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Traffic and Land Use Compatibility Study (Noise)
Proposed Residential Development
1755 Pickering Parkway, Pickering, Ontario

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1 Executive Summary

HGC Engineering was retained to investigate the potential impact of road and rail traffic noise on a proposed residential development located at 1755 Pickering Parkway in Pickering, Ontario and its compatibility with neighboring commercial and industrial uses.

This study has been prepared for submission to the Municipality in support of an official plan amendment and a zoning by-law amendment for the lands. It follows Ministry of the Environment Conservation and Parks (MECP) guidelines with regard to land use compatibility with respect to noise, recommended separation distances and traffic noise assessment.

The results of the study indicate that future road and rail traffic noise levels may exceed MECP Guidelines. Recommendations for ventilation systems, building façade constructions and noise warning clauses are provided.

An analysis was also conducted to determine the potential impact of noise from neighbouring commercial and industrial facilities at the proposed development. That analysis was based on a review of the latest MECP guidelines, site visits, equipment information from similar HGC Engineering project files, and review of aerial photos of the area. A computer model of the area was created, using acoustic modeling software, in order to predict the sound levels at the locations of future residences. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP).

Based on the current site plan and the assumed operational profile of the existing industrial uses at the surrounding area, the results indicate that the sound emissions from the closest industry (Strada Aggregates) have the potential to exceed the MECP urban (Class 1) guideline limits at some of the proposed buildings in the development during the daytime and nighttime hours. Sound levels can be reduced to acceptable levels if a number of recommended mitigation measures are implemented. An option is to design the building facades with exposure to the industrial facilities with no windows to noise sensitive spaces.

The mitigation requirements may be reduced if the Municipality is requested to introduce a Class 4 designation for the subject lands. With the introduction of a Class 4 designation, upgraded building

and window glazing constructions, a Class 4 noise warning clause and the inclusion of central air conditioning would be required.

A detailed noise study should be performed when siting, lotting, grading information and Class designation for the lands is known to refine the acoustic requirements on a lot by lot or block by block basis. When detailed architectural floor plans and exterior elevation drawings are available, an acoustical engineer shall review the plans to provide recommendations for glazing elements based on actual window to floor area ratios and to verify the exterior wall construction.

In summary, with the implementation of noise control measures, this proposed development is feasible from the perspective of noise impact. Details of the assessment leading to this conclusion are provided herein.

2 Description of the Site and Significant Noise Sources

HGC Engineering personnel visited the site in February 2024 in order to investigate the acoustical environment, the site topography and the surrounding land uses.

The municipal address for the site is 1755 Pickering Street in the City of Pickering, Ontario. A key plan is provided as Figure 1. A site plan dated February 20, 2024 is provided as Figure 2. The proposed development consists of seven blocks with buildings between 20 to 43 storeys in height. Appendix A includes the preliminary drawings.

The primary sources of noise are road traffic on Highway 401 and rail traffic on the Metrolinx and CN rail lines to the south. During the site visit, it was observed that road traffic on Highway 401 and rail traffic on the GO Transit and CN rail lines in the GO and Kingston Subdivisions, respectively, are the primary sources of noise. Road traffic on Brock Road and Pickering Parkway are secondary sources of noise. Commercial buildings are currently located on the subject site and will be demolished to make way for the proposed development.

Neighbouring lands consist of residential and commercial uses to the north and west and industrial facilities to the east and south. Figure 3 is an aerial imagery showing the site and the surrounding land uses. A preliminary assessment of the potential impact from commercial and industrial noise sources at the development is included in Section 4.

3 Traffic Noise Assessment

3.1 Traffic Noise Criteria

Guidelines for acceptable levels of road and rail traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA]. The Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) "Guidelines for New Development in Proximity to Railway Operations", dated May 2013 (RAC/FCM guidelines were also reviewed dated November 2006).

Table I: Traffic Noise Criteria

Space	Daytime $L_{EQ(16\ hour)}$ Road / Rail	Nighttime $L_{EQ(8\ hour)}$ Road / Rail
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA / 40 dBA	45 dBA/ 40 dBA
Inside Bedrooms	45 dBA/ 40 dBA	40 dBA/ 35 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the 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. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the sound level 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 and offers of purchase and sale for the property. When 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 feasible.

