METROLINX

MEMORANDUM

To: Toronto District School Board

From: Paul Collins, P. Eng.
Director, Advance Works Project Delivery Team – Ontario Line Metrolinx

Date: January 24, 2024

Re: Metrolinx's response to ECOH's comments dated September 26, 2023 received by Metrolinx on November 14, 2023 from TDSB

Overview

ECOH Management Inc. (ECOH) was asked by the Toronto District School Board (TDSB) to comment on Metrolinx's August 22, 2023 response to the Ministry of the Environment, Conservation and Parks (MECP) Interim Supplementary Comments on Management of Soils with Benzo(a)pyrene [B(a)P] ; and a memo from Metrolinx dated August 24, 2023 responding to ECOH's May 18, 2023 comments on Metrolinx' Health and Safety Plan (H&S Plan) with regards to the construction of the Ontario Line Subway near Pape Avenue Junior Public School (the School).

The purpose of this memorandum is to provide Metrolinx's feedback on the documents listed below:

- Comments on Metrolinx's Letter to MECP on "Ontario Line – Response to MECP Interim Supplementary Comments on Management of Soils with Benzo(a)pyrene at Pape Avenue Public School" 220 Langley Avenue, Toronto, ON prepared for TDSB by ECOH, dated September 26, 2023;
- Comments on Metrolinx response to ECOH Reports, prepared for TDSB by ECOH dated September 26, 2023.

Comments on Metrolinx Response to MECP Regarding Management of Soils with Benzo(a)pyrene at the School

Section 2.1. Sampling Locations

ECOH Comment: ECOH understands that Metrolinx will coordinate with TDSB to identify additional sampling locations, which are closest to the receptor areas including the installation of hi-volume PUF air sampler and relocation of the air monitors along Pape Avenue to assess potential impacts to indoor air quality from the construction activities in the vicinity of the borehole OL-09102, which had an elevated level of B(a)P in the soil.

Metrolinx Response: On October 4, 2023, the ambient air monitoring station was relocated to the school playground area near the east property line and in the vicinity of borehole OL-09102. A hi-

volume PUF air sampler was installed for polycyclic aromatic hydrocarbon (PAH) sampling, which includes benzo(a)pyrene.

Section 2.2. Monitoring Equipment

ECOH Comment: ECOH understands and agrees with Metrolinx on using handheld devices (such as TSI DustTrak DRX and Honeywell/RAE ppbRAE 3000+) on Site for the monitoring of particulate matter (PM): $PM_{2.5}$ and PM_{10} and Total Volatile Organic Compounds (TVOC). ECOH believes that use of these handheld real-time monitoring devices is acceptable if they are used as a supplement to laboratory-analyzed samples that provide more reliable information on concentrations of potential contaminant of concern (PCOC) in ambient air. Metrolinx has reported that silica, speciated VOCs and metals are sampled on site and are submitted for laboratory analyses. ECOH recommends that Metrolinx specify the sampling equipment and methodology to be [used] for these analyses. Furthermore, ECOH strongly recommends adding B(a)P (or full set of PAHs) as a PCOC to the sampling and monitoring plan.

Metrolinx Response: The sampling of PAHs, including B(a)P, was added to the ambient monitoring program in October 2023 after Metrolinx secured a plug-in power source from TDSB. The monitoring equipment currently set up at the school includes:

- One Met-One Instruments E-Sampler for continuous $PM_{2.5}$ monitoring.
- One Met-One Instruments E-Sampler for continuous PM_{10} monitoring.
- One Honeywell ppbRAE3000 for continuous TVOC monitoring.
- One BGI PQ200 sampler to collect 24-hour PM_{10} and respirable crystalline silica (RCS) samples on 47-mm polyvinyl chloride (PVC) filters. The samples will be weighed for particulate loading and analysed for crystalline silica content following the laboratory protocol in National Institute for Occupational Safety and Health (NIOSH) Method 7500.
- Summa canisters to collect 24-hour average speciated volatile organic compound (VOC) samples. Samples will be analyzed following US EPA Method TO-15A for compounds including BTEX (benzene, toluene, ethylbenzene, and xylenes) as well as petroleum hydrocarbon subfractions.
- One TE-1000 mass-flow high volume PUF air sampler to collect 24-hour polycyclic aromatic hydrocarbons (PAHs) samples. Samples will be analyzed by following US EPA Method TO-13A by gas chromatography-mass spectrometry (GC/MS) and by high-resolution mass spectrometry (HRMS) for benzo(a)pyrene.
- One TE-5170 TSP high volume air sampler to collect 24-hour total suspended particulates (TSP). The samples will be weighed for particulate loading and analyzed by mass spectrometry for metals.
- One wind speed/wind direction sensor and one relative humidity sensor.

