DILLON CONSULTING

URBANMINE INC.

Ambient Noise Monitoring Report #2

72 Rothwell Road, Winnipeg, Manitoba

July 2022 – 22-4062

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1.0 Introduction

1.1 Background

Dillon Consulting Limited (Dillon) was retained by Urbanmine Inc. (Urbanmine) to complete an ambient noise monitoring program for the facility located at 72 Rothwell Road in the City of Winnipeg, Manitoba. The ambient noise monitoring program consisted of continuous long-term noise monitoring at nearby representative receptors over an eight (8) day period. The monitoring program was completed as per the requirements of the Environment Act Licence (EAL) No. 3199R, issued to the facility by Manitoba Environment, Climate and Parks (MECP, formerly known as Manitoba Conservation and Climate). This report summarizes the noise monitoring results.

The Facility is located within a M3-zoned (Industrial, Heavy) area and immediately adjacent to rail and hydro right-of-ways (on the east side) owned by Canadian Pacific Railway Limited (CP Rail), Canadian National Railway (CN Rail) and Manitoba Hydro (Hydro). There are large industrial/commercial establishments to the north, south and west of the Facility. The Facility is approximately 300 m from Kenaston Boulevard. The closest residential area to the Facility is the Linden Woods Community, located east of the right-of-way corridor.

As per the requirements stipulated in Clause 37 and 38 of the EAL, the Facility is required to submit a noise pollution monitoring plan for Director's approval within 60 days of the issuance of the revised licence and subsequent to approval of the plan, complete the ambient noise monitoring and prepare a report for submission to MECP. As per the Director's letter of September 17, 2021, noise monitoring is to be undertaken every six (6) months, commencing fall of 2021 and until all proposed mitigation measures are fully implemented. Subsequently, the ambient noise monitoring is to be completed on an annual basis.

This report is prepared based on the ambient noise monitoring that was conducted from May 6 to May 16, 2022. This is the second ambient noise monitoring report being submitted to MECP, with almost all of the noise mitigation measures (as per the September 2020 Noise Impact Study Report) implemented at the facility at the time of the monitoring program. This report is prepared as per the 'every six (6) month' timeline indicated in the Director's letter. The previous ambient noise monitoring program was undertaken in the fall of 2021.

1.2 Applicable Noise Limit

With the implementation of the noise mitigation measures identified in this report, the Facility is to comply with the maximum desirable daytime noise guideline level of 55 dBA, as stipulated in the MECP's (formerly Province of Manitoba, Environment) Guidelines for Sound Pollution for residential areas, issued September 21, 1992.

2.0 Facility Description

Urbanmine has been operating a ferrous and non-ferrous metal processing facility in Winnipeg, Manitoba since 2009. The facility operates as a transfer depot, where recyclable materials are received and sorted, then processed and shipped to other facilities for further processing and refining.

Figure 1 illustrates an overview of the Facility, on-site structures and the surrounding areas (note: the relatively newer ferrous building is not shown in the currently available Google aerial view).

Figure 1: Facility Overview

As part of their expansion, Urbanmine has made several modifications to the Facility to process ferrous metals indoors using various sizing and sorting equipment. The new ferrous process (ferrous line) starts with sorting of materials as it is received. Then the material gets processed through an outdoor rotary shear. The sheared materials are then transported via a conveyor to inside of the new ferrous building for processing through a vertical grinder for further size reduction. The grinded material is transported via a conveyor to a sorting area where magnetic separators and Eddy-current separators are utilized to separate the ferrous and non-ferrous materials. Ferrous materials are then organized by size at a sorting shaker table and stored in bunkers on the north side of the ferrous building. The building is equipped

with a dust collection system throughout the building. The dust collection system consists of extensive duct work that leads into a cyclone and filter baghouse located immediately south of the ferrous building.

The Facility will also have a non-ferrous processing line which will be located in the existing building and will consist of similar material shearing and grinding equipment as the ferrous line but notably smaller in size and power. The non-ferrous line will include: an outdoor rotary shear, indoor grinder and sorting shaker tables. The non-ferrous line is scheduled to be commissioned in fall of 2022.

It is worth mentioning that the piles of scrap metal and material in the yard have been reduced since the last monitoring program took place. The highest pile when monitoring occurred in the fall of 2021, was above the facility's roofline. The same pile has been reduced during the time of this monitoring to well below the roofline.

