BOUSFIELDS INC.

Project No. 18355

December 8, 2020

Planning and Housing Committee
100 Queen Street West
Toronto, ON
M5H 2N2

Attention: Nancy Martins

Dear Members of the Planning and Housing Committee,

***Re: Item PH19.1 Keele Finch Plus Planning Study – Final Report***
***Proposed Secondary Plan and Protected MTSAs***
***470 Sentinel Road and 1, 35, and 40 Fountainhead Road***

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We are the planning consultants for Ranee Management, the owners of the above-noted lands, located at the northwest corner of Finch Avenue West and Sentinel Road within the Keele Finch Plus Study Area.

Please see our detailed letter to Matt Armstrong attached **(Attachment 1)** regarding our comments on the proposed Secondary Plan and Protected MTSAs.

We are also requesting that we be notified of any action by the Planning and Housing Committee or Council, including the notice of adoption of any Official Plan Amendment.

If you have any questions or would like to discuss these matters further, please do not hesitate to contact the undersigned or Daniel Rende of our office.

Yours truly,

**Bousfields Inc.**

Peter F. Smith, MCIP, RPP

*Attachment 1: Letter to Matt Armstrong dated December 8, 2020*

BOUSFIELDS INC.

Project No. 18355

December 8, 2020

Mr. Matt Armstrong
Planner
Community Planning, North York District
North York Civic Centre
5100 Yonge Street
North York, ON M2N 5V7

Dear Mr. Armstrong:

***Re: Keele Finch Plus Planning Study – Final Report***
***Proposed Secondary Plan and Protected MTSAs***
***470 Sentinel Road and 1, 35, and 40 Fountainhead Road***

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We are the planning consultants for Ranee Management, the owners of the above-noted lands, located at the northwest corner of Finch Avenue West and Sentinel Road within the Keele Finch Plus Study Area (the "subject lands").

In our opinion, the heights and densities recommended for the subject lands in the Keele Finch Plus Study do not appropriately recognize the intensification goals and policies of the Growth Plan for Major Transit Station Areas and inappropriately limit opportunities for transit-supportive intensification on the subject lands.

Background

On September 10, 2019, we attended a Pre-Application Meeting with City staff from both the Etobicoke and North York Community Planning offices to discuss a proposal for 8 new rental apartment buildings on the subject lands ranging in height from 8 to 24 storeys with a total of approximately 1,480 units. The proposal also included a new north-south public street and a new 0.6 hectare public park, as well as amenity spaces to be shared by existing and future residents.

On September 30, 2019, we submitted a letter to you indicating our concerns with the Keele Finch Plus Planning Study and Proposed Secondary Plan. We have continued to be involved with the Keele Finch Plus study including attending the recent public meeting on November 9, 2020.

Comments on the Keele Finch Plus Study and Secondary Plan

The subject lands are proposed to be designated *Mixed Use Areas A* along Sentinel Road, *Apartment Neighbourhoods* for the majority of the site and *Natural*

*Areas* along the western boundary. *Mixed Use Areas A* permits a wide range of residential, office, and commercial uses. *Apartment Neighbourhoods* primarily consist of residential uses, but local service retail, cultural uses and local institutional uses are also permitted.

Map 9 of the proposed Secondary Plan sets out maximum height limits for certain lands within the proposed Secondary Plan and identifies the entirety of the subject lands with heights under the "Tall Building" category ranging from 40 metres to 49 metres with a portion identified as a Potential Additional Height Zone. Policy 7.3.6 of the proposed Secondary Plan limits height to 20 storeys (approximately 63 metres) in the Potential Additional Height Zone.

As previously stated in our September 30, 2019 letter, the maximum heights recommended for the subject lands fail to recognize the existing 22-storey building heights of the four existing apartment buildings. Furthermore, they fail to recognize importance of potential development sites within a Major Transit Station Area.

Specifically, the highest potential heights of 20 storeys (63 metres) on the subject lands are located within one of the Potential Additional Height Zones on Map 9. The sidebar in Section 7.3 of the proposed Secondary Plan provides that these zones "are provided in the event that airport operations cease at Downsview airport and these lands are redeveloped with other uses, or where applicants can demonstrate to the City's satisfaction that flight paths will not be impeded".

Our clients commissioned an Aviation Factors Report to review our proposal for the subject lands (see Appendix 1). The Aviation Factors Report reviewed a proposal for 22-storey (66 metre) buildings and concluded runway operations at Pearson Airport would not be affected and that one approach from Downsview airport overlies the property 51 metres above the proposed 22-storey tower. Accordingly, even with Downsview airport still in operation, a 22-storey tower would not impact flight operations of local airports. In fact, an additional height of up to approximately 39 storeys would be permissible (i.e. 51 metres at 3 metres per storey).

The subject lands are located directly adjacent to the planned Sentinel LRT stop and within the proposed Sentinel Protected Major Transit Station Area (PMTSA) which is planned for a minimum population and employment target of 160 people and jobs per hectare.

According to the Growth Plan, the purpose of a MTSA is to create a transit-supportive community within walking distance of a higher order transit station. The Growth Plan specifically directs that the boundaries of MTSA's be delineated in a transit-supportive manner that maximizes the size of the area and the number of

potential transit users that are within walking distance of the station (our emphasis).

