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May 21, 2021 Reference No. 1911-W057



Highglen Homes Limited
10148 Warden Avenue
Markham, Ontario
L6C 1N3

Attention: Mr. John Perciasepe

**Re: Pre- and Post-Development Water Balance Assessment**
**Proposed Residential Development**
**230 Finch Avenue**
**City of Pickering**

Dear Sir:

Soil Engineers Ltd. (SEL) was retained to complete a pre- and post-development water balance assessment for the captioned site in support of a proposed residential development, and our findings and recommendations are presented in this letter report.

## • Introduction

The subject site is located, approximately 350 m west of the intersection of Finch Avenue and Altona Road in the City of Pickering. The subject site is currently vacant with the surrounding land use consisting of a wooded area to the north, an existing residential property and wooded areas to the east, Finch Avenue and existing residential properties to the south, and Nature Haven Crescent and existing residential properties to the west. The proposed development will involve the construction of eight lots, each consisting of a single detached, 2-storey dwellings having associated driveways, walkways and yards/landscaped areas. The location of the subject site is shown on Drawing No. 1, enclosed.

- **Background**

SEL previously completed a soil investigation (Reference No. 1911-S057) and a hydrogeological assessment (Reference No. 1911-W057) for the subject site. A review of the borehole logs indicates that beneath the topsoil and earth fill horizon and/or disturbed/weathered soils, the underlying subsoils consist of sandy silt, silty sand till and sands, extending to the termination depth of the investigation at 6.6 m below the prevailing ground surface. Groundwater levels from the hydrogeological assessment report were measured at depths 2.43 to 3.79 m below the prevailing ground surface, or at the elevations ranging from 135.76 to 138.54 masl.

- **Water Balance Assessment**

The water balance assessment for this proposed development site is based on the following equation:

$$P = ET + R + I + \Delta S$$

Where:

P -- Average Annual Precipitation

ET -- Evapotranspiration

R -- Surface Water Runoff

I -- Infiltration

Δs -- Change in Groundwater Storage, taken as 0

- **Precipitation**

The Toronto and Region Conservation Authority (TRCA) TRSPA tool was used for the current pre- and post-development water balance assessments. The water balance calculations for the subject site are summarized in the Appendix. Based on use of the TRCA tool; (https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/), an

annual precipitation rate of 861 mm/year was considered for the subject site which was used to complete the current pre- and post-development water balance assessments.

- **Interception**

Based on the adoption of the SWM Planning and Design Manual (MECP, 2003), evapotranspiration includes the evaporation from all sources; including; precipitation, water, snow, vegetation and from water droplets on plant surfaces, plus the transpiration from plants, not involving water droplets retained on leaves. As such, interception was not included for the current pre- and post-development water balance assessments as it has been included in the estimate for evapotranspiration.

- **Groundwater Storage**

Although groundwater storage experiences gains and losses on a short-term basis, the net change in groundwater storage ($\Delta S$) over the long-term is generally zero. For this reason, the change in groundwater storage is shown as zero (0) which has not been included in the water balance calculations.

- **Evapotranspiration**

In general, evapotranspiration (ET) refers to the transfer of water from vegetation and from the soil surface to the atmosphere in the form of water vapour. The term considers evaporation from the soil surface, and from man-made infrastructure surfaces (asphaltic and concrete roads and building roofs), together with the transpiration and interception from plants and trees because of the difficulties in separating these processes. Potential evapotranspiration (PET) refers to the transfer/loss of water from vegetated surfaces to the atmosphere under the conditions of unlimited water supply. The actual rate of evapotranspiration (AET) is generally less than PET under dry conditions (i.e., during the summer season when there is a soil moisture deficit). Use of the TRSPA tool suggests that an ET value estimate of 670 mm/year, which has been adopted for the subject site, can be applied for the pre- and post-development water balance assessments.

- **Infiltration and Runoff**

The TRSPA Tool suggests an infiltration recharge rate of 82.30 mm/year can be adopted for the subject site. However, a modified infiltration rate of 124.15 mm/year was considered for the current water balance assessment, which is based on the MECP infiltration factors and the water surplus factor or (P-ET) for the site, in which the water surplus was estimated at 191 mm/year based on the ET and P estimates that were adopted from the TRSPA tool. Details of the assessment are presented in the Appendix, on pages 1 of 3. Table 2 summarizes the infiltration and runoff estimates based on the considered approach.