Section 2.3. Sampling and Monitoring of Benzo(a)pyrene

ECOH Comment: ECOH agrees with the MECP, and it is critically important to add B(a)P to the air sampling and monitoring plan for this Site in conjunction with real-time monitoring of $PM_{2.5}$ and PM_{10}. ECOH understands that the Metrolinx is considering installing hi-volume PUF air samplers, the analysis of which can take a long turn-around time. As an alternative (or an additional monitoring measure), ECOH recommends using XAD sorbent tubes (a widely used technique for sampling PAH parameters), which can be equipped with a battery powered suction pump and may eliminate the requirement for the installation of power source for hi-volume PUF air samplers. The turn-around time for the analysis of XAD tubes can be reduced to less than 1-week if coordinated with the laboratory. Lastly, it is ECOH's opinion that the combination of PUF air samplers, XAD tubes and real-time monitoring of $PM_{2.5}$ and PM_{10} could be used on site for the monitoring of B(a)P levels.

Metrolinx Response: As indicated in the Section 2.2 response above, a TE-1000 mass-flow high volume PUF air sampler for PAH sampling, which is a US EPA reference method for ambient air PAH sampling, was added to the ambient monitoring program after Metrolinx secured a power source from TDSB. XAD sorbent tubes are not a US EPA reference method for ambient monitoring and will not be added to the ambient air monitoring program.

Section 2.4. Sampling and Monitoring of Volatile Organic Compounds

ECOH Comment: ECOH recommends using summa cannisters equipped with a flow controller that can be used to collect a sample over a set period or as an instantaneous grab sample during peak construction activities. The analytical results from summa cannisters can be compared against the MECP Human Health Based Indoor Air Criteria (HHBIAC) values. The turn-around time for the analysis of summa cannisters can be reduced to less than 1-week if coordinated with the laboratory. ECOH understands that a time-weighted average sample or a grab sample collected with a summa canister could miss VOC-emitting events occurring during that period and as such, during peak construction activities, the combination of continuous TVOC monitoring and samples collected using summa cannisters can provide more reliable information on the concentrations of VOCs in ambient air.

Metrolinx Response: For the purposes of this response, Metrolinx has assumed the reference to "ambient air" at the end of the last sentence above was intended to reference indoor air, as the full text of ECOH's Section 2.4 comments in their memo/report issued Sept 26, 2023, appears to relate to MECP comments regarding indoor air.

The objective of the indoor air monitoring program at the School is to evaluate whether construction activities may be impacting the indoor school environment. Direct-reading instruments were selected to monitor total volatile organic compounds (TVOC) as well as airborne particulate (PM10) following a screening-level approach, with comparison of results against measured pre-construction baseline levels, outdoor levels, and project-specific IAQ guideline

values. While Summa canisters provide more specific information on the types of individual VOCs present in air, we do not believe their use is warranted. This is primarily based on the negligible concentrations of TVOC that have typically been measured in the school since the project commenced, other than infrequent elevations in TVOC levels that have been directly attributed to indoor janitorial cleaning activities.

Section 2.5. Height and Location of Indoor Air Samples

ECOH Comment: ECOH agrees with Metrolinx on the height of sampling devices. Indoor air samples should be taken from the breathing zone height of approximately 1.0 to 1.5 metres (m) above the floor. Furthermore, the new indoor sampling locations along Pape Avenue should be added to the monitoring plan to assess the potential impacts to indoor air quality from the construction activities**.**

Metrolinx Response: The relocation of two indoor air quality monitors took place in December 2023 based on discussions with the TDSB, in part based on the TDSB's decision not to occupy two of the classrooms previously being monitored for the current school year. Indoor air monitors are currently located in Classrooms 5 (ground floor), 12 (second floor) and 28 (basement). The selection of new locations considered the location of ongoing and known future construction activities outside the school.

Section 2.6. Upwind and Downwind Location of Ambient Air Samples

ECOH Comment: ECOH agrees with Metrolinx on using DustTrak to measure upwind and downwind dust levels as a supplement to substance-specific sampling. Furthermore, as noted above, the new sampling locations along Pape Avenue should be added to the monitoring plan to assess the potential impacts to indoor air quality from the construction activities.