The proposed PMTSA includes lands designated *Parks* and *Neighbourhoods*, both within and outside the proposed Secondary Plan boundaries, which are areas that are not planned to accommodate significant growth and intensification. Accordingly, the proposed heights recommended for the subject lands do not fully realize the development potential of the subject lands which are necessary to achieving a transit-supportive MTSA and focusing growth in strategic growth areas.

Conclusion

The recommended maximum building heights for the subject lands are unnecessarily restrictive both with an active Downsview Airport and even more so once Downsview Airport ceases operations, as demonstrated by the Aviation Factors Report attached to this letter.

The maximum building heights fail to recognize the importance of the site as an underutilized site immediately adjacent a higher order transit station and within a proposed PMTSA.

If you have any questions or would like to discuss these matters further, please do not hesitate to contact the undersigned or Daniel Rende of our office.

Yours truly,

**Bousfields Inc.**

Peter F. Smith, MCIP, RPP

PFS/rml:jobs

*Appendix 1: Aviation Factors Report by Charles (Chas) Cormier dated March 23, 2020*


# AVIATION FACTORS REPORT:

## MAPLEGROVE PROJECT
## AT NORTHWEST CORNER FINCH AVE AND SENTINAL ROAD
## TORONTO, ONTARIO

***CHARLES (CHAS) CORMIER***
Aviation Consultant
1043 Heenan Terrace
Manotick, Ontario K4M 1J2

March 23, 2020

Ranee Management
Attention: Ilana Glickman
4122 Bathurst Street
Toronto, ON M3H3P2

**AVIATION FACTORS – MAPLEGROVE PROJECT, TORONTO ON**

Ranee Management is proposing a high-rise development called “Maplegrove” in Toronto, Ontario, adjacent to existing structures at the northwest quadrant of the intersection of Finch Avenue and Sentinel Road. This is a review of all probable aviation aspects which must be considered and could affect the vertical development.

As a consultant in aeronautical information services, in recent years I have provided services to numerous airports and to developers, with concerns for buildings, antennae, or wind turbines proposed in vicinity of aviation facilities. Most notably in Ontario, I have assisted the airports at Buttonville, Collingwood, Chatham-Kent, Toronto/Downsview, Kincardine, and Billy Bishop Toronto City. As well, I have provided advice to over 30 developers in Toronto regarding possible effects to the heliports atop St. Michael's Hospital, and the Hospital for Sick Children. The results were that some projects were found to have no detrimental effects to the airports, while others where there could be effects, building plans were altered or flight procedures were modified, to preserve accessibility to the airport. The purpose of my work was always to preserve safe and full access to the airport, while permitting new structures to be erected as close and as high as the regulations permit.

The current development consists of four rectangular structures, with the northwest building numbered 1, and the remainders numbered 2, 3, and 4 rotating clockwise. There have been several plans to expand the project, with the latest is to add two new towers in the parking areas southeast of each current building. The report will analyze Phase 1, to determine aviation constraints which may limit the vertical dimensions or locations of new towers and cranes. This will provide the typical limitations for all 4 Phases.

This report will consist of:

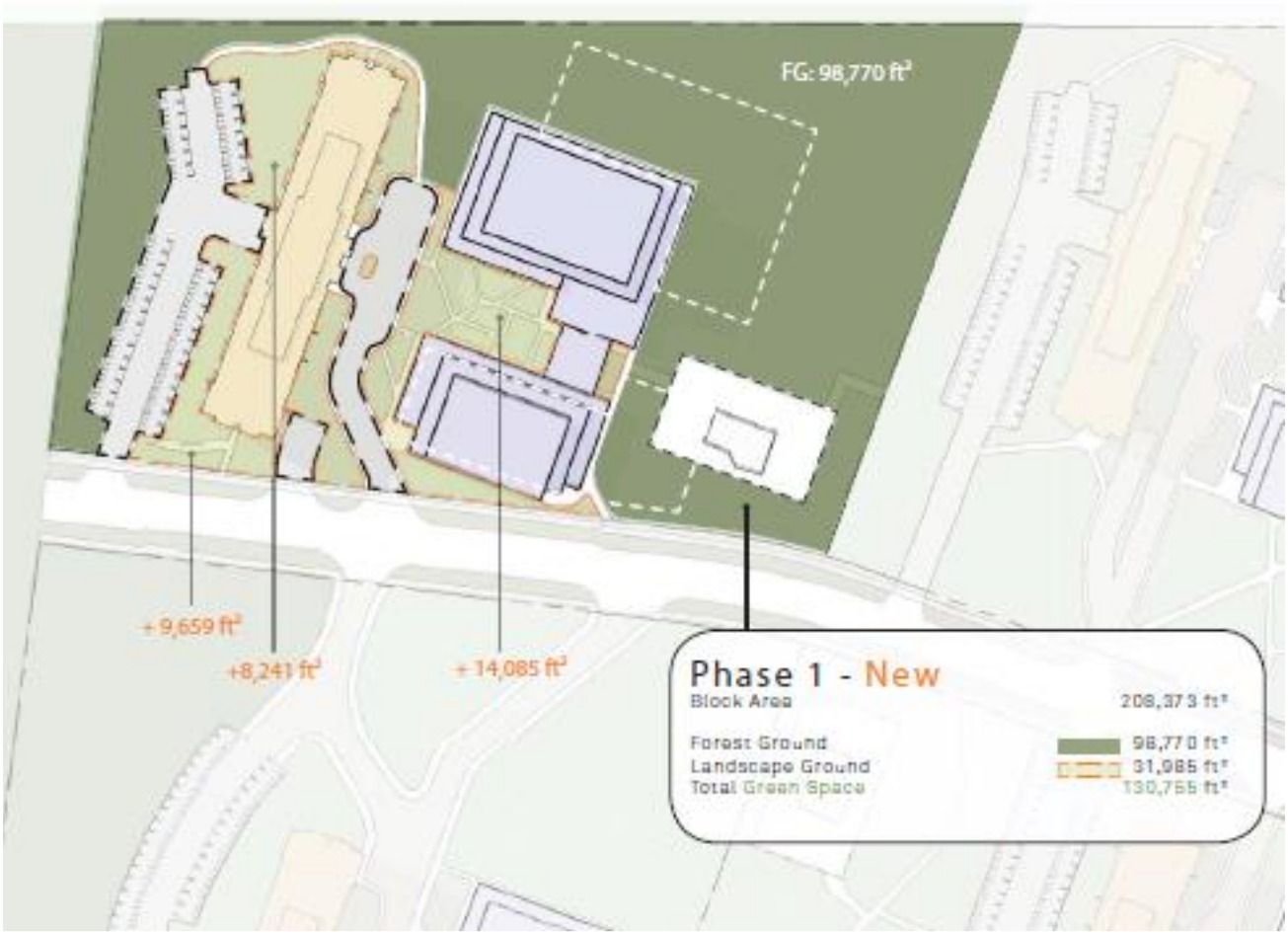
- measurement of heights and distances of Phase 1 Tower A of Maplegrove,
- a brief review of relevant Transport Canada criteria,
- an outline of the relevant certification aspects of Pearson and Downsview Airports,
- review of relevant Instrument Flight Procedures,
- a final summary.

