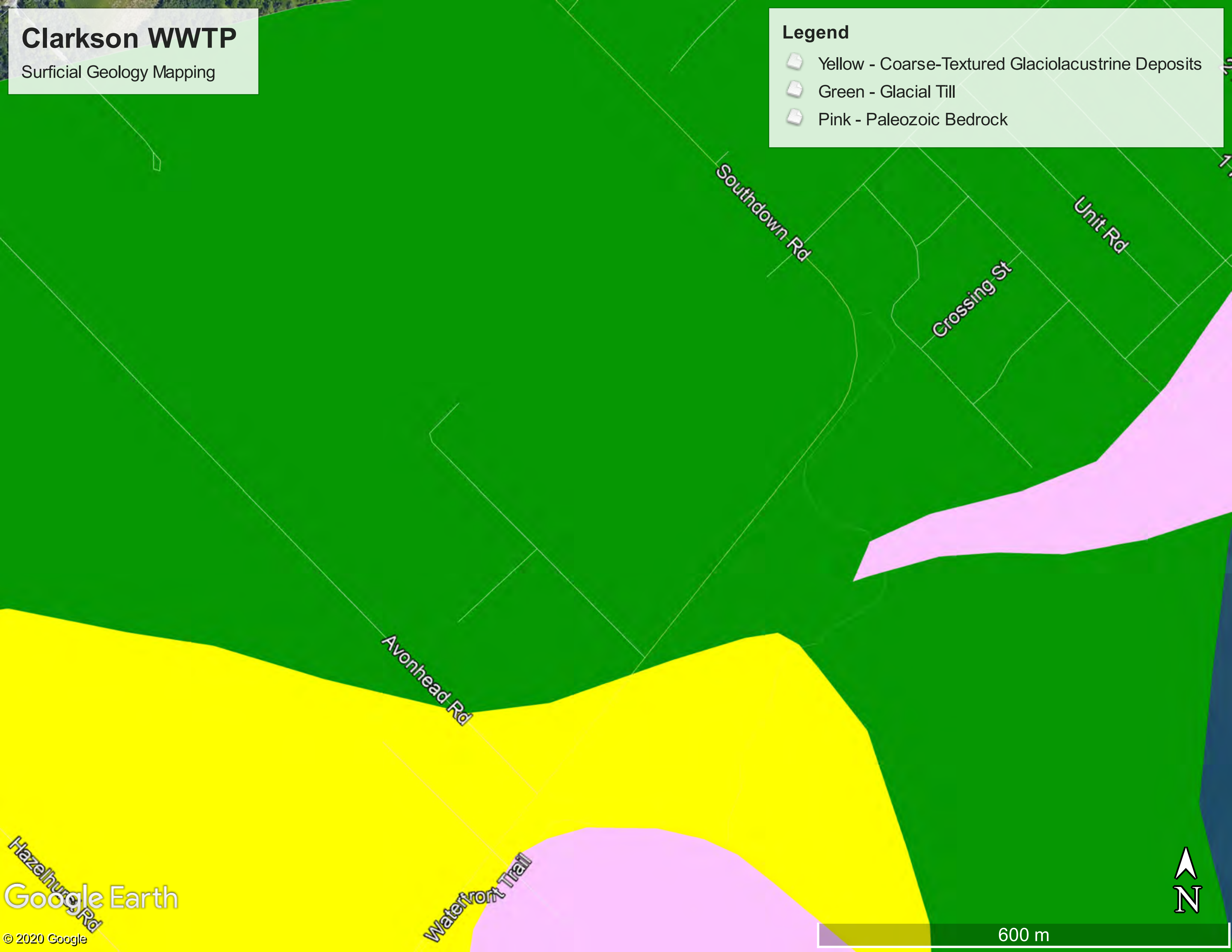
The mapping, boreholes and figures provided are based on a desktop review of publicly available subsurface information as well as subsurface information directly provided to Central Earth Engineering that is specific to the Clarkson Wastewater Treatment Plant (where applicable). The information provided is not meant to necessarily capture all information available for the Clarkson Wastewater Treatment, but to provide a broad range of information in support of the baseline conditions.

647 Welham Road, Unit 14, Barrie, Ontario, L4N 0B7
P: (705) 719-7994 | E: info@centralearth.ca

Enclosure 1 –

Ontario Geological Survey Surficial Geology and Paleozoic Bedrock Geology Maps


Clarkson WWTP
Paleozoic Bedrock Geology
Legend
Purple - Georgian Bay Formation
Southdown Rd
Unit Rd
Crossing St
Avonhead Rd
Waterfront Trail
Hazelhurst Rd
Google Earth
© 2020 Google
N
600 m


Clarkson WWTP
Surficial Geology Mapping
Legend
Yellow - Coarse-Textured Glaciolacustrine Deposits
Green - Glacial Till
Pink - Paleozoic Bedrock
Southdown Rd
Unit Rd
Crossing St
Avonhead Rd
Waterfront Trail
Google Earth
© 2020 Google
600 m
N

Enclosure 2 –

MECP Well Map and Well Records

Latitude:43.49884, Longitude:-79.62465 (UTM Zone:17, Easting:611192, Northing:4817131)

UTM 17 Z 601467 E
9 R 4802508 N
Burns St. South
Elev. 4
Conc III
Basin 24
Lot 32

6

ONTARIO

49 № ~~2296~~

RECEIVED
FEB 8 1949
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

The Well Drillers Act

Department of Mines, Province of Ontario

Water Well Record

County or District Peel Tp ~~Toronto~~ MISSISSAUGA Con ~~3?~~ 3 Lot 32 Pt. Lot
[redacted] Acres
[redacted] cluding pump)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	6"	Date	
Length(s) of casing(s)	15'	Developed Capacity	40 gals/hr.
Length of screen		Duration of Test	
Type of screen		Pumping Rate	
Type of pump		Drawdown	draw right down
Capacity of pump		Static level of completed well	15'
Depth of pump setting		Is well a gravel-wall type?	

Water Record

Kind (fresh or mineral) a little taste of salt

Quality (hard, soft, contains iron, sulphur etc.)

Appearance (clear, cloudy, coloured)

For what purpose(s) is the water to be used? House

How far is well from possible source of contamination?

What is source of contamination?

Enclose a copy of any mineral analysis that has been made of water

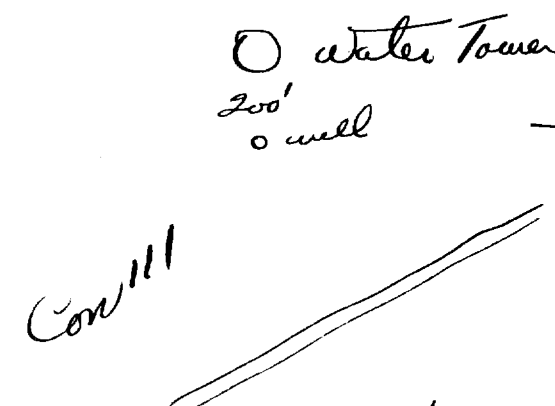
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises

Well Log

Drift and Bedrock Record	From	To
Sand	0 ft.	12 ft.
Blue clay	12	15
Blue shale	15	50

Location of Well

In diagram below show distances of well from road and lot line



Well on Gooderham farm 200' South & a little west of Water Tower shown on Hamilton Topo map. Sheet.

Situation: Is well on upland, in valley, or on hillside? Level

Drilling Firm West Huffman

Address

Recorded by A.K. Watt ~~Dat~~ Feb 8/49 Address

Date Licence Number

CSS.S8

~~Co~~M 17 Z 601515 E

9 R 4802473 N

6a

ONTARIO

~~Elev.~~ 4 DUNDAS STREET SOUTH

~~Basin~~ ~~24~~

Con.

Lot 32

The Water-well Drillers Act, 1954

Department of Mines

49 No 2297

GROUND WATER BRANCH
FEB 10 1958
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

MISSISSAUGA

[redacted]p, Village, Town or City (Toronto)

[redacted] Village, Town or City)

[redacted]ddress Clarkson R.R. Monomym

Date completed 20 Jan 58
(day) (month) (year)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	10"	Static level	15'
Length(s)	12	~~Pumping~~ rate	4 G.P.M.
Type of screen		Pumping level	
Length of screen		Duration of test	

Well Log / Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
[illegible]	0	12			[illegible]
[illegible]	12	48	24	9	[illegible]

For what purpose(s) is the water to be used? farm

Is water clear or cloudy? [illegible]

Is well on upland, in valley, or on hillside? upland

Drilling firm E.E. Jacobson

Address [illegible]

Name of Driller

Address

Licence Number

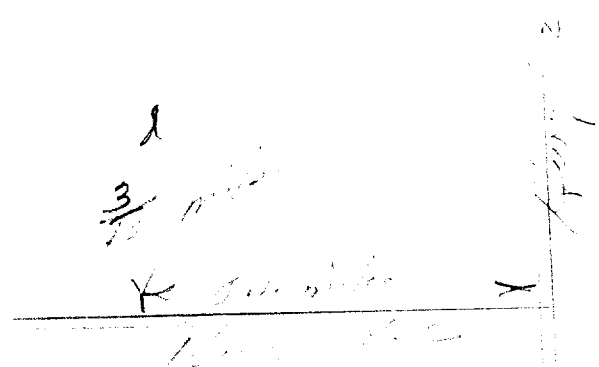
I certify that the foregoing statements of fact are true.

Date Signature of Licensee E.E. Jacobson

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.

N.



Form 5

CSS.S8

UTM 17 Z 601139 E
5 R 4802593 N
Elev. DUNDAS ST. S.
Basin CON III
LOT 32

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

49 No 2298 B

GROUND WATER BRANCH
JAN 27 1959
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record MISSISSAUGA

[redacted]p, Village, Town or City (TORONTO)
[redacted] Village, Town or City)
Owner [redacted]Address 25 Adaliad E

Date completed 20 July 1958
(day) (month) (year)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	8"	Static level	23'
Length(s)	IO	Pumping rate	40 gph.
Type of screen	—	Pumping level	64'
Length of screen	—	Duration of test	3 HRS

Well Log / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
dug well	0	24	35	~~9~~ 12	slightly
shale	24	64			salty

For what purpose(s) is the water to be used?
service station
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside?
upland
Drilling firm C.H.Rutledge
Address same NORELTON ON

Name of Driller
Address

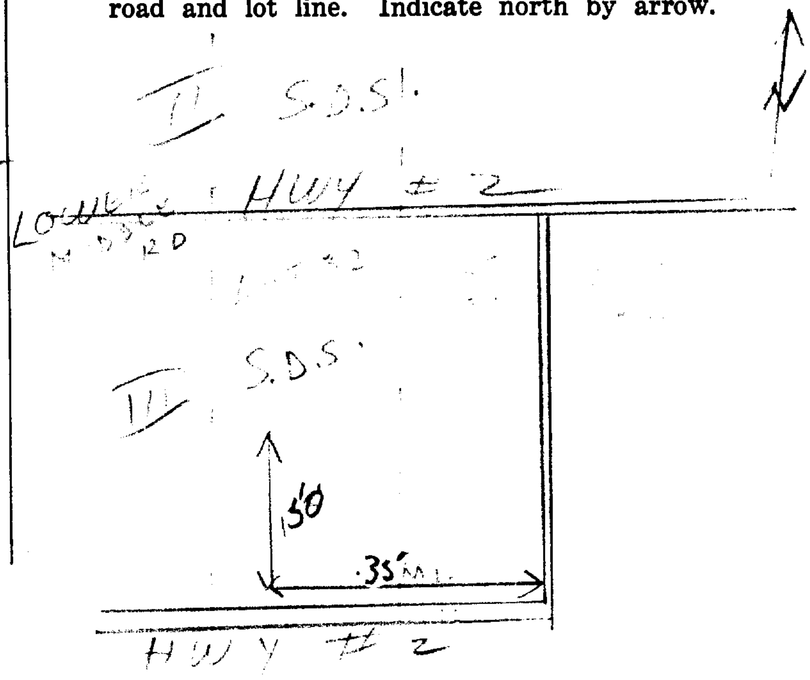
Licence Number

I certify that the foregoing statements of fact are true.

Date Jan 20 C H Rutledge
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.S8

Genivar 070717b
July 20/07

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below)
A054705
A 054705

Well Record
Regulation 903 Ontario Water Resources Act

[redacted]

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN	CON	LOT

Well Owner's Information and Location of Well Information

First Name	Last Name	Mailing Address (Street Number/Name, RR, Lot, Concession)
Region	of Peel	10 Peel Centre Drive

County/District/Municipality	Township/City/Town/Village	Province	Postal Code	Telephone Number (include area code)
	Brampton	Ontario	L6T 4B9	905-791-7800

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Peel Region			

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
2307 Lakeshore Rd	Mississauga	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	17	611577	4816583	Magellan	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres From	To
Brown	Sand	Silt		0	1.0
Brown	Silt	clay	till	1.0	3.9
Grey	limestone	Clay layers		3.9	6.0

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	6.0	15

Water Record

Water found at Metres	Kind of Water
0 m	☒ Fresh ☐ Sulphur ☐ Salty ☐ Minerals ☐ Gas ☐ Other:
m	☐ Fresh ☐ Sulphur ☐ Salty ☐ Minerals ☐ Gas ☐ Other:
m	☐ Fresh ☐ Sulphur ☐ Salty ☐ Minerals ☐ Gas ☐ Other:

After test of well yield, water was
☐ Clear and sediment free
☐ Other, specify

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
5.9	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	0.65	0	3.0
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam: 6.4	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	Slot No.: 10	3.0	6.0
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

Pumping test method	Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
Pump intake set at - (metres)	Static Level			
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs + ___min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	5		5	
Recommended pump rate. (litres/min)	10		10	
	15		15	
If flowing give rate - (litres/min)	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record
☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	2.9	Bentonite	

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.

see Attached

Method of Construction

☐ Cable Tool ☐ Rotary (conventional) ☐ Rotary (reverse) ☐ Rotary (air) ☐ Air percussion ☒ Boring ☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Other

Water Use

☐ Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Commercial ☐ Municipal ☐ Public Supply ☐ Not used ☐ Cooling & air conditioning ☒ Other

Final Status of Well

☐ Water Supply ☒ Observation well ☐ Test Hole ☐ Recharge well ☐ Abandoned, insufficient supply ☐ Abandoned, poor quality ☐ Unfinished ☐ Dewatering ☐ Replacement well ☐ Abandoned, (Other)

Audit No.	Date Well Completed (YYYY MM DD)
Z 72452	2007 07 10

Was the well owner's information package delivered?	Date Delivered (YYYY MM DD)
☐ Yes ☒ No	

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
Geo-Environmental	6607

Business Address (street name, number, city etc.)	
370 Market Drive	Milton

Name of Well Technician (last name, first name)	Well Technician's Licence No.
Mannering Paul	T3015

Signature of Technician/Contractor	Date Submitted (YYYY MM DD)
X	2007 07 10

Ministry Use Only

Data Source	Contractor
	6607

Date Received (YYYY MM DD)	Date of Inspection (YYYY MM DD)
SEP 18 2007	

Remarks	Well Record Number

Ontario

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue.