The dominant noise sources at the facility include the operation of outdoor shears, mobile equipment including grapple crane, cyclone and baghouse, conveyors, multi-purpose loader, material (scrap metal) handling/drop, granulator, building exhaust and hydraulic system cooling fans.

2.1 Operating Hours of Facility

The Facility operates weekdays from 7:00 a.m. to 5:00 p.m. On rare occasions, due to unusual circumstances or operational conditions, the Facility may need to operate for extended hours on Saturday's (9:00 a.m. to 3:00 p.m.).

During the ambient noise monitoring period (May 6 to 16, 2022), the Facility operated between 7:30 a.m. and 5:00 p.m., during weekdays only, with equipment warm up starting at 7:00 a.m.

3.0 Ambient Noise Monitoring Program

3.1 Methodology

The noise pollution monitoring program consists of ambient noise monitoring at the closest boundary of representative noise-sensitive receptors (i.e., residential dwellings east of the facility), as identified in the Acoustic Assessment Report (Dillon's September 2020 report). The noise monitoring locations are discussed in sub-section 4.2.

The noise measurement methodology is based on CAN/CSA-ISO 1996-1 and the Ontario Ministry of the Environment, Conservation and Parks (MECP) (Formerly MOE) noise publication document NPC-103. The ambient noise monitoring program was carried out over eight (8) days to ensure varying ambient noise levels due to change in on-site activities and traffic noise is captured in the measurements. The monitoring program was not continuous due to the weather (precipitation). The monitoring program commenced on May 6 and concluded on May 16, 2022. The noise meters were manually stopped on May 8, 9 and 12 due to precipitation.

The ambient noise data gathered included: A-weighted sound level equivalent (Leq-A) as well as L90, Lmax and Lmin. The monitoring program was undertaken when the facility was operating under a normal mode of operation, with key dominant noise sources being in operation between 7:30 a.m. and 5:00 p.m. during weekdays.

The ambient noise monitoring program was completed using two (2) Rion NL-52 Type I sound level analyzers with digital audio recording and 1/1, 1/3 octave filters, as well as one (1) Rion NL-22 Type II noise level meter. In addition to being calibrated in the laboratory, each instrument was field calibrated on-site, before and after each measurement period. Certificates of Calibration, including instrument serial numbers are provided in Appendix A.

3.2 Noise Monitoring Locations

The three (3) monitoring locations that were selected for the first ambient noise monitoring campaign remained the same for this monitoring campaign. The locations were selected based on their proximity to the Facility's dominant noise sources. The monitoring locations are illustrated in Figure 2 and discussed below.