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

some other alternative form of mechanical ventilation, is required where nighttime sound levels at bedroom/living/dining room windows are in the range of 51 – 60 dBA or daytime sound levels are in the range of 56 – 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of bedroom/living/dining room window sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise or greater than 55 dBA at night and greater than 60 dBA during day due to rail traffic noise.

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window.

MECP policies stipulate that brick veneer or masonry equivalent exterior wall is required for dwellings within 100 m of the railway right-of-way if sound levels at the façade are greater than 60 dBA. CN requires brick veneer or masonry equivalent exterior wall construction for the first row of dwellings to the railway regardless of sound level. The railways also provide minimum requirements for safety as well as sound and vibration for proposed residential developments located adjacent to their rights-of-way. These include minimum required setbacks, berms, fencing and warning clauses, provided in Appendix B.

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Road traffic data for Highway 401 was obtained from the Ministry of Transportation (MTO) in the form of a Summer Average Daily Traffic (SADT) volume. A speed limit of 100 km/h was applied for Highway 401. A commercial vehicle percentage of 12.0% was obtained from MTO personnel and split into 4.6% medium trucks and 7.4% heavy trucks, along with a day-night split of 66%/34%. The road traffic data was projected to the year 2034 using a 2.5% per year growth rate.

Traffic data for Brock Road was obtained from the Region of Durham in the form of ultimate Average Annual Daily Traffic (AADT) values. An ultimate AADT of 40 000 vehicles per day was

applied for the analysis. A commercial vehicle percentage of 12% and was further split into 8.4% heavy trucks and 3.6% medium trucks. A posted speed limit of 60 km/h and a day-night split of 90%/10% was also used.

Traffic data for Pickering Parkway was obtained from the City of Pickering in the form hourly counts. Commercial vehicle percentages were split into 4.4% heavy trucks and 4.4% medium trucks. The road traffic data was projected to the year 2034 using a 2.5% per year growth rate. The posted speed limit of 50 km/h and a 90% day / 10% night split was assumed for the roadways.

Table II summarizes the traffic volume data used in the analysis. Road traffic data is provided in Appendix C.

Table II: Ultimate and Projected Traffic Data to Year 2034

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Highway 401 *(projected)*	Daytime	222 698	11 641	18 727	253 066
	Night time	111 349	5 841	9 363	126 533
	Total	**333 047**	**17 462**	**28 090**	**379 599**
Brock Road *(ultimate)*	Daytime	31 680	1 296	3 024	36 000
	Night time	3 520	144	336	4 000
	Total	**35 200**	**1 440**	**3 360**	**40 000**
Pickering Parkway *(projected)*	Daytime	13 085	631	631	14 348
	Night time	1 454	70	70	1 594
	Total	**14 539**	**701**	**701**	**15 942**

3.2.2 Rail Traffic Data

Rail traffic data for the GO Transit and the CN Kingston Subdivision were obtained from Metrolinx and CN personnel and are attached in Appendix D. The CN rail line is used for passenger, way freight and freight trains. CN data was projected to the year 2034, using a 2.5% per year growth rate.

The GO Transit rail line is used for passenger trains. The Metrolinx rail traffic was forecast to include both diesel and electric locomotives, as indicated in the data included in Appendix D. Despite this, direction has been given from Metrolinx to assume that all trains are to be equivalent to diesel trains for the purposes of acoustical analysis. The GO Transit are already expressed as 10-year future volumes.

In conformance with CN and Metrolinx assessment requirements, the maximum speeds, maximum number of cars and locomotives per train were used in the traffic noise analysis to yield a worst case estimate of train noise. The predicted daytime and nighttime volumes (including the number of locomotives and cars) and provided speeds are presented below in Table III.

Table III: Projected/Forecasted Rail Traffic Data to Year 2034 +

Subdivision	Type of Train +	Maximum Number of Locomotives	Maximum Number of Cars	Maximum Speed (km/h) *	Current Volume Day/Night	Future Volume Day/Night
GO *(forecasted)*	GO (Diesel)	1	5	160	--	64/10
	GO (Electric)	1	5	160	--	213/37
Kingston *(projected)*	Freight	4	140	105	12/4	17/6
	Way Freight	4	25	105	0/4	0/6
	Passenger	2	10	155	34/1	47/1

Note:
+ All GO trains are modelled as diesel trains as per direction from Metrolinx.
*Maximum speed of 150 km/h used in STAMSON

3.2.3 Traffic Noise Predictions

To assess the levels of road and rail traffic noise which will impact the study area in the future, noise predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix E.