**Current Maplegrove Plan View**


**DIMENSIONS OF MAPLEGROVE DEVELOPMENT**

The current Phase 1 is a 22-storey building located at the northwest corner of the property, illustrated above. Google Earth grade elevation is 180m or 590.5 feet above sea level (ASL). The building footprint is approximately 18m x 84m, and it is reported to be 193.5 feet above ground, which is 784 feet or 239m ASL. There are two additional buildings planned to be located in the parking lot adjacent east, as shown on the diagram next page. The taller, Tower A located north, will be the subject of this analysis.

**Phase 1 New Towers**

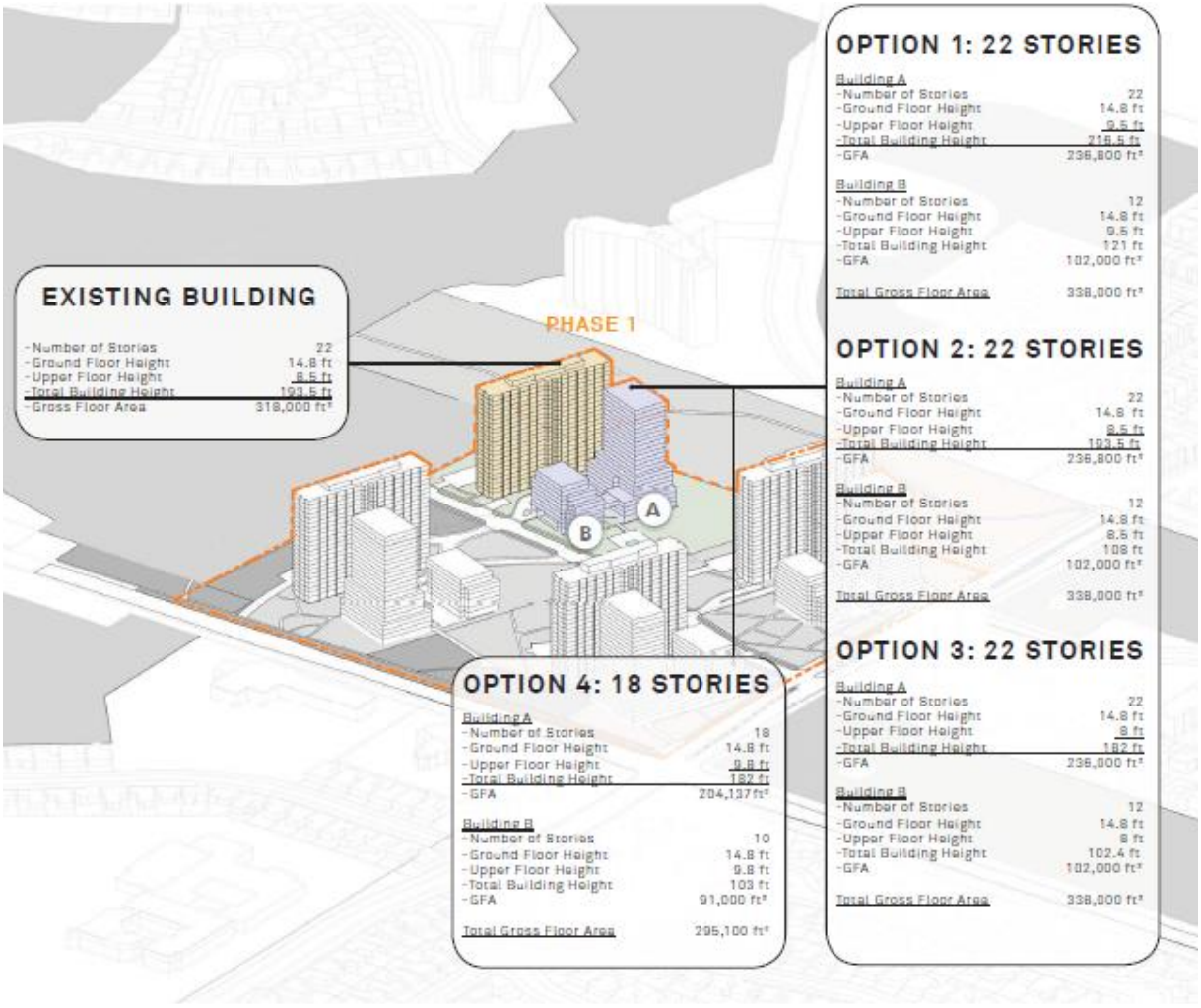



The two new towers are identified as taller Tower A to the north and Tower B to the south. B will be 8 or 10 storeys lower, so only A will be analyzed. There are 4 options being considered, which are detailed on the diagram next page:

- Option 1 – Tower A at 22-storeys at 216.5 feet above grade, 807 feet or 246m ASL
- Option 2 – Tower A at 22 storeys at 193.5 feet above grade, 784 feet or 239m ASL
- Option 3 – Tower A at 22-storeys at 182 feet above grade, 772.5 feet or 235.5m ASL
- Option 4 – Tower A at 18 storeys, but same height as Option 3

For the purposes of this analysis, Option 1 at 807 feet or 246m ASL will be measured.

**Phase 1 Expansion – 4 Options**




## AVIATION FACILITIES IN VICINITY

An aviation facility of concern is Toronto Pearson Airport CYYZ with its complex configuration of five runways, and numerous flight procedures published. Maplegrove project is located between the centrelines extended of Runways 23 and 24R. The closer Runway 24R centreline extended is 1567m lateral southeast abeam a point on centreline that is 11,948m distance from the threshold. Runway 24R threshold elevation is 546 feet or 166.4m ASL. Runway 23 centreline extended is 1745m lateral northwest abeam a point on centreline that is 12,878m distance from the threshold. Runway 23 threshold elevation is 560 feet or 170.7m ASL

The closest and most critical aviation facility to the project is Toronto/Downsview CYZD airport. Phase 1 Tower A will be 1036m or 0.56 nautical miles (NM) abeam southwest of the centreline extended from Runway 15, to a point that is 2504m or 1.35NM from the runway end. Runway 15 threshold elevation is 649' or 197.8m Above Sea Level (ASL). The proximity to the airport is shown below.

**Maplegrove Property Relative to Downsview Runway 15**


## CRITERIA

A measure of the accessibility of an airport can be made by assessing its conformity to two important sets of criteria published by Transport Canada:

- Obstacle Limitation Surfaces (OLS) that protect the runway, which are specified in Transport Canada manual TP312, "Aerodrome Standards & Recommended Practices". Airports within the built-up area of a city or town must be certified to these standards and normally are protected by Zoning Regulations.