The TRSPA Tool suggests a runoff rate of 155 mm/year for the subject site. However, this value has been modified to a runoff factor of 66.85 mm/year, which is also based on use of the water surplus estimate of 191 mm/year times 1 minus the cumulative infiltration factors, or (1 - 0.65) (Table 2), which were considered for the current estimation to conform with the precipitation and ET rates that were adopted from the TRSPA tool that was used for the assessment. The average annual depth estimates for infiltration and runoff for the subject site are given in Table 1. The water balance depth estimates for the infiltration and runoff component that were mused for the current assessment are provided in Table 2.

The TRSPA tool derived infiltration and runoff depth estimates were not used since the sum of these estimates along with ET do not add up to the TRSPA tool derived estimate for precipitation, which is the reason for use of the modified approach as described above.

**Table 1 -** Summary of Water Balance Components that were Adopted from the TRCA TRSPA Tool As Modified Based on the MECP Infiltration Factors for the Site

| Precipitation (mm/year) | Evapo-transpiration (mm/year) | Runoff (mm/year) | Infiltration (mm/year) |
|---|---|---|---|
| 861 | 670 | 66.85 | 124.15 |

Runoff from impervious surfaces is calculated differently than runoff from pervious soil/vegetated covered surfaces. As a general rule, the ET from impervious surfaces, on an average annualized basis is calculated, by taking 10% of the average annual precipitation, while runoff is calculated by taking 90% of the average annual precipitation. The subject site is

currently vacant, being covered with grass and weeds. Impervious surfaces are being proposed for construction at the developed site. As such, the ET and runoff depth estimates on an average, annualized depth basis for the proposed impervious areas are 86.1 mm/year and 774.9 mm/year, respectively.

**Table 2 -** Summary of Infiltration and Runoff Estimation

| Land Characteristics | MECP Infiltration Factors | Water Surplus Estimate (mm/yr) | Infiltration Estimate (mm/yr.) | Runoff Estimate (mm/yr.) |
|---|---|---|---|---|
| Soil: (sand, sandy silt, silty sand till) | 0.30 | **191** | I = 0.65×191 | R = (1-0.65) ×191 |
| Slope: (flat land) | 0.25 | | | |
| Vegetation Cover: (Grass, weeds and shrubs) | 0.10 | | | |
| Cumulative Infiltration Factor | **0.65** | | 124.15 | 66.85 |

- **Pre-Development Water Balance**

Since there are no pre-existing structures or paved areas within the undeveloped subject site, the pre-development water balance for the subject site was calculated by multiplying the existing undeveloped site areas by the various, averaged, annualized depth estimates for Precipitation, ET, infiltration and Runoff. The average, annual volumetric estimates for each pre-development water balance components are given in Table 3.

**Table 3 -** Summary of Pre-Development Volumetric Water Balance Components

| Pre-Development Site Areas | Area Coverage ($m^2$) | Precipitation ($m^3$/year) | AET ($m^3$/year) | Infiltration ($m^3$/year) | Runoff (Pervious) ($m^3$/year) |
|---|---|---|---|---|---|
| Pervious Areas (Entire Site Area) | 5,121.31 | 4,409.45 | 3,431.28 | 635.81 | 342.36 |
| **Total Area/Volume** | **5,121.31** | **4,409.45** | **3,431.28** | **635.81** | **342.36** |

The pre-development water balance components for the site were calculated on an annualized depth basis by dividing the volumetric estimates for each water balance component, from above by the total site area. Based on this approach, the depth-based water balance components are presented as follows:

$$P\ (861.0) = ET\ (670.0) + I\ (124.15) + R\ (66.85)$$

- **Post-Development Water Balance**

Based on review of the Context Site Plan (Colour) prepared by Jardin Design Group Inc., Drawing No A-01, dated May 4, 2021, the proposed development will consist of the construction of eight lots, each comprising a single, detached 2-storey dwellings, having associated driveways, walkways and yards/landscaped areas. A review of the development plan indicates that the total site area is 5,121.31 $m^2$. Of this area, 1,321.59 $m^2$ will be developed into the proposed residential dwellings, 494.38 $m^2$ will be developed as driveway areas, 373.51 $m^2$ will be developed as paved, hardscaped areas (roads and walkways), and the remaining 3,031.83 $m^2$ will be landscaped/open space areas.