Go Back to Map

Well ID

Well ID Number: 7283499
Well Audit Number: *Z103061*
Well Tag Number: *A139416*

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	2307 LAKESHORE RD W
Township	MISSISSAUGA CITY
Lot	
Concession	
County/District/Municipality	PEEL
City/Town/Village	Mississauga
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 611980.00 Northing: 4816810.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	FILL	SLTY	CLAY	0 m	.6 m
GREY	LOAM	GRVL		.6 m	3 m
GREY	CLAY	SLTY	SHLE	3 m	3.5 m
BRWN	CLAY	SLTY	SAND	3.5 m	4.7 m

SHLE	4.7 m

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 m			

Method of Construction & Well Use

Method of Construction	Well Use
Boring	
	Monitoring

Status of Well

Observation Wells

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
5 cm	PLASTIC	0 m	3 m

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
5.2 cm	PLASTIC	0 m	4.8 m

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7314

Results of Well Yield Testing

After test of well yield, water was	
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	
Duration of Pumping	
Final water level	

If flowing give rate	
Recommended pump depth	
Recommended pump rate	
Well Production	
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind
1.8 m	

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: Z103061

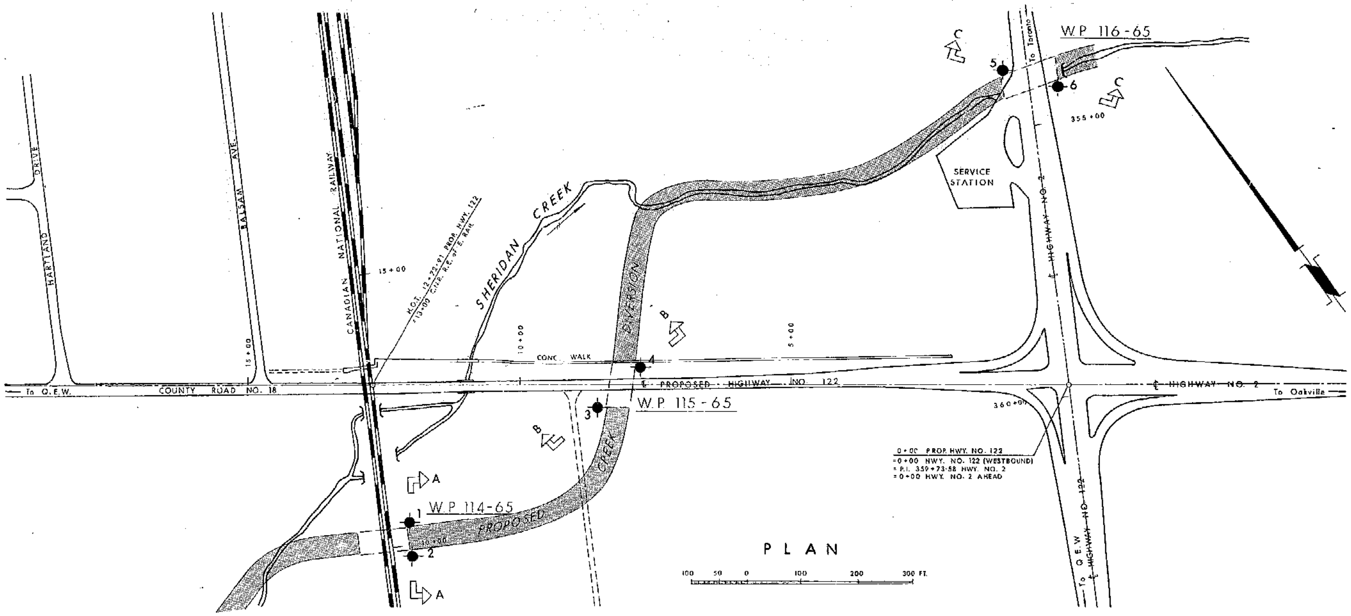
Date Well Completed:

Date Well Record Received by MOE: March 16, 2017

Updated: January 24, 2020

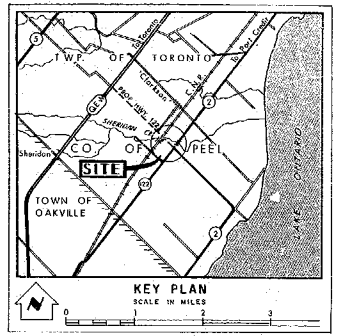
Enclosure 3 –

MTO Foundation Library Borehole Logs and Plans



PLAN

100 50 0 100 200 300 FT.



KEY PLAN

SCALE IN MILES

0 1 2 3

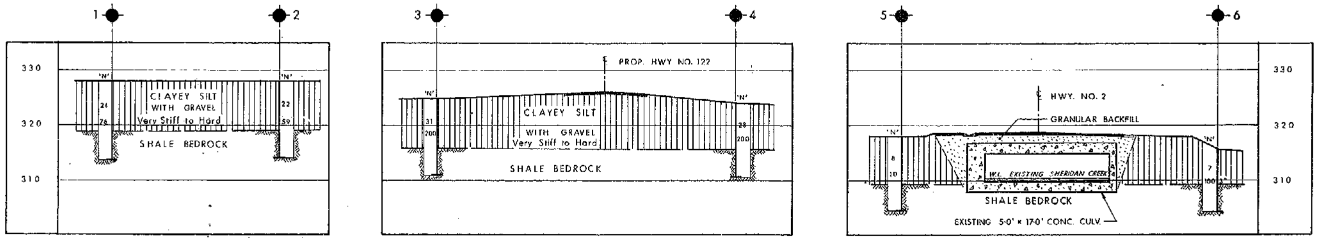
LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation. APRIL / 65

NO.	ELEVATION	STATION	OFFSET
1	326·0	10+40	35'RT. (RLWY)
2	328·0	9+80	35'RT. (RLWY)
3	325·0	8+40	45'LT. (Hwy 122)
4	324·0	7+83	32'RT. (Hwy. 122)
5	318·0	354+10	47'RT. (Hwy. 2)
6	316·0	354+40	65'LT. (Hwy 2)

- NOTE -

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.



A - A B - B C - C

SECTIONS

HORIZONTAL 20 10 0 20 40 60 FT.

VERTICAL 10 5 0 10 20 30 FT.

REF. NO'S. E-4705-1, E-4706-1, E-4259-1

PRINT RECORD		
NO.	FOR	DATE

REVISIONS		
DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION - FOUNDATION SECTION

SHERIDAN CREEK

KING'S HIGHWAY NO. 2, 122 & CAN. NAT. RLWY. DIST. NO. 6

CO. PEEL

TWP. TORONTO LOT 30 & 31 - CON. II III S.D.S

BORE HOLE LOCATIONS & SOIL STRATA

SUBM'D. V.K.	CHECKED	W.P. NO. 114-65, 115-65, 116-65	M.& T. DRAWING NO. 65-F-36A
DRAWN	CHECKED	JOB NO. 65-F-36	
DATE APRIL 23, 1965		SITE NO.	BRIDGE DRAWING NO.
APPROVED PRINCIPAL FOUNDATION ENGINEER		CONT. NO.	

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS – ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

JOB 65-F-36
W.P. 114-65
DATUM Geodetic

LOCATION Sheridan Crk & CNR Sta. 10/40 35' Rt. (Rwy Sta.)
BORING DATE April 5, 1965.
BOREHOLE TYPE Drive BX Casing & Wash.

ORIGINATED BY V.K.
COMPILED BY V.K.
CHECKED BY M.D.

SOIL PROFILE			SAMPLES				DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L; PLASTIC LIMIT w_P; WATER CONTENT w; WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE				
328.0	Groundlevel									
0.0	Clayey silt with gravel. (V. stiff to hard)		1	SS	24					
			2	SS	76	320				
318.8 / 9.2	Grey shale. BEDROCK		3	BXT	90% recovery					
313.8 / 14.2	End of borehole.					310				

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 65-F-36
W.P. 114-65
DATUM Geodetic

LOCATION Sheridan Crk & CNR Sta. 9+80 35' Rt. (Rwy Sta.)
BORING DATE April 6, 1965.
BOREHOLE TYPE Drive BX Casing & Wash.

ORIGINATED BY V.K.
COMPILED BY V.K.
CHECKED BY M.D.

SOIL PROFILE			SAMPLES				DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT	LIQUID LIMIT — w_L PLASTIC LIMIT — w_P WATER CONTENT — w	BULK DENSITY γ P.C.F.	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.	WATER CONTENT %		
328.0	Groundlevel									
0.0	Clayey silt with gravel. (V. stiff to hard)		1	SS	22					
			2	SS	59	320				
319.0 / 9.0	Grey shale. BEDROCK		3	BXT	95% recovery					
314.0 / 14.0	End of borehole.					310				
						300				

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 3

FOUNDATION SECTION

JOB 65-F-36 LOCATION Sheridan Crk & Hwy 122 Sta. 8+40 45' Lt. ORIGINATED BY V.K.

W.P. 115-65 BORING DATE April 6, 1965. COMPILED BY V.K.

DATUM Geodetic BOREHOLE TYPE Drive BX Casing & Wash. CHECKED BY M.D.

ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L, PLASTIC LIMIT w_P, WATER CONTENT w; WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
325.0	Groundlevel									
0.0	Clayey silt with gravel. (hard)		1	SS	31	320				
			2	SS	200					
9.0	Grey shale. BEDROCK		3	BXT	100% recovery	310				
14.0	End of borehole.					300				

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 4

FOUNDATION SECTION

JOB 65-F-36
W.P. 115-65
DATUM Geodetic
LOCATION Sheridan Crk & Hwy 122 Sta. 7+83 32' Rt.
BORING DATE April 7, 1965.
BOREHOLE TYPE Drive BX Casing & Wash.
ORIGINATED BY V.K.
COMPILED BY V.K.
CHECKED BY M.D.

SOIL PROFILE			SAMPLES				DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L; PLASTIC LIMIT w_P; WATER CONTENT w; WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE				
324.0	Groundlevel									
0.0	Clayey silt with gravel. (V. stiff to hard)		1	SS	28	320				
315.5			2	SS	200					
8.5	Grey shale. BEDROCK		3	BXT	100% recovery					
310.5						310				
13.5	End of borehole.									
						300				

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS – ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 5

FOUNDATION SECTION

JOB 65-F-36
W.P. 116-65
DATUM Geodetic

LOCATION Sheridan Crk & Hwy 2 Sta. 354+10 47' Rt.
BORING DATE April 8, 1965.
BOREHOLE TYPE Drive BX Casing & Wash.

ORIGINATED BY V.K.
COMPILED BY V.K.
CHECKED BY M.D.

SOIL PROFILE			SAMPLES				DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F.	LIQUID LIMIT — w_L; PLASTIC LIMIT — w_P; WATER CONTENT — w; WATER CONTENT %	BULK DENSITY P.C.F.	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE				
318.0	Groundlevel									
0.0	Clayey silt with gravel.		1	SS	8					
309.5	(Stiff)		2	SS	10	310				
8.5	Grey shale. BEDROCK		3	BXT	100% recovery					
304.5 / 13.5	End of borehole.					300				
						290				

FORM OB-ML-126-REVISED
64-3040

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 6

FOUNDATION SECTION

JOB 65-F-36
W.P. 116-65
DATUM Geodetic

LOCATION Sheridan Crk & Hwy 2 Sta. 354+40 65' Lt.
BORING DATE April 8, 1965.
BOREHOLE TYPE Drive BX Casing & Wash.

ORIGINATED BY V.K.
COMPILED BY V.K.
CHECKED BY M.D.

SOIL PROFILE: ELEV. / DEPTH	SOIL PROFILE: DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L; PLASTIC LIMIT w_P; WATER CONTENT w; WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
316.0	Groundlevel									
0.0	Clayey silt with gravel (Stiff to hard)		1	SS	7					
			2	SS	100 for 3"	310				
6.5	Grey shale. BEDROCK		3	BXT	100% recovery					
11.5	End of borehole.					300				
						290				

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 1

FOUNDATION SECTION

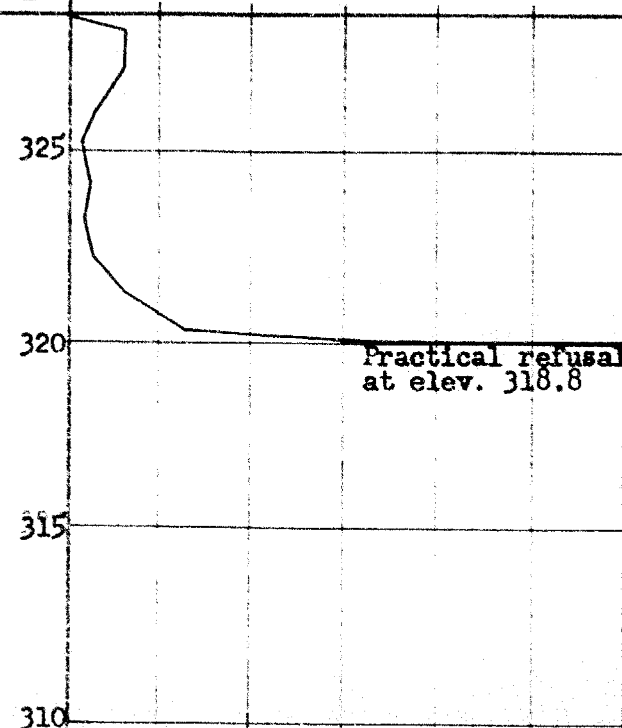
JOB 69-F-66 — LOCATION Refer to Drawing 69-F-66A — ORIGINATED BY KKK
W.P. 23-69-2 — BORING DATE August 13 & 14, 1969 — COMPILED BY BTD
DATUM Geodetic — BOREHOLE TYPE Washboring-BX Casing-BXT Rock Core; Cone Test — CHECKED BY

ELEV / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	BLOWS/FOOT	REMARKS
328.7	Ground Level				
0.0	Silty sand, some grav. (Fill) occ. pockets of clayey silt & organic matter Brown Loose to compact	1	SS	11	
		2	SS	5	
		3	SS	5	Open Hole Dry Aug.14/69
323.2 / 5.0	Clayey silt (topsoil)	4	SS	3	
322.7 / 6.0	Clayey silt, some sand & gray. (Glac. Till) Very stiff	5	SS	15	
	Fragments of shale Hard	6	SS	81	
319.5 / 9.2	Shale Bedrock Black Fractured	7	BXT	21%	
315.0 / 13.7	Sound	8	BXT	100%	
310.0 / 18.7	End of Borehole				

DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT 20 40 60 80 100
SHEAR STRENGTH P.S.F. O UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB. VANE

LIQUID LIMIT — w_L; PLASTIC LIMIT — w_P; WATER CONTENT — w
WATER CONTENT %

BULK DENSITY γ P.C.F.
GR.SA.SI.CL



FORM OB-MT-126 (REV. 1969) OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 2

FOUNDATION SECTION

JOB	69-F-66	LOCATION	Refer to Drawing 69-F-66A	ORIGINATED BY	MKK
W.P.	23-69-2	BORING DATE	August 14, 1969	COMPILED BY	BTD
DATUM	Geodetic	BOREHOLE TYPE	Washboring - BX Casing	CHECKED BY	