- Instrument flight procedures, that meet criteria published in Transport Canada manual TP308 "Criteria for the Development of Instrument Procedures". These permit safe approach to and departure from runways in all weather conditions.

## OBSTACLE LIMITATION SURFACES

**Obstacle Limitation Surfaces (OLS)** are imaginary surfaces in vicinity of a runway which cannot be penetrated by obstacles for safety sake, as defined by international standards. There are three surfaces to consider:

- **Take-off/Approach Surface** which rises and splays at prescribed rates and distances, from the runway ends

- **Transitional Surface** which rise at a 1:7 (14.3%) from the sides of the runway and Take-off/Approach Surface, for a short distance to 45m rise.
- **Outer Surface** is a flat surface at 45m above the aerodrome elevation, extending to a 4000m radius from the centre point of the runway. In some cases, such as at Pearson where there are multiple runways, this surface may be irregular in shape and defined by Airport Zoning Regulations (AZR).

**OLS at Pearson Airport.**

The closest OLS serving Pearson relative to the Phase 1 Tower A will be that of Runway 24R, which is certified Precision Instrument Code 4, the most stringent. The distance of the property is so far that the Outer Surface and the Transitional Surfaces will not apply. However, the **Take-off/Approach Surface** must be verified. TP312 Table 4-1 prescribes it commencing at the threshold elevation of 170.1m at 60m from the runway end, 150m each side of centreline, splaying at 15% and rising at 2%, for distance of 15,000m. At the distance of 11,948m from the runway, the width each side of centreline of the Take-off/Approach Surface is 1,933.2m ((11,948-60) x 15%) +150m = 1,933.2m). Since the Tower A is measured 1,567m abeam the centreline, it is within the surface. The height of the OLS at Tower A is 404.2m ((11,948m – 60m) x 2%) +166.4m rwy elev = 404.2m ASL). Since tower A is planned to be 246m, there is full clearance and ample vertical room for cranes.

The OLS should be also examined of Runway 23, which is certified Precision Instrument Code 4, the most stringent. The distance of the property is so far that the Outer Surface and the Transitional Surfaces will not apply. However, the **Take-off/Approach Surface** commences at the threshold elevation of 170.1m at 60m from the runway end, 150m each side of centreline, splaying at 15% and rising at 2%, for distance of 15,000m. At the distance of 12,878m from the runway, the width each side of centreline of the Take-off/Approach Surface is 2,072.7m ((12,878m-60) x 15%) +150m = 2,072.7m). Since the Tower A is 1745m abeam the centreline, it is within the surface. The height of the OLS at Tower A is 404.2m ((12,878m – 60m) x 2%) +170.7m rwy elev = 427.06m ASL. Since tower A is planned to be 246m, there is full clearance and ample vertical room for cranes.