The post-development water balance components were calculated using the same, depth-based components that were used for the pre-development water balance calculations, i.e., average annual precipitation and average annual ET. Following site development, with no infiltration through the impervious areas, the depth estimates for runoff and ET become 10% and 90% of the average annual precipitation, respectively, giving depth estimates of 86.1 mm/year and 774.9 mm/year for runoff and ET respectively for proposed impervious developed surfaces. The estimated post-development water balance volumes for the developed site are provided, as follows, in Table 4:

**Table 4 -** Summary of Post-Development Volumetric Water Balance Components

| Post-Development Site Areas | Area Coverage ($m^2$) | Precipitation ($m^3$/year) | AET (Impervious) ($m^3$/year) | AET (Pervious) ($m^3$/year) | Infiltration ($m^3$/year) | Runoff (Pervious) ($m^3$/year) | Runoff (Impervious) ($m^3$/year) |
|---|---|---|---|---|---|---|---|
| Impervious Area (Building Areas) | 1,321.59 | 1,137.89 | 113.79 | 0.0 | 0.0 | 0.0 | 1,024.10 |
| Impervious Area (Driveways) | 494.38 | 425.66 | 42.57 | 0.0 | 0.0 | 0.0 | 383.10 |
| Imervious Area (Roads and Walkways) | 273.51 | 235.49 | 23.55 | 0.00 | 0.00 | 0.00 | 211.94 |
| Pervious Area (Landscaped Areas) | 3,031.83 | 2,610.41 | 0.0 | 2,031.33 | 376.40 | 202.68 | 0.0 |
| **Total Area/Volume** | **5,121.31** | **4,409.45** | **179.90** | **2,031.33** | **376.40** | **202.68** | **1,619.14** |

From the post development volumetric water balance estimates presented in Table 4, the depth-based post-development water balance estimates were determined after dividing volumetric total volumetric amounts by the total site area, presented as follows:

$$P\ (861.0) = ET\ (431.77) + I\ (73.50) + R\ (355.74)$$

Comparison of the pre- and post-development water balances shows a decrease of 238.23 mm/year, or 35.56 %, in annual evapotranspiration, a decrease of 50.65 mm/year, or 40.80 %, in annual infiltration, and a gain in runoff of 288.89 mm/year, or 532.15 %. The volumetric comparisons for evapotranspiration, infiltration and runoff between the pre-developed and post-developed site are summarized in Table 5. A review of the findings indicates that after development, decreases of 1,220.05 $m^3$/year and 1,479.46 $m^3$/year are anticipated for ET and infiltration, respectively. An increase of 1,479.46 $m^3$/year is also expected for runoff for the post-developed site, compared with the pre-developed site. The anticipated infiltration deficit between the pre, and post developed site is 259.41 $m^3$/year.

**Table 5** - Comparison Summary of Pre- and Post-Development Water Balance/ Budget Components

| | **Precipitation ($m^3$/year)** | **ET ($m^3$/year)** | **Infiltration ($m^3$/year)** | **Runoff ($m^3$/year)** |
|---|---|---|---|---|
| Pre-development | 4,409.45 | 3,431.28 | 635.81 | 342.36 |
| Post- development | 4,409.45 | 2,211.23 | 376.40 | 1,821.82 |
| Volumetric Change in Pre- and Post-Development Water Balance Parameters | - | -1,220.05 | -259.41 | +1,479.46 |

- loss
+ gain

- **Mitigation Plan**

The difference between the pre- and post- development water balances can be attributed to establishment of impervious surfaces, such as paved areas, building footprints and building rooftops. For the designs of any proposed Low Impact Development (LID) infrastructure to maintain the predevelopment water balance, the permeability of the surface soil is considered to be low to moderate. Bio-retention swales, soakaway pits, permeable pavement and/or the thickening of topsoil within landscaped areas in conjunction with other LID methods can be considered to promote infiltration to recharge the groundwater table where possible.