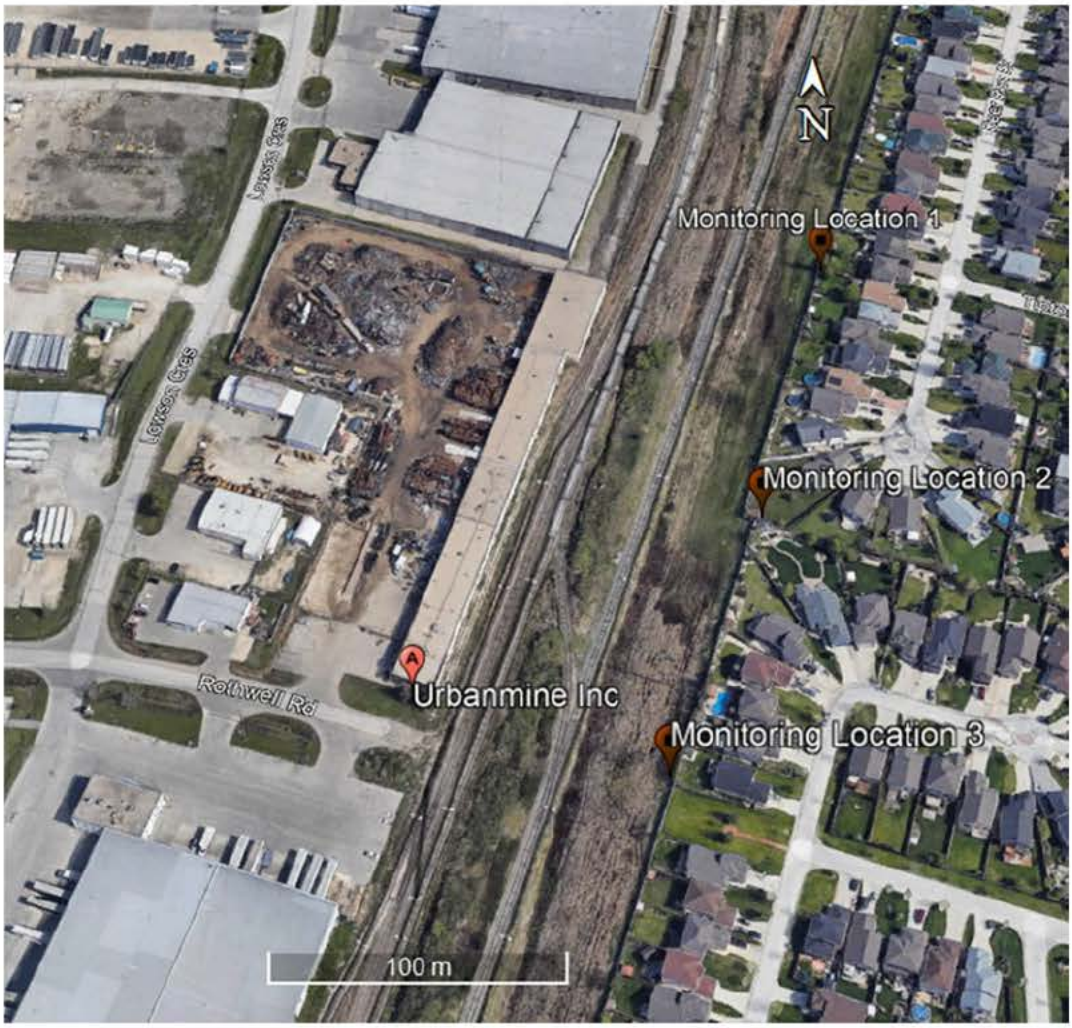

Figure 2: Ambient Noise Monitoring Locations

A brief description of the monitoring locations and instrumentation setup are provided below.

3.2.1 Monitoring Location 1

A RION NL-52 type I sound level analyzer unit equipped with an environmental enclosure and an external battery was setup along the right-of-way near the backyard fence of the receptor location 1, with the microphone being in direct light of sight of the facility. The microphone was attached to a pole and was set at approximately 1.5 metres (m) above the ground. For this receptor location, the dominant noise sources in the yard were shielded by the Facility's warehouse building and the connecting noise barrier wall along

the north property boundary of the facility. The unit was setup to gather A-weighted sound level equivalent (LeqA) as well as Lmax, Lmin and the 90th percentiles (L90). The instrument was also programmed to audio record sound for levels exceeding 55 dBA (note: the threshold of 55 dBA is based on MECP's daytime guideline criterion).

3.2.2 Monitoring Location 2

A RION NL-52 Type I sound level analyzer unit equipped with an environmental enclosure and an external battery was setup at the fenceline of a representative residential dwelling, with the microphone being in direct light of sight of the facility. The microphone was attached to a wooden column within the backyard at approximately 2.5 m above the ground. For this receptor the dominant noise sources in the yard were shielded by the facility's warehouse building. The unit was setup to gather A-weighted sound level equivalent (LeqA) as well as Lmax, Lmin and the 90th percentile. The device was also programmed to audio record sound for when instantaneous noise levels exceed 55 dBA. During the monitoring program the Facility was operating only during daytime hours. In addition to hourly data, data was logged for one (1) second intervals in order to capture short duration peak noise events, and correlate with audio recordings to determine dominant noise source(s) that contributed to peak noise levels.

3.2.3 Monitoring Location 3

A RION NL-22 Type II noise meter equipped with an environmental enclosure and an external battery was setup along the right-of-way, near the backyard fence at the monitoring location 3. The microphone was installed on a pole, approximately 1.5 m above the ground and was situated to have direct line-of-sight to the facility. This unit was setup at a receptor boundary that is further away from key dominant noise sources at the facility than the monitoring locations 1 and 2. It was setup for confirmatory measurement purposes. The data was used to compare with the other two (2) monitoring locations to determine if background noise levels (i.e., when the facility is not operating) and noise impact from the facility is similar along this segment of the right-of-way. The noise meter was set to gather A-weighted sound level equivalent (LeqA) as well as Lmax, Lmin and the 90th percentile values (L90) on an eight (8) hour basis.

