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Noise Feasibility Study
Proposed Mixed-Use Development
Park Place
Barrie, ON

Prepared for:

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1 Introduction and Summary

HGC Engineering was retained by Park Place Co-ownership to conduct a noise feasibility study for a proposed mixed-use development located at Park Place in Barrie, Ontario. The development will consist of two residential buildings with retail spaces on the ground floor. The study is required by the City of Barrie as part of the planning and approvals process.

The primary sources of noise are road traffic on Highway 400, Mapleview Drive, and Bayview Drive. Secondary sources of noise are sound emissions from the surrounding commercial plaza. Road traffic data was obtained from the Ontario Ministry of Transportation (MTO) and the City of Barrie, and was used to predict future traffic sound levels at the proposed building façades and outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP) to develop noise control recommendations.

A computational model was created using acoustical modelling software to assess the potential impact of sound emissions from the nearby roadways and commercial plaza on the proposed development, assessed separately as per MECP guidelines.

The results of the study indicate that the proposed development is feasible with the noise control measures described in this report. Central air conditioning will be required for the residential buildings. Upgraded glazing construction is required for the building façades. Noise warning clauses are also required to inform future occupants of the traffic noise impacts, to address sound level excesses, and proximity to nearby commercial/industrial and institutional uses.

The modelling results also show that, due to elevated background noise from nearby Highway and roadways, the predicted sound levels from the nearby commercial uses are expected to be within the MECP guideline levels, and further mitigation is not required.

2 Site Description and Noise Sources

Figure 1 is a key plan indicating the location of the proposed site. The site is located at the within the Park Place commercia plaza, located east of Highway 400, north of Mapleview Drive, and West of Bayview Drive. Figure 2 shows the block plan by Petroff Partnership Architects, dated April 15,

2022. The proposed development will consist of two mixed-use buildings, labeled as Phase 1 to the north and Phase 2 to the south, containing retail spaces on the ground floor and residential dwellings on the upper floors. Phase 1 will consist of 5-storey, 6-storey, and 16-storey residential buildings on a one-storey retail floor, while Phase 2 will include 5-storey, 6-storey, and 12-storey residential buildings on a one-storey retail floor.

HGC Engineering personnel visited the site on January 26 and February 11, 2022 to make observations of the acoustical environment and conduct acoustical measurements. During the site visits, it was noted that the primary sources of road traffic noise impacting the site are road traffic on Highway 400, Mapleview Drive, and Bayview Drive. Negligible impact from road traffic was observed on the interior roadways within the commercial plaza.

The development site is located within a large commercia plaza, which includes various retail stores, restaurants (some with drive-through lanes), a gym, and a grocery store. There is a newly built restaurant south of the proposed Phase 2 building, and a retail store in construction to the southeast of the site. From site observations, the sound emissions in the commercial plaza, bound by Highway 400 to the west, Mapleview Drive to the south, and Bayview Drive to the east, can be a source of noise impacting proposed development, mainly due to the operation of various rooftop units. While noise emissions from the activities of the commercial plaza were sometimes audible, the acoustical environment is dominated by road traffic noise from the surrounding Highway and roadways. Detailed descriptions of the noise sources associated with the commercial plaza and the assessment of their noise impact on the proposed development are contained in Section 6.

Further southeast of the site and across Bayview Drive is a skating arena (Sadlon Arena). Further northeast of the site and across Bayview Drive is a large datacenter (IBM-CLDC), located approximately 375 metres away. The datacenter includes transformers and generators on the north side of the building and a smaller generator housed within an enclosed structure at the southeast corner of Bayview Drive and the datacenter entrance. Sounds from the datacenter, including the transformers and the generators, were not audible at the site. From site observations and sound level measurements, the sound emissions of the datacenter and skating arena are not expected to significantly affect the site, and are thus excluded from the stationary noise assessment in Section 6.

3 Noise Level Criteria

3.1 Road Traffic Noise

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013, and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: MECP Road Traffic Noise Criteria (dBA)

Area	Daytime $L_{EQ\ (16\ hour)}$ Road	Nighttime $L_{EQ(8\ hour)}$ Road
Outdoor Living Area	55 dBA	--
Inside Living/Dining Rooms	50 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the time period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace, or other area where passive recreation is expected to occur. Small balconies are not considered OLAs for the purposes of assessment. Terraces greater than 4 m in depth (measured perpendicular to the building façade) are considered to be OLAs.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is

required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

3.2 Criteria Governing Stationary Noise Sources

An industrial or commercial facility is classified in MECP guidelines as a stationary source of sound (as opposed to sources such as traffic or construction, for example) for noise assessment purposes. The proposed development is located in an urban acoustical environment classified as Class I (Urban) according to MECP guidelines, which can be characterized by the background sound level being dominated by traffic and human activity.

The façade of a residence, or any associated usable outdoor area, is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound level limit for a stationary noise source in an urban Class 1 area is 50 dBA during daytime (07:00 to 19:00) and evening (19:00 to 23:00) hours, and 45 dBA during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary minimum limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that is present when the stationary source under consideration is not operating, and may include traffic noise and natural sounds.

Commercial activities such as the occasional movement of customer vehicles, occasional deliveries, and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. Accordingly, these sources have not been considered in this study. Noise from safety equipment (e.g. back-up beepers) are also exempt from consideration. Frequent truck movements at a warehouse or busy shipping/receiving docks at an industry must generally be assessed. As such, trucking activities associated with the large retail stores at the commercial lands surrounding the subject site are included in this assessment.

The MECP guidelines stipulate that the sound level impact during a "predicable worst case hour" be considered. This is defined to be an hour when a typically busy "planned and predictable mode of operation" occurs at the subject facility, coincident with a period of minimal background sound. Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may still be residual audibility during periods of low background sound.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Traffic data for Highway 400 was obtained from published traffic data from the MTO in the form of Summer Average Daily Traffic (SADT) traffic values, and is provided in Appendix A. The traffic data was projected to the year 2032 at an annual growth rate of 2.5%. An average volume of 179 031 vehicles per day at an operating speed limit of 100 km/h was applied for the analysis. A commercial vehicle percentage of 6 % was applied, and a day/night split of 67% / 33 % was used.

Traffic data for Mapleview Drive and Bayview Drive were obtained from the City of Barrie in the form of average daily traffic (ADT) values, and are also provided in Appendix A. For Mapleview Drive, a projected volume of 51 237 vehicles per day at an operating speed of 60 km/h was applied for the analysis. As per City of Barrie transportation personnel, the traffic data for Mapleview Drive was projected to the year 2032 at an annual growth rate of 2% from the year 2031, and at a rate of 1% from 2031 to 2032. A commercial vehicle percentage of 6 % was applied, and a day/night split of 90% / 10 % was used. For Bayview Drive, a projected volume of 21 600 vehicles per day at an operating speed of 50 km/h was used applied. The data was projected to the year 2032 at an annual growth rate to the year 2031, and at a rate of 1% from 2031 to 2032. A commercial vehicle percentage of 10 % was applied, and a day/night split of 90% / 10 % was used.

Table II summarizes the traffic volume data used in this study.

Table III: Road Traffic Data Projected to Year 2032

Road Name	Daytime (average hour)	Nighttime (average hour)	Truck %	Speed (km/h)
Highway 400	7 460	7 460	6	100
Mapleview Drive	2 882	640	6	60
Bayview Drive	1 215	270	10	50

4.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the study area in the future, sound level predictions were made using a numerical computer modelling package *(Cadna-A version 2021 build 187.5163)* due to the complexity of the site. The model is based on methods from ISO Standard 9613-2.2, "Acoustics – Attenuation of Sound During Propagation Outdoors", which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation, and acoustical shielding by intervening structures.

The road noise sources have been included in the model using basic road element included in Cadna/A, which follows the German guideline RLS-90 for road traffic noise predictions. The model road traffic values have been qualified on similar projects to be within 1-2 dBA of those predicted in STAMSON 5.04, a computer algorithm developed by the MECP.

Predictions of the traffic sound levels were chosen around the proposed residential building to obtain an appropriate representation of future sound levels at various façades. Sound levels were also predicted in possible OLA's to investigate the need for noise barriers. The results of these predictions are summarized in Table III, and shown in Figures 3 and 4.

Table III: Predicted Road Traffic Sound Levels [dBA], Without Mitigation

Description	Daytime – in the OLA $L_{EQ-16\ hr}$	Daytime – at the Façade $L_{EQ-16\ hr}$	Nighttime – at the Facade $L_{EQ-8\ hr}$
Phase 1			
6-Storey Building - North	--	62	62
6-Storey Building - West	--	64	64
6-Storey Building - South	--	62	61
6-Storey Building - East	--	58	57
16-Storey Building - North	--	62	61
16-Storey Building - West	--	65	64
16-Storey Building - South	--	64	63
16-Storey Building - East	--	62	56
5-Storey Building - North	--	55	55
5-Storey Building - South	--	57	56
6th floor rooftop amenity	59*	--	--
Phase 2			
6-Storey Building - North	--	61	62
6-Storey Building - West	--	64	64
6-Storey Building - South	--	63	61
6-Storey Building - East	--	59	55
12-Storey Building - North	--	62	62
12-Storey Building - West	--	64	64
12-Storey Building - South	--	64	62
12-Storey Building - East	--	62	57
5-Storey Building - North	--	56	56
5-Storey Building - South	--	61	58
6th floor rooftop amenity	60*	--	--

Note: *with a minimum 1.07m high solid parapet

5 Traffic Noise Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at the proposed development. The following discussion outlines the recommendations for acoustic barrier requirements, ventilation requirements, upgraded building façade construction, and warning clauses to achieve the noise criteria stated in Table I.

5.1 Outdoor Living Areas

The predicted sound levels at the 6th floor rooftop amenity areas of Phase 1 and Phase 2 buildings will be 59 and 60 dBA, respectively, with a minimum of a 1.07m high solid parapet. While these

levels exceed the MECP guideline limit of 55 dBA, they are within the allowable exceedance range of 5 dBA. No further mitigation is required, provided that a noise warning clause is provided in the property and tenancy agreements.

The dwelling units in the proposed residential buildings are not expected to have balconies that are more than 4 m in depth. These areas are not considered to be outdoor living areas under the MECP guidelines, and therefore are exempt from traffic noise assessment.

5.2 Indoor Living Areas and Ventilation Requirements

Air Conditioning

The predicted future sound levels outside the windows of both buildings and phases will be greater than 60 dBA during nighttime hours. To address these excesses, the dwelling units need to be equipped with central air conditioning systems so that windows may remain closed. It is likely that the buildings or individual suites will include air conditioning. In general, window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those that are housed in their own closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300, as applicable.

5.3 Building Façade Constructions

The predicted sound levels at the north, west, and south façades of both buildings will exceed 60 dBA during nighttime. MECP guidelines stipulate that in such cases, building components including windows, walls, and doors be designed so that the indoor sound levels comply with the noise criteria in Table I.

Calculations were performed to determine the acoustical insulation factors (AIF) to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the anticipated area ratios of the facade components (walls, windows and doors) and the floor area of the adjacent room.

Exterior Doors

There may be glazed exterior doors (sliding or swing) for entry onto the balconies from living/dining rooms and some bedrooms. The glazing areas of the doors should be counted as part of the total window glazing area. All exterior doors should include good weather seals to reduce air infiltration to the minimum achievable levels.

Acoustical Requirements for Glazing

The required building components are selected based on the AIF value for road traffic. A summary of the STC requirements is given in Table IV for the building façades, based on the possibility of sound entering the building through windows and doors for all of the dwellings.

Detailed floor plans and building elevations were not available for review at the time of this report. Building elevations dated April 15, 2022 by Petroff Partnership Architects show predominately brick veneer exterior wall constructions, with some floors and units showing window-wall constructions.

A window to floor ratio of 100% (80% fixed, 20% operable) for living/dining room/bedrooms were assumed to determine preliminary window STC ratings required to mitigate road traffic noise levels.

Table IV: Minimum STC Requirements

Building	Façade(s)	Space	STC Glazing Requirements
Phase 1, 6-Storey Building	West	+Living/Dining	STC-33*
		+Bedroom	STC-33
	Other façades	+All Spaces	STC-33*
Phase 1, 16-Storey Building	West	+Living/Dining	STC-33*
		+Bedroom	STC-33
	Other façades	+All Spaces	STC-33*
Phase 1, 5-Storey Building	All façades	+All Spaces	STC-33*
Phase 2, 6-Storey Building	West	+Living/Dining	STC-33*
		+Bedroom	STC-33
	Other façades	+All Spaces	STC-33*
Phase 2, 12-Storey Building	West	+Living/Dining	STC-33*
		+Bedroom	STC-33
	Other façades	+All Spaces	STC-33*
Phase 2, 5-Storey Building	All façades	+All Spaces	STC-33*

Notes: OBC – Ontario Building Code
* While living room/dining room façades and bedroom façades not directly facing Highway 400 are somewhat less impacted, we do not typically recommend less than STC-33 in urban environment such as this.
+ Sound entering through windows only since exterior wall is predominantly brick veneer

The glazing requirements can be met using fairly standard sealed units. Operable sections, including doors and operable windows, must be well-fitted and weather-stripped in order to achieve the upper range of target STC values. Acoustical criteria for different facades can be optimized as part of the detail design of the development, when floor plans and elevations for the buildings are available.

Further Analysis

When detailed floor plans and building elevations are available for the dwelling units, window glazing construction should be refined based on actual window to floor area ratios.

6 Stationary Source Assessment

Noise sources associated with commercial/industrial facilities are assessed separately from traffic sources under MECP guidelines. These facilities are considered to be Stationary Sources of Sound and criteria for their assessment are contained in the following section.

6.1 MECP Guidelines for Land Use Compatibility Between Industrial/Commercial Facilities and Sensitive Land Uses

MECP Guidelines D-1, 'Land Use Compatibility' and D-6 'Compatibility Between Industrial/Commercial Facilities and Sensitive Land Uses' were prepared to address the potential incompatibility of industrial land uses and noise sensitive land uses in relation to land use approvals under the Planning Act. They recommend that studies be conducted to investigate the feasibility of providing sufficient mitigation when noise sensitive land uses are proposed within the potential zone of influence of an existing industry/commercial facility. The mitigation can be provided at the source, or can be incorporated on the development lands where the industrial/commercial facility is operating in compliance with legislated Ministry requirements.

In planning a sensitive land use near an existing industrial/commercial area, guideline D-6 suggests certain potential zones of influence for the industry, depending on the characterization of that industry. Three classes of industry are defined, as follows:

Class I Industrial Facility

A place of business for a small scale, self-contained plant or building which produces/stores a product which is contained in a package and has a low probability of fugitive emissions. Outputs are infrequent, and could be point source or fugitive emissions for any of the following: noise, odour, dust and/or vibration. There are daytime operations only, with infrequent movement of products and/or heavy trucks and no outside storage.