The previous hydrogeological assessment indicates that groundwater levels were measured at depth elevations, ranging from 135.76 to 138.54 masl, or at depths of 2.43 to 3.79 m below grade. The hydraulic conductivity (K) estimates for the subsoils at the depths of the monitoring well screen intervals, ranges from 6.8 x $10^{-7}$ to 5.2 $10^{-6}$ m/sec, which confirms the low to moderate permeability for the native subsoil horizons which might be considered for any proposed infiltration infrastructure designs to promote groundwater recharge to the subsurface at the developed site.

The proposed development will consist of the construction of eight (8) lots, each comprising a single detached 2-storey dwelling, having associated driveways, walkways and yards/landscaped areas. An area of 1,321.59 $m^2$, has been considered for rooftop/building areas, with an estimated area of 494.38 $m^2$, being considered for driveways, and an estimated area of 273.51 $m^2$, being considered for hard surface areas (roadways and walkways) following site development. The anticipated runoff volumes, derived from the rooftop and paved areas (i.e. 90% of annual precipitation), are provided in Table 6.

**Table 6 -** Anticipated Volumetric Runoff from Proposed Rooftops and Paved Areas

| Proposed Building Rooftop/ Paved Areas | Approximate Area Coverage ($m^2$) | Runoff Rate (mm/year) | Estimated Runoff (Building Areas and Paved Areas) ($m^3$/year) |
|---|---|---|---|
| Proposed Building Rooftop Area | 1,321.59 | 774.9 | 1,024.10 |
| Proposed Driveways | 494.38 | 774.9 | 383.10 |
| Proposed Hardscaped Areas | 273.51 | 774.9 | 211.94 |
| **Total** | **2,089.48** | **774.9** | **1,619.14** |

Given that about 1,321.59 $m^2$ of the subject site will be developed as building areas, and about 494.38 $m^2$ will be developed as driveways, the estimated runoff volumes could reach a maximum of 1,024.10 $m^3$/year and 383.10 $m^3$/year for each of these areas, respectively.

Implementation of rainwater harvesting (dual use cisterns) could reduce runoff by about 23% to 42%, based on an assessment conducted by Toronto Region Conservation Authority (TRCA) in 2010 (Table 4.1.2, Low Impact Development Stormwater Management Planning and Design). As shown above in Table 6, the total rooftop generated runoff for the developed subject site is 1,024.10 $m^3$/year, and therefore, about 234.54 to 430.12 $m^3$/year of the runoff could be

managed using a proposed rainwater harvesting method. Rainwater harvesting systems could be installed underground, indoors, on the ground, next to a building or on the roof. The collected runoff water could also be used for non-potable uses, such as for irrigation watering during the spring and summer months, or to recharge the shallow groundwater table, and to increase evapotranspiration (Low Impact Development Stormwater Management Planning and Design Guide, 2010).

The bioretention swale technique, associated with an under-drain conveyance pipe within the landscaped areas could also be considered to manage some of the generated runoff from rooftops. Based on the 2010 TRCA assessment, consideration for a bio-retention swale could manage 45% or 460.85 $m^3$/year of the generated rooftop run off (Table 4.5.2, Low Impact Development Stormwater Management Planning and Design). Alternatively, use of imported fill materials could also be considered for site grading to enhance infiltration opportunities, to promote groundwater recharge penetration to shallow depths through the placement of imported pervious fill soil. The placement of uncompacted, permeable imported fill soil, such as medium to coarse sand having a silt content of less than 8% is recommended for consideration at the grading stage of construction. Ideally, this fill would be used in proposed landscaped areas.

Permeable pavement could also be considered as an option in conjunction with other adopted LID techniques to maintain the site's pre-development water balance following development. Based on a TRCA's assessment, applying the permeable pavement could reduce the generated runoff associated with the new development by about 45% to 55%. Approximately 494.38 $m^2$ of the subject site will be developed as driveways, where permeable pavement could be implemented. As such, the anticipated runoff for this area could reach a maximum volume of 383.10 $m^3$/year (Table 4). By applying permeable pavement, the runoff could be reduced by 172.40 to 210.76 $m^3$/year.