3.3 Facility Operations

The facility operated under its normal mode of operation during the ambient noise monitoring period. Key dominant noise sources (including mobile equipment) operated during facility's normal hours of operation (weekdays, from 7:30 a.m. to 5:00 p.m.).

3.4 Facility Noise Mitigation Measures

The September 2020 Acoustic Assessment Report for the Facility lists a series of noise mitigation measures that are to be implemented in order to ensure compliance with applicable noise criterion of 55 dBA (daytime). The noise mitigation measures and whether they were implemented during the ambient noise monitoring program are discussed below:

- Acoustic barriers situated atop of the facility building measured to be 108 m in length and an additional height of 6 m, resulting in a total height of 12 m, or an awning such that the west edge of the awning will meet the total height of 12 m above grade. This mitigation measure was partially constructed in December 2021, with the roof of the warehouse building extended vertically by approximately 5 m. The rooftop addition starts at the north end of the building and extends southward approximately 32 m.
- A barrier along the north property boundary measured to be 45 m in length and a height of 9 m. This mitigation measure was implemented at the time of conducting the ambient noise monitoring;
- An L-shaped noise barrier wall of approximately 12 m in total length and a height of 5.5 m that is situated immediately adjacent to the Sierra Shear, on the north and east sides of the shear. This mitigation measure was implemented at the time of conducting the ambient noise monitoring;
- Noise sources within on-site buildings (i.e., the warehouse building and the new ferrous building) are attenuated by the building enclosures and closed doors when the facility is in operation. This mitigation measure (buildings with closed doors) was implemented at the time of conducting the ambient noise monitoring; and,
- A 26 m long asymmetrical V-Shaped noise barrier wall of 7 m high to be located east of the new ferrous outdoor rotary shear. This mitigation measure was implemented at the time of conducting the ambient noise monitoring. This measure resulted in a V-Shaped noise barrier wall consisting of six shipping containers (each 2.5 m high by 12 m long), as shown in Figure 3.

Figure 3: V-Shaped Noise Barrier Wall

4.0 Results and Discussions

The measured daytime ambient noise level metrics (i.e., Leq, Lmax and Lmin) for hours that the facility was operating (i.e., 7:30 a.m. to 5:00 p.m.) and when it was not operating (5:00 p.m. to 9:00 p.m.) are presented in Table 1 for comparison purposes. The data is presented on daily basis for the five (5) weekdays that the facility was operating so that potential impact of the weather and potential operational variations at facility can be better characterized. Due to rain events, noise monitoring was stopped for May 8, 9 and 12. Data is unavailable for Location 3 on May 6 and 7, as the data files were corrupted on these days. Hourly weather data from Winnipeg International Airport for the duration of the noise monitoring period is presented graphically by wind roses and provided in Appendix B. The measurement data is provided in Appendix A.

Table 1: Overall Measured Sound Level Equivalent Levels (dBA)

Monitoring Location		Measured Hourly Sound Pressure Levels (dBA) - Daytime					
		Facility Operating			Facility Not Operating		
ID	Date	Leq (Avg)	Lmax	Lmin	Leq (Avg)	Lmax	Lmin
L1	May 6	64.7	77.3	54.5	66.8	71.8	59.3
	May 7 - Saturday	64.2	75.1	51.2	65.1	72.9	50.6
	May 10	60.1	76.3	52.4	64.5	77.8	57.0
	May 11	56.2	76.2	45.3	58.3	74.5	44.6
	May 13	58.7	82.7	50.6	63.8	85.8	52.3
	May 14 - Saturday	57.2	73.9	48.5	56.7	70.9	48.1
	May 15 - Sunday	56.5	72.0	45.9	63.4	78.4	49.7
	May 16	60.5	78.0	47.9	61.5	79.1	40.9
L2	May 6	52.6	73.8	46.9	53.2	70.0	48.2
	May 7 - Saturday	52.9	74.0	46.6	54.9	78.5	46.4
	May 10	56.1	78.3	49.5	55.1	71.1	48.5
	May 11	50.3	72.3	42.1	54.8	78.6	42.5
	May 13	58.3	84.8	50.0	58.6	81.4	50.4
	May 14 - Saturday	53.6	74.8	45.9	51.6	67.3	44.9
	May 15 - Sunday	54.5	78.4	43.5	59.3	85.4	46.3
	May 16	52.1	72.1	42.6	47.8	75.6	38.8
L3	May 6	N/A	N/A	N/A	N/A	N/A	N/A
	May 7 - Saturday	N/A	N/A	N/A	N/A	N/A	N/A
	May 10	67.8	86.8	51.6	69.2	92.4	48.9
	May 11	57.2	80.9	43.5	60.5	86.5	43.5
	May 13	64.3	84.6	50.8	74.2	90.9	53.0
	May 14 - Saturday	60.2	80.7	48.2	55.6	73.7	47.3
	May 15 - Sunday	56.0	75.3	46.2	56.8	75.4	46.3
	May 16	55.4	79.1	44.4	51.2	73.0	40.1