Metrolinx Response: For the purposes of this response, Metrolinx has assumed the reference to “indoor air” at the end of the last sentence above was intended to reference ambient air, as the full text of ECOH’s Section 2.6 comment pertains to MECP comments regarding the absence of a downwind ambient air monitoring location.

Metrolinx is in the process of getting approval to set up a second monitoring station on a downwind property owned by the City or a private property owner (several options are being explored). The downwind monitoring station will be set up once an agreement has been reached with the property owner.

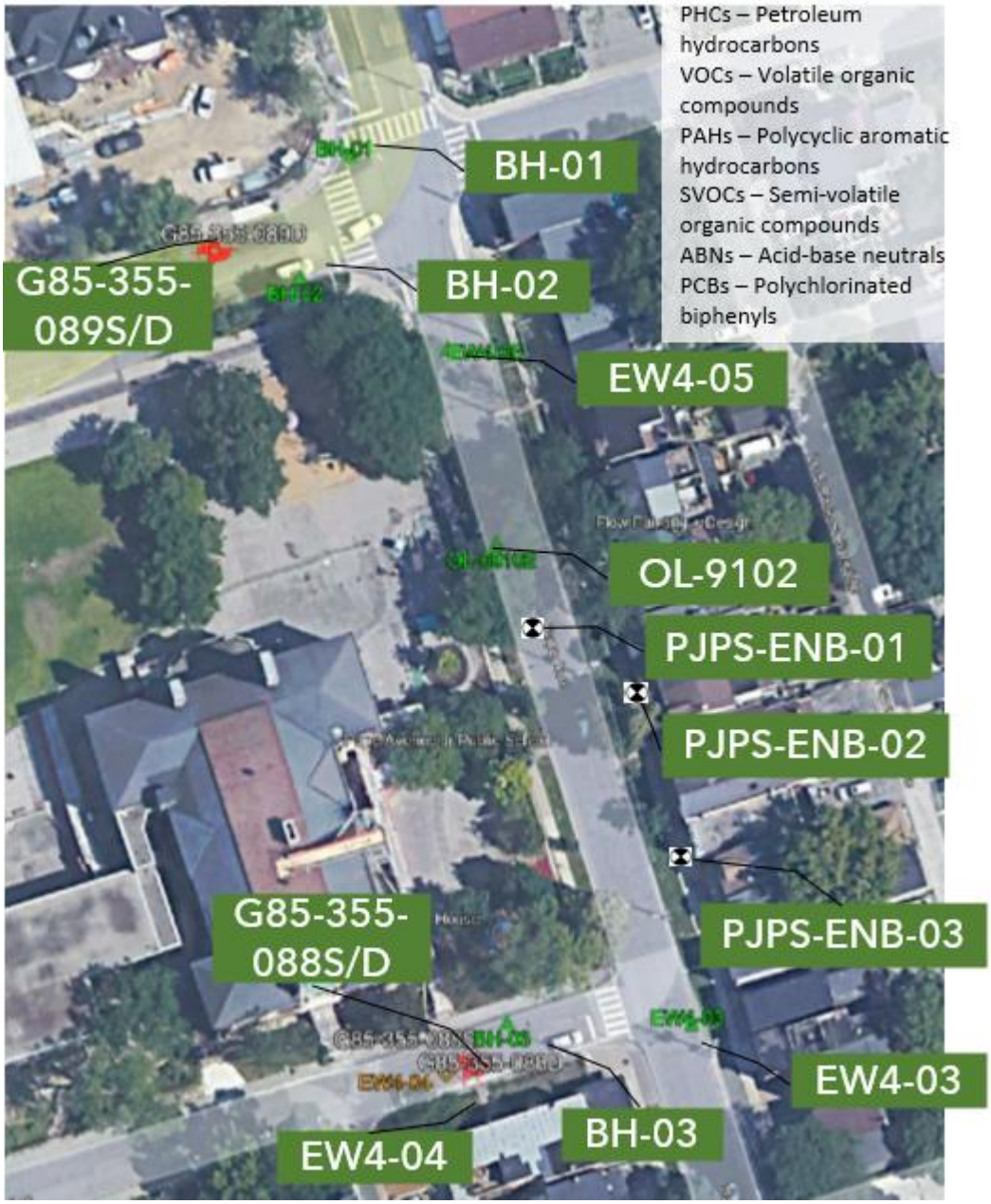
2.7 Excavation at Areas with Confirmed Contamination