Other techniques, including the implementation of soak-away pits, infiltration tanks/galleries and/or dry wells may be feasible as a means to recharge the groundwater table following site development. Alternatively, clean roof-generated runoff can be directed to recharge groundwater by means of grass swales, or using an infiltration trench, or by means of

underground exfiltration tanks, or having it re-directed to the nearby wooded areas to further enhance infiltration without the need for the designs of LID infrastructure.

The stormwater management engineer should be consulted to prepare the final designs for any proposed LID infrastructure to maintain the site's pre-development water balance after development. Furthermore, a mitigated water balance assessment is anticipated as being required based on any runoff volumes being directed to the proposed LID infiltration infrastructure. The mitigated water balance for the subject site can be provided in the future, once the proposed LID infrastructure plans have been finalized. Design of any proposed LID infrastructure will be provided by others.

We trust the above satisfies your present requirements. Should you have any further queries, please feel free to contact this office.

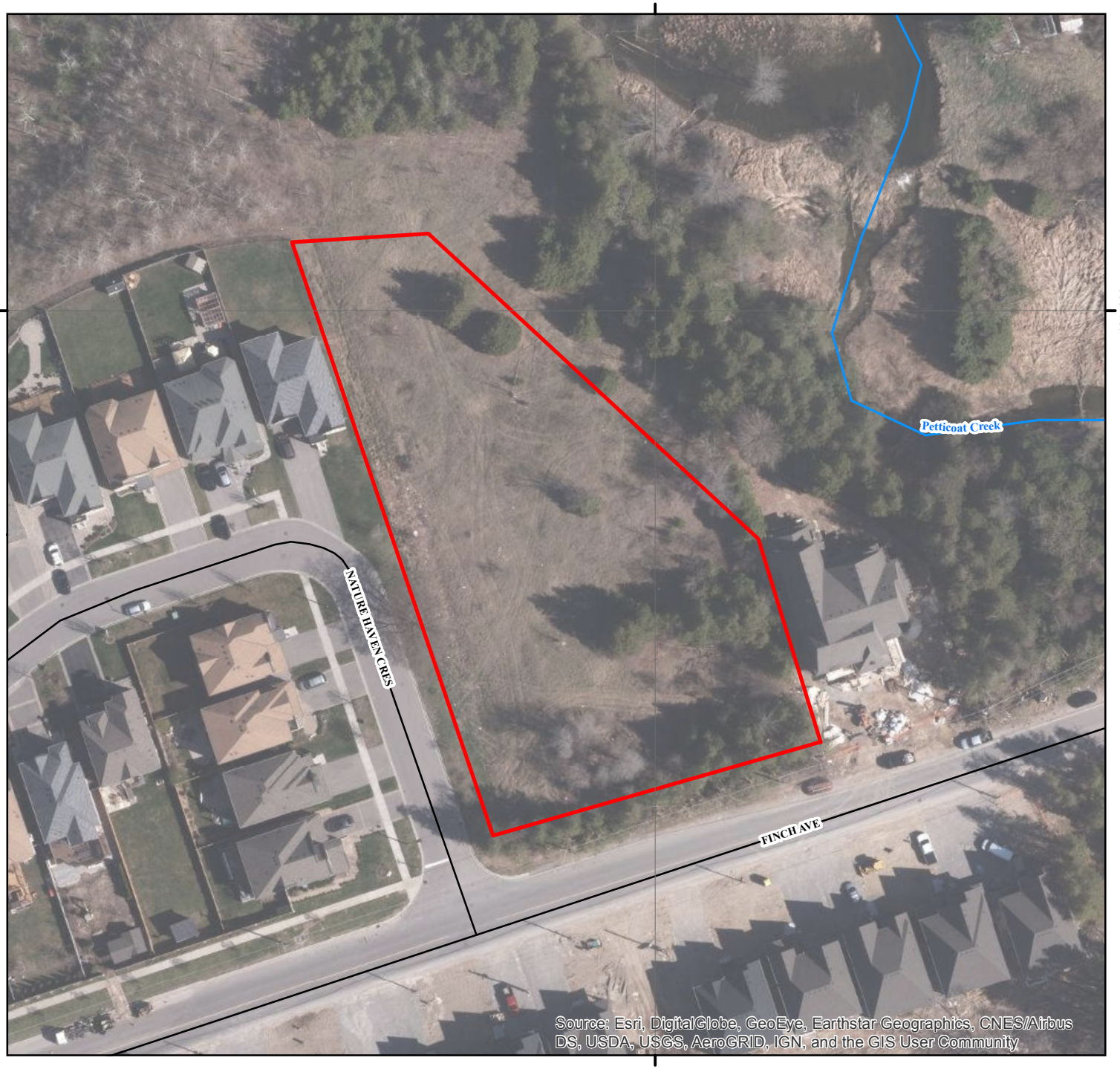
Yours truly,
**SOIL ENGINEERS LTD.**

Vivian Yu, B.Sc.