Predictions of the traffic sound levels were made at representative façades shown on the proposed site plan, as shown in Figure 2. The distance setbacks indicated on the site plan along with aerial photos were used for the analysis. Table IV summarizes the predicted sound levels at each of the sound level prediction locations.

Table IV: Predicted Future Sound Levels, Without Mitigation, [dBA]

Block	Tower	Prediction Location	Daytime Road/Rail/ Total $L_{EQ-16\ hr}$	Nighttime Road/Rail/ Total $L_{EQ-16\ hr}$
1	1A	A	77 / 70 / 77	76 / 66 / 77
	1B	B	76 / 70 / 77	75 / 66 / 76
2	2A	C	77 / 70 / 78	76 / 67 / 77
	2B	D	78 / 72 / 79	78 / 68 / 79
	2C	E	79 / 72 / 80	79 / 68 / 80
3	3	F	76 / 71 / 77	76 / 67 / 76
4	4A	G	82 / 74 / 82	82 / 70 / 82
	4B	H	82 / 74 / 82	82 / 70 / 82
5	5	I	82 / 74 / 82	82 / 70 / 82
6	6B	J	76 / 71 / 77	76 / 67 / 77
7	7	K	82 / 74 / 75	82 / 70 / 82

Note: Highest predicted sound levels per facade

3.3 Traffic Noise Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed the MECP guidelines at the façades of the proposed buildings. Recommendations are provided in the following sections.

3.3.1 Outdoor Living Areas

The location of the outdoor amenity areas have not been confirmed at this stage of the development. Any outdoor amenity areas for the proposed buildings should be placed on the shielded side of the buildings to reduce the need for high noise barriers. When siting, lotting and grading information is available, detailed noise studies should be conducted for individual blocks to determine the specific barrier requirements, heights and extents, requirements for ventilation and building envelope construction.

The proposed residential buildings will generally include balconies and/or terraces less than 4 meters in depth. These balconies and terraces are not considered as OLA's under MECP guidelines, and are therefore exempt from traffic noise assessment.

3.3.2 Indoor Living Areas

The predicted sound levels at the plane of the façades of the proposed buildings will exceed 65 dBA during the daytime hours and 60 dBA during the nighttime hours. To address these excesses, the MECP guidelines recommend that all buildings be equipped with central air conditioning. Associated warning clauses are also recommended.

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. Suitable units are those 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.

3.3.3 Building Façade Constructions

Since future sound levels at the facades of the buildings exposed to the corridor are predicted to exceed criteria, sound attenuating building constructions (windows, doors, and walls) need to be specified.

Calculations have been performed to determine options for building envelope constructions required to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC), and are based on the predicted outdoor sound levels and the anticipated area of the exposed facade components (walls, windows and doors) relative to the floor area of the adjacent room.

Acoustical Requirements for Glazing

Detailed floor plans and elevations are not yet available at this stage of the development. Assuming a typical window to floor area of 50% for the living/dining rooms (40% fixed and 10% operable) and 25% for the bedrooms (20% fixed and 5% operable), the minimum acoustical requirement for the window glazing of the proposed residential buildings, including glass in fixed sections, sliding doors, and operable windows. In an urban environment such as this, we do not typically recommend less than STC-33. Awning windows, and swing or sliding doors to balconies should have tight seals

sufficient to achieve similar acoustical performance ratings. Based on the calculations and the stated assumptions, this minimum rating is recommended for all façades of the proposed buildings. Preliminary STC requirements for the buildings are included in Table V below.

Table V: Minimum STC Requirements for Glazing at Specific Facades[1]

Block	Tower	Prediction Location	Glazing STC[2, 3]
1	1A	A	STC-41
	1B	B	STC-40
2	2A	C	STC-41
	2B	D	STC-42
	2C	E	STC-43
3	3	F	STC-41
4	4A	G	STC-47
	4B	H	STC-47
5	5	I	STC-46
6	6B	J	STC-41
	7	K	STC-46

Note:

[1] The calculated STC requirements assume insignificant sound transmission through the walls.
[2] Based on 50% window to floor area ratio for living rooms and 25% window to floor area ratio for bedrooms.
[3] STC requirement refers to installed performance, including sound transmitted through mullions in window-wall systems and seals on operable windows and doors. Test data should be provided where available.