ECOH Comment: ECOH agrees with Metrolinx on the suspension of dust-generating activities on windy days and/or in the event the $PM_{2.5}$ and PM_{10} levels are above the acceptable limits. The HASP (Heath and Safety Plan) must be revised and should be readily available to all personnel on site. Lastly, based on the previously completed sub-surface environmental investigations along Pape Avenue, the elevated level of B(a)P in the soil was confirmed at the borehole location OL-09102. However, these impacts were not delineated. As such, it is unknown currently, if the "worst case" soil impacts are only to the vicinity of the borehole OL-09102. Therefore, additional drilling investigations are recommended to delineate the impacted area of soil or Metrolinx should implement an appropriate HASP and air monitoring plan assuming that potential B(a)P impacted soil could be present under the entire construction zone along Pape Avenue.

Metrolinx Response: The H&S Plan is available to personnel on-site and has been updated to clarify that dust generating work resulting in levels of ambient $PM_{2.5}$ or PM_{10} above the ambient air quality limits or action levels in Table 5-1 of the H&S Plan (i.e. alerts, warnings, visible dust) will be adjusted or suspended under windy conditions.

With respect to B(a)P identified above applicable MECP standards in borehole OL-09102, the H&S Plan has been updated with the results of additional soil testing from the Enbridge utility relocation excavation along Pape Avenue. In summary, three (3) soil samples (PJPS-ENB-01, PJPS-ENB-02, and PJPS-ENB-03) were collected at depths from 0.3 to 0.9 metres below the ground surface and analyzed for B(a)P (see figure depicting sample locations below). Results from all samples collected met the MECP Table 3 standard for B(a)P of 0.3 ug/g.

Additional soil samples will be collected for B(a)P once Toronto Hydro mobilizes to conduct the electrical utility relocation work. Metrolinx has committed to managing soils excavated on Pape Avenue between Riverdale Avenue and Langley Avenue as though they contain elevated levels of B(a)P in the absence of soil testing data that confirms otherwise. Please note that ambient air monitoring will be conducted, as outlined in the H&S Plan.



Comments on Metrolinx Response to ECOH Reports

Noise Targets
2.1 Impacts of Noise

ECOH Comment: Metrolinx comments that "ECOH states that the guidelines identified in the [Metrolinx March 2023] H&S Plan are "not appropriate as standards for noise levels in schools" (pg. 3)." This comment misinterprets ECOH's statement, which was referring to Metrolinx' citation of the Ontario noise regulation. ECOH's May 18 report said, "The Ontario noise regulation and other guidelines designed to protect against hearing loss are not appropriate as standards for noise levels in schools." ECOH went on to say, "the criterion for noise limits should not be based

on hearing loss." We continue to hold this position, in view of impacts of noise on health and education quality, and the probable greater vulnerability of children to noise compared to adults. Metrolinx apparently accepts that construction noise levels should be lower than the limits imposed by the Ontario noise regulation.

Metrolinx Response: Hearing loss for children has been identified by the community and TDSB as a main concern related to construction noise impact. Thus, the guidelines proposed have identified these noise limits to first address this impact as part of a Health and Safety Plan. Thus, limits have been adopted in accordance with the Toronto Public Health, Health Canada, and World Health Organization to ensure that the noise limits adopted for the project address this concern.

ECOH includes education quality as another consideration for noise limits. ECOH does not expound on this aspect in either their original comments or this updated response – rather stating that the hearing loss noise limits do not address this. ECOH in their original response proposed a 3dB above baseline to address educational experience. However, limits to increases in baseline are used to address community response (typically 5dB above baseline) not to address education experience.

Classroom acoustics (i.e. "educational experience") noise is based on maintaining an acceptable indoor noise level for classroom operations, which Metrolinx has cited the TDSB health and safety guidance of a maximum 55dBA indoor noise level. On this basis, the Health and Safety Plan has been updated to reflect an outdoor noise limit of 80dBA Leq 10min to meet these criteria.