Gavin O'Brien, M.Sc., P.Geo.
VY/GO

**ENCLOSURES**

Site Location Plan ..... Drawing No. 1
Pre- and Post-Development Water Balance Assessment ..... Appendix




Source: Ministry of Natural Resources and Forestry
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Approximate Boundary of Subject Site

Watercourse

Local Road

*Soil Engineers Ltd.*

Title: Site Location Plan

Project:

Hydrogeological Assessment
Proposed Residential Development
230 Finch Avenue
City of Pickering

Reference No. 1911-W057

Date: December 31, 2019

Scale:

0 5 10 20 30 40 50

Metres

Drawing No. 1

230 Finch Avenue, City of Pickering
Precipitation, Recharge, Runoff and Infiltration Rates adopted from TRCA TRSPA Tool

| Address | Precipitation (mm/yr) | ET (mm/yr) | Runoff (mm/yr) | Infiltration/Recharge (mm/yr) | ET+Runoff+Infiltration (mm/yr) |
|---|---|---|---|---|---|
| 230 Finch Avenue, Pickering | 861 | 670 | 155.0 | 82.3 | 907 |
| **Modified** | **861** | **670** | **66.85** | **124.15** | **861** |

Source: https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/

## Pre-Development Water Balance/Budget

230 Finch Ave, Pickering

| | |
|---|---|
| **Evapotranspiration** Adopted from TRSPA WB TRCA tool | **670 mm/yr** |
| **Infiltration** Adopted from TRSPA WB TRCA tool and MECP Factors | **124.15 mm/yr** |
| **Runoff** Adopted from TRSPA WB TRCA tool and MECP Factors | **66.85 mm/yr** |

| | | |
|---|---|---|
| Avg Annual Precipitation | **861** **mm/yr** | Adopted from TRSPA WB Tool |

| | | | |
|---|---|---|---|
| ET | pervious surfaces | 0.1 | 10% |
| R | impervious surfaces | 0.9 | 90% |

| Type | MECP factors | |
|---|---|---|
| cover | 0.1 | grass, weeds, shrubs |
| slope | 0.25 | flat land |
| soil texture | 0.30 | sand, sandy silt, silty sand till |
| cumulative | 0.65 | |

Site Area **5,121.31 $m^2$**

| Site Areas | Areas | Impervious factor | Assigned ET | Water Surplus | Infiltration Adopted from TRSPA WB Tool |
|---|---|---|---|---|---|
| | $m^2$ | | mm/yr | mm/yr | mm/yr |
| Existing Pervious Areas | 5,121.31 | **0** | **670.00** | **191.00** | **124.15** |
| Existing Impervious Area | 0.00 | **1** | **86.10** | **774.90** | **0.00** |
| Total Area | **5,121.31** | | | | |

| Runoff | precipitation | Infilt Vol | RO Vol | ET Vol | |
|---|---|---|---|---|---|
| mm/yr | $m^3/yr$ | $m^3/yr$ | $m^3/yr$ | $m^3/yr$ | |
| **66.9** | **4,409.45** | **635.81** | **342.36** | **3,431.28** | |
| **774.9** | **0.00** | **0.00** | **0.00** | **0.00** | |
| **841.8** | **4,409.45** | **635.81** | **342.36** | **3,431.28** | check |
| **percentages** | | **0.14** | **0.07** | **0.78** | 1 |

**Parcel A: Pre Development Water Balance/Budget**

| P | = | ET | + | I | + | R | + | ΔS | | Check |
|---|---|---|---|---|---|---|---|---|---|---|
| **861.00** | = | **670.00** | + | **124.15** | + | **66.85** | + | 0.0 | | **861.00** |