**OLS at Downsview Airport.**

The runway at Downsview is certified as per TP312, Table 4-1, as a Non-Precision Instrument, Code 3. The OLS are specified as above with the Take-off/Approach Surface commences from 60m from each runway end, 75m each side of centreline, splays at 15% and rises at 2.5%, for distance of 3000m. The transitional Surface rises at 14.3% until 45m above runway. The Outer Surface is at 244.3m ASL, for a 4000m radius around the centre of the runway. These OLS are illustrated with the diagram of the following page.

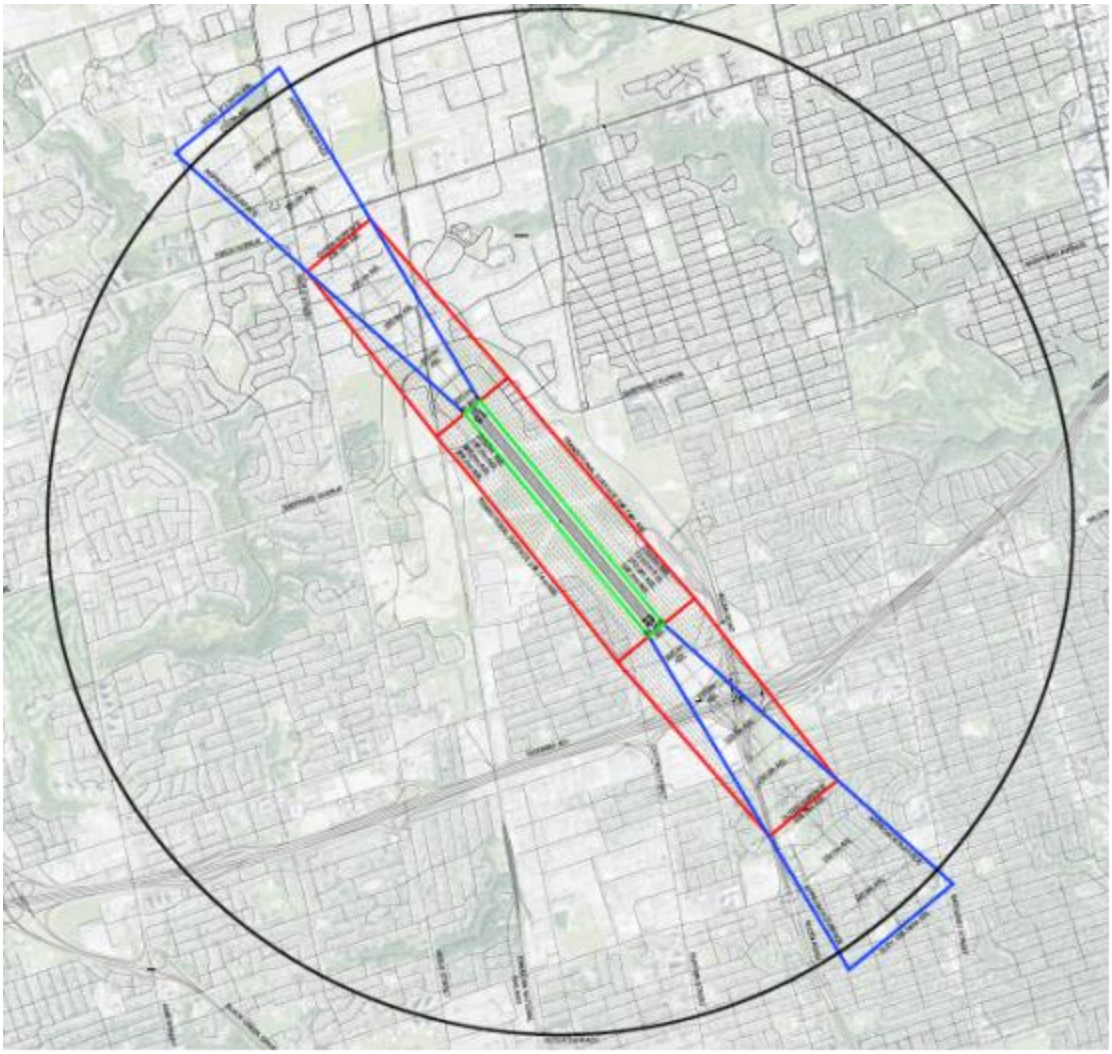
Regarding the **Take-off/Approach Surface,** at the distance of 2504m from runway 15, the width each side of centreline is 441.6m ((2504-60) x 15%) +75m = 441.6m). Tower A will be 1036m lateral southwest of centreline extended from Runway 15, so will be outside the surface.

The **Transitional Surface** ends at 45m rise, which is 2,385m ((244.3 – 197.8m)/2% + 60m = 2385m) from runway 15. Since the distance abeam the centreline is 2505m from the runway, the Transitional Surface ends well before the Tower A.

Concerning the **Outer Surface**, it does overlie the Maplegrove Project property. However, there is no circling permitted west of the runway, so for years the Outer Surface has not been enforced west of the runway, as confirmed recently by the Airport Manager. It is therefore not considered over the property, nor will it cause a height limitation.

