



ECO
Environmental Consulting
Occupational Health

**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 JUNIOR PUBLIC SCHOOL"**

DRAFT

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**Prepared for:
Toronto District School Board**

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1. INTRODUCTION

ECOH Management Inc. (ECOH) was asked by the Toronto District School Board (TDSB) to comment on Metrolinx's response to the Ministry of the Environment, Conservation and Parks (MECP) regarding Interim Supplementary Comments on Management of Soils with Benzo(a)pyrene [B(a)P] dated August 22, 2023, with regards to the construction of the Ontario Line near Pape Avenue Junior Public School (PAJPS).

2. INDOOR AND AMBIENT AIR QUALITY MONITORING DETAILS, MONITORING LOCATIONS & EQUIPMENT

2.1 Sampling Locations

MECP raised concerns about the sampling locations to ensure that the air monitoring plan includes the sampling locations that are positioned closest to the receptor areas with the highest potential for elevated contaminants due to construction activities.

Metrolinx had responded to MECP informing about adding new sampling locations to the scope of work for air quality monitoring.

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.

2.2 Monitoring Equipment

MECP raised concerns about using low-cost handheld devices, which can be inaccurate and unreliable for monitoring ambient air quality.

Metrolinx had responded to MECP with the details on handheld devices which are used for air quality monitoring. Metrolinx stated that these devices are factory calibrated on annual basis and are field calibrated against known standards twice per week (every 3-4 days of operation) to maintain accuracy of response.

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 PM₁₀ and Total Volatile Organic Compounds (TVOC). ECOH believes that use of these hand held 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 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.

2.3 Sampling and Monitoring of Benzo(a)pyrene

MECP raised concerns about not using sampling and monitoring techniques that address potential concentrations of B(a)P, which is a principal contaminant of concern in indoor and ambient air in the receptor areas. Furthermore, MECP commented that it was unclear how B(a)P levels can be accurately ascertained from the PM_{2.5} data, and how PM₁₀ and other fractions of particulate matter are factored into the calculation to determine B(a)P. Metrolinx' response to MECP indicates that the discussions are currently underway with TDSB to re-assess the school's electrical system and secure a power source and an appropriate monitoring location for the hi- volume (hi-vol) Polyurethane Foam (PUF) air sampler for B(a)P, which could not be installed previously as a request for power supply was not approved by the school earlier (in March 2023).

Metrolinx acknowledges that the hi-vol PUF air sampler can target the specific contaminant of concern; however, its use alone is not effective in achieving the monitoring objective of providing prompt response and mitigation to manage construction-related impacts. The hi-vol samples will need to be sent for laboratory analyses and will take at least one (if expedited) to two weeks turn-around time. Furthermore, Metrolinx provided scientific sources for supporting the use of real-time monitoring of PM_{2.5} and PM₁₀ for the determination of ambient B(a)P levels.

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 PM₁₀. 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 PM₁₀ could be used on site for the monitoring of B(a)P levels.

2.4 Sampling and Monitoring of Volatile Organic Compounds (VOCs)

MECP raised concerns about using ppbRAE 3000+ photoionization detector for indoor air monitoring of TVOCs instead of speciated VOCs. MECP stated that the accuracy of such devices is uncertain and suggested that using summa canisters for indoor air VOC sampling would yield higher quality results.

Metrolinx stated that a professionally-calibrated TVOC monitor such as a ppbRAE 3000+ is industry-standard equipment for IAQ monitoring. Furthermore, the objective of the IAQ

monitoring is to screen for potential construction-related impacts. As such, the intent is to screen for TVOCs and not to analyze the individual VOC components.

ECOH recommends using summa cannisters equipped with a flow controller that can be used to collect a sample over a set period of time 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.

2.5 Height and Location of Indoor Air Samples

MECP raised concerns about the height for indoor air samplers. Also, the location of these samples should be representative of the highest levels of potential exposure (i.e., in classrooms closest to construction activities and near boreholes with elevated concentrations). Such information was not clear to the MECP.

Metrolinx confirmed that the sampling equipment/devices were between 1.0 to 1.5 m above the floor. Furthermore, Metrolinx indicated that the locations of sampling equipment/devices were in the proximity of locations where construction activities were largely focused but were only limited to the classrooms that were pre-approved by TDSB.

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.

2.6 Upwind and Downwind Location of Ambient Air Samples

MECP raised concerns about the placement of samplers to be located upwind of the construction activities. No samplers were placed downwind of the construction area. Additionally, the ambient air samplers and data collected appears to be severely compromised due to obstructions and siting concerns (adjacent to a building and several trees).

Metrolinx responded that the current locations were the only locations that were approved by TDSB. However, a handheld device (i.e., DustTrak) is routinely used to measure upwind and downwind dust levels. Additionally, Metrolinx is in the process of identifying potential locations for air monitoring equipment close to residential receptors and downwind of construction.

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 the Pape Avenue should be added to the monitoring plan to assess the potential impacts to indoor air quality from the construction activities.

2.7 Excavation at Areas with Confirmed Contamination

MECP recommend that any excavation activities in and around areas of known contamination be limited during windy days. Furthermore, any areas excavated in and around known areas of contamination left exposed should be tarped to minimize dust and contaminants migrating to sensitive receptors. Lastly, the HASP must be updated to address these mitigative measures.

Metrolinx acknowledged MECP's concerns and confirmed that the dust-generating construction activities will be suspended or adjusted on windy days when mitigation measures are unsuccessful in maintaining PM_{2.5} or PM₁₀ levels within the limits set forth by the HASP. The HASP shall be updated with a requirement to tarp, cover or stabilize areas of exposed soils in and around areas of known contamination, wherever practicable, when active work is not taking place in those areas.

ECOH agrees with Metrolinx on the suspension of dust-generating activities on windy days and/or in the event the PM_{2.5} or PM₁₀ levels are above the acceptable limits. The HASP 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 were confirmed at the borehole location OL-09102. However, these impacts were not delineated. As such, it is unknown at this time, 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.

3. STATEMENT OF LIMITATIONS

The comments, recommendations and conclusions made by ECOH Management Inc. (ECOH) in this letter report are limited to the specific scope of work for which ECOH was retained and are based solely on information provided to ECOH by TDSB. Only those items that are reasonably obvious to ECOH personnel or have been identified to ECOH by other parties can be reported. ECOH has exercised a degree of thoroughness and competence that is consistent with the profession during the execution of this review. ECOH considers the opinions and information as they are presented in this report to be appropriate at the time of the review.

ECOH, to the best of its knowledge, believes this report to be accurate; however, ECOH cannot guarantee the completeness or accuracy of information supplied to ECOH by third parties.

ECOH is an Environmental Consulting Company and as such any results or conclusions presented in this report should not be construed as legal advice. The material in this report reflects ECOH's professional interpretation of information available at the time of report preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ECOH accepts no responsibility

for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Should additional information become available that suggests other environmental issues of concern beyond that described in this report, ECOH retains the right to review this information and modify conclusions and recommendations presented in this report accordingly.

4. CLOSURE

We trust that this report meets with your requirements. Should you have any questions, please contact us at (905) 795-2800.

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