Source: https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/

## Post-Development Water Balance/Budget

230 Finch Ave, Pickering

| | | |
|---|---|---|
| **Evapotranspiration** Adopted from TRSPA WB TRCA tool | **670** | mm/yr |
| Modified **Infiltration** Adopted from TRSPA WB TRCA tool and MECP Factors | **124.15** | mm/yr |
| Modified **Runoff** Adopted from TRSPA WB TRCA tool and MECP Factors | **66.85** | mm/yr |

| | | |
|---|---|---|
| Avg Annual Precipitation | **861** | **mm/yr** Adopted from TRSPA WB Tool |

| | | | |
|---|---|---|---|
| ET | impervious surfaces | 0.1 | 10% |
| R | impervious surfaces | 0.9 | 90% |

| Type | MECP factors | |
|---|---|---|
| cover | 0.1 | grass, weeds, shrubs |
| slope | 0.25 | flat land |
| soil texture | 0.30 | sand, sandy silt, silty sand till |
| cumulative | 0.65 | |

| Future Developed Site Areas | Areas | Impervious factor | Assigned ET Pervious Portion | Water Surplus | Infiltration - Pervious Portion | ET - Impervious Portion | Runoff - Impervious Areas | Runoff Pervious Portion | precipitation | Pervious Area: Infilt Vol. Pervious Areas | Pervious Area: RO Vol. Pervious Areas | Pervious Area: ET Vol Pervious Areas | Impervious Area: RO Vol. Impervious Areas | Impervious Area: ET Vol Imperv Areas | Total Et and Ro.: Total ET | Total Et and Ro.: Total RO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $m^2$ | | mm/yr | mm/yr | mm/yr | mm/yr | mm/yr | mm/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr | $m^3$/yr |
| Pervious Area (Landscaped Area/Open Space) | **3,031.83** | 0.0 | **670.00** | **191.00** | **124.15** | **0.00** | **0.00** | **66.85** | **2,610.41** | **376.40** | **202.68** | **2,031.33** | **0.00** | **0.00** | **2,031.33** | **202.68** |
| Impervious Areas (Buildings) | **1,321.59** | 1.0 | **0.00** | **774.90** | **0.00** | **86.10** | **774.90** | **0.00** | **1,137.89** | **0.00** | **0.00** | **0.00** | **1,024.10** | **113.79** | **113.79** | **1,024.10** |
| Impervious Areas (Driveways) | **494.38** | 1.0 | **0.00** | **774.90** | **0.00** | **86.10** | **774.90** | **0.00** | **425.66** | **0.00** | **0.00** | **0.00** | **383.10** | **42.57** | **42.57** | **383.10** |
| Impervious Areas (Roads, Sidewalks,Walkways) | **273.51** | 1.0 | **0.00** | **774.90** | **0.00** | **86.10** | **774.90** | **0.00** | **235.49** | **0.00** | **0.00** | **0.00** | **211.94** | **23.55** | **23.55** | **211.94** |
| Total Area | 5,121.31 | | | | | | | **Total** | **4,409.45** | **376.40** | **202.68** | **2,031.33** | **1,619.14** | **179.90** | **2,211.23** | **1,821.82** |
| | | | | | | | | | **Totals** | | | | **Total RO** | **1,821.82** | **Total ET** | **2,211.23** |

**Parcel A: Post Development Water Balance/Budget**

| P | = | ET | + | I | + | R | + | ΔS | | Check |
|---|---|---|---|---|---|---|---|---|---|---|
| **861.00** | = | **431.77** | + | **73.50** | + | **355.74** | + | **0.0** | | **861.01** |

**Pre Development Water Balance/Budget**

| P | = | ET | + | I | + | R | + | ΔS | | Check |
|---|---|---|---|---|---|---|---|---|---|---|
| **861.00** | = | **670.00** | + | **124.15** | + | **66.85** | + | **0.0** | | **861.00** |

| | ET | I | R | ΔS |
|---|---|---|---|---|
| Loss/Gain in Post | loss: **238.23** | loss: **50.65** | gain: **288.89** | 0 |
| | % loss: **35.56** | %loss: **40.80** | %gain **532.15** | 0 |

Source: https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/