ELEV / DEPTH	SOIL PROFILE: DESCRIPTION	SAMPLES: NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F (O UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE, × LAB. VANE)	LIQUID LIMIT w_L, PLASTIC LIMIT w_P, WATER CONTENT w — WATER CONTENT %	BULK DENSITY γ P.C.F	REMARKS GR.SA.SI.CL.
328.4	Ground Level								
0.0	Silty sand, some gravel (Fill)	1	SS	33					
	occ. pockets of clayey silt & organic matter.	2	SS	25					
	Brown	3	SS	25	325				Open hole dry Aug. 14/69
323.4	Compact to dense								
322.4	Clayey silt (topsoil)	4	SS	15					
6.0	Clayey silt, some sand & gravel (Glacial Till)	5	SS	19					
	Grey-brown								
	Very stiff	6	SS	20	320				
318.5	Fragments of Shale	7	SS	70/10"					
9.9	End of Borehole Probably Bedrock								
					315				

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 3

FOUNDATION SECTION

JOB 69-F-66 LOCATION Refer to Drawing 69-F-66A ORIGINATED BY KKK
W.P. 23-69-2 BORING DATE August 15, 1969 COMPILED BY BTD
DATUM Geodetic BOREHOLE TYPE Washboring - BX Casing CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F. (O UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE, × LAB. VANE)	LIQUID LIMIT — w_L; PLASTIC LIMIT — w_P; WATER CONTENT — w; WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS GR. SA. SI. CL.
ELEV / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT					
328.4	Ground Level									
0.0	Topsoil									
[illegible]	Clayey silt (glacial till) fragments of shale. Very stiff to hard		1	SS	21					Open Hole Dry Aug.15/69
325.4			2	SS	85	325				
3.0	End of Borehole Probably Bedrock									

FORM OB-MT-126 (REV 1969)

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 4

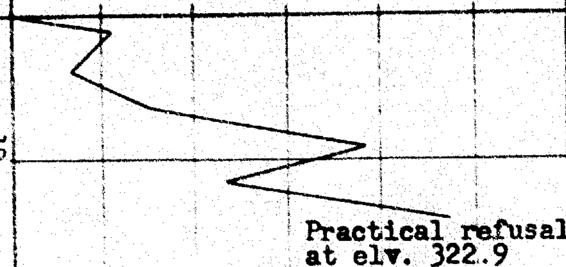
FOUNDATION SECTION

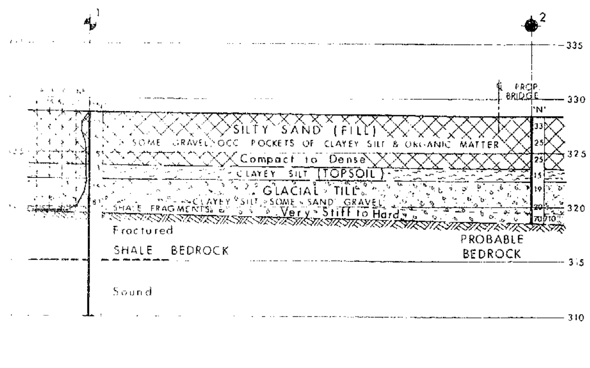
JOB 69-F-66
W.P. 23-69-2
DATUM Geodetic

LOCATION Refer to Drawing 69-F-66A
BORING DATE August 14, 1969
BOREHOLE TYPE Washboring-BX Casing-BXT Rock Core; Cone Test

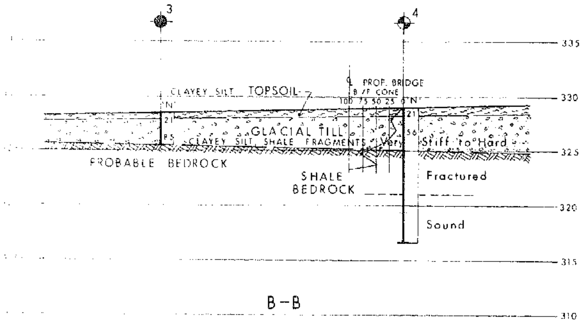
ORIGINATED BY KKK
COMPILED BY BTD
CHECKED BY

SOIL PROFILE			SAMPLES			ELEV SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT; SHEAR STRENGTH P.S.F. (○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE, × LAB. VANE)	LIQUID LIMIT w_L, PLASTIC LIMIT w_P, WATER CONTENT w — WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS GR.SA.SI.CL.
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	BLOWS/FOOT					
328.9	Ground Level									
0.0	Clayey silt (topsoil)		1	SS	21					
1.0	Clayey silt (glacial till) - fragments of shale.		2	SS	56					
325.1	Very stiff to hard					325				
3.8	Shale Bedrock Black		3	BXT	17%		Practical refusal at elv. 322.9			
321.9	Fractured									
7.0			4	BXT	85%	320				
	Sound									
317.1										
11.8	End of Borehole					315				





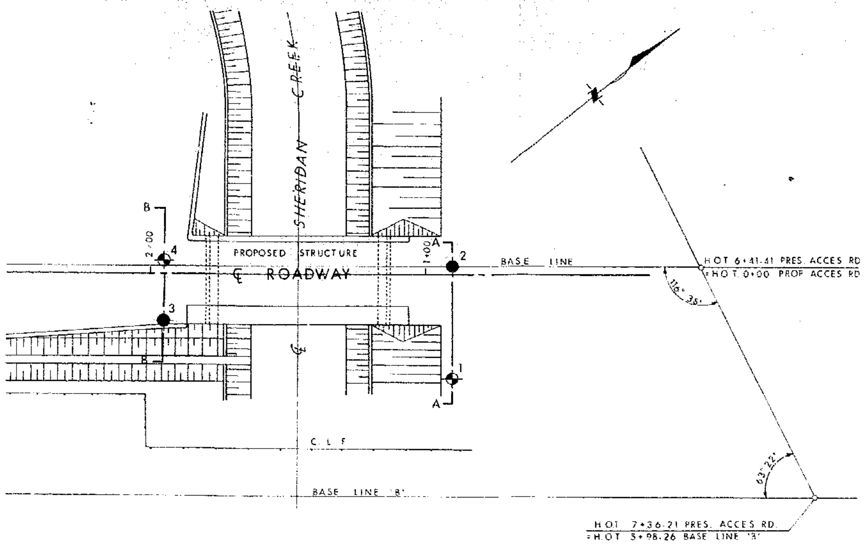
A–A



B–B

SECTIONS

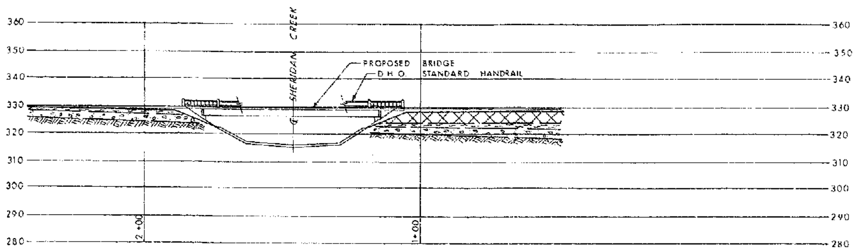
SCALE



PLAN

SCALE

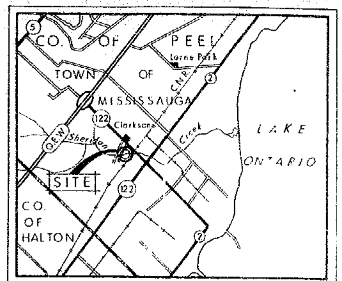
20 10 0 20 40 FT.



PROFILE

SCALE

20 10 0 20 40 FT.



KEY PLAN

SCALE IN MILES

LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation.

NO.	ELEVATION	STATION	OFFSET
1	328.7	as	shown
2	328.4	"	"
3	328.4	"	"
4	328.9	"	"

– NOTE –

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

REVISIONS		
DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS – ONTARIO
MATERIALS & TESTING OFFICE – FOUNDATION SECTION

GO TRANSIT STATION
(AT CLARKSON)

KING'S HIGHWAY NO. ____ DIST. NO. 6
CO. PEEL TOWN of MISSISSAUGA
TWP. ____ LOT ____ CON. ____

BORE HOLE LOCATIONS & SOIL STRATA

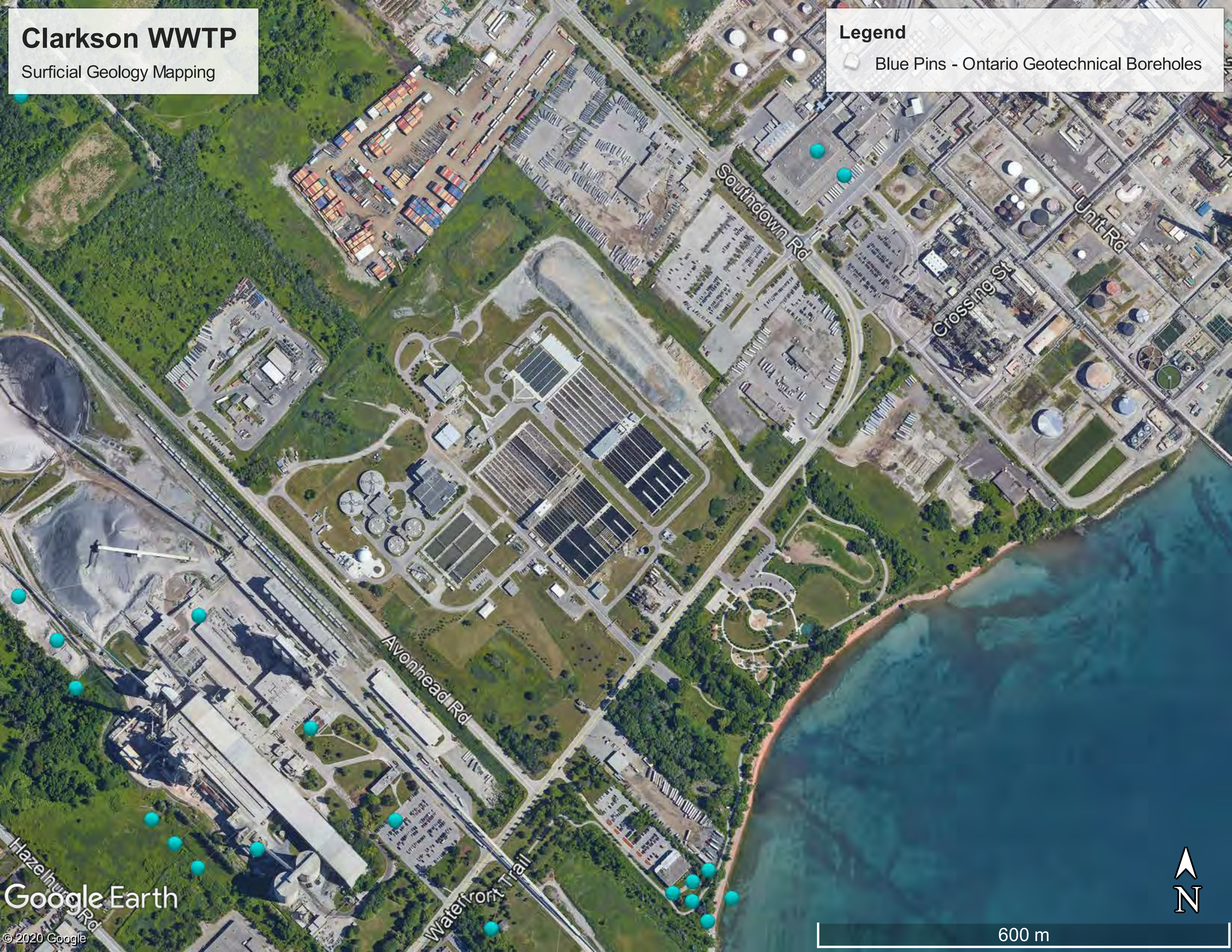
SUBM'D B.T.D.	CHECKED	W.P. NO. 23-69-2	M.&T. DRAWING NO. 69-F-66A
DRAWN G. P.	CHECKED	JOB NO. 69-F-66	
DATE Aug. 25, 1969		SITE NO.	BRIDGE DRAWING NO.
APPROVED		CONT. NO.	

PRINCIPAL FOUNDATION ENGINEER

PRINT RECORD

Enclosure 4 –

Ontario Geotechnical Boreholes Map from MENDM


Clarkson WWTP
Surficial Geology Mapping
Legend
Blue Pins - Ontario Geotechnical Boreholes
Southdown Rd
Unit Rd
Crossing St
Avonhead Rd
Waterfront Trail
Google Earth
© 2020 Google
600 m
N

Appendix G:

Phase 1 Environmental Site Assessment (ESA) Report

Prepared By:

GM BluePlan ENGINEERING

The Regional Municipality of Peel

Phase One Environmental Site Assessment

Clarkson Water Resource Recovery Facility

GMBP File: 719051
October 2020

Region of Peel
working with you

GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
650 WOODLAWN RD. W., BLOCK C, UNIT 2, GUELPH ON N1K 1B8 P: 519-824-8150
WWW.GMBLUEPLAN.CA

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PHASE ONE ENVIRONMENTAL SITE ASSESSMENT

CLARKSON WATER RESOURCE RECOVERY

FACILITY, REGIONAL MUNICIPALITY OF PEEL

OCTOBER 2020

GMBP FILE: 719051

1. INTRODUCTION AND BACKGROUND INFORMATION

GM BluePlan Engineering Limited (GMBP) was retained by the Regional Municipality of Peel (hereafter referred to as the “Client”) to undertake a Phase One Environmental Site Assessment (ESA) for the property located at the civic address 2307 Lakeshore Road West, City of Mississauga, Ontario (hereafter referred to as the “Site”).

The Site is approximately 37 hectares (91.2 acres) in size and is located at the southwest most corner of the City of Mississauga, along the shoreline of Lake Ontario, as seen on Figures 1 and 2. The Site is currently owned by the Region of Peel and is operated by the Ontario Clean Water Agency (OCWA). The Site operates as a Class IV Wastewater Treatment facility under Ontario Regulation 129/04, and under Environmental Compliance Approval #0729-9KBNNY.

The Phase One ESA was undertaken to identify the potential and/or actual environmental concerns or risks associated with the Site resulting from current and/or historical land uses on the Site and the neighboring properties. It is our understanding that this Phase One ESA is being conducted to support a Schedule C Class Environmental Assessment (EA) and that it is not required to support a Record of Site Condition (RSC) under the Ontario Regulation (O.Reg) 153/04 (as amended).

2. METHODOLOGY

The Phase One ESA was conducted in general accordance with the guidelines of the Canadian Standards Association (CSA) as presented in Report No. Z768-01, Phase One Environmental Site Assessment (November 2001). The purpose of a Phase One ESA is to identify actual and potential environmental concerns or risks associated with the Site. These environmental concerns may be the result of current or historical uses of the Site or surrounding properties. The Phase One ESA process involves the review of documents, maps, interview(s) with persons with knowledge of the property and other recorded information in conjunction with the observations of a reconnaissance visit to the Site by the Assessor. Based on the information gathered, an assessment of the potential environmental concerns can be made and, if warranted, recommendations offered for further investigation. A brief description of the records reviewed, and the reconnaissance visit follows.

