Lithos

February 10, 2023

Engineering & Construction Services
Metro Hall
55 John Street, 16th Floor
Toronto, Ontario M5V 3C6

Attention: Jacqueline Rodrigues, P.Eng.

Dear Mrs. Rodrigues:

Re: Response to City Comments
Zoning By-Law Amendment Application No. 21 166606 STE 13 OZ
Site Plan Control Application No.: 21 166615 STE 13 SA
Applicant: Urban Strategies Inc.
Developer: Tenblock
Location: 25 St. Mary Street Ward: 13

We are in receipt of the City's engineering submission comment letter dated January 09, 2023 prepared for the above noted project.

Following review of the comments received, kindly find below our responses itemized as per the comments provided under Section 3 of your January 09, 2023 letter:

A. <u>REVISIONS AND ADDITIONAL INFORMATION REQUIRED FOR PLANS, STUDIES AND DRAWINGS</u>

3. Engineering & Construction Services

3.1. Please confirm through investigation which sewers are receiving flows from the existing services (e.g. sewer survey, service connection cards, CCTV, dye/some tests).

Site investigations, including dye testing, has been completed in March 2022 and January 2023. The Site Investigation Reports, incorporating our findings, have been incorporated in Appendix B of our Functional Servicing and Stormwater Management (FSR/SWM) Report. Based on the above noted reports, sanitary flow from the existing building is being discharged into the existing 600mm diameter combined sewer on St. Mary Street. In addition, all storm runoff from the roofs and the front yard of the subject site is currently being discharged into the existing 675mm storm sewer on St. Mary Street. Storm runoff from the rear yards is being discharged into the existing 300mm diameter combined sewer on Inkerman Street.

3.2. Update the Functional Servicing Report Groundwater Summary (Long Term Discharge), to reflect changes made to the Functional Servicing and Stormwater Management Report.

Noted. Functional Servicing Report Groundwater Summary has been revised accordingly.

Lithos
Tel: (416) 750-7769
www.LithosGroup.ca

150 Bermondsey Road
Toronto, ON
M4A 1Y1

3.3. In order to comply with requirements as per MOE F-5-5 Determination of treatment Requirements for Municipal and Private Combined, new developments connecting to combined sewers must demonstrate that:

a) Increases in dry weather flow (DWF) causes no overflows at downstream CSO point/diversion structures under DWF plus 90% of the volume resulting from wet weather flow (WWF) from an average year.

b) Under wet weather flow conditions, there is no increase in overflow volumes at downstream CSO point/diversion structures.

These assessments required to demonstrate the above requirements is as follows:

a) Provide an on-site assessment of discharges (i.e. wastewater, inflow & infiltration and storm runoff) from the subject site showing no net increase in total flows under post-development conditions must be considered:

i. Confirm that storm runoff from the existing site is currently draining into the combined sewer system through investigation (e.g. sewer survey, service connection cards, CCTV, dye/smoke tests) to confirm any existing storm servicing connections (i.e., foundation/roof drain/catchbasin connections).

ii. Where existing storm contributions are confirmed to the combined sewer, demonstrate that reductions in the post-development storm runoff rate as a result of on-site SWM controls can offset the increase in dry weather flows for the 2-year design storm event.

OR

b) Use hydraulic modelling and capacity analysis to trunk to asses overflow impact to nearest CSO points/diversion structures for existing and post-development conditions for the following flow conditions:

i. DWF + 90% of average year runoff

ii. DWF + 2-year storm event

Following preparation of an external downstream capacity analysis, no overflow has been identified at the CSO point, located at the intersection between St. Mary Street and Yonge Street, during Dry Weather conditions. Under Wet Weather conditions, we are reducing the flows discharged from the subject site towards the City's combined sewer network, as per the MOE F-5-5 requirements. Thus, there will be no adverse impact to the combined sewer network. Please refer to Section 8.0 of the Functional Servicing and Stormwater Management Report, for details.

3.4. Identify the actual pre-development flows and the receiving sewer under existing conditions. The report only describes the target flow.

Section 5.1 of the Functional Servicing and Stormwater Management Report has been revised accordingly.

3.5. Include a pre and post development analysis of the existing storm sewer system to show that this development will not negatively impact the existing system.

Following our site investigations (including dye testing) in March 2022 and January 2023, the roofs of the existing building, as well as the front yard along St. Mary Street, drain towards the existing 675mm diameter storm sewer on St. Mary Street. Taking into consideration the above noted, under post-development conditions, the site release rate for a 100-year storm event has been designed to meet the 2-year pre-development flow, improving the conditions. Functional Servicing and Stormwater Management Report has been revised to clearly state the existing drainage pattern of the site.

3.6. Provide the results of a hydrant flow test that confirms the static and residual pressures in the watermain on St Nicholas St. meet the City's requirements for sufficient fire flows to service the Park. The current test provided only confirms the hydrant's capacity.