Thus, for clarity, we note the following noise limits in the latest Health and Safety Plan:

- 120dBA Lpeak and 69dBA Leq 07:00-18:00 to address hearing impact for children
- 80dBA Leq 10min to address indoor noise levels for educational experience

2.3 Average Background Level

ECOH Comment: Metrolinx states that the background level of noise outdoors at PAJPS should be considered to be 64 dBA, rather than 63 dBA. ECOH based its recommendation on Metrolinx' own noise monitoring, which found an average of 63 dBA in 3 of 4 measurement series taken on March 9 and March 21, 2023, as reported in its memo of April 6, 2023, and reproduced in the August 24 comments.

Metrolinx Response: We again reflect that ECOH is not understanding that baseline noise levels, to appropriately represent the ambient condition of a given location, must be conducted over an extended period – typically a minimum of one week, and in this case over one month. A single day of measurements does not properly characterize the ambient acoustic environment. Thus, the 64dBA background noise level has been established, and calibrated to the Pape location through spot-measurements (63-65dBA) on March 9 and March 21.

2.3 One Hour Averaging Time

ECOH Comment: Metrolinx states that its 69 dBA limit should be applied as an 11-hour average (7:00 a.m. to 6:00 p.m.), disagreeing with ECOH's recommendation that limits should be applied as a one-hour average. ECOH continues to believe that a one-hour averaging time is appropriate, for the following reasons:

- Averaging noisy periods with quiet periods could allow extremely elevated levels during noisy operations. For example, if noise averaged 62 dBA for 10 of the 11 hours (which is consistent with background noise measurements by Metrolinx), noise levels as high as 76.5 dBA for one hour would be acceptable, as the 11-hour average would remain below 69 dBA.
- A one-hour average period would allow remedial action based on shorter-term measurements. If it were necessary to monitor for 11 hours before determining whether targets had been exceeded, there would be no opportunity to intervene when noise levels are excessive.

Metrolinx Response:

An 11hr period of potential outdoor noise exposure to the playground (07:00-18:00) has been confirmed with Pape School operations. On the basis of hearing loss, a 69dBA Leq 07:00-18:00 limit has been defined to be no greater than the Toronto Public Health limit of 70dBA Leq 24hr. Table 1 below shows the noise level equivalencies when adjusted for duration.

Table 1 Noise Level Equivelancies

Noise Level (dBA)	Duration (hrs)	Comment
70	24	Toronto Public Health Limit
73	12	Metrolinx 69dBA Leq 11hr (07:00 – 18:00)
76	6	-
79	3	-
82	1.5	ECOH proposes 66dBA Leq 1hr

ECOH is correct on this basis that shorter durations allow for higher exposure (as per Table 1) and shows that with a 69dBA Leq 07:00-18:00 (11hr exposure) this would be below the equivalent 73dBA Leq 12hr exposure; thus, showing compliance with the Toronto Public Health guidance with an additional 3-4 dB factory of safety.

Adoption of the ECOH 66dBA Leq 1hr is an onerously conservative requirement (16-18dB below the equivalent noise level of 82dBA Leq 1.5hr) that is not required to meet the noise exposure guidance limits.

ECOH then contends that remedial action is only actionable on a one-hour basis – which is incorrect. Metrolinx has implemented monitoring on the project that reviews the noise levels in

anticipation of the daily exceedance and is able to response accordingly. This is discussed in greater detail (2.3 Action Level vs. Limit) below.

Thus, adoption of a 66dBA Leq 1hr limit is not warranted for the purpose of construction noise related to noise exposure on the project. The current 69dBA Leq 07:00-18:00 is sufficiently conservative to meet the noise exposure limits, and monitoring practices are in place to address this prior to exceeding these daily limits.

2.3 Action Level vs Limit

ECOH Comment: Metrolinx states, "ECOH concludes that an outdoor 66dBA Leq 1-hr limit should be adopted for the project." This is a misinterpretation of ECOH's recommendations. ECOH did not recommend that 66 dBA be the limit, but rather the **action level** to trigger further noise reduction efforts. This recommendation is based on the following considerations:

- An action level must be below the limit, so that remedial action can be taken before the limit is reached. The Metrolinx plan acknowledges this, stating that "Warning/review levels will be set lower than those noted in Table 4-1, to provide opportunity for adaptive management where feasible prior to any potential exceedance." (Metrolinx uses "warning/review levels" with the same meaning as ECOH uses "action levels".) However, the August 24 memo contradicts this, stating that "noise monitors are set to the limits identified in the H&S Plan (Table 4-1), to be addressed as Alerts (i.e., warning) at the monitoring location (i.e. barriers)." In other words, here Metrolinx states that "warning levels" are the same as the limit. This contradicts the concept of warning or action levels.
- As stated in our May 18 comments, the action level should be 3 dBA above background. This is based on our interpretation of the Beis and Hansen reference. A "just perceptible" level above background is appropriate as a trigger for action before it reaches the "clearly perceptible" level. ECOH notes that Beis and Hansen use a 5 dB exchange rate used in the US, rather than the 3 dB exchange used in Ontario. This difference also affects the appropriateness of the 3 dBA vs 5 dBA excursion above background. (The exchange rate, or doubling rate, refers to the method used for determining the acceptability of varying noise levels. It is the amount by which the permitted sound level may increase if the exposure time is halved.)
- It is common to use an action level that is 50% of the limit. With a 3 dB exchange rate, exposure to 69 dBA would be permitted for half the time permitted with a sound level of 66 dBA, so 66 dBA is appropriate as an action level representing 50% of a 69 dBA limit.
- Metrolinx has stated that its noise monitoring equipment is equipped with devices to allow determination of whether construction is the source of noise levels. ECOH recognizes that levels of 66 dBA may result from sources other than construction, but Metrolinx will be able to determine from this technology whether construction is the source.
- Section 4.1.3 of the Metrolinx plan identifies a number of remedial actions that could be taken if warning or action levels are exceeded. If these measures are available, they should be implemented before the limit is reached.

Metrolinx Response:

There is confusion on the part of ECOH in their presentation of a 66dBA Leq 1hr threshold. In the previous comment (2.3 One Hour Averaging Time) they adopt a 1hr exposure period for assessment, but in this comment clarify that this is a warning/action level and not a limit to trigger investigation.

For clarity, as per 2.3 One Hour Averaging Time comment above, a 69dBA Leq 07:00 – 18:00 is an acceptable impact to meet the Toronto Public Health exposure of 70dBA Leq 24h. For this project's purpose, that is the threshold limit that should not be exceeded during the construction day.

To review the construction noise, in anticipation of investigation prior to exceeding the 69dBA limit, this is done on a review of the daily noise levels (in 10min increments). As these daily noise levels are reviewed, they are checked against the daily 69dBA limit. When the 10min interval noise levels indicate that the 69dBA limit is expected to exceed, then a notification and investigation in the construction is identified that day to Metrolinx, with follow up mitigation to address the potential for exceeding the noise limit. This warning process satisfies the expectation of ECOH to address construction noise impacts prior to exceeding the daily limit.

To address the 80dBA Leq 10min limit, a warning level of 78dBA Leq 10min has been set. This is sufficient to anticipate exceedances and propose investigation into construction activities.

Vibration

ECOH Comment: The Metrolinx memo states, “ECOH notes that the action levels that will trigger further mitigation should be specified. Metrolinx confirms that these are to be set to the Built Heritage Structure limits in Table 4-2 of the H&S Plan.” As with noise, ECOH notes that action levels should be set at values below the limit, so that remedial action can be taken before the limit is reached.

Metrolinx Response: The Heritage Vibration limits are below the standard building construction vibration limits (Toronto Bylaw 514). It is our experience that monitoring to these limits is sufficient to address impacts to the heritage structure from construction vibration.

ECOH Comment: ECOH agrees that assessments of the condition of asbestos-containing materials at PAJPS should be conducted prior to, during and after construction activities. ECOH also notes that Metrolinx has agreed to provide vibration logs to the CLC.

Metrolinx Response: A building condition assessment to baseline the condition of previously identified asbestos containing material at the School will be conducted before the sewer relocation utility work tunneling begins.

Air Quality

5.1 24-hour Criteria

ECOH Comment: ECOH recommended that the Ontario Ambient Air Quality Criteria (AAQC) 24-hour values be used as the limits on average particulate (PM_{10} and $PM_{2.5}$) concentrations during the school day. ECOH adheres to our recommendation, especially considering the World Health Organization's recent lowering of guidelines for PM_{10} and $PM_{2.5}$ and the greater vulnerability of children to air pollutants. Applying a limit based on air monitoring results while construction is under way would allow a better assessment of the contribution of construction activities to airborne particulate levels.