Background physiographic, geological, hydrogeological and topographical information for the Site and the surrounding area was assembled from several sources including the City of Mississauga Interactive Online Mapping Tool, the Technical Standards and Safety Authority (TSSA), the Ministry of Environment, Conservation and Parks (MECP), publications from the Ontario Geological Survey and others.

Aerial photographs of the Site and surroundings was obtained from Environmental Risk Information Services Inc. (ERIS), for the years 1934, 1946, 1960, 1973, 1988, and 2015 . Aerial photographs were assessed for indication of historical land uses and identification of relevant land features.

Fire insurance plans (FIPs) were requested from ERIS. The subject property and the surrounding areas were outside of the available coverage provided by FIPs at the time of their publication (1960).

A search of the City Directory records for the City of Mississauga in the vicinity of the Site was requested from ERIS to ascertain occupancy for the Site and surrounding properties, and records were received. However, it shall be noted that, due to the on-going pandemic (i.e., COVID-19) at the time of this investigation, libraries containing City Directories were closed limiting the coverage of City records provided by ERIS.

An environmental database report was requested from ERIS (ERIS report) to review available historical and environmental databases and provide information on reported spills, registered waste generators and fuel storage tanks. The ERIS report covered a search area extending at a 250 m radius from the property.

The Ministry of the Environment, Conservation and Parks (MECP) Waste Disposal Site Inventory (MOE, 1991) was reviewed to identify closed and active waste disposal sites in the vicinity of the Site.

The MECP Freedom of Information (FOI) request was filed to obtain records of environmental nature pertaining to the subject property. A response from the FOI office of MECP was not received at the time this report was issued.

The Fuels Safety Division of the Technical Standards and Safety Authority (TSSA) was contacted for review of their records on underground and aboveground fuel storage tanks on the Site and on select neighbouring properties.

The City of Mississauga Schedule B Zoning Bylaw 0225-2007 was reviewed to gather information about current land uses at the Site and the neighbouring properties.

The MECP Record of Site Condition (RSC) Registry was reviewed to determine whether a Record of Site Condition has been submitted for the Site or its neighbouring properties. A Record of Site Condition is required to be completed as part of the process of transitioning a property of former industrial/commercial land use into one of residential, parkland, agricultural or other land use for which a more stringent environmental quality standard is applicable. As such, presence of a Record of Site Condition and associated environmental investigations for a particular property may provide information on potential for environmental impacts or risks to adjacent properties.

Reconnaissance of the subject property was completed on September 24, 2020, by GMBP staff members Mr. Abdirahman Faarah, B. Sc. and Cory Young B.Sc. Photographs of the subject property and surrounding properties were taken during the reconnaissance.

Email correspondence with a Project Manager from the Regional Municipality of Peel (RMOP) was also conducted to provide background information on any potentially contaminating activities identified during the background study or observed during the Site reconnaissance.

(The information described above is documented under separate cover.)

3. PHASE ONE ESA FINDINGS

The findings from the records search, additional studies and the site reconnaissance were compiled and are presented herein. For the purposes of clarity in discussion:

- The direction north (”project north”) shall be taken to be in the direction of the Royal Windsor Drive right-of-way.
- The term “Study Area” shall refer to the Site and those lands located within 250 m of the Site boundary.

3.1 Site Location and Description

The subject Site is located at the civic address 2307 Lakeshore Road West, Mississauga and is situated approximately 250 m north of Lake Ontario (refer to Figure 1 and 2). The Site is situated within an industrial land use setting, with industrial properties surrounding the Site in all directions. The Site is further described as:

- Part of Lot 32, Concession 3, South of Dundas Street, Geographic Township of Toronto

Bordering the Site to the west is the Avonhead Road right-of-way and beyond that is the property 2391 Lakeshore Road West that is currently occupied by CRH Canada Group Incorporated (a cement manufacturing plant).

To the north of the Site is 556 Southdown Road which is occupied by Musket Transportation Limited, and 551 Avonhead Road currently occupied by Clean Harbors Canada Inc.

Bordering the Site to the east is 474 Southdown Road currently occupied by National Tank Cleaning Services; 432 and 452 Lakeshore Road West which are occupied by Trimac Transportation; and finally, 2111 Lakeshore Road West, occupied by John Grant Haulage Limited.

Immediately to the south of the Site is 2201 Lakeshore Road West that is occupied by Coco Paving Incorporated (an asphalt processing plant). Further south is the Lakeshore Road West right-of-way and the Lakeside Park area.

The subject property is host to numerous structures associated with the workings of the water resource recovery facility (WRRF). Those structures include several treatment tanks such as clarifiers, aeration tanks, waste activated sludge tanks (WAS), anaerobic digester tanks, a gas storage dome, odour control units, and cogeneration units generating electricity and heat for the Site. The effluent (treated wastewater) produced on-Site is discharged to Lake Ontario via a 2.2-kilometre outfall pipe. Solid wastes that have been extracted from the wastewater are processed on-Site and then trucked away for incineration at the GE Booth WRRF (know referred to as the G.E. Booth Water Resource Recovery Facility), or for disposal at a landfill. Refer to Figure 2 for a layout of the Site.

3.2 Site Physiography, Geology and Hydrogeology

Geologically, the Site is located in the physiographic region known as the “Iroquois Plain”, which is located within the footprint of the former Lake Iroquois. This region is characterized by fine-grained lacustrine deposits (i.e., deep-water deposits) as well as sandier beach deposits located along the shoreline of the ancestral lake (Chapman and Putnam, 1984).

Overburden stratigraphy in the general vicinity of the Site is reported to consist of interbedded diamicton, gravel, sand and silty clay known as the Halton Till (Karrow, 1967). Based on the physiographic and quaternary mapping (Figures 3 and 4), the Site appears to be located on a sand plain landform and the surficial soils in the general vicinity of the Site are reported to consist of Halton Till as well as coarse-grained outwash deposits (Chapman and Putnam, 1984).

From the review of available MECP well records in the vicinity of the Site, the shallow soils are reported to consist of clay and gravel; sand and silt; silt and clay to a depth of approximately 2.4 to 4.6 metres below ground surface (mbgs) overlying the shale bedrock. The bedrock in the south Mississauga area is the Ordovician age shale of the Georgian Bay Formation (Jagger Hims, 1998; MECP, 2019c). Based on available MECP well records, there are two bedrock wells (MECP Well IDs: 4902297and 4902296) located on the Site that intersect the shale at 3.7 mbgs to 4.6 mbgs.

Hydrologically, there does not appear to be any permanent water courses on-Site or within the Study Area; however, Lake Ontario lies just outside of the study area, 250 m away from the Site.

Shallow groundwater flow often correlates to topographical features and groundwater typically flows towards nearby lakes, streams, and wetland areas, except where modified by utility and service trenches. Based on the overall site topography and the local contour information reviewed on the City of Mississauga interactive mapping tool, the shallow groundwater flow direction in the overburden is inferred to be south in the direction of Lake Ontario.

While the groundwater flow direction is inferred for the Site, an accurate assessment of groundwater flow direction can only be completed through the installation of an appropriate number of groundwater monitoring wells and regular water level measurements to establish local groundwater flow patterns with more certainty.

3.3 Water Well Records

There are five MECP well records identified on the Site. Two of the records date back to the 1940's and 1950's and are attributed to water supply wells that were previously used for domestic and livestock purposes, prior to the Site's use as a WRRF. Another two of the MECP well records are attributed to overburden monitoring wells, one being downgradient of the clarifier tanks, and the other is located in the undeveloped area of the Site to the southwest. Finally, one MECP record is attributed to a well located at the northern property boundary - no details about its construction or usage is provided.

3.4 Historical Uses of the Site and Surroundings

Information about the historical land use of the Site was gathered from several sources including aerial photographs and City Directory listings, as well as other available historical records and information reported from other sources, as discussed herein. The findings from these sources are presented to illustrate the historical land use of the Site and its surroundings to aid in the identification of areas of potential environmental concern.

3.4.1 Aerial Photographs

A review of aerial photographs from the years 1934, 1946, 1960, 1973, 1988, and 2015 was completed to assess historical land use of the subject Site and surrounding areas.

In the 1934 aerial photograph, the Site appears to be used for agricultural purposes. There appears to be a residential dwelling on the property as well as other minor structures inferred to be farming related (i.e., barns, storage houses). The surrounding properties appear to all be undeveloped and used for agricultural purposes.

In the 1946 aerial, no apparent changes have occurred on the Site itself; however, there appears to be some industrial development occurring to the properties north of the Site.

In the 1960 aerial, no apparent change has occurred to the subject Site. The Lakeshore Road West right-of-way can now be seen along the south border of the Site. There appears to be some industrial development occurring at the neighboring property to the west of the site (2391 Lakeshore Road West). There is also an increased density of industrial development to the north and east of the Site.

By 1973, the usage of the Site as a WRRF can now be observed: three large lagoon areas can be seen at the northeast portion of the Site and aeration tanks and clarifiers near the center. The previous building structures have been replaced with a larger single structure in the middle of the Site. The development at the neighboring property to the west has increased and now appears to be similar to its modern-day use as a cement processing plant. Increased development can now be seen to the south/southwest of the Site as well as a new property to the northwest (551 Avonhead Road) that appears to be used for commercial/industrial purposes.

In the 1989 aerial photograph, increased development can be seen on the Site: roadways connecting the different areas of the Site, and more structures such as digester tanks can be observed.

By 2015, the lagoons that existed on the Site to the northeast are no longer; instead there are now the present-day treatment systems such as the primary and secondary clarifier tanks, sludge tanks, and a gas storage dome. The property 556 Southdown Road to the north can now be seen and appears to be used for storage of shipping containers (i.e., sea cans). The properties 474 and 452 Southdown Road appeared to be used as truck yards, as numerous trailers were seen parked on the property from the aerial photo. The Lakeside Park is also visible now to the south of the Site.

3.4.2 City Directory

The City Directory records for the Site and the neighbouring properties (available through ERIS) dating from 1959 to 2000 were reviewed in approximate 5 to 10 year increments.

The first listing available for the Site appears to be in 1989 and is listed as a residential dwelling with a small business named Tina's Needlecraft also occupying the property. The listing of the Site changes in the year 1994 to Kenaidan Contracting Limited and Woodbow Limited who presumably were on-Site for the construction of the WRRF. After this year, the search did not return any listings registered through to the year 2000.

The neighboring property to the south, 2201 Lakeshore Road West is first listed in the records in the year 1994 under Asphalt Engineering Limited through to the year 2000. The neighboring property to the west, 2391 Lakeshore Road west is also first listed in the records in the year 1994 as St. Lawrence Cement Incorporated and then subsequently is not listed in the records in year 2000. The neighboring property to the north, 551 Avonhead Road first appeared in the records in the year 1989 under Tricil Limited. In the year 2000, the property is listed under Laidlaw Environmental Services who reportedly purchased the company Tricil in 1991. The neighboring property to the northeast of the Site, 452 Southdown Road first appeared in the records under Liquid Cargo Lines Limited and carried through to the year 2000. The property 474 Southdown Road first appeared in the records in the year 1984 under Fibresep Limited. In the year 1994, the listing of this property changed to Allwaste Container Cleaning; and in the year 2000, it was listed as Phillip Services Corporation. The neighboring property to the southeast of the subject Site, 2111 Lakeshore first appears in the records in the years 1972-1973 under Grant John Haulage Limited (i.e., the present-day occupant) and Gibscoe Transport Limited. By 1977-1978, only Grant John Haulage Limited is listed under the property.

3.5 Other Records Review

3.5.1 ERIS Report

The Environmental Risk Information System (ERIS) report compiles information from over 50 private and public databases relevant to environmental risk. The databases store information such as, but not limited to, reported spills, waste generators registered under Ontario Regulation 347, fuel storage tanks (private, retail, historical, and others), MECP orders (compliance and convictions). The available environmental database search was requested for the Site and surrounding properties within a 250 m radius of the Site. Numerous records were identified for the Site and are summarized in the table below.

Table 1 below lists the database search results reported by Ecolog ERIS for the Site, a brief description of the databases, and the findings as they relate to the Site.

Name of Database	Description	Findings
Waste Disposal Site – MECP CA Inventory	Provides data from the MECP's inventory of active or inactive disposal sites in the Province of Ontario.	3 records identified on Site for an active waste disposal site operating under an ECA.
National Pollutant Release Inventory	Provides data for properties registered to produce over threshold values of listed contaminates.	14 records were identified on Site for the Clarkson WRRF (for air and municipal sewage and treatment)
Ontario Regulation 347 – Waste Generator's Summary	Provides data on registered waste Generators as defined in Regulation 347 of the Ontario EPA	30 records identified on Site associated with the operation of the Clarkson WRRF producing various types of waste
Ontario Regulation 347 – Waste Receivers Summary	Provides data on registered waste receivers that operate under Certificates of Approval	9 records were identified for the Site, listing the WRRF as a receiver of various types of waste

Name of Database	Description	Findings
National PCB Inventory	Provides data on registered PCB waste and storage sites.	1 record identified on Site for the WRRF where PCB was stored for disposal.
Above Ground Storage Tanks	Provides data on historically registered above ground storage tanks	4 records were identified on Site associated with the WRRF.
Ontario Spills	Provides data on spills and incidents registered with the MECP.	22 records were identified on the Site including the release of raw sewage to environment and various other chemicals related to the works at the WTTP
Certificate of Approvals	Provides data on approvals issued for the release of pollutants to the environment, or provides potable water supply, or transports/ disposes of waste	18 records were identified on Site for the municipal private and sewage works and emissions to air and water
Environmental Compliance Approval	Provides data on approvals issued for the release of pollutants to the environment, or provides potable water supply, or transports/ disposes of waste	21 records were identified on Site for the municipal private and sewage works and emissions to air and water
ERIS Historical Searches	Provides data on environmental risk reports conducted on the property	2 records were identified of historical ERIS reports conducted on the subject Site.

The ERIS report provided records of 22 spills that have occurred on-Site registered with the MECP. 19 out of 22 of these reported spills are associated with the release of wastewater/effluent to the environment, either by accidental release at the outfall to Lake Ontario or from the overflow of tanks or leaking pipes on Site. The accidental releases occurring into Lake Ontario are outside of the purview of this Phase One ESA as they do not directly affect the environmental integrity of the Site. The spills of wastewater to land that have occurred on-Site are understood to have been addressed through the WRRF's spill response protocols. Remaining impacts to land would be expected to further biodegrade in the subsurface. Another record of a spill on-Site pertains to a spill of 30 L of ferric sulphate solution to the asphalt. Due to the relatively small quantity of ferric sulphate and the separation from the ground surface that the asphalt provides, this spill is not considered to pose environmental impact to the subject Site. The other two outstanding spills pertain to the accidental release of natural gas to the atmosphere – which is not anticipated to impact the soil or groundwater on-site.

The ERIS report provided records from the O.Reg. 347 Waste Generators Summary indicating that the Site generates the following wastes: waste oil and lubricants, PCB's, alkaline wastes, oil skimming and sludges. In addition, the Site is also listed in the National PCB Inventory for PCB storage on-Site. The Site was visually assessed for any potential wastes generated or stored on-Site and is discussed in Section 3.7 and Section 4 of this report.