Class II Industrial Facility

A place of business for medium scale processing and manufacturing with outdoor storage of wastes or materials (i.e. it has an open process) and/or there are periodic outputs of minor annoyance. There

are occasional outputs of either point source or fugitive emissions for any of the following: noise, odour, dust and/or vibration, and low probability of fugitive emissions. Shift operations are permitted and there is frequent movement of products and/or heavy trucks during daytime hours.

Class III Industrial Facility

A place of business for large scale manufacturing or processing, characterized by: large physical size, outside storage of raw and finished products, large production volumes and continuous movement of products and employees during daily shift operation. It has frequent outputs of major annoyance and there is high probability of fugitive emissions.

For screening purposes, guideline D-6 outlines some potential influence areas for the different classes of industry, as follows. Outside these potential influence areas, it is unlikely that an industry which has been appropriately classified will have significant impact.

Class I – 70 metres
Class II – 300 metres
Class III – 1000 metres

Guideline D-6 acknowledges that the actual influence areas may be less, subject to site specific studies performed in accordance with guideline NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning". Notwithstanding the actual influence area of an industry, in order to minimize the potential for future land use conflicts, the MECP recommends that certain minimum separation distances be respected, as follows:

Class I – 20 metres
Class II – 70 metres
Class III – 300 metres

The MECP recognizes that these minimum separation distances may not always be viable in certain cases, particularly in those cases of redevelopment, infilling and mixed-use areas, where the zoning or official plan has left no available land buffer. In those instances, the overall feasibility of the development proposal is based on the anticipated adverse effects from the industrial/commercial use, including any mitigative measures that might be applied to address anticipated impacts determined through technical noise studies such as this study.

6.2 Existing Adjacent Industrial and Commercial Facilities

Surrounding the subject site are various commercial facilities on employment and commercially zoned lands. These facilities include various retail stores, restaurants (some with drive-through lanes), a gym, a grocery store, a newly built restaurant south of the proposed Phase 2 building, and a retail store in construction to the southeast of the site.

Further southeast of the site and across Bayview Drive is a skating arena (Sadlon Arena). Further northeast of the site and across Bayview Drive is a large datacenter (IBM-CLDC), located approximately 375 metres away. The site includes transformers and generators on the north side of the building and a smaller generator housed within an enclosed structure at the southeast corner of Bayview Drive and the datacenter entrance.

From information gathered during the site visits and satellite aerial imagery, the commercial facilities are small, enclosed businesses which can be categorized as Class I industries. The datacenter may be classified as a Class II business.

As a conservative approach, all of the Class I commercial uses have been assessed in the acoustical model of the site. Noise measurements were also conducted of the IBM datacentre but were found to be below the background sound from road traffic in the area and therefore was not included in the acoustic model.

6.3 Sound Level Criteria at the Proposed Development

Elevated background sound levels due to road traffic on Highway 400, Mapleview Drive, and Bayview Drive are considerable, especially at the façades facing to Highway 400. Hourly traffic volumes were calculated based on the provided average daily traffic values, based on typical hourly volume distributions of roadways over a 24-hour period. The traffic volumes were then used to predict the minimum hourly background sound levels at the proposed façades and outdoor living areas.

To assess the levels of background road traffic noise, noise predictions were made using a numerical computer modelling package (*Cadna-A version 2021, build: 187.5163*) using calculated hourly traffic volumes. The road noise sources have been included in the model using basic road element

included in Cadna/A, which follows the German guideline RLS-90 for road traffic noise predictions. The model road traffic values have been qualified on similar projects to be within 1-2 dBA of those predicted in STAMSON 5.04, a computer algorithm developed by the MECP.

The applicable sound level limits, which are the higher of the minimum background sound levels due to road traffic on the nearby roadways and the exclusionary minimum sound levels, are shown in Figures 5 and 6, and also summarized in Table VI.

6.4 Stationary Source Noise Predictions

Predictive noise modelling was used to assess the sound impact of the surrounding commercial plaza at the most critically impacted façades of the proposed development and outdoor amenity areas in accordance with MECP guidelines. The model was constructed based on site visits, review of the proposed block and concept plans, satellite aerial photos, and estimates of sound emission levels of stationary sources taken from similar past HGC Engineering project files. The noise sources associated with the existing commercial plaza consist of various rooftop mechanical units, trucking movements for the grocery stores and major retail spaces, fast-food restaurant drive-through queues, and car-wash queue.

Table V: Source Sound Power Levels [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]								Overall [dBA]
	63	125	250	500	1k	2k	4k	8k	
5-Ton HVAC Unit	88	83	76	74	71	67	64	60	77
10-Ton HVAC Unit	89	86	83	81	79	74	70	65	83
Exhaust Fan	--	79	76	71	72	64	59	55	75
20-Ton Condensing Unit	95	95	93	90	89	84	82	81	94
Trailer Truck Movement	101	100	94	96	97	95	91	86	101
Idling Trailer Truck	96	91	88	88	91	90	81	70	95
Drive-through speakerboard*	80	75	72	86	83	81	68	53	88
Low Speed or Idling Car (Each)	90	86	76	72	71	68	62	58	77

Note: The above drive-through speakerboard sound power specification equates to a sound pressure level of 71 dBA at 1.5 meters from the speaker, while the speaker is active.
* Includes a 5 dB tonal penalty.

The above data were inputted into a predictive computer model. The software used for this purpose (*Cadna-A version 2021, build: 187.5163*) is a computer implementation of ISO Standard 9613-2.2 "Acoustics - Attenuation of Sound During Propagation Outdoors." The ISO method accounts for

reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as buildings and barriers.

The following information and assumptions were used in the analysis.

- Rooftop HVAC units were assumed to be Lennox 48LC 5-Ton and 10-Ton units, located 1.5 m above the roof. Exhaust fans were assumed to be 0.5 m above the roof.
- One 20-Ton condensing unit, located 1.5 m above the roof, was assumed to be on the roof of the grocery store (Goodness Me) north of the proposed development.
- Existing rooftop barriers, extending 0.5 m above the height of HVAC units, were included in the model.
- Trailer trucks enter the commercial plaza and visit the grocery store and the rear of the large retail stores adjacent to Highway 400. Trailer truck assumed to idle briefly at the grocery store during unloading.
- Several restaurants and retail store surrounding the site area are still in construction or not yet fully operation. These stores are included in the assessment, as they are expected to be completed and operational in the near future.
- Location of the noise sources are shown graphically in Figure 8. The green crosses shown rooftop equipment, idling cars, and drive-through speakerboards. The green lines shown movement of trailer trucks.

In this impact assessment, we have considered typical worst-case (busiest hour) scenarios for each time period to be as follows:

Assumed day worst-case scenario:

- All rooftop equipment, including HVAC and exhaust fan units, operating for 40 minutes out of an hour.
- 2 trailer trucks visit the grocery store (Goodness Me), and 4 trailer trucks visit the large retail stores adjacent to Highway 400.
- Trailer trucks idle briefly for 5 minutes at the loading docks of the grocery store.
- 10 cars idling in the McDonald's drive-through lane. 7 cars idling in the Starbucks and Panera Bread drive-through lanes, each. 4 cars idling in the car wash lane.

- Restaurant drive-through speakerboards active for 10 minutes out of an hour (10 seconds per order for 60 cars in an hour).

Assumed night worst-case scenario:

- All rooftop equipment, including HVAC and exhaust fan units, operating for 20 minutes out of an hour to account for cooler nighttime temperatures.
- 1 trailer trucks visit the grocery store (Goodness Me), and 2 trailer trucks visit the large retail stores adjacent to Highway 400.
- Trailer trucks idle briefly for 5 minutes at the loading docks of the grocery store.
- 5 cars idling in the McDonald's drive-through lane. 4 cars idling in the Starbucks and Panera Bread drive-through lanes, each. 2 cars idling in the car wash lane.
- Restaurant drive-through speakerboards active for 5 minutes out of an hour (10 seconds per order for 30 cars in an hour).

6.5 Results

The unmitigated sound levels due to stationary noise sources associated with the commercial plaza at the façades of the proposed building are summarized in Table VI below, and presented graphically in Figures 8 and 9.

Table VI: Predicted Sound Levels of the Commercial Plaza on the Proposed Buildings [dBA]

	Description	Daytime (07:00 – 23:00)	Nighttime (23:00 – 07:00)	Criteria (Daytime / Nighttime)
Phase 1	North	51	48	58 / 51
	West	46	43	60 / 54
	South	44	41	58 / 52
	East	47	44	54 / 48
	6th floor amenity	40	--	50 / --
Phase 2	North	45	42	58 / 51
	West	45	42	60 / 54
	South	47	44	58 / 53
	East	49	46	55 / 48
	6th floor amenity	38	--	50 / --

The results of the calculations indicate that the predicted sound levels due to the operation of the commercia plaza are within MECP limits (background sound levels) at the façades of the proposed buildings during a worst case operational scenario. Mitigation is not required.

7 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. The following noise warning clauses are required for specific dwellings as indicated in Table VII.

Suggested wording for future dwellings which have sound levels in excess of MECP criteria is given below.

A):

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks noise criteria.

Suggest wording for future dwellings which will have central air conditioning units to be installed is given below.

B):

This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwelling units in close proximity to commercial and institutional buildings is given below.

C):

Purchasers are advised that due to the proximity of the existing commercial and institutional buildings, sound levels from the facilities may be at times be audible.

8 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

9 Summary and Recommendations

The following list and Table VII summarize the recommendations made in this report. The reader is referred the previous sections of the report where these recommendations are applied and discussed in more detail.

1. Central air conditioning will be required for the residential buildings.

2. Upgraded building constructions are required as noted in Section 5.3. When detailed floor plans and building elevations are available for the dwelling units with exposure to the roadways, window glazing construction should be refined on actual window to floor ratios.

3. The use of warning clauses in the property and tenancy agreements is recommended to inform future residents of traffic noise issues.

Table VII: Summary of Noise Control Requirements and Noise Warning Clauses

Phase	Description	Acoustic Barrier	Ventilation Requirements**	Type of Warning Clause	Upgraded Glazing Constructions
Phase 1	6-storey building	--	Central A/C	A, B, C	STC-33
	16-storey building				STC-33
	5-storey building				STC-33
	6th floor amenity area	--*	--	--	--
Phase 2	6-storey building	--	Central A/C	A, B, C	STC-33
	12-storey building				STC-33
	5-storey building				STC-33
	6th floor amenity area	--*	--	--	--

Notes:
* With a minimum 1.07m high solid parapet on rooftop amenity space
** The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
-- No specific requirements

9.1 Implementation

To ensure that the noise control recommendations outlined above are properly implemented, it is recommended that:

1. Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the detailed architectural plans and building elevations to refine glazing requirements based on actual window to floor areas ratios.

2. Prior to the issuance of occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly incorporated, installed, and constructed.

Limitations

This report was prepared by HGC Engineering solely for the client to whom it is addressed and is to be used exclusively for the purposes set out in the report. Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and has relied in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.

Any use, reliance or decisions made based on this report by any third party are the responsibilities of such third parties. HGC Engineering accepts no responsibility for damages, if any, suffered by any third party that may arise through the use, reliance or decisions made based on this report. If a third party requires reliance on this report, written authorization from HGC Engineering must be sought and granted. HGC Engineering disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

Figure 1: Key Plan

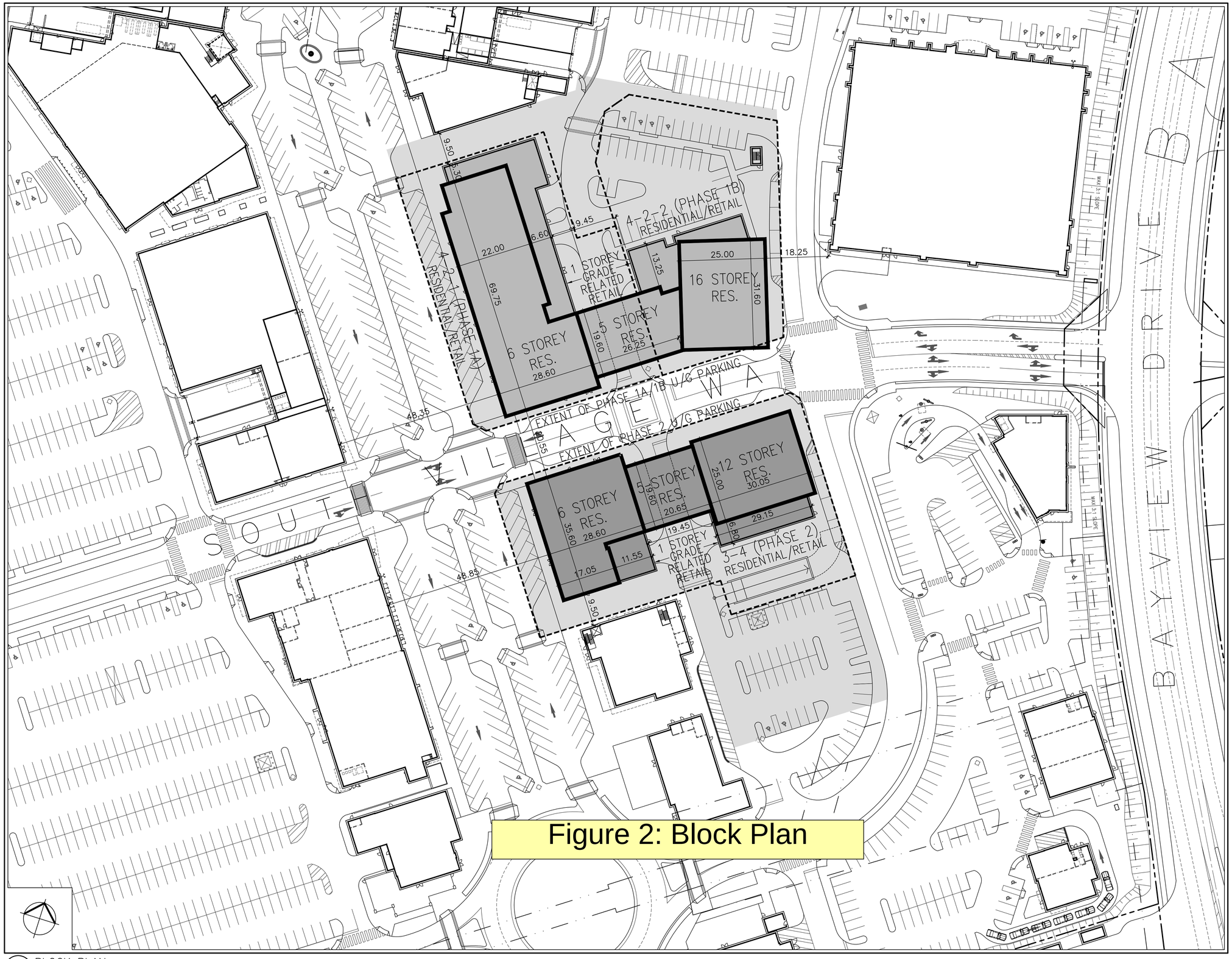
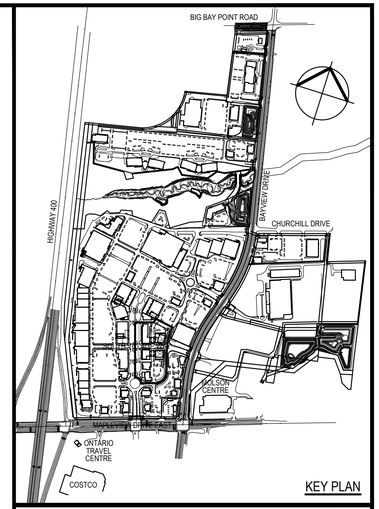