An InfoWater model has been prepared to confirm that there is adequate pressure in the existing watermain on St Nicholas Street to service the Parkland Dedication Area. For details, please refer to Section 9.2, as well as to DAP7 found in Appendix E, of the Functional Servicing and Stormwater Management Report.

3.7. Revise the Functional Servicing and Stormwater Management Report to address the comments provided on the attached marked up document, appended to this memorandum as Attachment 1 – Servicing & SWM Comments.

Functional Servicing and Stormwater Management Report has been revised accordingly.

Attachment 1 - Functional Servicing and Stormwater Management Report, by Lithos dated November, 2022.

a) Storm sewer + combined sewer overflow (5.1. Existing Conditions, pg. 3)

Functional Servicing and Stormwater Management Report has been revised accordingly.

b) Do you mean maintenance? (5.2.2.5. Underground Storage Chambers, pg. 9)

Functional Servicing and Stormwater Management Report has been revised accordingly.

c) Check – MOECP F-5-5. (5.3 Proposed Storm Connection, Parkland Dedication, pg. 10)

Following email coordination with the City, stormwater flow from the Parkland Dedication Area has been considered in the overall discharge flows to the City's combined sewer on Inkerman Street. Under post-development Wet Weather conditions, we are reducing the flows discharged into the municipal combined sewer network abutting the subject property, as per the MOECP F-5-5 requirements.

d) At Irwin Ave. and Yonge St.; however, there is a CSO at St. Mary St. and Yonge Street prior to these sewer networks converging. (6.1 Existing Sanitary Drainage System, pg. 10)

Functional Servicing and Stormwater Management Report has been revised accordingly.

e) The dye tests in the Appendix indicate that sanitary flows are directed to the combined sewer on St. Mary St., since there is a CSO (as stated above) you will need to consider these catchments separately when reviewing flows for meeting MOECP Procedure F-5-5. (6.2 Existing and proposed Population Flows, pg. 10)

Under proposed conditions, sanitary flows will be directed to the existing 600mm diameter combined sewer on St. Mary Street. The external sanitary capacity analysis has been revised accordingly, taking into account the related catchments areas. Please refer to Appendix D of the Functional Servicing and Stormwater Management Report, for details.

f) This is not consistent with the dye test results. Based on the images provided it appears consistent with the results that the storm flow is directed to the storm sewer, not the combined sewer. (8.1 Total Existing Flows – Storm Flow, pg. 12)

Functional Servicing and Stormwater Management Report has been revised accordingly.

g) While this is true, because there is a CSO at St. Mary St. and Yonge St you need to consider these sewers as separate catchments as the overflows are not converging where the sewer networks meet. (8.1 Total Existing Flows – Storm Flow, pg. 12)

Under proposed conditions, sanitary flows will be directed to the existing 600mm diameter combined sewer on St. Mary Street. The external sanitary capacity analysis has been revised accordingly, taking into account the related catchments areas. Please refer to Appendix D of the Functional Servicing and Stormwater Management Report, for details.

h) Be specific with which sewer is receiving the sanitary flows from the Site. (8.1 Total Existing Flows – Sanitary Flow, pg. 12)

Sanitary flow from the existing building is being discharged into the existing 600mm diameter combined sewer on St. Mary Street. Functional Servicing and Stormwater Management Report has been revised accordingly.

i) What is this based on? (8.1 Total Existing Flows - Table 8.1, pg. 13)

Foundation Allowance for the existing development has been calculated based on City's Guidelines "Design Criteria for Sewers and Watermains" for site areas < 10 ha.

j) Based on the dye tests, this flow is directed to the combined sewer on St. Mary St. Separate these flows from the Inkerman flows as these catchments are separate due to the presence of the CSO. (8.1 Total Existing Flows - Table 8.1, pg. 13)

Following dye testing, conducted in March 2022 and January 2023, the combined sewer network on St. Mary Street is not receiving any storm flows. Please refer to Appendix B and D, for further details. Table 8.1 has been revised accordingly.

k) 20.41L/s based on storm flows to Inkerman using a C=0.45. (8.1 Total Existing Flows – Sanitary Flow, Table 8.1, pg. 13)

"C" value, as per ratio of existing hardscape vs landscape, has been calculated to 0.54 and 0.32 for Drainage Area A2 Pre and A3 Pre, respectively. Therefore, total storm flows (2-year) being discharged into the City's combined sewer network, are estimated at 19.30 L/s.

l) Based on a quick calc, it appears that given the separate combined sewer catchments (due to the presence of the CSO structure) the proposed flows to Inkerman St combined sewer exceed the existing flows. Offsite improvements may be required. See the sewer capacity assessment guidelines for more information on these requirements for excess flows to the combined sewer. (8.1 Total Existing Flows – Sanitary Flow, pg. 13)