Note that these are minimums for the entire assembly (including mullions) and that test data should be provided to verify. The performance of operable elements is typically determined by the seals, and it is particularly important to qualify such elements with test data. These calculations assume insignificant sound transmission through the walls in comparison with the windows; to achieve this, exterior wall assemblies with a rating of at least 5-10 STC points above the surrounding window STC requirements are typically required, depending on the amount of wall area relative to window. In most cases, the wall sound insulation is much higher than this; sections of poured or pre-cast concrete will typically have a sound insulation rating of STC-55 or more, and can be discounted. Insulated spandrel or metal panels backed by a drywall assembly generally have sound insulation ratings in the range of STC-45 to STC-55. These aspects can be verified as part of the detailed design of the envelope, as needed.

Acoustical criteria for the building façades can be optimized as part of the detailed design of the building envelope, if required. Note also that the requirements below apply to residential suites only; indoor amenity and other areas can be considered separately, if required.

The facades of the residential buildings with exposure to Highway 401 and the rail lines require high STC ratings. To reduce the STC ratings for the glazing, consideration should be given to the following during the design of the suites: minimize the window to floor area ratios and no sliding patio doors in bedrooms.

Further Review

When detailed floor plans and building elevations are available for the individual blocks, a review should be conducted to determine the required glazing and building façade constructions for each building based on actual window to floor area ratios.

3.3.4 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 dwelling units with anticipated traffic sound level excesses. Examples are provided below.

Suggested wording for future dwellings with sound level excesses of the MECP criteria for which physical mitigation has not been provided is given below.

Type 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 and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the noise criteria of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suitable wording for future dwelling units requiring the inclusion of central air conditioning systems is given below.

Type B:

> This dwelling unit has been supplied with a central air conditioning system which allows 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.

Suitable wording regarding the presence of nearby commercial and industrial facilities.

Type C:

> Purchasers/tenants are advised that due to the proximity of the nearby commercial and industrial facilities, noise from these facilities may at times be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

GO Transit's standard warning clause for residential developments located within 300 m of a railway right-of-way (principal main line) is given below.

Type D:

> Warning: Metrolinx and its assigns and successors in interest operate commuter transit service within 300 metres from the subject land. In addition to the current use of these lands, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx or any railway assigns or successors as aforesaid may expand their operations, which expansion may affect the environment of the occupants in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual units. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under these lands.

A typical standard warning clause which is required for all residential developments located within 300 m of railway line is given below.

Type E:

> Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 meters from the land subject hereof. There may be alteration to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way.

4 Land Use Compatibility Assessment

There are several regulations, policies and agreements which should be considered in addressing issues of compatibility and noise impact in the context of this development.

4.1 The Environmental Protection Act and the Planning Act

The legislation which applies to industry is the Environmental Protection Act (EPA). It considers sound as a contaminant, and industry is thereby subject to the provision that "no person shall discharge a contaminant ... into the natural environment that causes or is likely to cause an adverse effect". Unless specifically exempt, industries are typically required to apply for EASR's or Environmental Compliance Approvals for their operations under this Act. The MECP has published criteria and guidelines for sound which are used by industry to obtain approvals under the EPA.

Similarly, the MECP has produced guidelines to assist municipalities and developers in preparing applications under the Planning Act which Municipal authorities implement by providing comments when they receive applications. These are discussed below.

4.2 MECP Guidelines for Land Use Compatibility and Distance Separation

MECP Guidelines D-1, "Land Use Compatibility" and D-6 "Compatibility Between Industrial Facilities and Sensitive Land Uses" were prepared to minimize adverse effects caused by sources regulated by the EPA and in relation to land use approvals under the Planning Act. They recommend separation distances and the implementation of mitigation measures based on the results of technical studies in this regard. The recommended minimum separation distances are 20 m for Class I (light) industry, 70 m for Class II (medium) industry and 300 m for Class III (heavy) industry. The classifications are general, and open to interpretation. For example, a Class 1 industry is described as a small-scale plant with daytime operations and infrequent movement of products or heavy trucks. A Class II industry is described as having a medium level of production with outside storage permitted. Sound may occasionally be audible off site, shift operations are permitted and there are frequent movements of products or heavy trucks. A Class III industry is described as a large scale facility with

sound frequently audible off property, shift operations and the continuous movement of products or heavy trucks.

The separation distances generally apply between the property lines of the respective uses and shown on Figure D in Appendix F.