Figure 2: Block Plan

1 A102 BLOCK PLAN
SCALE: 1:500



KEY PLAN

LEGAL DESCRIPTION

LOTS 7, 8 AND 9, CONCESSION 12, (GEOGRAPHIC TOWNSHIP OF INNISFIL), CITY OF BARRIE, COUNTY OF SIMCOE

LEGEND

- EXTENT OF DEVELOPMENT
- PHASE 1A & 1B SUBJECT BUILDINGS
- PHASE 2 SUBJECT BUILDINGS
- EXTENT OF UNDERGROUND PARKING

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2	ISSUED FOR COORDINATION	MAR.15.2022	OH
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BLOCK PLAN

SCALE: AS NOTED 1:500

PROPOSED MULTI-UNIT
RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
PETROFF PARTNERSHIP ARCHITECTS
260 TOWN CENTRE BLVD, SUITE 300
MARKHAM, ON L3R H8H
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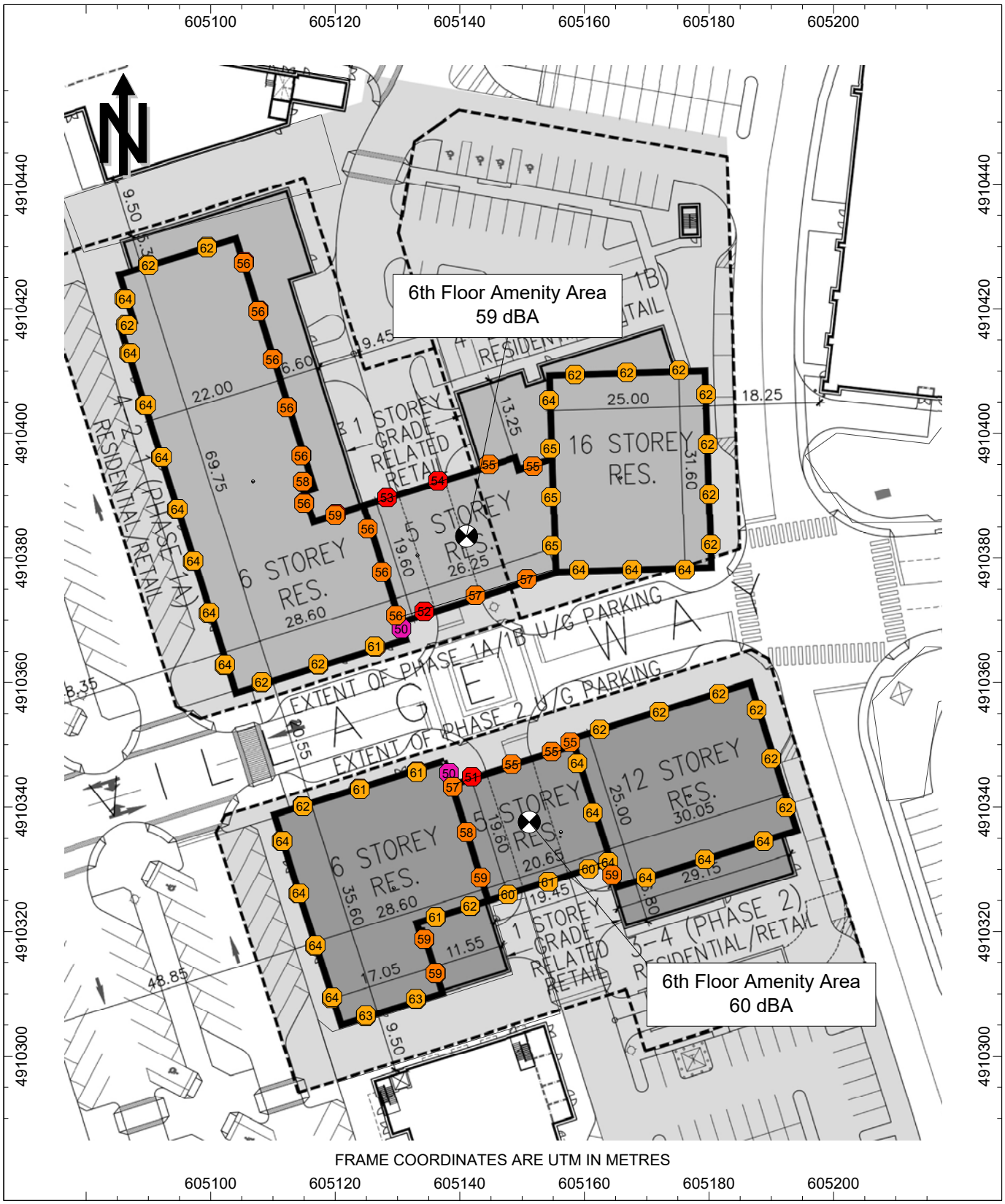

Figure 3: Predicted Road Traffic Noise
Daytime (07:00 - 23:00), Leq [dBA]

Figure 4: Predicted Road Traffic Noise
Nighttime (23:00 - 07:00), Leq [dBA]

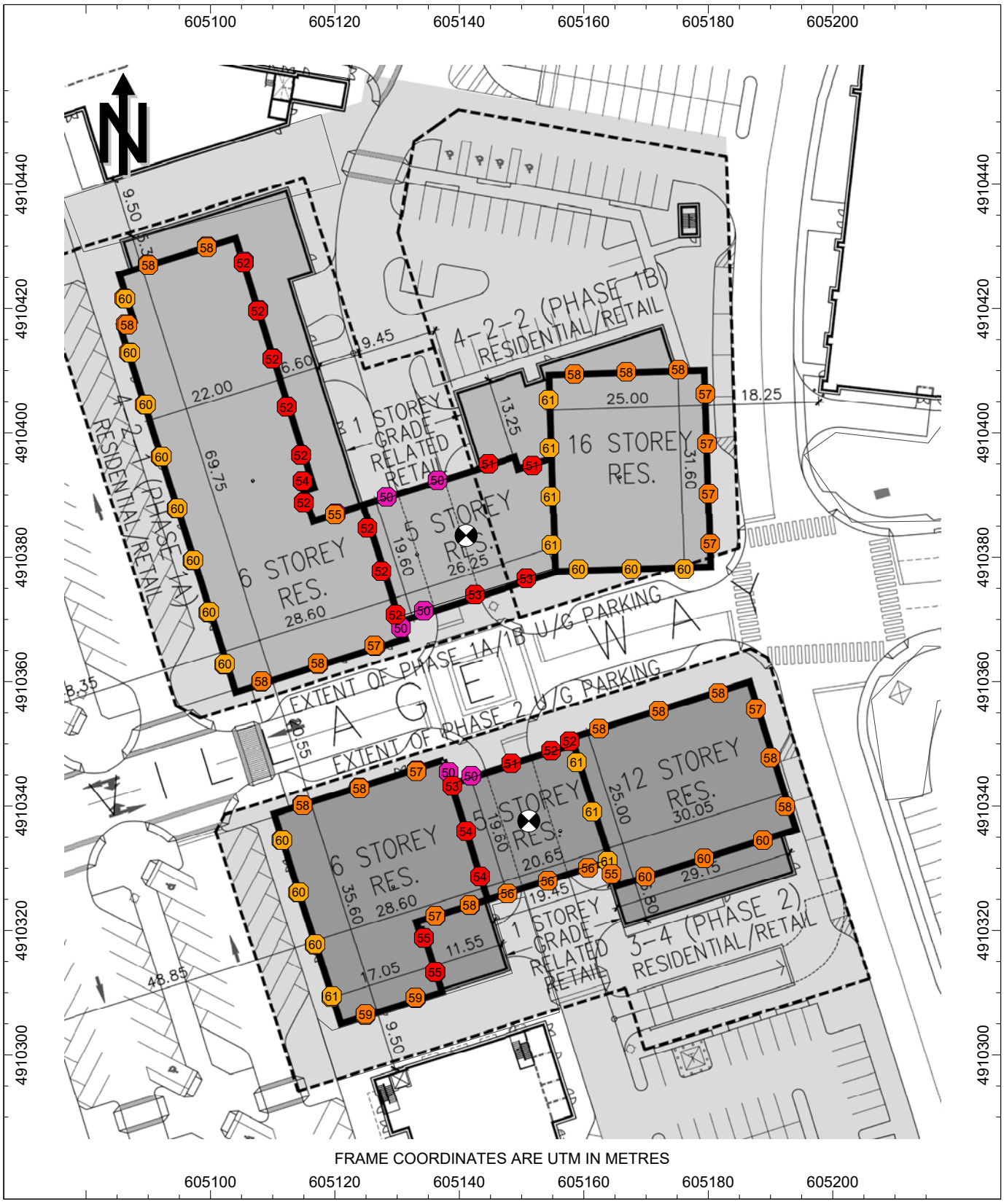

Figure 5: Sound Level Limits for Stationary Noise
Daytime (07:00 - 23:00), Leq [dBA]

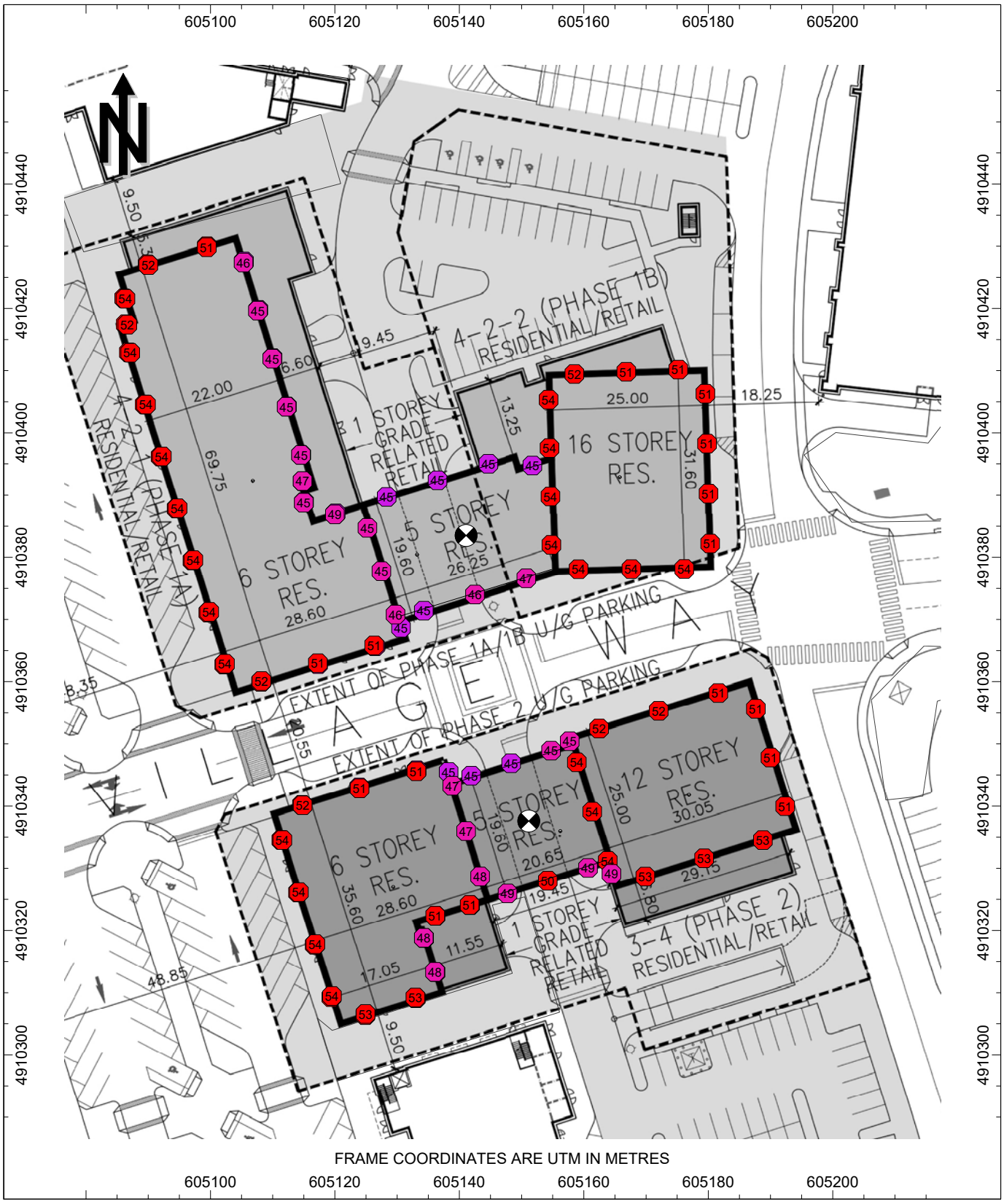

Figure 6: Sound Level Limits for Stationary Noise
Nighttime (23:00 - 07:00), Leq [dBA]