Conclusion is that Downsview runway certification will not be affected by Maplegrove.

**Obstacle Limitation Surfaces Downsview Airport**



## INSTRUMENT PROCEDURES

### General Background

In Canada, the design of instrument flight procedures is regulated by Transport Canada primarily through a published manual, TP308, entitled "Criteria for the Development of Instrument Procedures". This comprehensive document details all aspects of the design of various procedures to be used by aircraft operating under instrument flight rules (IFR), which is particularly useful during inclement weather conditions. While the purpose of instrument flight is

to efficiently navigate between take-off and landing, one of the primary purposes of criteria in TP308 is to ensure that all aircraft are provided safe clearance from obstacles. There is considerable emphasis on the **Instrument Approach Procedure** (IAP), which guides an IFR aircraft from enroute flight to safe descent and alignment with a runway or airport. Protection of aircraft during departure from a runway is also prescribed.

IAP's are divided into segments in a standard method, and each segment must respect the **Required Obstacle Clearance (ROC)** that is specified to it. That means that there is an altitude specified for each leg or segment, that ensures that a safe height is maintained above the

highest obstacle beneath the area of that segment. The **Final segment** is most critical and supports final descent to the runway with the aircraft in full landing configuration. Typically, the ROC on Final is 250 feet above the highest obstacle for GNSS approaches. The last segment is called the **Missed Approach**, which permits an aircraft to navigate and climb safely should the runway not be seen by or available to the pilot. A typical missed approach has a sloping obstacle assessment which rises at 40:1, or 152 feet per NM.

**Relevant Instrument Flight Procedures East of Pearson Intl**

There are six instrument approach procedures and departures serving Pearson that will overlie the subject property:

- ILS RWY 23
- RNAV(GNSS) Z & X RWY 23
- Departures RWY 05
- ILS RWY 24R
- RNAV(GNSS) RWY Z & X 24R
- Departures RWY 05

The **ILS RWY 23** has a glidepath angle of 3 degrees, and a glidepath intercept altitude of 3000 feet ASL, which places the Glidepath Intercept Point at 7.35 NM from the threshold. Tower A will be abeam the runway centreline at 12,878m or 6.95 NM from runway end, within the Intermediate Segment specified at 2600 feet altitude. With ROC of 500 feet, the OCS will be 2100 feet or 640m ASL, well above the planned tower height.

Regarding the Pearson **RNAV(GNSS) Z RWY 23** approach, the property underlies a portion of the intermediate segment which is positioned 6.1 to 9.7 NM from the threshold 23. The altitude specified is 2600 feet, so with a ROC of 500', the procedure OCS will be 2100’ or 640m ASL, which is the same as the ILS RWY 23. Lots of clearance.

With the Pearson **RNAV(GNSS) X RWY 23** approach, the property underlies the intermediate segment which is positioned 4.2 to 9.0NM from the threshold 23. The altitude specified is 2000 feet, so with a ROC of 500', the procedure OCS will be 1500’ or 457.2m ASL, which is still well above Tower A elevation of 246m ASL.

The **ILS RWY 24R** has a glidepath angle of 3 degrees, and a glidepath intercept altitude of 3000 feet ASL, which places the Glidepath Intercept Point at 7.35 NM from the threshold. The Tower A is abeam the runway centreline at 11,948m or 6.45NM from runway end, prior to the Glidepath Intercept Point but within the Intermediate Segment specified at 2600 feet altitude. With ROC of 500 feet, the OCS will be 2100 feet or 640m ASL, well above the planned height.

Regarding the Pearson **RNAV(GNSS) Z RWY 24R** approach, the property underlies a portion of the intermediate segment which is positioned 6.1 to 9.7 NM from the threshold 24R. The altitude specified is 2600 feet, so with a ROC of 500', the procedure OCS will be 2100' or 640m ASL, lots of clearance.

With the **RNAV(GNSS) X RWY 24R** approach, the property underlies the intermediate segment which is positioned 4.2 to 9.0NM from the threshold 23. The altitude specified is 2000 feet, so with a ROC of 500', the procedure OCS will be 1500' or 457.2m ASL, which is still well above Tower A elevation of 246m ASL.1500 or 457.2m ASL, lots of clearance.

There are numerous **departure procedures** published, and those heading northeast from runways 06L and 06R specify climb gradients of 400 and 390 ft/NM until 2700 feet ASL, which is greater than the normal 200'/NM standard rate. Most relevant is departure from runway 05 specifying 360'/NM until 2700' ASL. Since the OCS is 76% of the climb rate, it can be calculated for Maplegrove as follows: Distance at 360'/NM is 5.95NM (2700'-558' runway elev/360'/NM = 5.95NM). OCS at that point is 2186' (360x76%) x 5.95NM + 558 rwy elev = 2186'). With a standard climb rate until Finch Ave/Sentinel Rd at 6.95NM, the OCS increases by a further 152' ((6.95-5.95NM) x 152'/NM = 152'). Total OCS is 2338' or 712.6m ASL, clearing.