The ERIS report also identified numerous records for the neighboring properties within 250 m of the Site. A more detailed discussion of these neighboring properties can also be found in Section 3.8 of this report.

3.5.2 Other Federal and Provincial Information Sources

MECP Freedom of Information Request

A request to the MECP was filed to acquire available records under the Freedom of Information (FOI) and Protection of Privacy Act. A response from the MECP FOI office was not received at the time of writing this report. If the FOI reveals details of environmental significance, it will be submitted under separate cover. A search of the 1991 Waste Disposal Site Inventory revealed no records of active or closed disposal sites within a 5-kilometre radius of the Site, prior to the year 1991.

MECP Record of Site Condition Registry

The MECP Record of Site Condition (RSC) Registry was reviewed on August 2, 2020, for RSC sites on the following streets:

- Lakeshore Road West, Mississauga
- Avonhead Road
- Southdown Road

There were no records of RSC sites identified within a 250 m radius of the subject Site through the search (Ontario MECP 2018a and 2018b).

National Pollutant Release Inventory

A review of the Environment Canada's National Pollutant Release Inventory (NPRI) database revealed three records of active pollutant releasers, one attributed the Site itself, one attributed to the address 551 Avonhead Road, and one attributed to 2391 Lakeshore Road West.

The record for the Site is registered under the Ontario Clean Water Agency for the operation of the Clarkson WRRF which reportedly releases various pollutants to the air and the following pollutants to surface water: 82 tonnes of Ammonia (total), 1432 Tonnes of Nitrate, 23 tonnes of Phosphorous, and 16 kilograms of Selenium. This reported release to water is presumably associated with the release of these pollutants to Lake Ontario, which is the ultimate discharge location of treated wastewater from the Clarkson Plant.

The record attributed for 551 Avonhead Road is listed under Clean Harbors Canada Inc., a waste treatment and disposal facility, who reportedly releases pollutants to the air.

The record attributed to 2391 Lakeshore Road West is listed under CRH Canada Group Inc, a cement and aggregate mining facility, which also reportedly releases pollutants to the air.

3.5.3 TSSA Fuel Safety Division Database

A request for information was submitted via e-mail to the Technical Standards and Safety Authority (TSSA) to search the Site and select nearby properties to identify records of fuel storage.

The response from the TSSA revealed seven (7) records of active fuel storage tanks, described as digester tanks, attributed to the Site. Digester tanks produce methane gas which can be used as a fuel for other processes. No records of liquid fuel tanks were identified for the Site.

Regarding other properties near the site:

- 2111 Lakeshore Road West: Seven (7) records of fuel storage tanks were attributed to this property, 3 of which were listed as expired and the remaining four (4) active.
- 2391 Lakeshore Road West: Three (3) active records;
- 566 Southdown Road: two (2) expired records;
- 474 Southdown Road: two (2) active records; and
- 452 Southdown Road: one (1) expired record.

3.6 Site Zoning and Permits

The zoning maps from the City of Mississauga were reviewed to obtain information about the current land uses of the Site and adjacent lands. The Site itself is zoned as a Utility, Institutional, Development, Buffer and Airport Zone (U-zone). The operation of a sewage treatment facility is an acceptable land use on properties zoned U. The adjacent properties are predominately zoned Exception Zones (E) which enable the use of the properties for various industrial activities (e.g., truck yards, and resource extraction).

3.7 Site Reconnaissance

Site reconnaissance was conducted by Mr. Abdirahman Faarah B. Sc., G.I.T. and Cory Young B.Sc., C.Tech, of GMBP on September 24, 2020. The weather conditions were recorded as overcast skies with temperature near 19°C.

3.7.1 Site Description

The Site is accessed directly from Lakeshore Road West through a gated entrance. Upon entry, there are paved roadways that provide access to the different locations throughout the Site. The Site comprises three wastewater treatment plants, each of which consists of primary clarifiers, aeration tanks, and secondary clarifiers. The Site also consists of the following buildings that are in association with the wastewater treatment process: Headworks Building, Biosolids Building, Digester Building, Phosphorous Removals Building, Disinfection building, Storage Building, and a Garage Building. Refer to Appendix H for a site plan that depicts the locations of these buildings.

The southwest portion of the site is a green space area currently being used as a solar farm providing an additional electricity source for the WRRF.

Further north of this greenspace, a gas dome was observed alongside a co-generation unit that provides additional electricity and heat for the WRRF. This co-generation unit utilizes the gas generated from the anaerobic sludge digestion (that occurs at the nearby digestion tanks) as fuel to generate heat and electricity. During the Site visit, two above ground storage tanks (AST) were observed placed outside, adjacent to the co-generation units. The two ASTs were placed on concrete platforms and were observed to be double-walled, vacuum pressurized tanks with pressure gauges, both with a max volume of 2,270 L. The tanks appear to be in good condition and no evidence of stains or spills observed. Adjacent to these two ASTs was a methane gas powered engine placed within a sea-can, that uses the methane gas from the digestion tanks to generate power. The two ASTs located outside reportedly contain lubricant oils for the functioning of this engine.

Further north of the gas dome and co-generation units, a diesel-powered generator was observed outside with an associated 2,200 L diesel fuel AST placed adjacent to it. This AST is described as a double-wall, vacuum pressurized tank with associated pressure gauge, and was manufactured in 2018. The AST appears to be in good condition and sits on a concrete platform with no evidence of stains.

At the northwest corner of the Site, multiple storage containers (i.e., sea-cans) were observed that were generally empty, or were used for storage of dry items, such as old valve boxes and old electric motors. No evidence of fuel storage or stains was observed here. However, adjacent to these sea-cans, a tote that was containing what is believed to be transmission oil or hydraulic fluid was observed sitting outside. No evidence of spills or stains on the ground were observed in the vicinity of this tote.

Along the northern Site boundary, three monitoring wells were observed at a location downgradient of the property 551 Avonhead Road. This neighboring property is occupied by Clean Harbors, a waste disposal, treatment, and storage contractor that handles hazardous and non-hazardous waste.

Along the northeast corner of the subject Site lie several berms providing visual separation from the neighboring properties to the north and northeast. Furthermore, the grade of the Site along these areas was higher than the neighboring properties, indicating that fill might have been placed here. Based on a review of the available aerial photos on the City of Mississauga online interactive mapping tool, these berms first appear on the Site in the year 2004. The construction work associated with the expansion of Plant 1 can be seen occurring in the same aerial photo. It appears that the material being excavated from the Plant 1 expansion area is being placed at the current location of the berms – numerous tire tracks and disturbed soil can be seen where the berms exist presently.

The eastern area of the Site remains undeveloped and is finished with a gravel surface.

Outside of the headworks building, another diesel fuel generator was observed with an associated 2,200 L diesel fuel AST. This AST is described as a double-wall, vacuum pressurized tank with associated pressure gauge, and was manufactured in 2018. The AST was placed on top of a concrete platform and appeared to be in good condition – i.e., no evidence of stains on the ground were observed.

At the southeast corner of the Site, construction of the new Administration building is underway. However, adjacent to the new building, a diesel fuel generator was observed. This generator sits on-top of the associated 3,290 L diesel fuel AST, and both are placed on top of a concrete platform as to create separation from the ground. The generator appeared to be a new installation and was not operational at the time of Site visit. No evidence of stains or spills was observed on the ground in the vicinity of the generator.

Headworks Building

The Headworks Building is where the beginning of the wastewater treatment cycle begins. When wastewater enters the WRRF, it goes through preliminary treatment here, which includes different mechanical screens to remove larger objects as well as small grit particles. Materials caught by these screens are cleaned, dewatered, and then trucked away to an appropriate landfill.

The inside of the headworks building consisted of numerous pipes transporting wastewater through the various screens and grit separators. The basement floor of the building consisted of all the different valve boxes and pumps moving the wastewater through the building. A small storage locker was observed on the main floor containing minor maintenance tools and supplies. The floor in building was entirely concrete with no major cracks observed. No evidence of major stains was observed on the floors of the building throughout.

Biosolids Building

Sludge materials collected from the primary and secondary clarifiers (i.e., biological materials separated from the wastewater) are sent to the Biosolids Building where they are further processed. The sludge is thickened here through mechanical processes and polymers are added to help coagulate the solids. The thickened sludge is then sent to the digester building for further processing.

The Biosolids building consists of various tanks and machinery that were placed on top of individual concrete platforms. The floors of the building were concrete and were in clean condition, with no major cracks observed. Storage shelves being used to store dry maintenance items and minor cleaning products were observed in this building. A storage locker for propane and a single jerry can were observed just outside of the building on a concrete floor; however, no stains were observed in the vicinity and good storage practices were observed.

Digester Building

The Digester Building receives sludge from the Biosolids Building where it is then subsequently placed in anaerobic digester tanks. These digester tanks allow for the breakdown of organic matter into gases such carbon dioxide (CO_2) and methane (CH_4). This process ultimately reduces the volume of sludge that will need to be disposed of off-Site.

Five large anaerobic digester tanks and a smaller sludge blending tank were observed from the outside of the building. The inside of the building consisted of various pipes connected to and from the different digester tanks. The basement floor of the building consisted of electrical motors and compressors. The floors of the building were all concrete and exhibited no evidence of stains.

Storage Building

The Storage Building is used to store various dry goods and materials used for the maintenance/repairs of the WRRF – i.e., pipes, fittings, augers, electrical motors etc. All items were neatly stored on shelves and/or were propped up off the ground surface.

The ground was finished with concrete and was in good condition with no major cracks an no visible stains. No evidence of fuel storage was observed here.

Phosphorous Removals Building

The Phosphorous Removals Building is where wastewater effluent is treated with ferrous chloride to reduce the phosphorous load in the wastewater. The by-products of this reaction (i.e., Iron and Phosphate) become precipitates and are ultimately disposed of with the sludge from the Digester Building.

Ferrous Chloride is delivered to the Site by trucks and is stored in 8 separate tanks just outside of the two Phosphorous Removals Buildings. Each of these tanks are placed on top of concrete platforms, creating separation from the ground. No evidence of stains was observed in the vicinity of each of these tanks. The inside of the buildings consists of multiple treatment units where the ferrous chloride is applied. The various piping transporting the effluent water is also observed here.

Disinfection Building

The disinfection building is where sodium hypochlorite and sodium bisulphite are stored on-Site. The sodium hypochlorite is used to chlorinate the effluent to reduce to bacteria content to acceptable levels. Near the end of the outfall, sodium bisulphite is then added to remove residual chlorine prior to the final release to Lake Ontario.

Both chemicals are stored in tanks within the building and are placed on top of fibreglass platforms creating separation from the ground. Spill response materials were also observed stored within the building. A sampling location where treated effluent is tested was observed within the building.

Garage Building

During the Site visit, the Garage Building was observed to be utilized as a storage space for lubricants and hydraulic oils used for the operations of the WRRF. Numerous full drums and totes were observed to be within the building, placed on top of skids. The floor of the building was concrete with no major cracks observed, however some dark staining on the floor was observed in some areas. Two floor drains were also observed in the building that are reportedly fed to a sanitary manhole located outside of the building. This manhole is connected to the Site's main sanitary loop that ultimately is treated through the WRRF process.

A review of aerial photos available on the City of Mississauga interactive mapping tool, identified that the garage building was constructed circa 2004.

Outside of the garage building, an above ground waste oil tank was observed that is manually filled. The waste oil AST was bolted to the asphalt pavement and exhibited some minor stains on the ground. The tank was equipped with a pressure gauge that, at the time of the Site visit, indicated zero pressure in the tank. Next to the AST, were approximately 20 drums placed on skids, that were used for liquid petroleum products – no stains were observed in the vicinity of these drums.

3.8 Adjacent and Nearby Properties

Adjacent and nearby properties were observed from the Site and from public rights-of-way during the site reconnaissance. Adjacent neighbouring properties are shown on Figure 2.

NORTH

551 Avonhead Road

Neighboring the subject Site to the north-northwest is the property 551 Avonhead Road. This property is currently occupied by Clean Harbors Waste Management Company, a waste treatment and disposal service provider for hazardous and non-hazardous waste. According to the ERIS report records, the property is only approved as a transfer and processing site (i.e., no disposal of waste) for solid and liquid non-hazardous and hazardous waste. The ERIS report also indicates that this property is listed under the O.Reg. 347 Waste Generators Summary for producing numerous wastes as described in the ERIS report. This property is also listed under the National Pollutant Release Inventory for release of numerous pollutants to all media types (i.e., land, air, and water). The ERIS report also provided records of numerous spills that occurred on this property related to the release of various contaminants to land.

Through correspondence with a project manager from the RMOP, GMBP acquired a report for an annual groundwater monitoring program that occurs on the Clean Harbour property. This monitoring program incorporates three groundwater wells that are located on the subject Site along the northwest boundary, adjacent to the Clean Harbours property. Groundwater quality is monitored for any potential impacts that may be migrating downgradient onto the subject Site. The report documents the findings from the 2019 groundwater monitoring and indicates that slight VOC impacts were identified in one of the three monitoring wells on the subject Site. No other impacts have been identified on the subject Site since the monitoring program began in 2012.

This property is adjacent to and immediately upgradient of the Site.

556 Southdown Road

Neighboring the subject Site to the north is the property 556 Southdown Road. This property is currently occupied by Musket Transport Limited, an intermodal freight transportation company, who uses the property to store transport containers (i.e., sea-cans). Musket Transport (also known as Melburn Truck Lines Corp.) appears in the ERIS Report for records from the O.Reg. 347 Waste Generators Summary for producing waste oils and lubricants. The TSSA also provided a record of an expired fuel service station and associated fuel tank on the property.

In general, the Site appears to be utilized as a temporary storage area for transport containers that are eventually loaded onto trucks for road transport. However, during the Site visit, a large fleet of transport trucks was observed parked along the south of the property, adjacent to the subject Site. Based on the review of available aerial photos, this fleet of trucks was not present on the property in the year 2019; therefore, these parked trucks are not considered long-term parking.

This property is adjacent to and upgradient of the Site.

566 Southdown Road

The property 566 Southdown Road is currently occupied by Praxair Canada Incorporated, who utilizes the property to operate a carbon dioxide (CO_2) air separation plant. According to the ERIS report, this property is listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: oil skimmings and sludges, waste oils and lubricants, petroleum distillates, and organic laboratory chemicals. This property was also identified in the TSSA tank record search for having an expired record regarding a liquid fuel tank and private fuel outlet on the premises.

The inferred tank location is approximately 200 m up-to-cross gradient of the Site and the intervening soils are mainly silt.

385 Southdown Road

Further north of the Site, and on the east side of the Southdown Road right-of-way, is the property 385 Southdown Road. This property is currently occupied by Petro Canada who operates a lubricant oil refinery on the property. According to the ERIS report, the operation ongoing at this property is listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: acid and alkaline wastes, petroleum distillates, light and heavy fuels, halogenated solvents, oil skimmings and sludges, pathological wastes, and organic acids. The ERIS report also identified over 100 recorded spills occurring on this property related to the operation of therefinery. The ERIS report also stated that the property stores various quantities of PCBs on temporary bases and it is also registered under the National Pollutant Release Inventory for release of pollutants to water and air.

Based on the inferred groundwater flow direction, this property is considered to be cross-gradient of the Site.