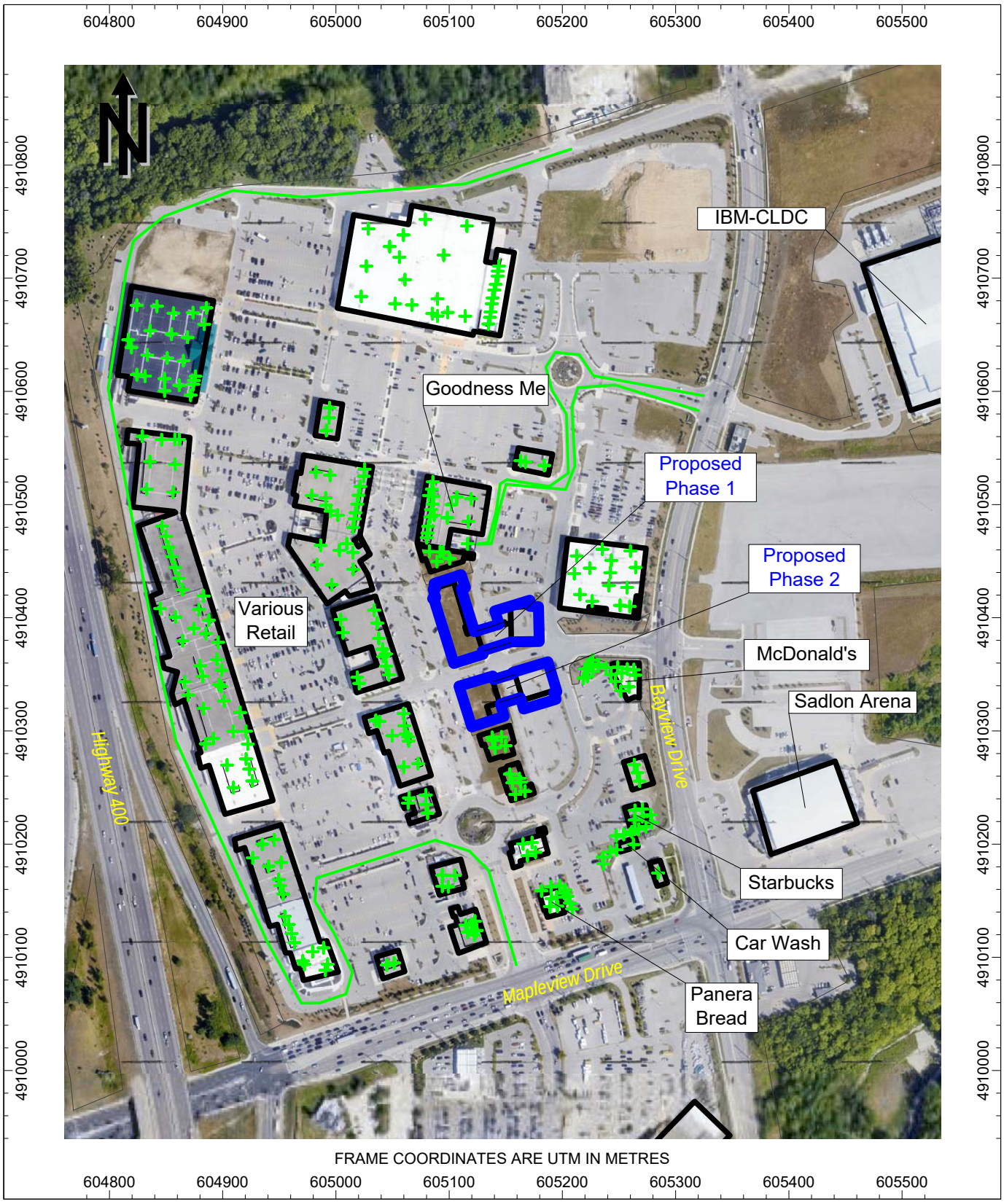

Figure 7: Locations of Stationary Noise Sources

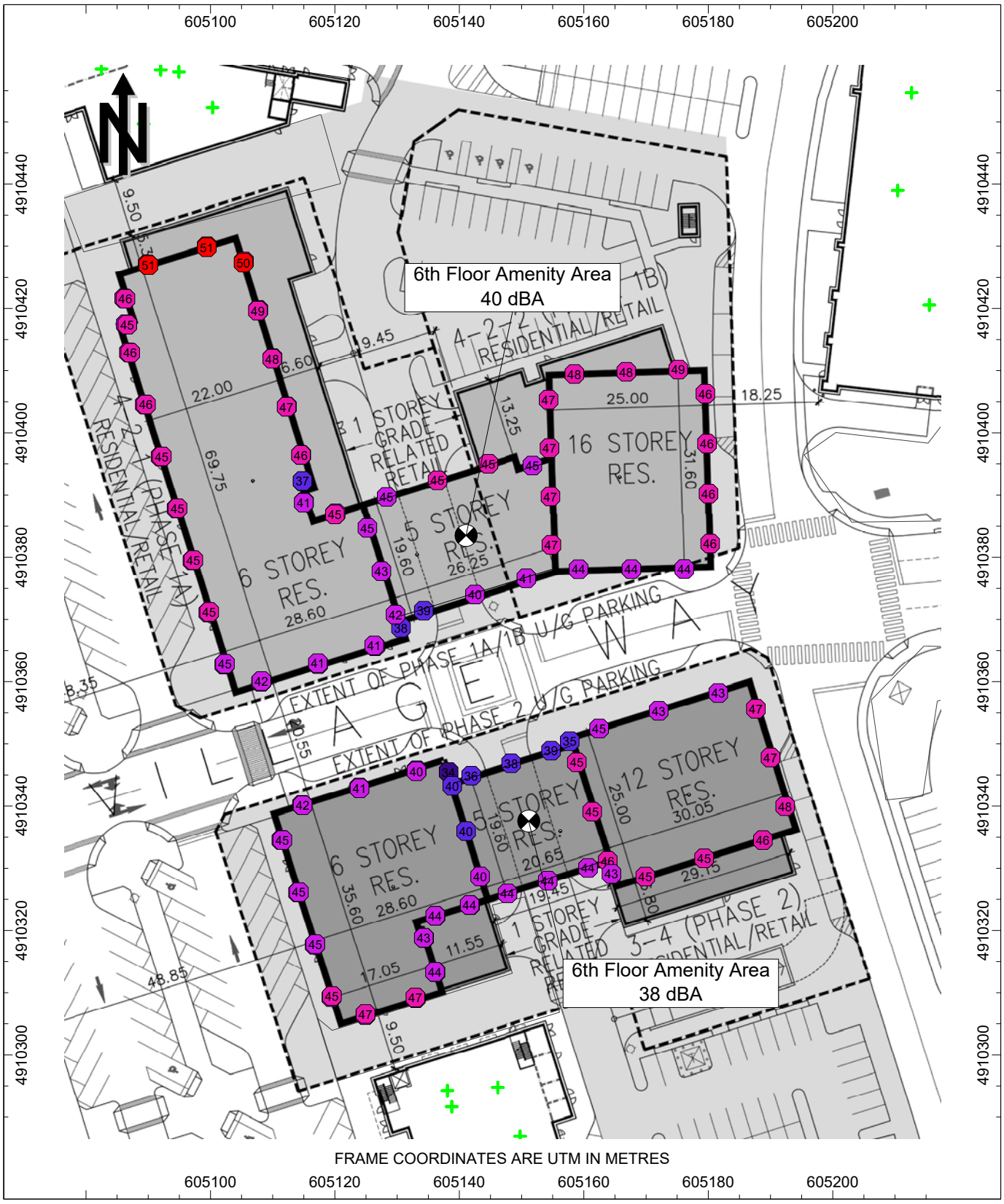

Figure 8: Predicted Stationary Noise
Daytime (07:00 - 23:00), Leq [dBA]

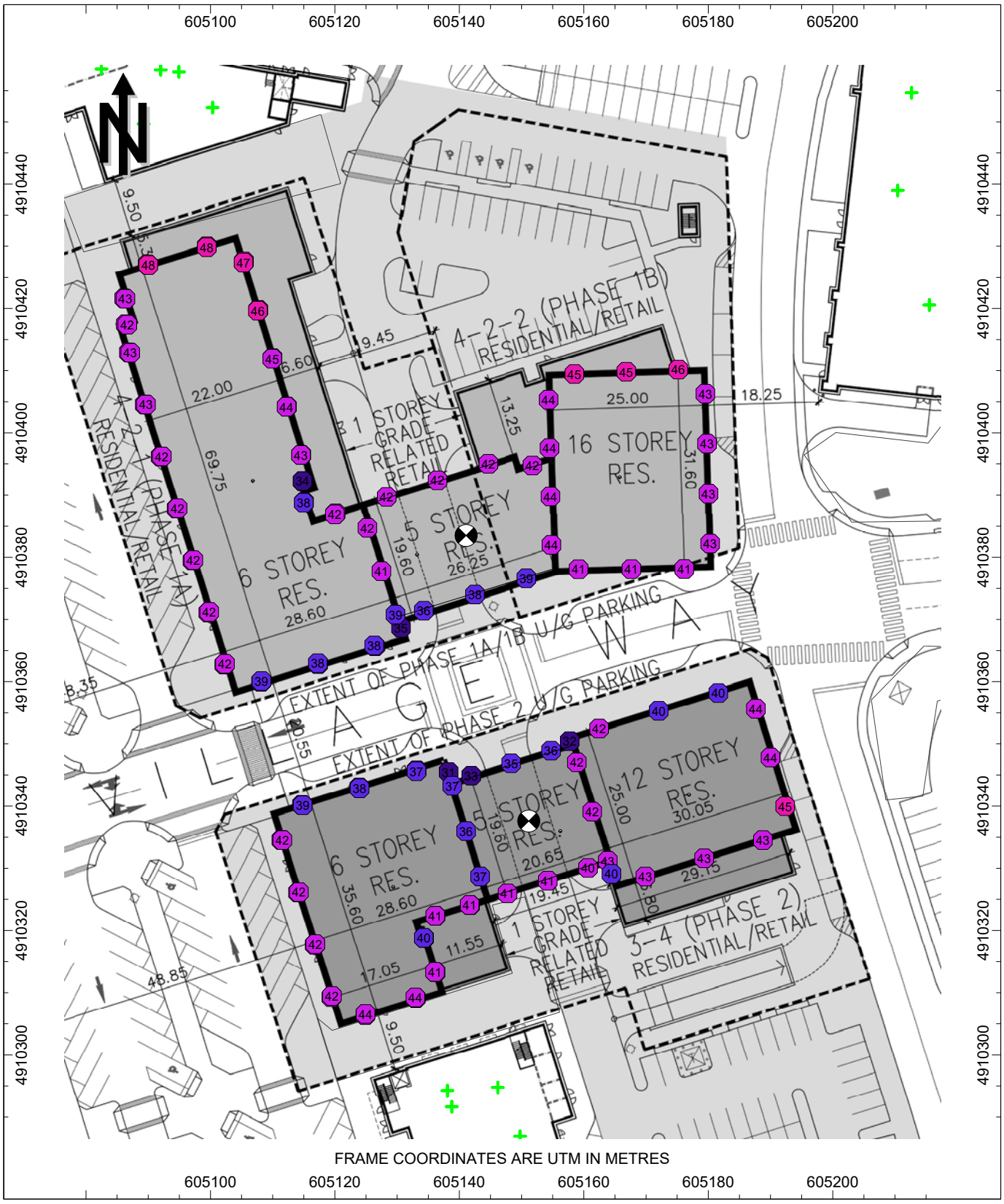

Figure 9: Predicted Stationary Noise
Nighttime (23:00 - 07:00), Leq [dBA]

Appendix A

Road Traffic Information

Sheeba Paul

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: January 14, 2022 10:23 AM
To: Sheeba Paul
Subject: RE: Road Traffic Data Request - Mapleview Drive East & and Bayview Drive

Follow Up Flag: Follow up
Flag Status: Flagged

Sorry forgot to include the truck percentage.

Justin MacDonald, C.E.T.
Senior Transportation Technologist – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020

From: Justin MacDonald
Sent: Friday, January 14, 2022 10:16 AM
To: Sheeba Paul <spaul@hgcengineering.com>
Subject: RE: Road Traffic Data Request - Mapleview Drive East & and Bayview Drive

Good morning Sheeba,

As per your request.

Mapleview Drive East of Bayview Drive
ADT – 30,000 (2019)
Growth Rate – 2% per year to a horizon year of 2031; 1% per year from 2031 to 2041.
Daytime Split – N/A
Percent Truck and Commercial – 6% - I do not have break down of classification, but I would assume a 50/50 split.
Speed Limit – 60km/h

Mapleview Drive West of Bayview Drive
ADT – 40,000 (2019)
Growth Rate – 2% per year to a horizon year of 2031; 1% per year from 2031 to 2041.
Daytime Split – N/A
Percent Truck and Commercial – 6% - I do not have break down of classification, but I would assume a 50/50 split.
Speed Limit – 60km/h

Bayview Drive
ADT – 15,000 (2019)
Growth Rate – 3% per year to a horizon year of 2031; 1% per year from 2031 to 2041.
Daytime Split – N/A
Percent Truck and Commercial – 10% - I do not have a break down of classification, but I would assume 6% commercial and 4% heavy.
Speed Limit – 50km/h

Big Bay Point Road

ADT – 13,000 (2019)
Growth Rate – 3% per year to a horizon year of 2031; 3% per year from 2031 to 2041.
Daytime Split – N/A
Percent Truck and Commercial – 6% - I do not have break down of classification, but I would assume a 50/50 split.
Speed Limit – 50km/h

Please let me know if you have any other questions.

Justin MacDonald, C.E.T.
Senior Transportation Technologist – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Sheeba Paul <spaul@hgcengineering.com>
Sent: Thursday, January 13, 2022 11:57 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: RE: Road Traffic Data Request - Mapleview Drive East & and Bayview Drive

Hello again Justin,

We are conducting a noise feasibility study for a proposed mixed-use residential development located to the east of Highway 400, north of Mapleview Drive East and west of Bayview Drive in Barrie. A google link is included in your reference:

https://www.google.com/maps/place/Park+Place/@44.3379433,-79.6830686,868m/data=!3m1!1e3!4m5!3m4!1s0x0:0xd04ec7c724377d65!8m2!3d44.3388564!4d-79.681253

We require road traffic data for the following roadways:
-Mapleview Drive East
-Bayview Drive

We require traffic data (typically AADT counts or ultimate data) and commercial vehicle percentages and a speed.

Thank you.