Under existing conditions, total storm and sanitary flows received by the City's combined sewer network abutting our site have been estimated to 30.91 L/s. The proposed total storm and sanitary flows that will be discharged into the municipal combined sewer network, have been calculated to 26.33 L/s. Consequently, we are reducing the flows to be received by the existing combined sewer infrastructure during Wet Weather conditions, meeting the MOE F-5-5 requirements. In addition, the external capacity analysis has been updated, and no overflows in the combined sewer network downstream of our site have been identified during Dry Weather conditions. Please refer to Section 8.0, as well as Appendices C and D of the Functional Servicing Report, for further details.

m) See prior comments and update accordingly. (8.2.2. Wet – Weather Flows into the Combined Sewer Network, pg. 15)

Functional Servicing and Stormwater Management Report has been revised accordingly.

n) The 150mm dia. Watermain on St. Mary St. is abandoned. Do you mean the 300mm dia. Watermain? (9.1 Existing System, pg. 15)

Functional Servicing and Stormwater Management Report has been revised accordingly.

o) What are the supply requirements for the Park? (9.2 Proposed Water Supply Requirements, pg. 15)

The Parkland Dedication area will be serviced by the existing 150mm diameter watermain on St. Nicholas Street. A Hydraulic Modeling Analysis has been prepared, in order to assess the capacity of the subject watermain. For details, please refer to Section 9.2 as well as to DAP7, found in Appendix E, of the Functional Servicing and Stormwater Management Report.

p) Update accordingly, see previous comment. (9.3.1. Proposed Mixed-use development, pg. 17)

Functional Servicing and Stormwater Management Report has been revised accordingly.

q) The watermain needs to be tested for its capacity. (9.3.2. Parkland Dedication, pg. 17)

A Hydraulic Modeling Analysis has been prepared, in order to assess the capacity of the existing 150mm diameter watermain on St. Nicholas Street. Please refer to Section 9.2 and Appendix F for details.

r) This is inconsistent with the dye test results which states that the storm flow is directed to the 27" (675mm) storm sewer. (Certification letter, Appendix B)

Certification letter has been revised as per the Site Investigation Reports, dated March 2022 and February 2023, and can be found in Appendix B of the Functional Servicing and Stormwater Management Report.

s) Provide the detailed calculations as to how this was determined (Irrigation calculation letter, Appendix B)

As per our email coordination with the City, the subject comment is related to SPA scope of work. Detailed calculations will be provided during future SPA stages.

t) Why is A5 Post not taken into consideration in the Total Site Release Rate? (Storm calculations, Appendix C)

Storm calculations have been revised accordingly and Drainage Area A5 has been taken into account for the Total Site Release Rate towards the existing storm sewer network on St. Mary Street.

u) This area fronts St. Mary St. and Inkerman St. and should be separated to clarify the area fronting St. Mary St. actually is collected in the catchbasins in the ROW which are collected by the storm sewer, not the combined sewer. (Storm calculations, Appendix C)

Uncontrolled site area has been splitted into two (2) Drainage Areas (A5 & A6 Post), draining to storm sewer network on St. Mary Street and to combined sewer network on Inkerman Street, respectively.

v) A5 Post fronts St. Mary St. and Inkerman. The area fronting St Mary does not discharge to the combined sewer since the road CBs are connected to the storm sewer. (Sanitary calculations, Appendix D)

Sanitary calculations have been revised accordingly.

w) Check. (Water Demand Calculation, Appendix E)

Water Demand Calculations have been revised accordingly.

x) Check. It appears you tested the 300mm dia. Watermain, not the abandoned 150. (Fire Hydrant Flow Test Report, Appendix E)

Fire Hydrant Flow Test Report has been revised accordingly.

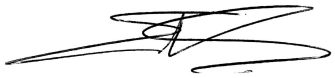
y) Using the same hydrant for the residual and flow only confirms the capacity of the hydrant. 2 hydrants must be used to test for the capacity of the watermain. This is needed in accordance with the Design Criteria for Sewers and Watermains to test for fire flow. (Fire Hydrant Flow Test Report, Appendix E)

A Hydraulic Modeling Analysis has been prepared, in order to assess the capacity of the existing 150mm diameter watermain on St. Nicholas Street. According to the subject analysis, there is adequate capacity, to service the proposed Parkland Dedication Area.

<u>Please note that, comments under Section 4 of the ECS memorandum, which are related to civil engineering items, will be addressed during the next SPA submission.</u>

Should you have any further questions, please feel free to contact the undersigned.

Yours truly,



Sarra Karavasili, P.E., M.A.Sc.

Project Design Manager

E: sarrak@lithosgroup.ca

D: (647) – 366 – 9610 x 1