EAST

432, 452, and 474 Southdown Road

Neighboring the Site to the east are the properties 432, 452, and 474 Southdown Road. These properties are utilized as truck yard facilities by Trimac Transportation and National Tank Services: numerous trucks and trailers, many of them tank trailers, can be seen parked all along these properties from available aerial photos. According to the ERIS report, the repair, maintenance and fueling of truck fleets also reportedly occurs on these properties. The property 474 Southdown Road is also reportedly used as a tank cleaning service provider for tanker trailers.

The TSSA fuel tank record search revealed 2 records of active private fuel service outlets at 474 Southdown Road. One expired record for a fuel tank was also identified at 452 Southdown Road. All three properties were listed in the ERIS report with multiple records from the O.Reg. 347 Waste Generators Summary for the following substances: oil skimming and sludges, halogenated solvents, waste oil and lubricants, petroleum distillates and light fuels. The property 474 Southdown Road had one reported spill in the ERIS report of an unknown substance, however it is stated in this record that environmental impact was not anticipated as a result of this.

During the Site visit, numerous tanker trailers were observed to be parked on the gravel parking lot area along the west side of all three properties. A maintenance/repair facility for the trucks was also observed at 474 Southdown Road, as seen from a publicly accessible right of way.

Based on the inferred groundwater flow direction, these properties are considered to be upgradient to cross gradient of the Site. In addition, the Site has a shared boundary with these properties.

SOUTH

2201 Lakeshore Road West

Neighboring the subject Site to the South is the property 2201 Lakeshore Road West. This property is currently occupied by Coco Paving Incorporated. Coco Paving utilizes the property to manufacture asphalt paving mixtures, asphalt shaving and coating materials. According to the ERIS report, this property is listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: acid and alkaline wastes – heavy metals, paint/pigment/coating residues, aliphatic solvents, petroleum distillates, latex wastes, polymeric resins, oil skimming and sludges, organic and inorganic laboratory chemicals, and amines.

During the Site visit, numerous totes and drums containing unknown liquids could be observed on the property from a publicly accessible right of way. Two tank farms placed on concrete platforms can also be observed on the property.

This property is located downgradient of the subject Site but is enclosed by the Site on three sides.

2111 Lakeshore Road West

Neighboring the subject Site to the southeast is the property 2111 Lakeshore Road West. This property is currently occupied by John Grant Haulage Limited who utilizes the property as a trucking yard. According to TSSA records and the ERIS report, the property also contains a fuel service station with four records of active tanks. The ERIS report also provided records of the property listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: waste oils/sludges, waste crankcase oils and lubricants, and detergent and soaps.

During the Site visit, a fuel service station was observed on the south end of the property near the main office building. A garage/maintenance facility for trucks and trailers was also observed on this property from a publicly accessible right of way.

This property is located downgradient to cross-gradient of the subject Site.

2278 Lakeshore Road West

Further south of the subject Site, on the opposite side of the Lakeshore Road West right-of-way, is the property 2278 Lakeshore Road West. This property is currently occupied by Contrans Flatbed Group. From the view of a publicly accessible right-of-way, Contrans can be seen operating a truck repair/maintenance facility on the property. According to the ERIS report, this property is listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: petroleum distillates, waste oils/sludges, and waste crankcase oils and lubricants.

This property is located downgradient of, and opposite Lakeshore Road West from, the subject Site.

2310 Lakeshore Road West

Further south of the subject Site, on the opposite side of the Lakeshore Road West right-of-way is the property 2310 Lakeshore Road West. This property is currently occupied by Petro Canada Lubricants Incorporated who utilizes the property as their corporate office. The ERIS report indicates this property is used for petroleum and coal manufacturing, and for warehousing and storage. This property is also listed under the O.Reg. 347 Waste Generators Summary for producing wastes such as: organic non-halogenated pesticide and herbicide wastes, and miscellaneous wastes and inorganic chemicals.

This property is located downgradient of, and opposite Lakeshore Road West from, the subject Site.

WEST

2391 Lakeshore Road West

To the west of the Site beyond the Avonhead Road right-of-way is 2391 Lakeshore Road West, which is occupied by CRH Canada, who utilizes the approximately 205-acre property to operate a cement manufacturing plant. This property appears in the ERIS Report for records under numerous databases. One of those databases is the NPRI, for records of release of various VOCs and PAHs to all media. Another database is the O.Reg. 346 Waste Receivers Summary for various wastes such as oil skimmings, emulsified oils, waste oils and lubricants, and halogenated solvents. Records from the O.Reg. 347 Waste Generators Summary were also reported for wastes such as heavy oils, halogenated solvents, waste oils and lubricants, PCBs, and more. The property has also been registered with the Ministry of Environment as a registered PCB storage Site. In addition, both the ERIS report and the TSSA tank search provided a record of a private fuel service outlet located on the property.

Also observed along the east boundary of this property are CNR railway tracks that begin on the property and continue northbound, where they join with a separate network of railway tracks off-site. These railways on the property are presumably used to deliver goods to and from the CRH Canada facility. These railway tracks appear to be actively in use as numerous transport containers can be seen parked on the tracks in Figure 2. Based on our experience, railway tracks have the potential to be constructed with fill of poor quality such as slag, coal, and ash.

This property is very large, hosts an intensive industrial operation and has been in operation since the 1960s. However, it is also located mainly cross-gradient and the apparent contaminants of concern are not highly mobile.

4. ASSESSMENT FOR AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECs)

The information gathered from the site reconnaissance and the records search was reviewed to identify Potentially Contaminating Activities (PCAs) within the search area. These PCAs were then assessed in the context of additional available information, such as site setting and geology associated with the Site, to determine whether these should be considered as Areas of Potential Environmental Concern (APECs) relevant to the Site. An APEC is an item that presents an environmental concern with respect to environmental risk where further investigation is recommended.

4.1 Fuel Handling and Storage Tanks

4.1.1 On-Site

Fuel storage tanks are a frequent cause of environmental impacts. Leaking tanks may produce a long-term, continuous source of hydrocarbon products that may impact soils and groundwater, especially in the case of aged underground fuel storage tanks which did not have a reliable means of leak detection. Underground fuel storage tanks are also often accompanied by underground piping, which may also be susceptible to leaking and release of hydrocarbons. Additionally, fuel impacts may be found some distance away from a tank (whether aboveground or underground) in the vicinity of the fuel tank fill point.

A total of six (6) liquid/petroleum-product storage tanks were observed on-Site.

Three of these were double-walled, vacuum monitored aboveground storage tanks containing diesel fuel. Based on the nature and condition of these tanks, these tanks were not considered to be a source of potential impacts to the Site.

Two of these were double-walled, vacuum monitored aboveground storage tanks containing lubricant oils for the methane gas powered engine at the cogeneration units.

The sixth tank is located adjacent to the Garage Building and is used to store waste oils. Staining is present on the asphalt. The Garage Building itself also contains numerous storage containers for various petroleum-based liquids and also has floor drains.

Based on these observations, the oil storage and handling at the Garage Building and the adjacent waste oil AST are considered to be a risk for potential impact to the subject Site and are therefore considered to be an APEC.

APEC 1: Garage Building
- Activity: Repair of Equipment/Vehicles
- Potential Contaminants of Concern: PHC F2-F4, PAHs, VOCs
- Media Affected: Soil, Groundwater

APEC 2: Garage Building Waste Oil Tank
- Activity: Gasoline and Associated Products Storage in Fixed Tanks
- Potential Contaminants of Concern: PHC F2-F4, PAHs
- Media Affected: Soil

Figure 5 shows the inferred extent of these APECs on-Site.

4.1.2 Off-Site

<u>432, 452, and 474 Southdown Road</u>

The TSSA and the ERIS reports both provided records of a private fuel servicing facility and associated fuel tanks at the address 474 Southdown Road. The TSSA records indicate the status of the fuel servicing facility and tanks on this property as active. The TSSA and ERIS report also provided records of an expired fuel servicing facility and associated tanks at the address 452 Southdown Road. Transport trucking operations appear to have been ongoing at this location since the 1960s.

Based on these records, the age of the trucking operations, and the location adjacent to the Site, there is considered to be a risk for potential impact to the subject Site from the presence of fuel tanks on these neighboring properties.

APEC 3: Trimac Fuel Tanks
- Activity: Gasoline and Associated Products Storage in Fixed Tanks
- Potential Contaminants of Concern: PHC F1-F4, BTEX
- Media Affected: Soil, Groundwater

APEC 4: Trimac / National Tank Cleaning Services

- Activity: Storage, Maintenance, and washing of Vehicles for Transportation Systems
- Potential Contaminants of Concern: PHC F1-F4, BTEX
- Media Affected: Soil, Groundwater

Figure 5 shows the inferred extent of these APECs on-Site.

556 Southdown Road

The TSSA has provided records of an expired fuel servicing station and associated fuel tank(s) that existed on this property (Musket Transportation). Though there may have been some environmental impacts associated with these fuel tanks, the potential risk to the Site is mitigated due to the relative location of 556 Southdown Road (200 m crossgradient of the Site) and the predominant soil conditions (mainly fine-textured, silty material).

Therefore, the presence of the fuel tank(s) is not considered to pose a risk for potential impact to the subject Site.

566 Southdown Road

The ERIS report returned a record of expired fuel tank and private fuel outlet on the premises at the Praxair Canada facility at 566 Southdown Road.

However, based on the distance (200 m) between this property and the Site, as well as the intervening fine-textured soil types, it is anticipated that this fuel storage activity presents minimal risk of environmental impact to the Site.

2111 Lakeshore Road West

Both the TSSA and ERIS report provided records of a private fuel service facility and associated fuel tank(s) located on this property. The TSSA records indicate the status of the fuel servicing facility and tank(s) on this property as active. From a publicly accessible right of way, the fuel service station can be seen on this property at the south-central portion of the Site, adjacent to the property entrance. The location of this fuel service station is considered downgradient of the subject Site.

Therefore, the presence of the fuel service station and fuel tank(s) is not considered to pose a risk for potential impact to the subject Site.

2391 Lakeshore Road West

Both the TSSA and ERIS report provided records of a private fuel service facility and associated fuel tanks located on this property (CRH Canada Group Inc). The TSSA records indicate the status of the fuel servicing facility and tank(s) on this property as active, though it is unclear where on this property the fuel servicing station is located.

This property has been in operation since the 1960s under intensive industrial use as a cement plant. However, due to the intervening distance from the Site (40 m from property line to property line), the prevalence of fine-textured soils, the cross gradient location of the property, and the limited quantities (e.g. fuels) or limited mobility (e.g. PCBs) of the potential contaminants of concern, this Site is considered to pose low risk for potential impact to the subject Site.

4.2 Imported Fill

Historically, fill materials imported to construction sites were not necessarily scrutinized for quality and as such, deleterious fill materials could be deposited and potentially become an environmental concern and liability to a property.

The majority of the Site is at a similar grade to neighboring properties with the exception of the northeast area of the Site. At the northeast area, berms have been built up providing cover from the neighboring properties to the north and east of the site. The Site also appears to be at a higher grade than the neighboring properties here. Through review of available aerial photos, it is understood that soil material was placed here during the expansion of Plant 1 (circa 2004), when soil material was excavated to create the additional primary and secondary clarifier tanks. Therefore, the soil used to create these berms and higher-grade areas to the northeast are not considered to be imported fill.

In the aerial photographs from the years 2015 to 2018, a large berm of stockpiled material can be seen placed on the subject property, spanning along the eastern side of the Site. This material was no longer present on Site during the Site visit for this Phase One ESA. Through communication with the project manager from the RMOP, it is understood that this material was being stored on Site temporarily and was intended to be used at other Peel Region project locations. This material was tested for quality and suitability during its placement on the Site. According to analytical data provided by the RMOP, this stockpiled material exhibited detectable concentrations of PHCs (i.e., F3 and F4 fractions), benzene and boron.

Therefore, this material that was temporarily stored on Site is considered to pose a risk for potential environmental impact to the subject Site..This extent of impacts associated with this APEC is expected to be limited to the area immediately beneath the soil pile(s) and is likely also very shallow to surficial.

APEC 5: Temporarily Stockpiled Soil Material

- Activity: Importation of Fill
- Potential Contaminants of Concern: BTEX, Metals, PHC F2-F4
- Media Affected: Soil

Figure 5 shows the inferred extent of these APECs on-Site.

4.3 Asbestos Containing Materials, Urea Formaldehyde Foam Insulation, Ozone Depleting Substances, Leaded Paint

Asbestos was widely used in variety of construction materials in the past. The use of asbestos containing materials (ACMs) in building materials was discontinued around 1985. Ontario Regulation 278/05 under the Occupational Health and Safety Act, 1990, defines ACMs as materials that contain 0.5 per cent or more of asbestos by dry weight. Federal and Provincial Occupational Health and Safety Acts, and the Workplace Hazardous Materials Information System (WHMIS), identify asbestos as a carcinogenic health hazard that is regulated. Because of these regulations, the production of asbestos containing materials has been widely discontinued since the mid 1980's.

Urea Formaldehyde Foam Insulation (UFFI) was installed primarily in wall cavities during the 1970s as an alternative to the typical insulation materials at that time. Its appearance can vary from white to tan in colour and resembles Styrofoam. Over time, UFFI that is exposed to the air, becomes wet, or has been damaged, can potentially release formaldehyde vapours, which can cause various human health effects. Due to the documented health concerns, the use of UFFI insulation was discontinued in 1980.

The most common ozone depleting substances (ODS) of concern are chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which were commonly used in air conditioning, refrigeration, and in the manufacture of rigid foam. The initial control of these substances was implemented in 1987 and the complete phase-out of these substances was finalized between 1994 and 1995.

Lead was used as an additive in paints prior to 1960 to make paint wear well and dry quickly and evenly. Leaded paint is a potential source of environmental impact or risk primarily if it is in poor condition and flaking. Most indoor and outdoor paints produced before 1950 contained substantial amounts of lead. Since 1976, the amount of lead in interior paint has been limited by law. Although the lead content of exterior paint is not regulated, Canadian paint manufacturers have voluntarily ensured that no lead is intentionally added. Exterior paint with lead carries a warning label.

During the current Site ACMs, UFFI, ODSs or leaded paint were not specifically identified at the Site. However, based on the age of the on-Site buildings (constructed circa 1975) ACMs within wall cavities or in other building materials or leaded paint may be potentially present. Should more certainly regarding ACMs and leaded paint be required, a Designated Substance Survey would be recommended.

4.4 Polychlorinated Biphenyls (PCBs)

4.4.1 On-Site

Between 1920 and 1978, PCBs were used extensively as a dielectric fluid in electrical transformers, motor capacitors, and fluorescent light ballasts. Current legislation prohibits the manufacture and sale of new equipment containing PCBs (1980).

The ERIS report provided a record from the National PCB Inventory database, indicating that the subject Site was previously a storage site for PCBs. Furthermore, through communication with a Peel Region representative, it is understood that the Site was also previously registered with the MECP as a PCB storage site and contained over 1000 L of PCB waste.