Ms. Sheeba Paul, MEng, PEng
Senior Associate

HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 **e**: spaul@hgcengineering.com
Visit our website – www.hgcengineering.com **Follow Us** – LinkedIn | Twitter | YouTube

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
400	MOLSON PARK DR-MAPLEVIEW DR IC 90	3.8	1988	IC	39,200	50,900	43,100	31,300	0.8
			1989	IC	42,400	54,600	47,000	34,700	0.9
			1990	IC	45,600	57,800	50,500	37,300	0.9
			1991	IC	47,200	59,400	52,300	39,100	0.4
			1992	IC	48,800	60,000	53,600	41,400	0.8
			1993	IC	50,500	63,600	56,000	40,900	0.5
			1994	IC	51,800	64,800	57,000	41,900	0.8
			1995	IC	53,100	66,900	59,500	42,900	0.6
			1996	IC	54,400	70,700	62,000	44,000	0.6
			1997	IC	59,300	77,100	67,600	47,900	0.6
			1998	IC	64,400	83,100	73,400	52,100	0.5
			1999	IC	69,500	89,700	78,900	56,200	0.9
			2000	IC	74,000	90,800	86,800	62,700	0.4
			2001	IC	76,100	93,600	89,000	76,100	0.4
			2002	IC	79,900	98,300	93,700	67,700	0.7
			2003	IC	88,400	108,700	103,400	75,100	0.6
			2004	IC	87,600	97,600	98,600	77,600	0.5
			2005	IC	86,400	96,100	97,000	76,200	0.4
			2006	IC	89,500	99,400	100,400	79,300	0.4
			2007	IC	92,500	102,800	105,900	81,800	0.5
			2008	IC	88,000	97,500	94,300	77,600	0.3
			2009	IC	95,300	105,600	106,600	84,500	0.3
			2010	IC	97,000	112,600	113,500	90,200	0.4
			2011	IC	98,000	107,800	111,700	88,200	N/A
			2012	IC	98,700	109,600	105,600	87,800	N/A
			2013	IC	90,000	99,900	99,000	80,100	N/A
			2014	IC	93,100	103,300	102,400	82,900	N/A
			2015	IC	106,300	118,000	116,900	94,600	N/A
			2016	IC	108,700	120,600	119,500	96,700	N/A
400	SIMCOE RD 27 IC-94-ESSA RD-BARRIE	2.4	1988	CTR	46,000	59,700	50,600	36,800	1.4
			1989	CTR	50,000	64,400	55,500	40,900	1.1
			1990	CTR	54,000	68,500	59,900	44,200	0.5
			1991	CTR	55,800	70,300	61,900	46,300	1.0

Sheeba Paul

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: January 19, 2022 6:47 PM
To: Sheeba Paul
Cc: Bee, Christopher (MTO)
Subject: RE: commercial vehicle percentages

Follow Up Flag: Follow up
Flag Status: Flagged

To Sheeba Paul, HGC Engineering:

I hope you are keeping safe and healthy, and have survived the snow storm

This is official data from MTO to latest 2016 :

At H400 and Molson Park Drive: last 10 years to 2016 -- % trucks 6% steady
At H400 and Simcoe Rd 27-Essa last 10 years to 2016 (% trucks) -- yr 2007-2014 –12%, yr 2015 - 9.2%, yr 2016 – 7.4%

"% trucks" include large long trucks, small short trucks, vans, buses, cars with trailer, specials, but not regular cars.

Regards.

Christopher Bee
MTO CR
STIRCS, TIMD

From: Sheeba Paul <spaul@hgcengineering.com>
Sent: January 18, 2022 11:59 AM
To: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: re: commercial vehicle percentages

Hello Christopher

We are working on a noise study for a development east of Highway 400, north of Mapleview Drive East and west of Bayview Drive.

I have the attached traffic volumes for Highway 400.

Do you have the commercial vehicle percentages for this stretch of Hwy 400?

Thank you.

Ms. Sheeba Paul, MEng, PEng
Senior Associate

HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
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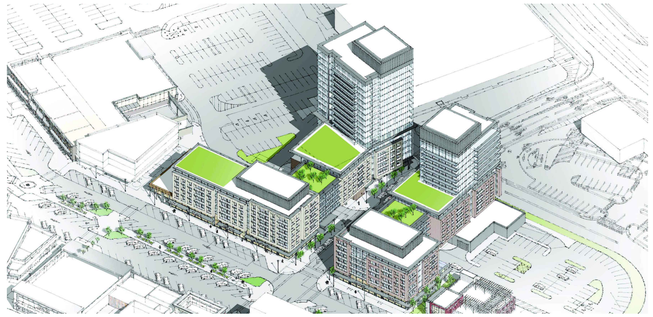
Appendix B

Supporting Drawings



PROPOSED MULTI UNIT RESIDENTIAL INTENSIFICATION DEVELOPMENT PARK PLACE, BARRIE

NORTH AMERICAN DEVELOPMENT GROUP

CONSULTANTS LIST

PLANNING CONSULTANTS
R.G. RICHARDS & ASSOCIATES
6163 PEBBLEWOODS DR.
GREELY, ONTARIO K4P 0A1
TEL: 416-219-5122

PLANNING CONSULTANTS
IPS CONSULTING INC.
647 WELHAM RD., SUITE 9,
BARRIE, ONTARIO L4N 0B7
TEL: 705-812-3281

SITE SERVICES & GRADING ENGINEERS
SABOURIN KIMBLE & ASSOCIATES LTD.
110 OLD KINGSTON RD.
AJAX, ONTARIO L1T 2Z9
TEL: 905-426-9451

ELECTRICAL ENGINEER
HAMMERSCHLAG & JOFFE INC.
43 LESMILL ROAD
NORTH YORK, ONTARIO M3B 2T8
TEL: 416-444-9263

ARCHITECT
PETROFF PARTNERSHIP ARCHITECTS
260 TOWN CENTRE BLVD. SUITE 300
MARKHAM, ONTARIO L3R-8H8
TEL: 905-470-7000

LANDSCAPE ARCHITECTS
STUDIO TLA
20 CHAMPLAIN BLVD., SUITE 102
TORONTO, ONTARIO M3H 2Z1
TEL: 416-638-4911

TRANSPORTATION ENGINEER
BA CONSULTING GROUP
45 ST.CLAIR AVE. WEST, SUITE 300
TORONTO, ONTARIO M4V 1K9
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COVER SHEET

SCALE: AS NOTED

PROPOSED MULTI-UNIT
RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
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ZONING BY-LAW STATS.

	PHASE 1A (BLDG. A)	PHASE 1B (BLDG. B)	PHASE 2 (BLDG. C)	TOTALS
BUILDING AREA	2,165m2	1,650m2	2,385m2	**6,200m2**
NON-RESIDENTIAL GFA [1]	1,160m2	175m2	975m2	**2,310m2**
RESIDENTIAL GFA [1]	6,990m2	13,395m2	12,815m2	**33,200m2**
BUILDING HEIGHT	6-STOREYS Proposed 24.0m	16-STOREYS Proposed 60.0m	6 & 12-STOREYS Proposed 47.0m	16-STOREYS (max.) Proposed 60.0m (max.)
LANDSCAPE OPEN SPACE AREA [2]	1,375m2	1,630m2	2,530m2	**5,535m2**
COMMON AMENITY AREA [3]	200m2	1,000m2	650m2	**1,850m2**
BICYCLE PARKING	50	100	90	**240**

1. ***Gross Floor Area (GFA)*** *City of Barrie Zoning By-Law 2009-141 definition: shall mean the total area of all floors in a building, excepting a basement in a residential building, measured from the outside face of the exterior walls, but exclusive of any part of a building which is used for the storage or parking of motor vehicles other than for the automotive purposes defined in Section 3.0 in this By-law, for storage, stairwells, or for mechanical or electrical equipment providing services for the entire building. In addition to the exceptions, in calculating the gross floor area for "dwelling, apartment", the part of the gross corridor areas which are in excess of the minimum corridor areas required under the provisions of the Ontario Building Code and the area occupied by a recreational amenity shall not be included.*
2. ***Landscaped Open Space (note: as related to residential intensification blocks, calculation includes outdoor roof amenity)*** *shall mean open space comprised of lawn and ornamental shrubs, flowers and trees and may include incidental landscaping accessories such as retaining walls, boulders, sculptures, fountains and ponds, paths, walkways, patios and hard-surfaced play areas, but shall not include parking areas or driveways.*
3. ***Amenity Area - General*** *shall mean all indoor amenity areas such as pools, gym, meeting or assembly room within a building which may be a common area available to occupants of the building, in addition to any outdoor amenity area. (By-law 2017-041)*

   Amenity Area - Outdoor *shall mean an area of land; balcony; deck; terrace; the roof of a private garage or the roof of a parking structure, which includes landscape area and may include areas of decorative paving or other similar surface, provided such surface is not used for vehicular use. (2017- 041)*

SITE B1/ DEVELOPMENT STATS.

UNIT COUNT & PARKING	**PHASE 1A**	
	TOTAL NUMBER OF RESIDENTIAL UNITS	**99 units**
	PARKING PROPOSED FOR RESIDENTIAL	**109 spaces** *(1.1 spaces/ unit)* [1]
	PARKING PROPOSED FOR RETAIL	**52 spaces** *(4.5 spaces/ 1000 sq.ft.)*
AREA TOTALS	TOTAL GFA (no exclusions) [1]	**±16,488m2 (177,475 SF)**
	TOTAL COMBINED GLA (Res and Retail) [1]	**±7,405m2 (79,710 SF)**
	RESIDENTIAL GLA [2]	*±6,294m2 (67,750 SF)*
	RETAIL GLA	*±1,111m2 (11,960 SF)*

UNIT COUNT & PARKING	**PHASE 1B**	
	TOTAL NUMBER OF RESIDENTIAL UNITS	**197 units**
	PARKING PROPOSED FOR RESIDENTIAL	**217 spaces** *(1.1 spaces/ unit)* [3]
	PARKING PROPOSED FOR RETAIL	**10 spaces** *(4.5 spaces/ 1000 sq.ft.)*
AREA TOTALS	TOTAL GFA (no exclusions) [1]	**±27,067m2 (291,347 SF)**
	TOTAL COMBINED GLA (Res and Retail) [1]	**±12,660m2 (136,272 SF)**
	RESIDENTIAL GLA [2]	*±12,465m2 (134,172 SF)*
	RETAIL GLA	*±195m2 (2,100 SF)*

SITE B2/ DEVELOPMENT STATS.

UNIT COUNT & PARKING	**PHASE 2**	
	TOTAL NUMBER OF RESIDENTIAL UNITS	**179 units**
	PARKING PROPOSED FOR RESIDENTIAL	**197 spaces** *(1.1 spaces/ unit)* [1]
	PARKING PROPOSED FOR RETAIL	**54 spaces** *(4.5 spaces/ 1000 sq.ft.)*
AREA TOTALS	TOTAL GFA (no exclusions) [1]	**±29,372m2 (316,158 SF)**
	TOTAL COMBINED GLA (Res and Retail) [1]	**±12,756m2 (137,304 SF)**
	RESIDENTIAL GLA [2]	*±11,716m2 (126,110 SF)*
	RETAIL GLA	*±1,040m2 (11,194 SF)*

SITE B1 & B2

UNIT COUNT & PARKING	**COMBINED TOTALS FOR ALL PHASES**	
	TOTAL NUMBER OF RESIDENTIAL UNITS	**475 units**
	PARKING PROPOSED FOR RESIDENTIAL	**523 spaces** *(1.1 spaces/ unit)* [1]
	PARKING PROPOSED FOR RETAIL	**116 spaces** *(4.5 spaces/ 1000 sq.ft.)*
AREA TOTALS	TOTAL GFA (no exclusions) [1]	**±72,927m2 (784,980 SF)**
	TOTAL COMBINED GLA (Res and Retail) [1]	**±32,821m2 (353,286 SF)**
	RESIDENTIAL GLA [2]	*±30,475m2 (328,032 SF)*
	RETAIL GLA	*±2,346m2 (25,254 SF)*

1. ***Gross Floor Area (GFA)*** *is the aggregate of the area of each floor measured from exterior surface of exterior walls and excludes balconies and terraces. Parking, loading, services, all shafts and stairs on each floor are included in GFA.*
2. ***Residential Gross Leasable Area (GLA)*** *is the aggregate of the area of all floors in a residential building, whether at, above or below grade, measured from the exterior faces of the exterior walls, centerline of suite-to-suite demising wall and the outer surface of the suite-to-corridor wall. Residential GLA excludes parking, loading, balconies, corridors, stairs, elevators, shafts, service closets.*
3. ***Barrier-Free Parking***
   76 to 100: 2 Type 'A' (3.4m wide) and 2 Type 'B' (3.1m wide)
   100+ : 1 Type 'A' space plus 3% of overall parking count

PHASE 1A - RESIDENTIAL STATS. (**AT-GRADE RETAIL EXCLUDED)

FLOOR LEVEL	UNIT COUNT	GFA (m2/ sq.ft.)	GLA (m2/ sq.ft.)	EFFICIENCY (%)
P2 - PARKING LEVEL	-	3,525 (37,945)	-	-
P1 - PARKING LEVEL	-	3,525 (37,945)	-	-
GROUND FLOOR	-	520 (5,600) [1]	-	-
2ND FLOOR	20	1,470 (15,825)	1,276 (13,735)	87%
3RD FLOOR	20	1,470 (15,825)	1,276 (13,735)	87%
4TH FLOOR	20	1,470 (15,825)	1,276 (13,735)	87%
5TH FLOOR	20	1,470 (15,825)	1,276 (13,735)	87%
6TH FLOOR	19	1,460 (15,715)	1,190 (12,810)	82%
TOTALS	**99**	**14,910 (160,490)**	**6,294 (67,750)**	-

1. *Area excludes: retail, parking ramp and loading*

PHASE 1B - RESIDENTIAL STATS. (**AT-GRADE RETAIL EXCLUDED)

	FLOOR LEVEL	UNIT COUNT	GFA (m2/ sq.ft.)	GLA (m2/ sq.ft.)	EFFICIENCY (%)
	P3 - PARKING LEVEL	-	3,925 (42,250)	-	-
	P2 - PARKING LEVEL	-	3,945 (42,465)	-	-
	P1 - PARKING LEVEL	-	3,945 (42,465)	-	-
	GROUND FLOOR	-	500 (5,380) [1]	-	-
PODIUM	2ND FLOOR	19	1,346 (14,488)	1,197 (12,884)	89%
	3RD FLOOR	19	1,346 (14,488)	1,197 (12,884)	89%
	4TH FLOOR	19	1,346 (14,488)	1,197 (12,884)	89%
	5TH FLOOR	19	1,346 (14,488)	1,197 (12,884)	89%
TOWER	6TH FLOOR	11	790 (8,500)	688 (7,405)	87%
	7TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	8TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	9TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	10TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	11TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	12TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	13TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	14TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	15TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	16TH FLOOR	11	790 (8,500)	698 (7,513)	88%
	TOTALS	**197**	**26,390 (284,050)**	**12,465 (134,172)**	-

1. *Area excludes: retail, parking ramp and loading*

PHASE 2 - RESIDENTIAL STATS. (**AT-GRADE RETAIL EXCLUDED)

