Geofirma Engineering Ltd
1 Raymond St., Suite 200
Ottawa, Ontario K1R 1A2
Tel: (613) 232-2525
Fax: (613) 232-7149

June 13, 2017 Ref. No.: 15-201-11

City of Ottawa
Planning, Infrastructure and Economic Development Department
100 Constellation Crescent, 6th Floor West
Ottawa, Ontario K2G 6J8

Attn: Mr. Ziad Ghadban, Manager CSST

RE: Air Quality Monitoring and Sampling at CSST Site 5, Stanley Park – June 5 to 9, 2017

Dear Mr. Ghadban:

The following letter memo summarizes the results of the air quality monitoring completed at the Stanley Park construction site (CSST Site 5) between June 5 and 9, 2017.

1 PARTICULATE MONITORING

Continuous monitoring of airborne particulates was completed using a DustTRAK DRK Aerosol Monitor 8533, equipped with telemetry to provide real-time, continuous records of particulate matter (PM) concentrations.

Two monitoring stations were established at the site, one at a location upwind of the excavation area and one at a location downwind of the same excavation area on June 5. Due to a malfunctioning DustTRAK unit, only the downwind station operated on June 6 and 7. To more accurately capture particulate material measurements, both units were positioned downwind of the work area on June 8 and 9. Units were re-positioned daily based on observed and forecasted wind direction. Data was collected for approximately 8 to 10 hours per day during construction activities at the site.

2 APPLICABLE CRITERIA

The results of the air quality monitoring are compared to Ontario's Ambient Air Quality Criteria (MOECC, 2012). Relevant health related criteria (particulate) include the following:

- **$PM_{2.5}$ – 25 µg/m^3 (24 hour)**
- **PM_{10} – 50 µg/m^3 (24 hour)**

3 RESULTS

The data collected during construction was used to determine a 24 hour average particulate concentration. The 24 hour average concentration was calculated assuming the maximum average reported downwind daily particulate concentration occurred during the entire 10 hour working shift (7:00 am to 5:00 pm), with an estimate of 10 µg/m^3 for background $PM_{2.5}$ and PM_{10} concentrations.

This value is a conservative and reasonable background value for this site during the monitoring period as shown by the upwind concentrations. Table 1 presents the calculated results of the average particulate concentration for off-site receptors over a 24 hour period.

Table 1 - Calculated Average Daily (24 hour) Particulate Concentration (June 5 to 9, 2017) – Downwind Stations

Date	Average (24 hour) Particulate Concentration (µg/m^3)	
	$PM_{2.5}$ (Fine Fraction)	***PM_{10}***
June 5, 2017	4	4
June 6, 2017	7	7
June 7, 2017	2	3
June 8, 2017	6	8
June 9, 2017	9	13

Short term increases in the particulate concentration occur throughout the day and are associated with wind gusts and/or equipment activities such as trucks passing adjacent to the monitoring locations.

The calculated particulate matter concentrations, as presented in Table 1, are well below Ontario's AAQC.

4 COLLECTION OF LABORATORY SAMPLES

Three ambient air samples were collected between June 7 and 9, 2017 at a downwind monitoring location for laboratory analysis. Collected samples include the following:

- CSST-Site5-17-01 – Metals and Total Suspended Particulate (June 7, 2017)
- CSST-Site5-17-02 – Metals and Total Suspended Particulate (June 8, 2017)
- CSST-Site5-17-03 – Polycyclic Aromatic Hydrocarbons (June 7-9, 2017)

Samples were submitted to Maxxam Analytics Inc. on June 12, 2017. Typical turnaround time is 10 business days. Results will be reviewed and forwarded upon receipt.

Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

Geofirma Engineering Ltd.

Steve Gaines, M.A.Sc., P.Eng.
Geo-Environmental Engineer

Sean Sterling, M.Sc., P.Eng.
Senior Project Manager

Attach.

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Prepared By:	Steven Gaines, P.Eng.	
Reviewed By:	Sean Sterling, P.Eng.	