**Relevant Instrument Flight Procedures at Downsview**

There are several instrument approach procedures and departures that are published to serve Toronto/Downsview Airport, that could be affected by the Finch Ave/Sentinel Rd project:

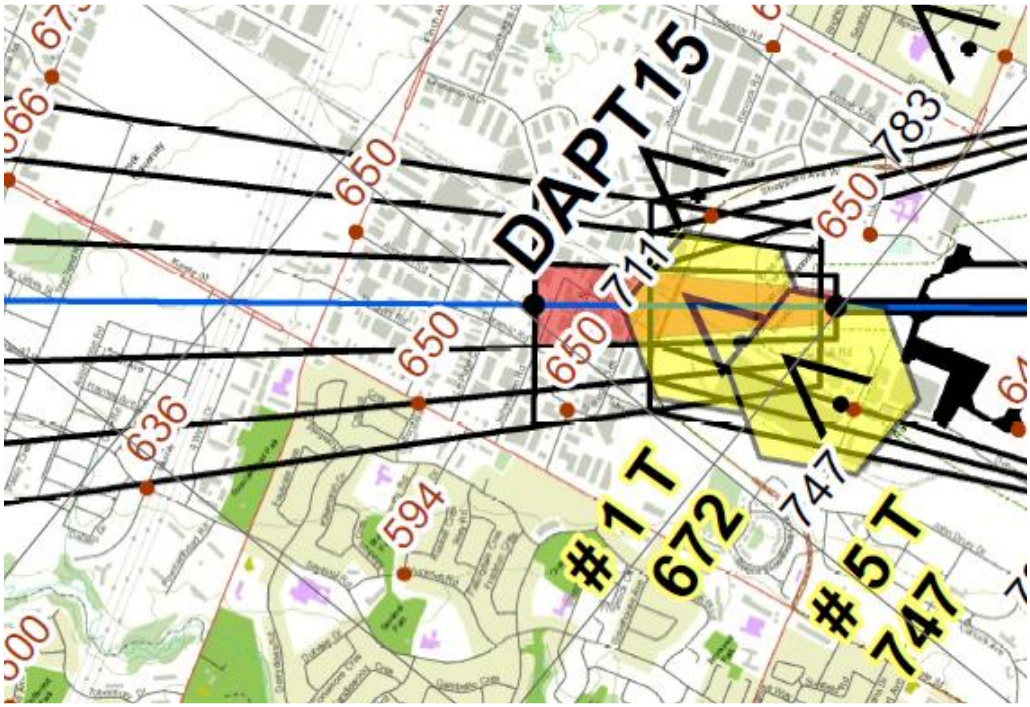
- RNAV(GNSS) Z RWY 15 LNAV
- RNAV(GNSS) Y RWY 15 LPV
- RNAV Departure RWY 33
- Diverse Departure RWY 33

The Downsview **RNAV(GNSS) Z RWY 15** LNAV approach features a final segment that is 5 degrees offset from centreline, with a Final Approach Waypoint at 5.3 NM from the runway and a Stepdown Waypoint in between at 2.8 NM. The final segment primary is 0.6 NM from track and the secondary a further 0.3 NM out to 0.9 NM for final track. Tower A will be located 0.68 NM lateral from the final track at a point 1.4 NM from the threshold of the runway. The altitude specified is 1160' ASL, so with ROC of 183', the OCS will be 977' or 297.8m ASL. This leaves ample room for Tower A at 246m ASL.

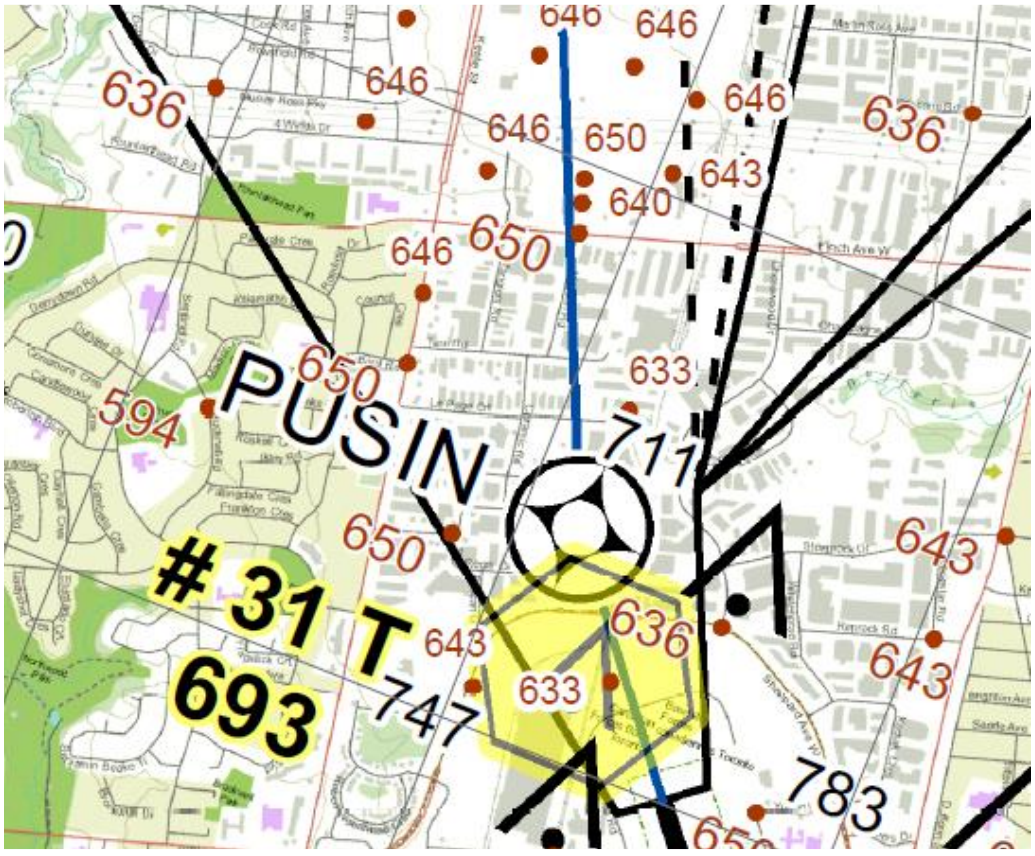
There is an **RNAV(GNSS) Y RWY 15** LPV approach featuring a narrow Final Segment. The diagram on the next page illustrates in the lower left corner that the Maplegrove project is laterally outside the areas of consideration and not limited.