	FLOOR LEVEL	UNIT COUNT	GFA (m2/ sq.ft.)	GLA (m2/ sq.ft.)	EFFICIENCY (%)
	P3 - PARKING LEVEL	-	4,685 (50,430)	-	-
	P2 - PARKING LEVEL	-	4,685 (50,430)	-	-
	P1 - PARKING LEVEL	-	4,685 (50,430)	-	-
	GROUND FLOOR	-	455 (4,895) [1]	-	-
PODIUM	2ND FLOOR	25	1,875 (20,182)	1,658 (17,846)	88%
	3RD FLOOR	25	1,875 (20,182)	1,658 (17,846)	88%
	4TH FLOOR	25	1,875 (20,182)	1,658 (17,846)	88%
	5TH FLOOR	25	1,875 (20,182)	1,658 (17,846)	88%
TOWER	6TH FLOOR	19	1,468 (15,800)	1,256 (13,520)	85%
	7TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	8TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	9TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	10TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	11TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	12TH FLOOR	10	750 (8,700)	638 (6,865)	85%
	TOTALS	**179**	**27,978 (301,152)**	11,716 (126,110)	-

1. *Area excludes: retail, parking ramp and loading*

UNIT MIX BREAKDOWN SUMMARY

PHASE 1A

UNIT TYPE	COUNT	%
STUDIO	10	10
1-BEDROOM	56	56
1-BED+DEN	17	17
2-BEDROOM	11	11
2-BED+DEN	5	5
TOTALS	99	

PHASE 1B

UNIT TYPE	COUNT	%
STUDIO	1	0.5
1-BEDROOM	124	63
1-BED+DEN	8	4
2-BEDROOM	64	32.5
2-BED+DEN	0	0
TOTALS	197	

PHASE 2

UNIT TYPE	COUNT	%
STUDIO	5	3
1-BEDROOM	78	44
1-BED+DEN	42	23
2-BEDROOM	54	30
2-BED+DEN	0	0
TOTALS	179	

COMBINED

UNIT TYPE	COUNT	%
STUDIO	16	3
1-BEDROOM	258	54
1-BED+DEN	67	14
2-BEDROOM	129	27
2-BED+DEN	5	1
TOTALS	475	

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1	ISSUED FOR COORDINATION	FEB.11.2022	OH

STATISTICS

SCALE: AS NOTED

PROPOSED MULTI-UNIT
RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
PETROFF PARTNERSHIP ARCHITECTS
260 TOWN CENTRE BLVD, SUITE 300
MARKHAM, ON L3R H8H
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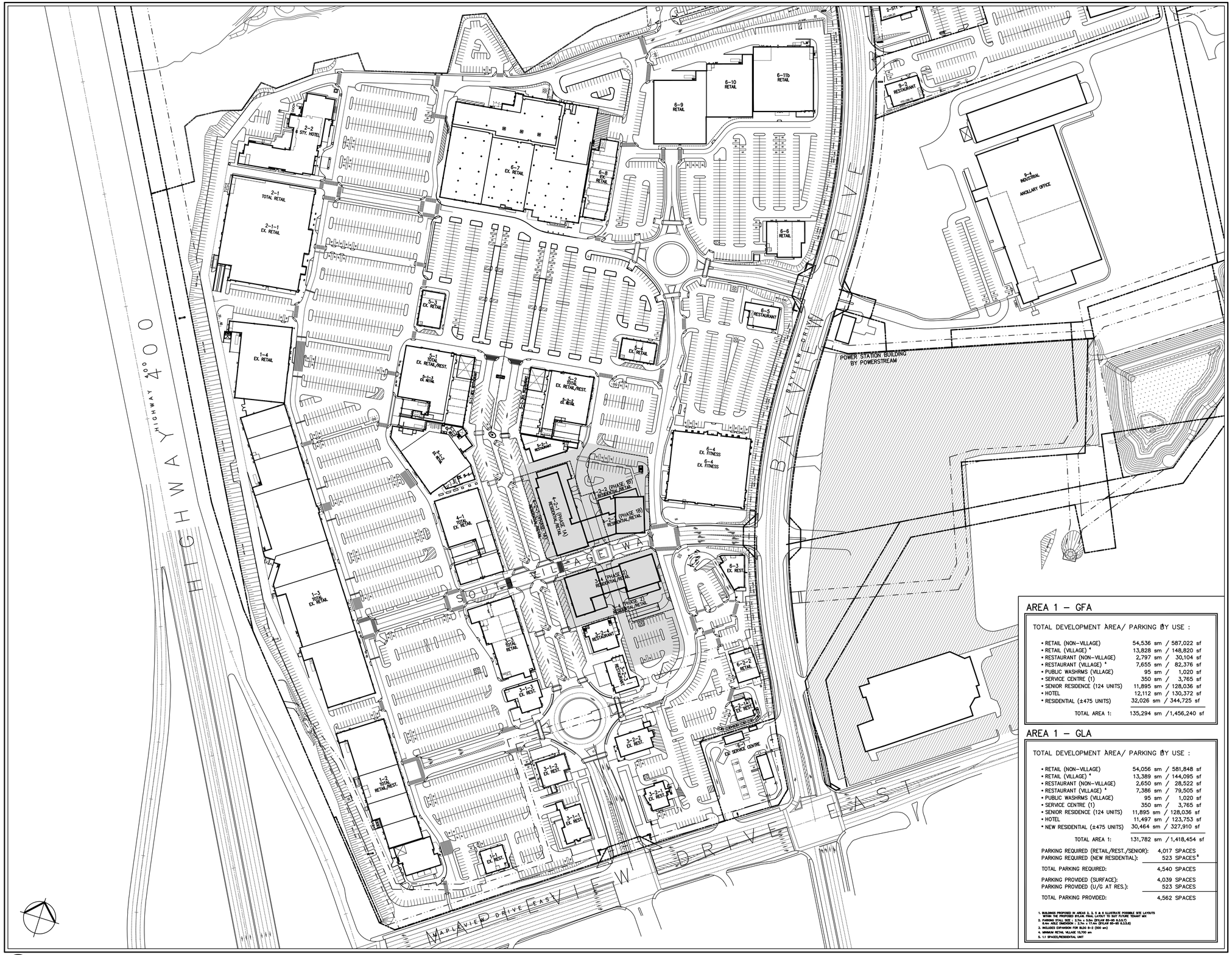
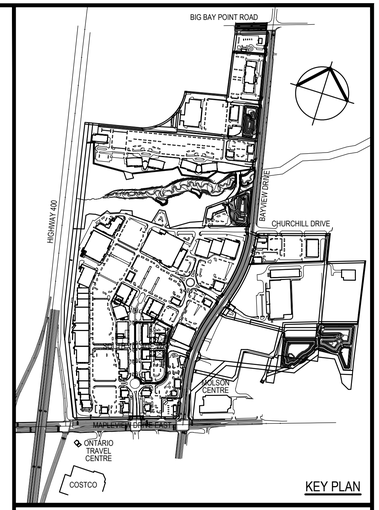


1 A101 CONTEXT PLAN
SCALE: 1:1000



KEY PLAN

AREA 1 – GFA

TOTAL DEVELOPMENT AREA/ PARKING BY USE :

• RETAIL (NON-VILLAGE)	54,536 sm	/ 587,022 sf
• RETAIL (VILLAGE) [4]	13,828 sm	/ 148,820 sf
• RESTAURANT (NON-VILLAGE)	2,797 sm	/ 30,104 sf
• RESTAURANT (VILLAGE) [4]	7,655 sm	/ 82,376 sf
• PUBLIC WASHRMS (VILLAGE)	95 sm	/ 1,020 sf
• SERVICE CENTRE (1)	350 sm	/ 3,765 sf
• SENIOR RESIDENCE (124 UNITS)	11,895 sm	/ 128,036 sf
• HOTEL	12,112 sm	/ 130,372 sf
• RESIDENTIAL (±475 UNITS)	32,026 sm	/ 344,725 sf
TOTAL AREA 1:	135,294 sm	/1,456,240 sf

AREA 1 – GLA

TOTAL DEVELOPMENT AREA/ PARKING BY USE :

• RETAIL (NON-VILLAGE)	54,056 sm	/ 581,848 sf
• RETAIL (VILLAGE) [4]	13,389 sm	/ 144,095 sf
• RESTAURANT (NON-VILLAGE)	2,650 sm	/ 28,522 sf
• RESTAURANT (VILLAGE) [4]	7,386 sm	/ 79,505 sf
• PUBLIC WASHRMS (VILLAGE)	95 sm	/ 1,020 sf
• SERVICE CENTRE (1)	350 sm	/ 3,765 sf
• SENIOR RESIDENCE (124 UNITS)	11,895 sm	/ 128,036 sf
• HOTEL	11,497 sm	/ 123,753 sf
• NEW RESIDENTIAL (±475 UNITS)	30,464 sm	/ 327,910 sf
TOTAL AREA 1:	131,782 sm	/1,418,454 sf

PARKING REQUIRED (RETAIL/REST./SENIOR):	4,017 SPACES
PARKING REQUIRED (NEW RESIDENTIAL):	523 SPACES [5]
TOTAL PARKING REQUIRED:	4,540 SPACES
PARKING PROVIDED (SURFACE):	4,039 SPACES
PARKING PROVIDED (U/G AT RES.):	523 SPACES
TOTAL PARKING PROVIDED:	4,562 SPACES

1. BUILDINGS PROPOSED IN AREAS 2, 3 & 6 ILLUSTRATE POSSIBLE SITE LAYOUTS WITHIN THE PROPOSED BYLAW. FINAL LAYOUT TO SUIT FUTURE TENANT MIX
2. PARKING STALL SIZE : 2.7m x 5.6m (BYLAW 85-95 S.5.5.7)
6.4m AISLE DIMENSION ; 2.7m + 17.4m (BYLAW 85-95 S.5.5.8)
3. INCLUDES EXPANSION FOR BLDG 6-3 (500 sm)
4. MINIMUM RETAIL VILLAGE 15,700 sm
5. 1.1 SPACES/RESIDENTIAL UNIT

LEGAL DESCRIPTION

LOTS 7, 8 AND 9, CONCESSION 12, (GEOGRAPHIC TOWNSHIP OF INNISFIL), CITY OF BARRIE, COUNTY OF SIMCOE

LEGEND

EXTENT OF DEVELOPMENT

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3	ISSUED FOR OPA & ZBA	APR.15.2022	OH
2	ISSUED FOR COORDINATION	MAR.15.2022	OH
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CONTEXT PLAN

SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
PETROFF PARTNERSHIP ARCHITECTS
260 TOWN CENTRE BLVD, SUITE 300
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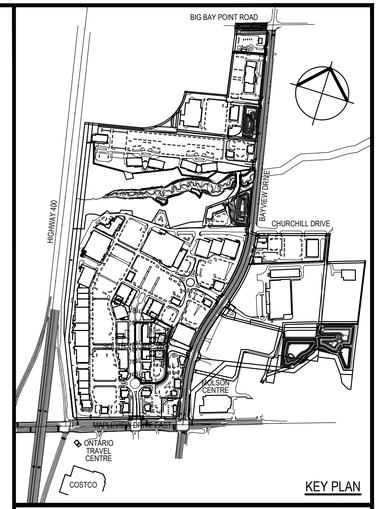
1 A102 BLOCK PLAN
SCALE: 1:500



KEY PLAN

LEGAL DESCRIPTION

LOTS 7, 8 AND 9, CONCESSION 12, (GEOGRAPHIC TOWNSHIP OF INNISFIL), CITY OF BARRIE, COUNTY OF SIMCOE

LEGEND

- EXTENT OF DEVELOPMENT
- PHASE 1A & 1B SUBJECT BUILDINGS
- PHASE 2 SUBJECT BUILDINGS
- EXTENT OF UNDERGROUND PARKING

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BLOCK PLAN

SCALE: AS NOTED 1:500

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT PARK PLACE BARRIE

100 MAPLEVIEW DRIVE EAST, BARRIE, ON

FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF

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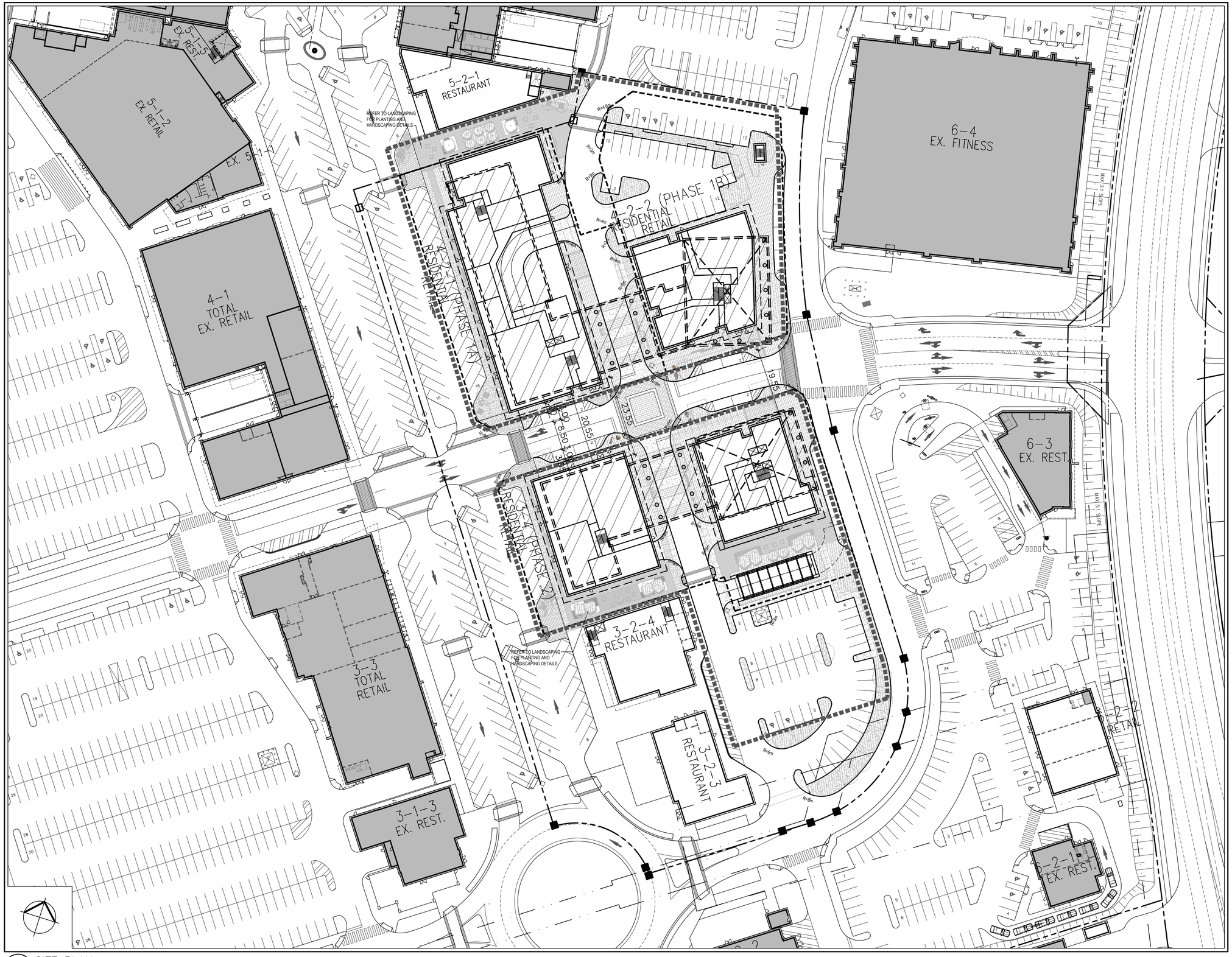
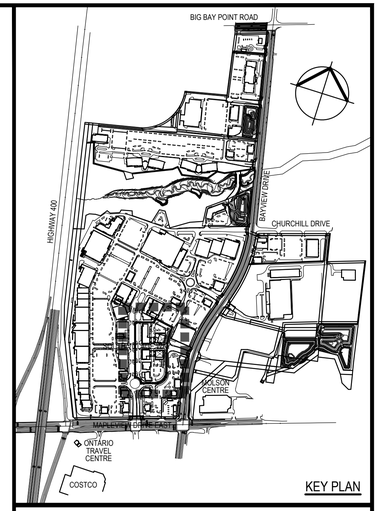