Since the operation of the facility only occurs during daytime hours, the data analysis presented herein pertains to daytime only. Weekend data and evening data (facility not in operation) were included for comparison purposes. The measured daytime ambient noise levels are indicative of higher than average

noise levels for an urban centre. Typical average hourly Leq noise levels during daytime hours for an urban centre range from high 40s dBA to low-mid 50s dBA. Results from this ambient noise monitoring program show average Leq levels between high 50s dBA and low 60s dBA. The daytime criterion (hourly) of 55 dBA is exceeded on several days during the monitoring campaign at all three monitoring locations, as shown in Table 1, both when the facility was operating and when it was not operating. Urbanmine operation activities that were logged during the time of monitoring include: moving material, the Bano ferrous line operations and the Sierra shear machine operations. The resulting high evening and weekend ambient noise data (when facility is not in operation) is indicative of other dominant noise sources in the area that are contributing to elevated noise levels. Average weekday noise levels when the facility is operating is 58 dBA (average of all three monitoring stations), ranging between 50 dBA and 68 dBA. Average evening (weekday) noise levels when the facility is not operating is 59 dBA (average of all three monitoring stations), ranging between 48 dBA and 74 dBA.

Noise sources and noise generating activities that were identified through audible sound clips include:

- CP Rail staff working on the rail line within their Right-Of-Way (located between the monitoring locations and the facility) on May 10. Noise associated with this activity included continuous hammering, people talking, back up beepers and a different operational background noise, impacting all three monitoring locations.
- For May 13, high winds were experienced from 8:00 a.m. to 12 p.m., ranging from 40 kilometers per hour (km/h) to 65 km/h throughout the day. The sound of wind was dominant on the audible clips for this day at each of the monitoring locations. While wind can impact noise propagation over long distances, resulting in higher noise impact downwind of a source than upwind, it can also result in higher ambient noise levels as air movement around structures and over surfaces generates wind-induced noise. Wind roses for the monitoring days are presented in Appendix B. For May 14, predominant wind direction was towards the receptors, however, the measured noise levels were not higher than the days when the predominant wind direction was north-south.
- Home construction/renovation noise (distinctly clear hammering, dropping of wood/materials, drilling noise) were audible during May 6, 10 and 11. The renovation activities continues through the evening hours.
- It was observed that an industrial property adjacent to Urbanmine was operating a hydro-vac truck for almost the entire monitoring period. The vac-truck started early in the morning and in most days operated until the evening hours. The vac-truck hum was audible at the nearby receptors.

Unrelated noise sources captured outside of the hours of operations at the facility include: train passby, motorcycle passby, airplane passby, considerable flocks of geese, home construction, dogs barking, the sound of an engine start up and operational hum (potentially from the hydro-vac truck).

The Lmax measurement was gathered to capture short-duration high noise events. The results indicate that the Lmax noise levels are similar to when the facility is operational verses when it is not. Audio recordings confirm that the short duration high noise events are associated with handling scrap metal

during facility operations. The general hum associated with equipment operation is not notably audible at the monitoring locations. The short duration high noise levels that occur when the facility is not operating include rail shunting activities, motorcycles, close-up dog barking, and close-up geese calls (as per the audio recordings).

The measured daytime Lmin values during facility operation range from low 40's dBA to mid 50's dBA. This confirms that while there are short-duration high noise events, there are periods of time during working days that the ambient noise levels are relatively low. Measured Lmin values when the facility is not operating have a similar range but are between low 40s dBA to high 50s dBA. The highest Lmin values are experienced when the facility is not operating, however, there is no clear trend when comparing the Lmin values for when the facility is operating and when it is not.