However, the Site no longer stores PCB waste since the year 1995, according to the correspondence with the MECP. In 2010, the MECP classified the Site as a "closed" PCB storage site after sampling was conducted and reviewed (in accordance with the "*Protocol for Sampling and Testing at PCB Storage Sites in Ontario" (MECP, 2000)*) to confirm that there were no PCB impacts on all potentially contaminated surfaces where PCB was stored. Based on the data submitted to the MECP, the MECP concluded that the former PCB storage area was not impacted with PCBs and can be re-used for other purposes. In 2015, the MECP conducted a final inspection to visually confirm that the Site no longer stores PCB waste. Subsequently, the Site's status was changed from "closed" to "historical" in the Provincial PCB database.

During the Site visit for this Phase One ESA, no evidence of PCB storage was observed.

Based on the previous investigation completed to confirm that there were no impacts, the historical storage of PCBs on Site is not considered to pose a risk for potential environmental impact to the subject Site.

4.4.2 Off-Site

The neighboring property to the west, 2391 Lakeshore Road West, was identified in the ERIS report as registered with the MECP Inventory of PCB Storage Sites and the National PCB Inventory database as a PCB storage site. Although the records provided by the ERIS report only account for the storage of PCB that occurred prior to the year 2000, it is unknown if PCB storage on the property is ongoing currently or if the proper actions were taken to decommission the storage.

However, due to the environmental transport characteristics of PCBs (relatively poor mobility) the reported storage of PCB is not considered to pose a risk for potential environmental impact to the subject Site.

4.5 Other Industrial Activities

4.5.1 Crude Oil Refinery

A lubricant oil refinery operated by Petro Canada is located at 385 Southdown Road, approximately 250 m cross-gradient from the Site. The Site is very large and based on aerial photographs appears to have been in operation since the 1950s. However, based on the distance between property lines, the cross-gradient location, and the intervening geological materials (i.e. till, shale) it is interpreted that the oil refining activity at 385 Southdown Road is not an APEC with respect to the Site.

4.5.2 Asphalt Manufacturing

Coco Paving Incorporated is located at 2201 Lakeshore Road West and shares a property boundary with the Site, which encloses the Coco Paving operation on three sides. Due to the nature of the operation, the layout of the industrial bitumen process vessels on the property, and their proximity to the Site, the asphalt operations of Coco Paving Incorporated are considered to be an Area of Potential Environmental Concern with respect to the Site.

APEC 6: Coco Paving

- Activity: Asphalt Manufacturing
- Potential Contaminants of Concern: PAHs, PHC F2-F4
- Media Affected: Soil, Groundwater

Figure 5 shows the inferred extent of these APECs on-Site.

4.5.3 Waste Disposal and Waste Management

Clean Harbors Waste Management (located at 551 Avonhead Road) has been identified to be a waste management facility, processing liquid and solid wastes, both hazardous and non-hazardous types. An ongoing groundwater monitoring program concerning the Clean Harbors facility has indicated VOC impacts to groundwater on the Site. Therefore, the waste management activities at Clean Harbors is considered to be an Area of Potential Environmental Concern.

APEC 7: Clean Harbors

- Activity: Waste Management/Transfer
- Potential Contaminants of Concern: VOCs
- Media Affected: Groundwater

Figure 5 shows the inferred extent of these APECs on-Site.

4.5.4 Rail Yards, Tracks and Spurs

There is a rail yard located within the Study Area at the CRH Canada Incorporated facility. The railway tracks run along the west side of Avonhead Road a distance of about 40 m cross-gradient from the Site. These tracks presumably support and service the cement manufacturing activities at CRH Canada. Given the separation distance and the limited mobility of the types of contaminants expected to be related to the rail yard activities (PAHs, metals), it is expected that the rail yard poses minimal risk of environmental impact to the Site and therefore is not considered to be an APEC.

4.5.5 Cement Manufacturing

CRH Canada Incorporated (located at 2391 Lakeshore Road West) has been identified to be a cement manufacturing facility within the Study Area. However, the types of contaminants of concern associated with the cement manufacture, as well as the cross-gradient location, separation distance (>40 m) and intervening soil types (primarily fine-textured) indicates minimal potential for risk of environmental impacts to the Site.

4.5.6 Transportation Systems

Ontario Regulation 153/04 identifies a potentially-contaminating activity as the “storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems”.

Other properties (e.g., Musket Transportation, John Grant Haulage) that host transportation system activities have been identified earlier. The main risks associated with those properties has been with respect to their fuel tanks on-Site. One property that has not been directly addressed is that of the Contrans Flatbed facility located at 2278 Lakeshore Road West.

Given the location of the Contrans facility (downgradient, separated from the Site by the Lakeshore Road West right-of-way), it is expected that the environmental risk to the Site that is associated with the Contrans facility is low and is therefore not considered an APEC.

4.5.7 Treatment of Sewage

According to Ontario Regulation 153/04 (Table 2), a facility that treats more than 10,000 L/d of sewage is considered to be a Potentially Contaminating Activity. Given that the Site is a water resource recovery facility with a throughput exceeding that threshold (and therefore that this activity occurs on-Site), the sewage treatment activity is considered to be an APEC with respect to the Site.

APEC 8: Clarkson Water Resource Recovery Facility

- Activity: Treatment of Sewage
- Potential Contaminants of Concern: Metals
- Media Affected: Soil

Areas of the Site that are most likely to have been impacted due to wastewater activities are those areas in the northeastern part of the Site which once hosted sewage lagoons.

Figure 5 shows the inferred extent of these APECs on-Site.

4.6 Registered Waste Generators

As indicated in the ERIS report (Appendix C), several records of registered waste generation were identified at the neighbouring properties, as previously discussed in Section 3.8.

The MECP through the Environmental Protection Act and Ontario Regulation 347 sets out strict provisions for storage, registration, transport and disposal of generated industrial/hazardous wastes. If handled, stored and disposed of properly, as per current regulations, these registered wastes pose a limited environmental risk and limited potential for impacts to the subject properties. However, it is outside the scope of the current assessment to thoroughly study the waste handling and overall operations of the neighboring and surrounding properties.

5. SUMMARY OF FINDINGS AND ASSESSMENT

The findings of the Phase One ESA for the subject Site are summarized as follows:

- The subject Site has an approximate area of 91.2 acres. The legal description of the lot is identified as Part of Lot 32, Concession 3, South of Dundas Street, Geographic Township of Toronto.
- The Site is zoned as a Utility, Institutional, Development, Buffer and Airport Zone (U-zone) under the City of Mississauga Schedule B, By-law No.0225-2007. The operation of a sewage treatment facility is an acceptable land use on properties zoned U. The adjacent properties are predominately zoned Exception Zones (E) which enable the use of the properties for various industrial activities (e.g., truck yards, and resource extraction).
- Based on the geology and Site conditions, the direction of shallow groundwater flow on the Site is inferred to be generally south toward Lake Ontario.
- The subject Site is currently occupied by the Clarkson Water Resource Recovery Facility that operates as a Class IV Wastewater Treatment facility under Ontario Regulation 129/04, and under the Environmental Compliance Approval #0729-9KBNNY.
- Based on historical mapping, the subject Site and adjacent properties were used for agricultural and residential purposes, prior to their use as industrial.
- Three diesel fuel ASTs and two lubricant oil ASTs were observed at different locations throughout the Site. The tanks were in good condition, placed on concrete platforms, and were equipped with leak detection features. No evidence of leaks or stains were observed.

- The Garage Building on-site was observed to be used as a storage area for various oils used for the operation of the WRRF (e.g., lubricants and hydraulic oils). Numerous drums and totes placed on skids were observed within the building. Two floor drains on the concrete floor were observed that reportedly drain to the Site's network of sanitary services, which ultimately enters the Site's wastewater treatment process.
- A waste oil AST and numerous drums placed on skids were observed outside of the Garage Building. The AST exhibited no vacuum pressure at the time of Site visit and some stains were observed on the asphalt surface which the AST is placed on.
- Three groundwater monitoring wells were observed along the northwest boundary of the Site. These monitoring wells are part of an annual groundwater monitoring program that is conducted at the neighboring Clean Harbours Property, 551 Avonhead Road. Clean Harbours utilizes the property for the transfer and processing of non-hazardous and hazardous waste. The 2019 groundwater monitoring report revealed that VOC impacts were detected at one of the three monitoring wells on the subject Site.
- In the northeast portion of the Site, large berms and a slightly higher ground surface than the neighboring properties was observed. It is believed that fill was placed here and is of an unknown quality.
- In the aerial photographs from 2015-2018, a large stockpile of material can be seen placed along the east area of the Site. This material was placed here for temporary storage and was no longer on-Site during the Phase One ESA Site visit. Analytical data provided by the Region of Peel indicates that this material was slightly impacted with PHCs, benzene, and boron.
- The property 556 Southdown Road, neighboring the Site the northeast, was observed having a fleet of trucks parked along the south of the property that appear to have been parked for an extended period of time.
- The properties 432,452, and 474 Southdown Road, neighboring the Site to the east-northeast, were observed to have a large fleet of tanker trailers and trucks parked along the gravel parking area that extends on all three properties. A large building can be seen on the property 474 Southdown Road where reportedly the cleaning of the tanker trailers occurs. The TSSA also provided records of an active fuel service station that exists on the property 474 Southdown Road.
- Neighboring the Site to the south is the property 2201 Lakeshore Road West that is used as an asphalt processing plant. According to the ERIS report, numerous wastes are generated at this facility.
- Neighboring the Site to the west is the property 2391 Lakeshore Road West that is used as cement manufacturing plant. Numerous reports were provided by the ERIS report such as spills, wastes generated, and as s registered PCB storage facility. The TSSA also provided a records of an active fuel servicing station existing on the property.
- The assessment has identified eight (8) Areas of Potential Environmental Concern (APECs) on the Site, due to a mix of on-Site and off-Site activities. Figures have been prepared to show the areas inferred to be affected.

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6. CONCLUSIONS AND RECOMMENDATIONS

This Phase One Environmental Site Assessment (ESA) was completed to identify potential and/or actual environmental concerns associated with the Site resulting from land use activities, whether current or historical and whether those occurred on-Site or on nearby lands. It is our understanding that this Phase One ESA is conducted to support a Schedule C Class Environmental Assessment being completed to support upgrades to the Clarkson WRRF; and that it is not required to support a Record of Site Condition (RSC) under Ontario Regulation (O. Reg.) 153/04 (as amended).

Based on the findings of the Phase One ESA, the following areas of potential environmental concern (APECs) were identified:

APEC 1: Garage Building (on-Site activity)

- Activity: Repair of Equipment/Vehicles
- Potential Contaminants of Concern: PHC F2-F4, PAHs, VOCs
- Media Affected: Soil, Groundwater

APEC 2: Garage Building Waste Oil Tank (on-Site activity)

- Activity: Gasoline and Associated Products Storage in Fixed Tanks
- Potential Contaminants of Concern: PHC F2-F4, PAHs
- Media Affected: Soil

APEC 3: Trimac Fuel Tanks (432, 452, 474 Southdown Road)

- Activity: Gasoline and Associated Products Storage in Fixed Tanks
- Potential Contaminants of Concern: PHC F1-F4, BTEX
- Media Affected: Soil, Groundwater

APEC 4: Trimac/ National Tank Services (432, 452, 474 Southdown Road)

- Activity: Storage, Maintenance… of Vehicles for Transportation Systems
- Potential Contaminants of Concern: PHC F1-F4, BTEX
- Media Affected: Soil, Groundwater

APEC 5: Temporarily Stockpiled Soil Material (on-Site activity)

- Activity: Importation of Fill
- Potential Contaminants of Concern: BTEX, Metals, PHC F2-F4
- Media Affected: Soil

APEC 6: Coco Paving (2201 Lakeshore Road West)

- Activity: Asphalt Manufacturing
- Potential Contaminants of Concern: PAHs, PHC F2-F4
- Media Affected: Soil, Groundwater

APEC 7: Clean Harbors (551 Avonhead Road)

- Activity: Waste Management/Transfer
- Potential Contaminants of Concern: VOCs
- Media Affected: Groundwater

APEC 8: Clarkson Water Resource Recovery Facility (on-Site activity)

- Activity: Treatment of Sewage
- Potential Contaminants of Concern: Metals
- Media Affected: Soil

Based on the age of the buildings on-Site, there is some potential for certain hazardous building materials (e.g. asbestos-containing materials, leaded paint, urea formaldehyde foam insulation) to be present on-Site. A Designated Substance Survey would be required to assess the presence of these materials with more certainty.

Based on the findings of the Phase One ESA, further investigation as part of a Phase Two ESA would be required to determine the environmental conditions associated with the above noted potential concerns.

All of which is respectfully submitted.

GM BluePlan Engineering Limited
Per:

Abdirahman Faarah, G.I.T., B. Sc.

Cory Young, B.Sc.-Env.Sc, C.Tech

Matt Long, M. Eng., P. Eng.

7. REFERENCES

7.1 Contacts with Agencies

Fuels Safety Division
Technical Standards and Safety Authority
14th Floor, Centre Tower
3300 Bloor Street West
Toronto, ON M8X 2X4
Attn: Public Information Centre
Tel: 877-682-8772

National Air Photo Library
Natural Resources Canada
615 Booth Street, Room 180
Ottawa, ON K1A 0E9
Tel: 613-995-4560
Fax: 613-995-4568

Ministry of Environment, Conservation and Parks
Guelph District Office
1 Stone Road West
Guelph, ON N1G 4Y2
Tel: 519-826-4255
Fax: 519-826-4286

7.2 Contacts with Private Companies

Environmental Risk Information Service (ERIS) Limited
12 Concorde Place, Suite 800
Toronto, ON M3C 4J2
Tel: 416-510-5204 / 877-512-5204
Fax: 416-510-5133
E-mail: info@ecologeris.com

7.3 Reference Materials

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8. STATEMENT OF LIMITATIONS

The information presented in this Phase One ESA report is intended for the sole use of the Regional Municipality of Peel. GM BluePlan Engineering Limited accepts no liability for use of this information by third parties. Any decisions made by third parties on the basis of information provided in this report are made at the sole risk of the third parties.

The scope of this Phase One ESA was limited to a review of the history of the Site; a review of available regional mapping and available background reports and information; surface/topographic features; contact with relevant regulatory agencies; review of available historical records and reports and a site reconnaissance completed on September 24, 2020. This Phase One ESA assumes that a Record of Site Condition (RSC) under O. Reg. 153/04 (as amended) is not required to be filed for this property.

GM BluePlan Engineering Limited cannot guarantee the accuracy or reliability of information provided by others or presented in records and reports available for the property. GM BluePlan Engineering Limited does not accept liability for unknown, unidentified, undisclosed or unforeseen surface or sub-surface contamination that may be later identified.

The scope of this Phase One ESA was limited to investigating the actual or potential sources of environmental impact or environmental risk and does not include full confirmation of actual environmental impact or environmental risk. While comments have been made regarding the inferred groundwater flow direction and the perceived risks of potential environmental concerns to soil and groundwater at the Site from on-site or off-site sources, full confirmatory assessment of soil and groundwater conditions (beyond those investigated as described herein) is beyond the scope of this assessment. While comments have been provided regarding ACM, PCB, leaded paint, ODS and UFFI, a thorough inspection and testing for these materials was not performed and is outside of the scope of this assessment. Further, while comments have been made regarding the perceived risks of potential environmental concerns, a complete risk assessment is beyond the scope of this report.