1 A103 SITE PLAN
SCALE: 1:500



KEY PLAN

LEGAL DESCRIPTION

LOTS 7, 8 AND 9, CONCESSION 12, (GEOGRAPHIC TOWNSHIP OF INNISFIL), CITY OF BARRIE, COUNTY OF SIMCOE

LEGEND

- EXISTING BUILDINGS
- EXTENT OF DEVELOPMENT
- PRIMARY RESIDENTIAL ENTRANCE

NOTES

1. LEGAL DESCRIPTION, SURVEY LAYOUT HAVE BEEN TAKEN FROM FILE No. 14909 PREPARED BY RUDY MAK SURVEYING LTD. DATED AUGUST 18, 2021
2. SPECIFIC BLOCK DESIGN & DEMISING WALL LOCATIONS/AREAS WITHIN PROPOSED BUILDINGS TO BE DETERMINED BY FUTURE TENANT LEASING
3. FOR LANDSCAPING INFORMATION, REFER TO DRAWINGS PREPARED BY STUDIO TLA
4. FOR GRADING & SERVICING INFORMATION, REFER TO DRAWINGS PREPARED BY SABOURIN KIMBLE
5. FOR ELECTRICAL INFORMATION, REFER TO DRAWINGS PREPARED BY HAMMERSCHLAG & JOFFE
6. ALL DIMENSIONS TO BE READ AS ±

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SITE PLAN

SCALE AS NOTED 1:500

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT PARK PLACE BARRIE

100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

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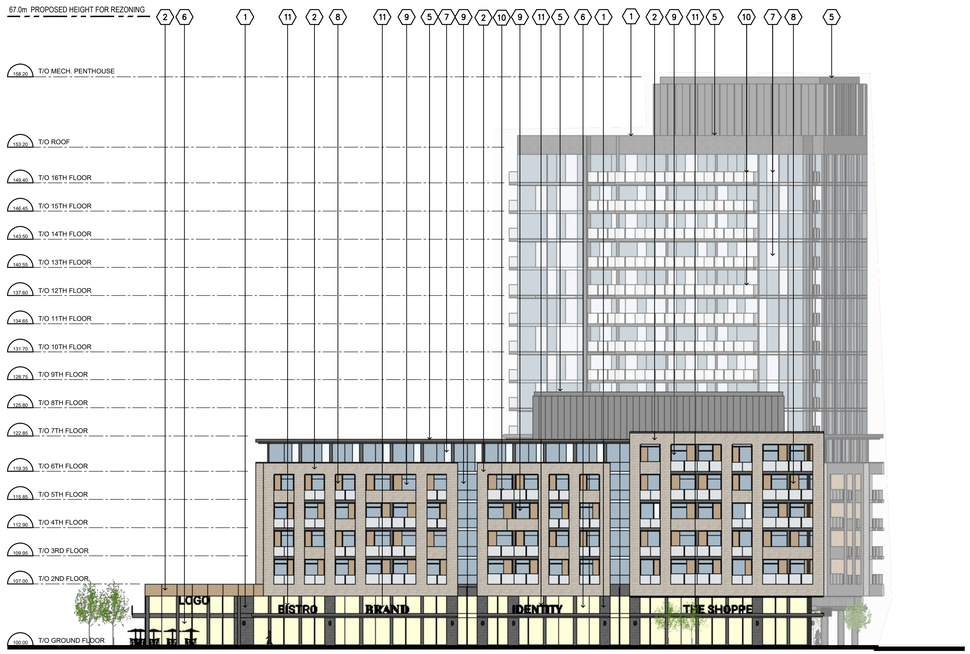
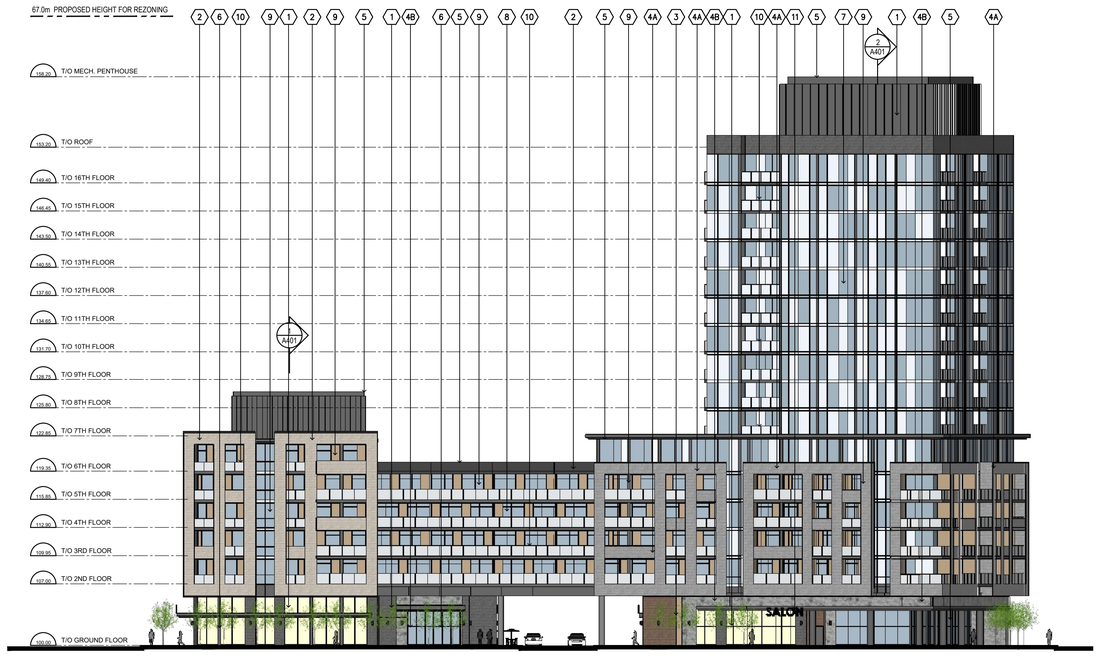


1 A301 BUILDING A WEST ELEVATION
SCALE: 1:300



2 A301 BUILDING A SOUTH ELEVATION
SCALE: 1:300

MATERIAL LEGEND

1. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: CHARCOAL FINISH, DARK GREY MORTAR
2. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: LIGHT BROWN/TAN FINISH, BEIGE MORTAR
3. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: MEDIUM BROWN FINISH, BEIGE/TAN MORTOR
4A. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT GREY, LIGHT GREY MORTOR
4B. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT MOTTLED GREY, LIGHT GREY MORTOR
5. PRE-FINISHED PANEL SIDING OR ACM PANEL
   COLOUR: CHARCOAL FINISH
6. LOW-E CLEAR STOREFRONT GLAZING IN PRE-FINISHED ALUMINUM STOREFRONT FRAMES
   COLOUR: DARK GREY
7. INSULATED BACK PAINTED WHITE SPANDRAL GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
8. INSULATED METAL SPANDREL PANEL (WOOD GRAIN FINISH) IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
9. LOW-E CLEAR GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
10. CLEAR TEMPERED GLASS BALCONY GUARDRAIL IN PRE-FINISHED ALUMINUM RAILING SYSTEM
11. TENANT SIGNAGE - INDIVIDUAL LETTER SIGN OR LOGO

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BUILDING 'A' (PHASE 1A & 1B)
WEST & SOUTH ELEVATIONS

SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE

100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

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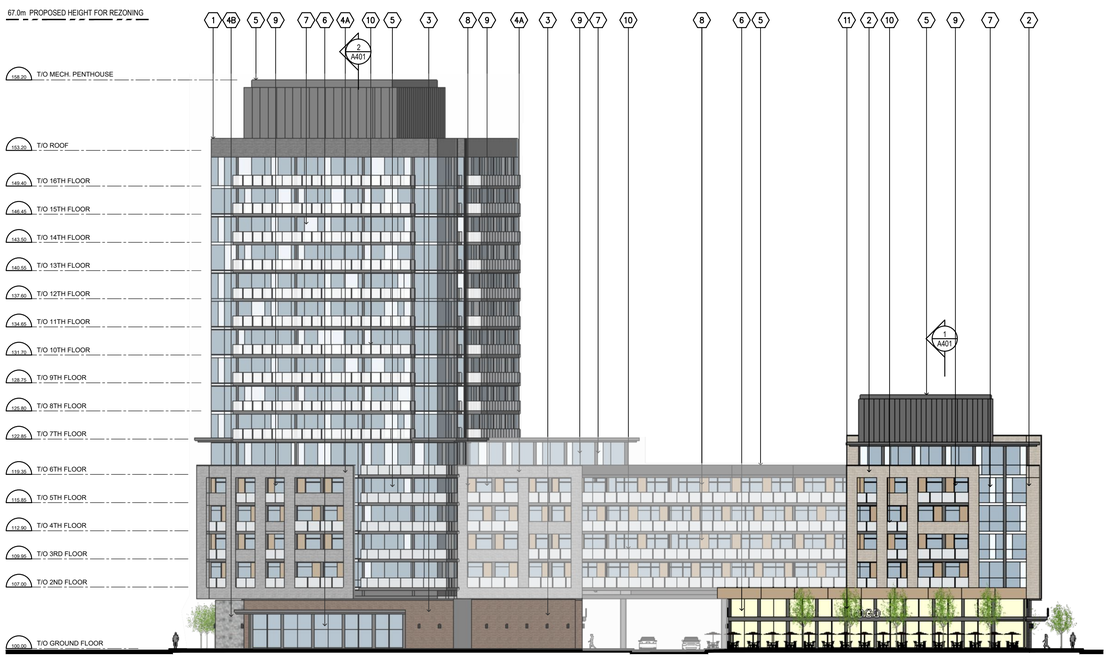
1 A302 BUILDING A EAST ELEVATION
SCALE: 1:300



2 A302 BUILDING A NORTH ELEVATION
SCALE: 1:300

MATERIAL LEGEND

1. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: CHARCOAL FINISH, DARK GREY MORTAR
2. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: LIGHT BROWN/TAN FINISH, BEIGE MORTAR
3. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: MEDIUM BROWN FINISH, BEIGE/TAN MORTOR
4A. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT GREY, LIGHT GREY MORTOR
4B. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT MOTTLED GREY, LIGHT GREY MORTOR
5. PRE-FINISHED PANEL SIDING OR ACM PANEL
   COLOUR: CHARCOAL FINISH
6. LOW-E CLEAR STOREFRONT GLAZING IN PRE-FINISHED ALUMINUM STOREFRONT FRAMES
   COLOUR: DARK GREY
7. INSULATED BACK PAINTED WHITE SPANDRAL GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
8. INSULATED METAL SPANDREL PANEL (WOOD GRAIN FINISH) IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
9. LOW-E CLEAR GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
10. CLEAR TEMPERED GLASS BALCONY GUARDRAIL IN PRE-FINISHED ALUMINUM RAILING SYSTEM
11. TENANT SIGNAGE - INDIVIDUAL LETTER SIGN OR LOGO

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BUILDING 'A' (PHASE 1A & 1B) EAST & NORTH ELEVATIONS

SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
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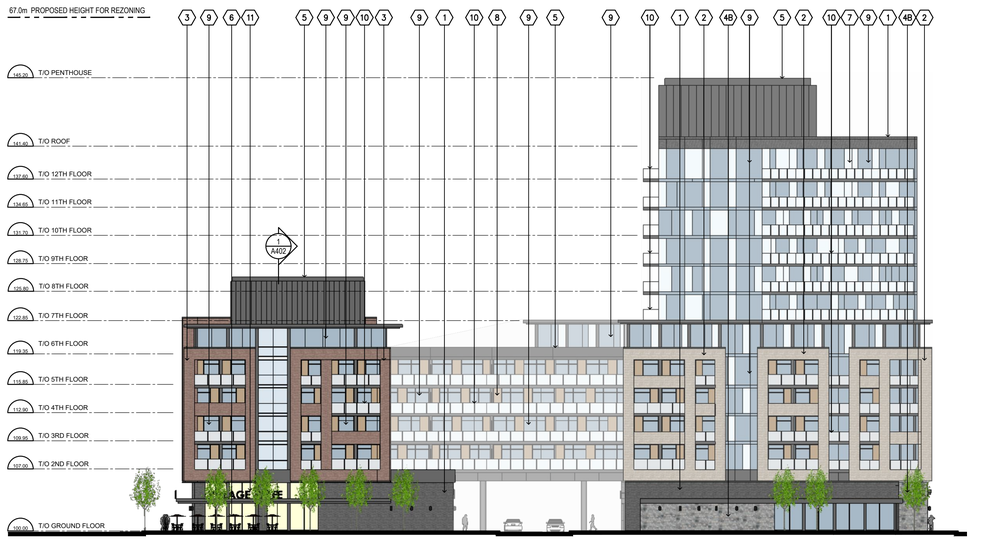
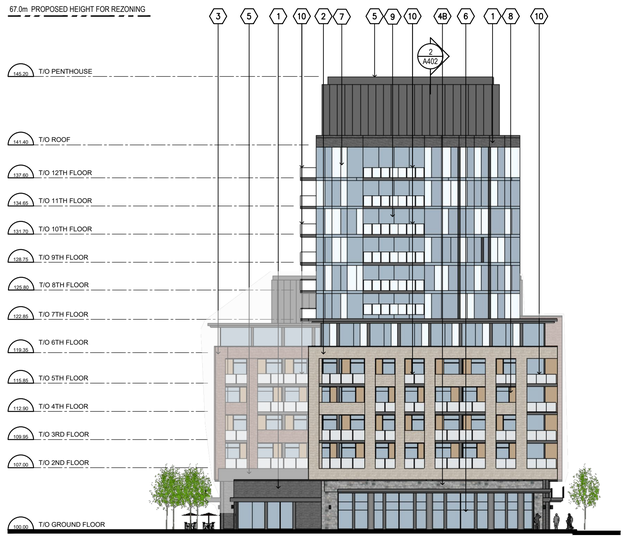
1 A303 BUILDING B WEST ELEVATION
SCALE: 1:300