Metrolinx Response: As per our previous response, the Ontario Ambient Air Quality Criteria (AAQC) were developed by the Ontario Ministry of the Environment, Conservation and Parks (MECP) based on the effects of contaminants on health and the environment for a specific concentration and exposure time (as further detailed in the response to 5.2 below). The averaging periods for each contaminant's criteria are therefore appropriate to assess ambient air quality concentrations resulting from all sources, including construction activities. Ambient air monitoring results are compared with all applicable Ontario or Federal criteria based on their appropriate averaging periods. It would not be appropriate to interpret/compare the Ontario or Federal criteria using a different averaging period. Summaries of ambient monitoring data are presented in our weekly ambient monitoring reports in 15-minute, 1-hour, rolling 24-hour and daily averaging periods, as applicable, following recommended procedures in the MECP's Operations Manual for Air Quality Monitoring in Ontario.

5.2 Standards for Indoor Particulates

ECOH Comment: ECOH recommended that a criterion be set for indoor concentrations of $PM_{2.5}$, in addition to their standards for PM_{10}. In explaining their rationale, Metrolinx provides arguments for why PM_{10} is a better indicator of particulate from construction activities. ECOH notes that if this is the case, it is not clear why Metrolinx has adopted a standard for $PM_{2.5}$ in outdoor air, as confounders would apply outdoors as well as indoors.

Metrolinx Response: The objective for the current indoor air monitoring program at the School is specifically to evaluate whether construction activities may be impacting the indoor school environment The equipment deployed within the school is capable of measuring both PM_{10} and $PM_{2.5,}$ but, as noted in previous responses, Metrolinx considers PM_{10} to be a more appropriate and representative parameter to achieve the specific monitoring program objective. This is for the following reasons:

- PM_{10}, commonly referred to as "coarse dust", consists of particulate 10 microns or less in diameter. Construction site activities are a recognized source of PM_{10}, along with many other sources, including wind-blown dust, forest fires, pollen, industrial pollution, etc. We note that airborne $PM_{2.5}$ is a component of airborne PM_{10} and is captured when

measuring for PM_{10}. Analysis of PM_{10} and $PM_{2.5}$ at the School has suggested that $PM_{2.5}$ (as expected) makes up the majority of the measured PM_{10}

- $PM_{2.5}$, commonly referred to as "fine dust", consists of particulate 2.5 microns or less in diameter. Particularly in an urban environment, a substantial portion of the airborne $PM_{2.5}$ is related to vehicle exhaust emissions and industrial air pollution (and for Toronto in the summer of 2023, forest fires). While construction activities generate $PM_{2.5}$ as well as PM_{10}, $PM_{2.5}$ can remain airborne for longer distances from its source than PM_{10}, which can also limit the ability to distinguish sources of $PM_{2.5}$ relative to PM_{10}.
- ECOH has previously suggested the use of either the Ambient Air Quality Criteria (AAQC) standard or (while not noted in the current round of comments) the LEED standard for $PM_{2.5}$. Notwithstanding the above details, Metrolinx does not agree with the validity of either the AAQC or LEED standard for $PM_{2.5}$ to meet the indoor air monitoring program objectives for the following reasons:
    - In the case of the AAQC, the standard cannot be considered directly applicable to the School population. While the AAQC are intended to protect populations inclusive of sensitive receptors such as children, the AAQC standards are designed to control exposures to such populations continuous (24-hour) exposure periods seven days per week. The School population is in the school up to nine hours per day on weekdays only. As per typical health-science-based toxicological/industrial hygiene practice, air-concentration-based exposure limits are naturally established at more stringent levels when they apply to longer periods of daily exposure (based on the principle that exposure to the same concentration of a substance over a greater period of time would result in a higher overall dose received of that substance). Therefore, Metrolinx considers that application of the AAQC would be overly stringent for this application.
    - In the case of the LEED standard, the only LEED standards making reference to $PM_{2.5}$ limits are the LEED v4 and LEED v4.1 for Interior Design and Construction (ID + C) standards, which are intended to be applied to new construction/renovation of buildings, as opposed to the LEED v4 and v4.1 for Operations and Maintenance standards that are intended for ongoing operations of buildings (and make no reference to $PM_{2.5}$ limits). As such, the ID + C standards cannot be considered applicable to a school housed in an older structure, and furthermore, the basis for the establishment of the ID+ C $PM_{2.5}$ limits has not been published, and therefore its scientific basis is unclear.

For the purposes of evaluating construction activity impacts on indoor air, Metrolinx will continue monitoring PM_{10}.