This report is believed to provide documentation of site conditions as of September 24, 2020.

9. QUALIFICATIONS OF ASSESSORS

Phase One ESA research and site reconnaissance were performed by Mr. Abdirahman Faarah, B. Sc, G.I.T., and Cory Young, B. Sc., C.Tech..

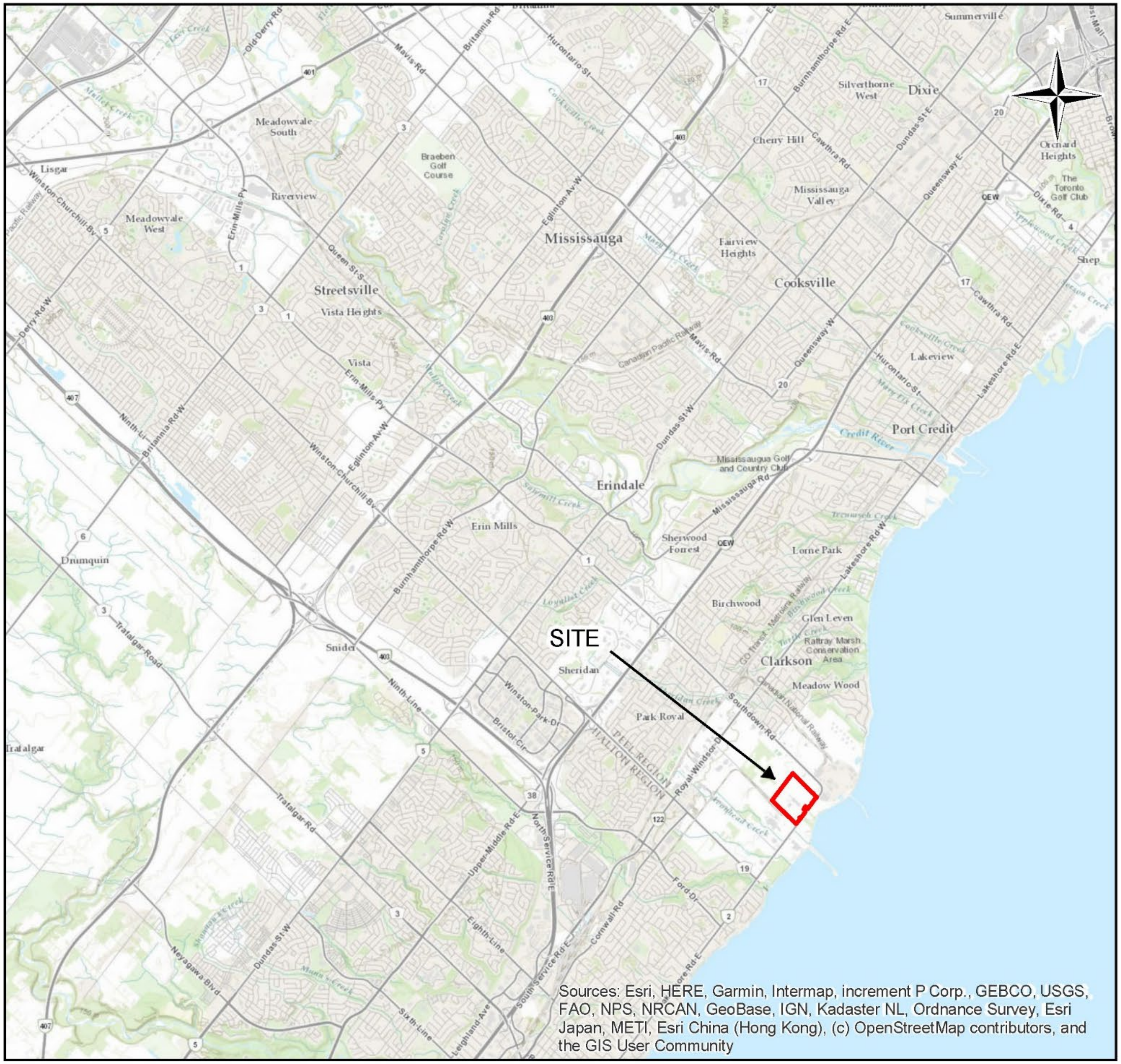
Mr. Abdirahman Faarah, B. Sc., G.I.T., is an Environmental Technologist with two and half years (2.5) years of experience in environmental and hydrogeological investigations. Mr. Faarah has been involved in conducting field activities, performing data analysis and report writing for Phase One and Two Environmental SiteAssessments, site remediation, hydrogeologic studies, dewatering studies and various environmental investigations for residential, commercial and industrial properties.

Mr. Cory Young, BSc.-Env.Sc., C.Tech is a Senior Technical Specialist with GM BluePlan who has over 13 years' experience in preparing Phase One and Phase Two Environmental Site Assessments completing site remediation, and conducting various environmental and civil investigations across southern Ontario. Cory has been involved in various petroleum hydrocarbon evaluations, fuel storage tank decommissioning projects, and numerous investigations related to residential, commercial, and industrial properties.

Mr. Matthew Long, M.Eng., P.Eng., is a Geo-environmental Engineer with ten years of experience in environmental engineering, practicing in hydrogeological, geotechnical, and mine tailings engineering contexts. Mr. Long has prepared or overseen the preparation of numerous Phase One Environmental Site Assessments for residential, commercial, and industrial/institutional properties and has also completed several Phase Two Environmental Site Assessments during his tenure with GM BluePlan.

GM BluePlan Engineering Limited has completed numerous Phase One Environmental Site Assessments, which also include follow-up Phase Two Environmental Site Assessments. GM BluePlan Engineering Limited has also been involved with the remediation of numerous sites, and with the preparation of a Record of Site Condition for residential, commercial and industrial properties.

FIGURES



Project: 719051
Phase One ESA
Clarkson WRRF
Mississauga, ON

Part of Lot 32,
Concession 3,
South of Dundas Street
Geo. Twp. of Peel

Site Boundary

Scale: 1: 100,000
July 2020

Figure 1:
Site Location

GM BluePlan ENGINEERING

Project: 719051
Phase One ESA
Clarkson WRRF
Mississauga, ON

Part of Lot 32,
Concession 3,
South of Dundas Street
Geo. Twp. of Peel

Study Area (250 m)

Site Boundary

Scale: 1: 8,000
July 2020

Figure 2:
Study Area Layout

GM BluePlan ENGINEERING

Project: 719051
Phase One ESA
Clarkson WRRF
Mississauga, ON

Part of Lot 32,
Concession 3,
South of Dundas Street
Geo. Twp. of Peel

Study Area (250 m)

Site Boundary

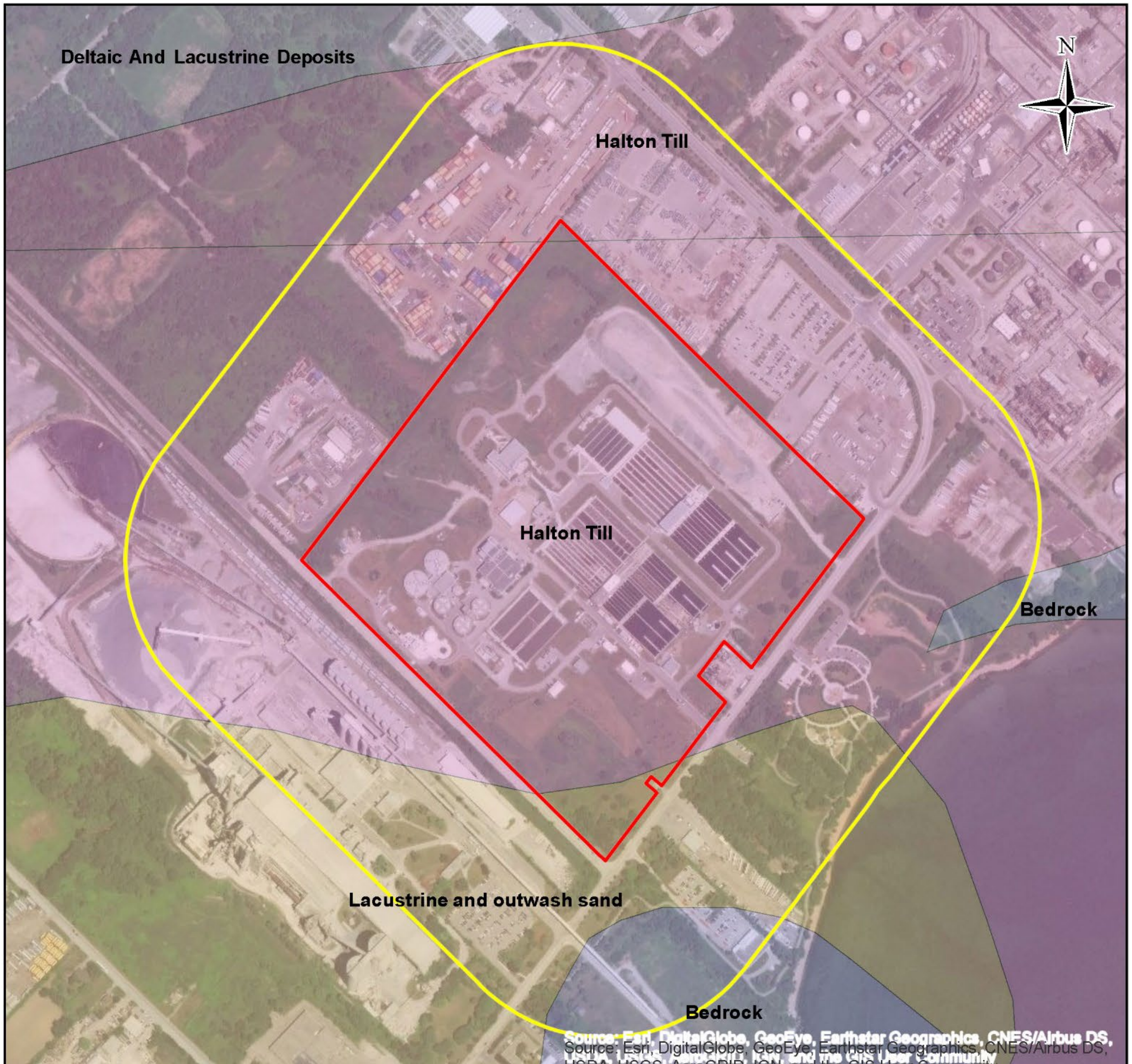
Physiography of Southern Ontario

Sand Plains

Scale: 1: 8,000
July 2020

Figure 3:
Site Physiography

BluePlan ENGINEERING



Project: 719051
Phase One ESA
Clarkson WRRF
Mississauga, ON

Part of Lot 32,
Concession 3,
South of Dundas Street
Geo. Twp. of Peel

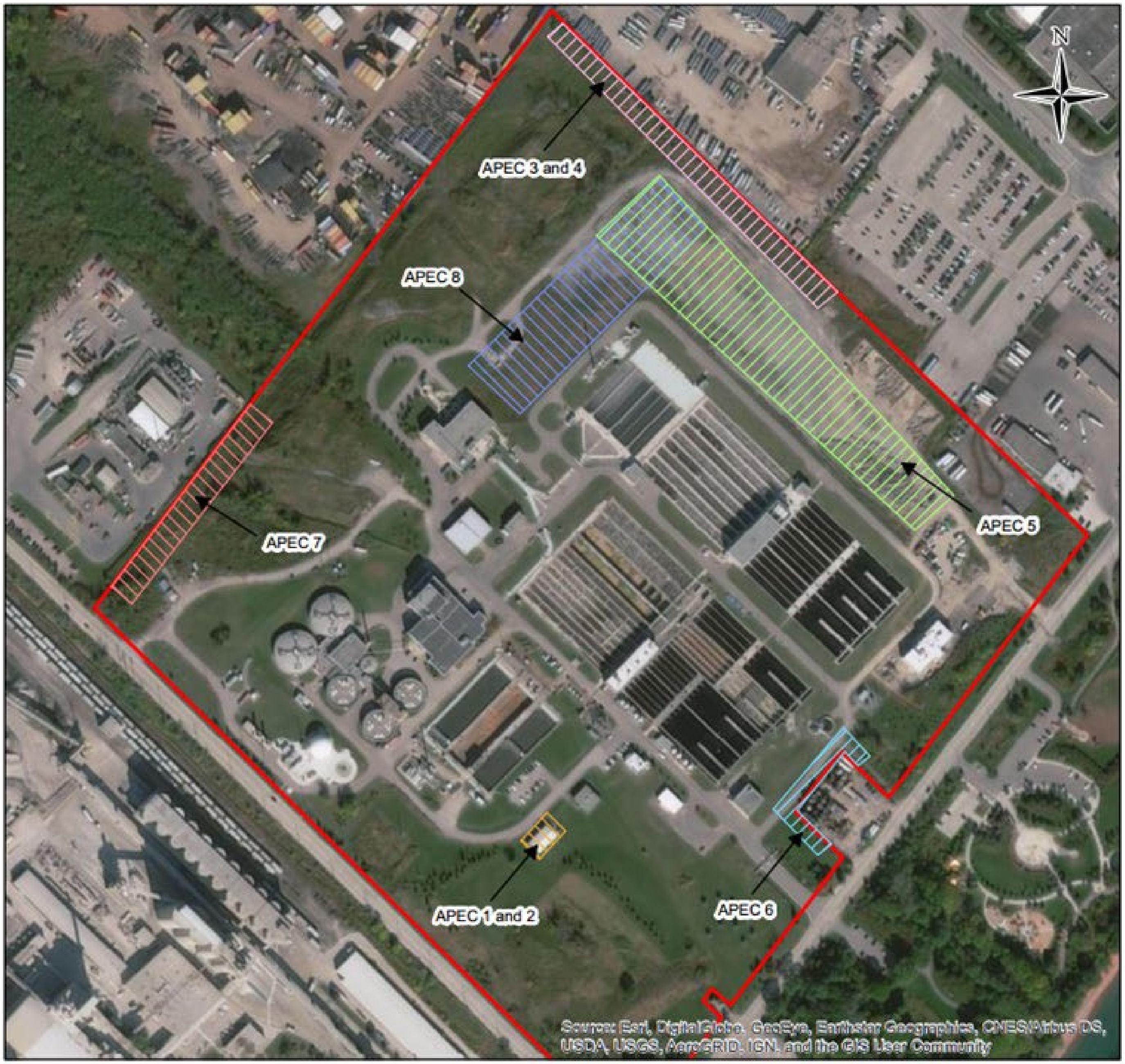
Study Area (250 m)
Site Boundary

Surficial Geology of Ontario
Bedrock
Deltaic And Lacustrine Deposits
Halton Till
Lacustrine and outwash sand

Scale: 1: 8,000
July 2020

Figure 4:
Surficial Geology

GM BluePlan ENGINEERING



Project: 719051
Phase One ESA
Clarkson WWTP
Mississauga, ON

Part of Lot 32,
Concession 3,
South of Dundas Street
Geo. Twp. of Peel

APECs 1 and 2
APECs 3 and 4
APEC 5
APEC 6
APEC 7
APEC 8
Site Boundary

Scale: 1: 4,500
October 2020

Figure 5:
Identified APECs

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