The facility rarely operates during weekends. During this ambient noise monitoring program, the facility did not operate over the weekends. Daytime and evening weekend noise levels were displayed for comparison purposes only. The average ambient noise levels (daytime) during the weekend (hourly LeqA) ranged between 53 dBA and 64 dBA (average approximately 57 dBA).

5.0 Conclusion

Dillon was retained by Urbanmine to complete an ambient noise monitoring program for the facility located at 72 Rothwell Road in the City of Winnipeg, Manitoba. The ambient noise monitoring program consisted of continuous long-term noise monitoring at nearby representative receptors over an eight (8) day period. The monitoring program was completed as per the requirements of the EAL No. 3199R, issued to the facility by MECP. This report summarizes the results from the second noise monitoring program.

As per the requirements stipulated in Clause 37 and 38 of the EAL, the Facility is required to complete an ambient noise monitoring program following director's approval of the ambient noise monitoring plan. According to the direction provided by MECP, noise monitoring is to be undertaken every six (6) months, commencing fall of 2021 and until all proposed mitigation measures are fully implemented. Subsequently, the ambient noise monitoring is to be completed on an annual basis.

Measured daytime ambient noise levels (Leq) during this noise monitoring program are higher than expected. Average hourly Leq noise levels exceed the daytime criterion (hourly) 55dBA on all weekdays except for at monitoring Location 2 on May 6, 11 and 16. However, average hourly Leq noise levels remain above 55 dBA when the facility is not operating (evenings) and on weekends, indicative of a busy urban area. This suggests that there are other dominate noise sources in the area contributing to the overall high noise levels during the monitoring period. Noise sources and noise generating activities that were identified through audible sound clips include:

- CP Rail staff working on the rail line within their Right-Of-Way (located between the monitoring locations and the facility) on May 10. Noise associated with this activity included continuous hammering, people talking, back up beepers and a different operational background noise, impacting all three monitoring locations.
- For May 13, high winds were experienced from 8:00 a.m. to 12 p.m., ranging from 40 kilometers per hour (km/h) to 65 km/h throughout the day. The sound of wind was dominant on the audible clips for this day at each of the monitoring locations. While wind can impact noise propagation over long distances, resulting in higher noise impact downwind of a source than upwind, it can also result in higher ambient noise levels as air movement around structures and over surfaces generates wind-induced noise. Wind roses for the monitoring days are presented in Appendix B. For May 14, predominant wind direction was towards the receptors, however, the measured noise levels were not higher than the days when the predominant wind direction was north-south.
- Home construction/renovation noise (distinctly clear hammering, wood cutting, drilling noise) where audible during May 6, 10 and 11. The renovation activities continues through the evening hours.
- It was observed that an industrial property adjacent to Urbanmine was operating a hydro-vac truck for almost the entire monitoring period. The vac-truck started early in the morning and in most days operated until the evening hours. The vac-truck hum was audible at the nearby receptors.

5.0 Conclusion

This report has been prepared based on the ambient noise monitoring that was conducted from May 6 to May 16, 2022. This is the second noise monitoring report being submitted to MECP, with all of the noise mitigation measures (as per the September 2020 Noise Impact Study Report) fully implemented at the facility, with the exception of the 108 m length acoustic barrier situated atop the facility building. Based on the 'every six (6) month' timeline indicated in Director's letter, the next noise monitoring will be completed in the fall of 2022. Although the majority of the noise mitigation measures were implemented at the time of this noise monitoring program, activities/operations other than the facility's operations during this monitoring period have contributed to higher than expected noise levels, as demonstrated by the high evening and weekend measurements. Further investigation during the fall 2022 monitoring program will assist in determining implemented mitigation effectiveness and other contributing noise sources in the area.

6.0 Closure

Dillon Consulting Limited (Dillon) was retained Urbanmine Inc. to prepare an Acoustic Assessment Report (AAR) for the Urbanmine Inc. facility located at 72 Rothwell Road in the City of Winnipeg. The report has been prepared for submission to the Manitoba Environment, Climate and Parks (MECP). The material in the report reflects Dillon's judgment in light of the information available to Dillon at the time of this report preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the report is to your satisfaction. Please do not hesitate to contact the undersigned if you have any further questions on this report.

Respectfully Submitted,

DILLON CONSULTING LIMITED

[redacted]

Chrissy Cusack, M.Sc.
Junior Environmental Scientist

[redacted]

Amir A. Iravani, Ph.D., P.Eng.
Associate

AAI:lw

Our file: 22-4062

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