An **RNAV Departure RWY 33** is published featuring turns to the north, and a moderate climb gradient of 240'/NM until 1900. The upper left of the second diagram on the following page illustrates that Tower A will be just laterally outside the area of consideration in the initial climb area. The closest point OCS will be at 1.42NM from the runway, so the OCS height will be 276.8M ASL (649 rwy elev + (1.42NM x (240'/NM x 0.76 climb gradient)) = 908' or 276.8m), well above Tower A at 246m.

**Downsview RNAV(GNSS) RWY 15 LPV Final Segment**




**Downsview RNAV Departure RWY 33**



**Diverse Departure RWY 33** has a climb gradient of 250'/NM until 1600, to mitigate other high-rise buildings proceeding in the vicinity. Tower A will be just laterally outside the Zone 1 of the departure abeam a piont 1.42NM from the runway, so the OCS height will be 280.1m ASL (649 rwy elev + (1.42NM x (250'/NM x 0.76 climb gradient)) = 918.8' or 280.1m), well above Tower A at 246m.

**SUMMARY**

The Maplegrove project at Finch Ave/Sentinel Rd in Toronto, ON has an initial plan to add two towers to Phase 1 in the northwest corner of the property. The taller Tower A could be u to 22-storeys and 246m ASL. This was analyzed against runway certification standards and instrument flight procedures at the two closest airports, Pearson International and Downsview.

The findings regarding Pearson International are:

- Certified **Take-off/Approach Surfaces OLS for Runway 23 and Runway 24R** are vertically well above.
- The OCS of the **ILS RWY 23 and ILS RWY 24R** are well above where the OCS will be 2100' or 640m ASL.
- The **RNAV(GNSS) Z RWY 23 and RNAV(GNSS) Z RWY 24R** approaches will overlie the property in the intermediate segment, where the OCS will be 2100' or 640m ASL.
- The **RNAV(GNSS) X RWY 23 and RNAV(GNSS) X RWY 24R** approaches will overlie the property in the intermediate segment, where the OCS will be 1500' or 457.2m ASL.
- **Departure Runway 05** will limit the height to 2338' or 712.6m ASL.

The findings regarding Downsview are:

- The property is well outside laterally of the **Take-off/ApproachSurface** and **Transitional Surfaces,** but does underlie the **Outer Surface**. However, there is no circling permitted west of the runway, so for years the Outer Surface has not been enforced west of the runway, as confirmed recently by the Airport Manager. It is therefore not considered it will cause a height limitation, and the runway certification could be affected.
- The current **RNAV(GNSS) Z RWY 15** approach overlies the project in the secondary of the final segment where the OCS will be 977' or 297.8m ASL, well above by over 51m.
- The **RNAV(GNSS) Y RWY 15** has the narrow final segment lying laterally clear of Maplegrove Tower A.
- **RNAV Departure RWY 33** and the **Diverse Departure RWY 33** have their initial climb areas passing laterally east of the Maplegrove project. The heights at closest points are 30m+ above the Tower A.

In summary, the runway certifications of Pearson Airport will not be affected by this project, and neither will be approaches and departures not be affected. For Downsview airport, the runway certification will not be affected by this project. One Downsview RNAV approach does overlie the property, but the OCS is over 51m above the Tower. Other Downsview approaches and departures are laterally clear and will not be affected.

Finally, the Maplegrove project, which plans for additional high-rise developments adjacent to existing structures in Toronto, Ontario, at the northwest quadrant of the intersection of Finch Avenue and Sentinel Road, does not impact any aviation aspects at either Pearson International Airport or the Downsview Airport.

Further information may be provided by contacting me at any time.

Yours truly,

Charles (Chas) Cormier
Cell: 514-979-0961
Email: chascorm@rogers.com

**Charles Cormier**, has over 44 years of aviation experience as a pilot in the Canadian Air Force, with Transport Canada, NAV CANADA, and private industry, with over 7000 hours of flight time. He retired from the military in 1991 after active duty as a Sea King helicopter pilot in the Gulf War, attaining Lieutenant-Colonel rank. As an aeronautical information specialist, formerly with NAV CANADA, MDA Aviation, and IDSNA, he has designed or conducted full quality review of over 1800 instrument flight procedures published in Canada, Myanmar, Ecuador and elsewhere. He has performed numerous flight checks and can advise on aerodrome standards and automated weather observation systems (AWOS). As Chief Technical Director with IDS North America based in Montreal 2008-2011, he supervised 18 staff to redesign some 1000 instrument procedures per year with advanced computer design tools, under contract with NAV CANADA. He was elected two terms as a City Councillor in Dieppe, NB, 2001-2008 and is currently a Director of the Foundation of the Royal Military College of Saint-Jean, and sits on the College Board of Governors.