2 A303 BUILDING B SOUTH ELEVATION
SCALE: 1:300



3 A303 BUILDING B EAST ELEVATION
SCALE: 1:300

4 A303 BUILDING B NORTH ELEVATION
SCALE: 1:300

MATERIAL LEGEND

1. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: CHARCOAL FINISH, DARK GREY MORTAR
2. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: LIGHT BROWN/TAN FINISH, BEIGE MORTAR
3. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: MEDIUM BROWN FINISH, BEIGE/TAN MORTOR
4A. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT GREY, LIGHT GREY MORTOR
4B. FULL BED MASONRY BRICK VENEER AND/OR ARCHITECTURAL PRECAST CONCRETE
   COLOUR: WHITE/LIGHT MOTTLED GREY, LIGHT GREY MORTOR
5. PRE-FINISHED PANEL SIDING OR ACM PANEL
   COLOUR: CHARCOAL FINISH
6. LOW-E CLEAR STOREFRONT GLAZING IN PRE-FINISHED ALUMINUM STOREFRONT FRAMES
   COLOUR: DARK GREY
7. INSULATED BACK PAINTED WHITE SPANDRAL GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
8. INSULATED METAL SPANDREL PANEL (WOOD GRAIN FINISH) IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
9. LOW-E CLEAR GLAZING IN THERMALLY BROKEN PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM
   COLOUR: DARK GREY
10. CLEAR TEMPERED GLASS BALCONY GUARDRAIL IN PRE-FINISHED ALUMINUM RAILING SYSTEM
11. TENANT SIGNAGE - INDIVIDUAL LETTER SIGN OR LOGO

NO.	REVISIONS	DATE	BY
3	ISSUED FOR OPA & ZBA	APR.15.2022	OH
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BUILDING 'B' (PHASE 2) ELEVATIONS

SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT PARK PLACE BARRIE

100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

PETROFF
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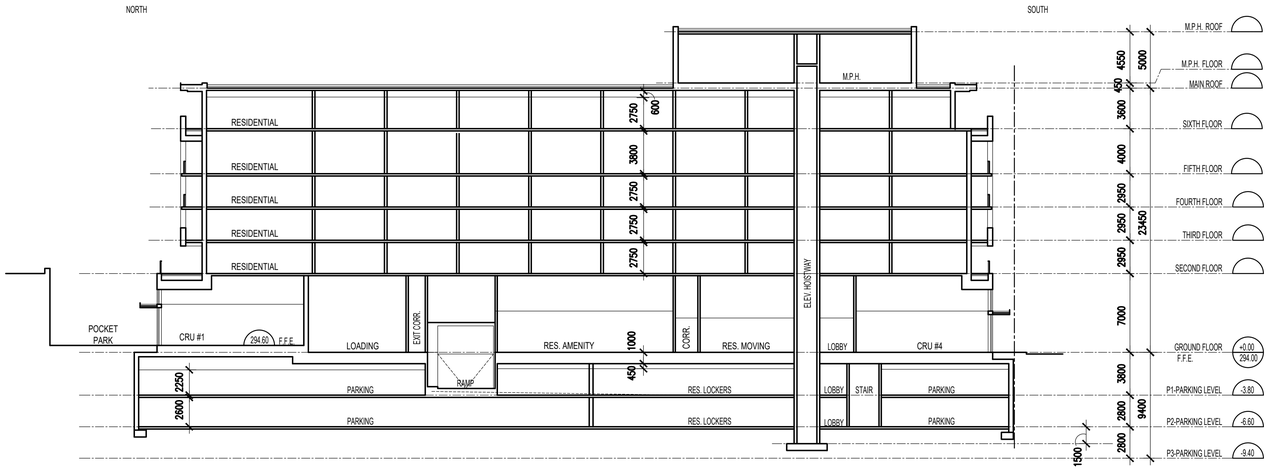
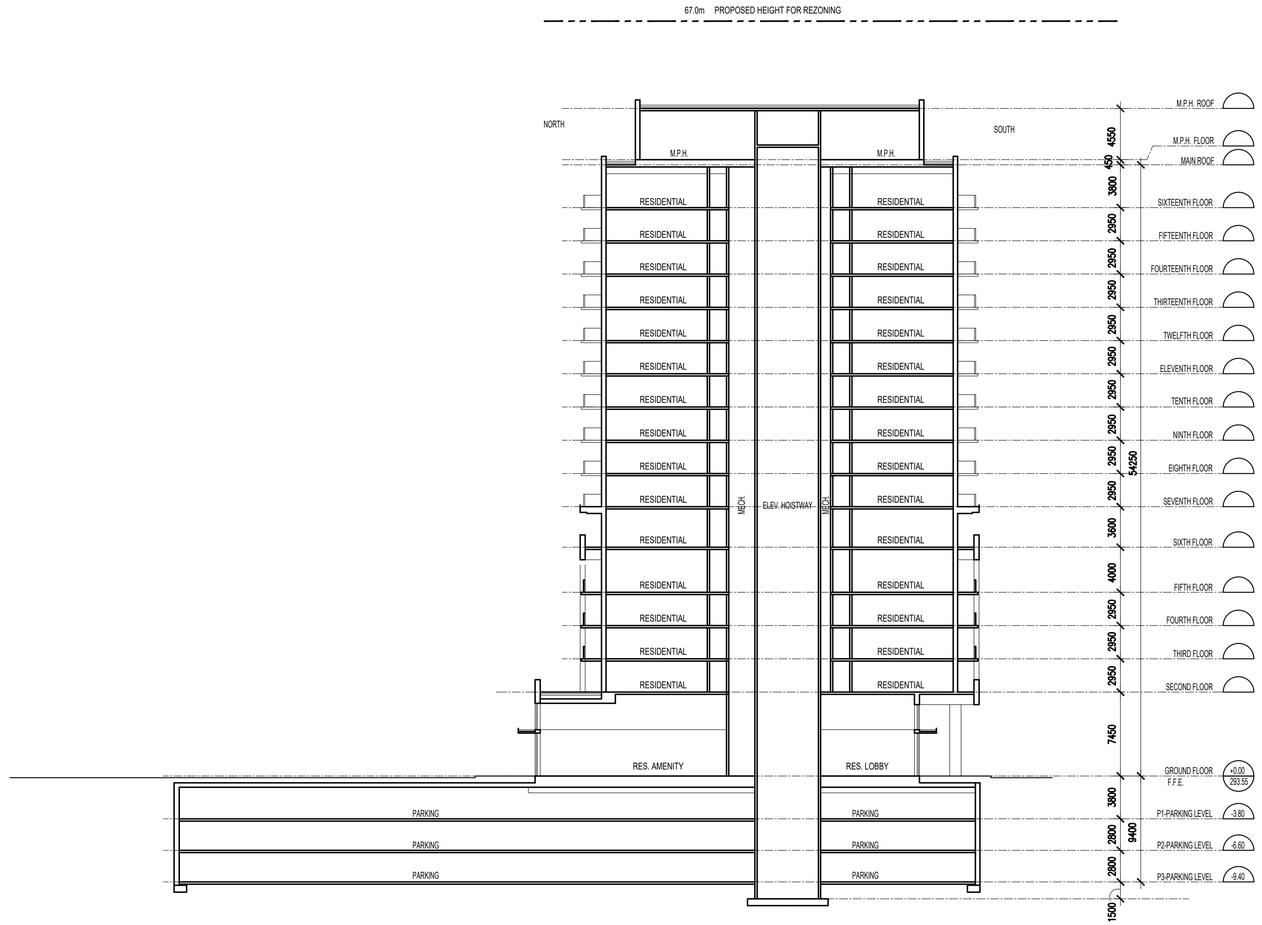


1 A401 PHASE 1A – NORTH – SOUTH SECTION
SCALE: 1:250



2 A401 PHASE 1B – NORTH – SOUTH SECTION
SCALE: 1:250

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BUILDING SECTIONS
PHASE 1A & 1B

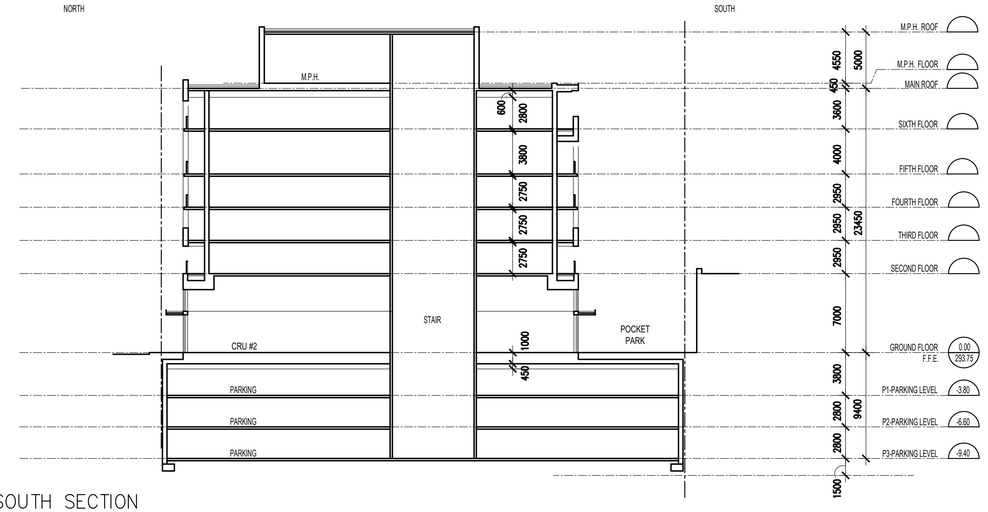
SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE
100 MAPLEVIEW DRIVE EAST, BARRIE, ON
FOR: NORTH AMERICAN DEVELOPMENT GROUP

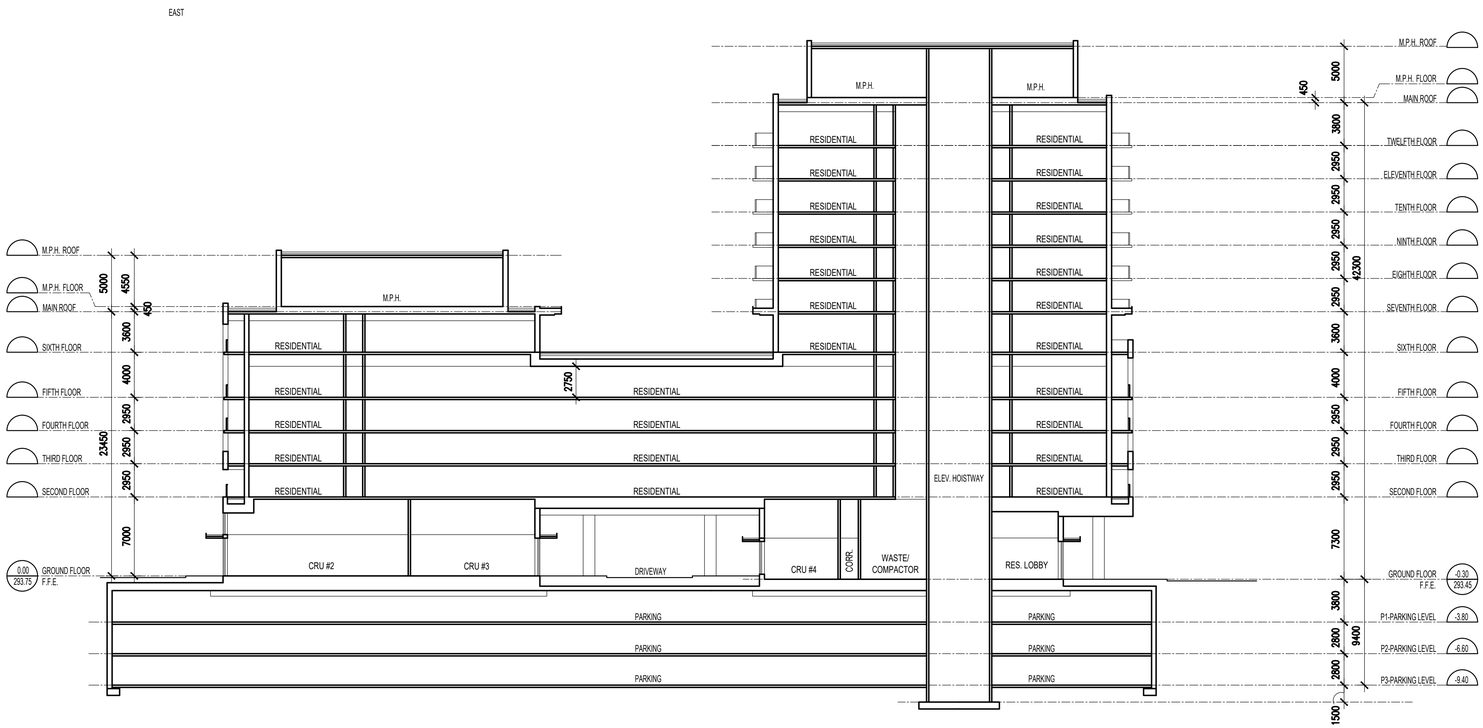
PETROFF
PETROFF PARTNERSHIP ARCHITECTS
260 TOWN CENTRE BLVD, SUITE 300
MARKHAM, ON L3R H8H
PH: 905-470-7000 www.petroff.com

DRAWN BY	PETROFF
CHECKED BY	AH
DATE	
ISSUED	

PROJECT NO. 02138
DWG. NO. A401



1 / A402 PHASE 2 – NORTH – SOUTH SECTION
SCALE: 1:250



2 / A402 PHASE 2 – EAST – WEST SECTION
SCALE: 1:250

NO.	REVISIONS MARK VOID ALL COPIES PREVIOUS FINAL DATE	DATE	BY
3	ISSUED FOR OPA & ZBA	APR.15.2022	OH
2	ISSUED FOR COORDINATION	MAR.15.2022	OH
1	ISSUED FOR COORDINATION	FEB.11.2022	OH

BUILDING SECTIONS
PHASE 2

SCALE: AS NOTED

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT
PARK PLACE BARRIE

100 MAPLEVIEW DRIVE EAST, BARRIE, ON
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