4.3 MECP Guidelines for Stationary Sources

MECP Publication NPC-300, entitled "Environmental Noise Guideline, Stationary and Transportation sources – Approval and Planning" establishes sound level limits for stationary sources of sound. Stationary sources of sound can be individual facilities or pieces of equipment or the cumulative sound of activity or conveyances operating on industrial property. NPC-300 is used by industry to determine the impact of their operations at neighbouring noise sensitive receptors to demonstrate compliance for the purpose of obtaining approvals. It is also used by the development industry to determine if there may be significant noise impacts on lands considered for the development of noise sensitive uses. Given the presence of Highway 401 and Brock Road, the subject lands would be considered to be in an urban (Class 1) area for noise assessment purposes.

The criteria are based on the background sound level at sensitive points of reception in the quietest hour that the source can be in operation. Background sound includes sound from road traffic and natural sounds, but excludes the sources under assessment. NPC-300 stipulates exclusionary minimum limits. In Class 1 areas such as this, these limits are 50 dBA for daytime and evening hours (07:00 to 23:00) and 45 dBA at night (23:00 to 07:00) at the façade of the dwelling: and 50 dBA during the day and evening (07:00 to 23:00) in the outdoor living area (OLA).

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.

4.4 Definitions

The following definitions are reproduced from NPC-300.

"Class 1 area" means an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people,

usually road traffic, often referred to as "urban hum."

"Class 4 area" means an area or specific site that would otherwise be defined as Class 1 or 2 and which:

- *is an area intended for development with new noise sensitive land use(s) that are not yet built;*
- *is in proximity to existing, lawfully established stationary source(s); and*
- *has formal confirmation from the land use planning authority with the Class 4*
- *area classification which is determined during the land use planning process.*

Additionally, areas with existing noise sensitive land use(s) cannot be classified as Class 4 areas.

"Noise control measure" means a physical measure which can be used to achieve compatibility for the specific land use or activity with respect to noise from transportation sources and/or stationary sources. The noise control measure for a stationary source should be permanent in the context of the operation of the stationary source and not be readily removable or alterable by the future occupants. Temporary noise control measures are only acceptable when the noise from the source is temporary, for example, a portable concrete crusher or portable tub grinder. Noise control measures may include, but are not limited to, the following:

- *Source based noise control measures*
  - *noise control measures applied directly to the noise source, or within the property of the noise source, for example, a silencer, muffler, acoustical louvre, acoustic barrier, acoustical absorption, etc.*
- *Receptor based outdoor noise control measures*
  - *noise control measures implemented on the property of the receptor but not directly on a building, for example, ground (or berm) mounted acoustic barriers suitable for transportation noise sources or for stationary sources.*
- *Receptor based "on building" noise control measures noise control measures*
  - *implemented on the property of the receptor, directly on the building, for example, inoperable windows, enclosed noise buffers, parapets, acoustic barriers, etc. attached to the receptor building.*
- *Receptor based site configuration noise control measures*
  - *orientation of buildings and outdoor living areas (OLAs) with respect to noise sources and spatial separation, for example, the insertion of noise insensitive land uses between source and receptor, appropriate setback distances, the use of intervening service roads.*
- *Receptor based site construction and architectural noise control measures*

- *building construction, for example, enhanced window glazing, cavity walls, resiliently suspended sound isolation channels, special acoustical materials, other sound isolation details; and*
- *architectural design, for example, room and corridor arrangement, blank walls, windows, balconies, courtyards, building height.*

Additional guidance concerning noise control measures is included in Part B and Part C of this guideline.

"Noise sensitive space" means the living and sleeping quarters of dwellings, and sleeping quarters of noise sensitive commercial or institutional land uses. Examples include, but are not limited to: bedrooms, sleeping quarters such as patient rooms, living/dining rooms, eat-in kitchens, dens, lounges, classrooms, therapy or treatment rooms, assembly spaces for worship, sleeping quarters of detention centres.

(5) Sources not considered as stationary sources

The following are examples of sources, activities, equipment or facilities that are not considered as stationary sources in the context of Part B and Part C of this guideline:

- *temporary construction activities;*
- *transportation corridors, i.e., railways and roadways (including off-site haul routes);*
- *residential air conditioning devices including air conditioners and heat pumps;*
- *gas stations;*
- *auditory warning devices required or authorized by law or in accordance with good safety practices;*
- *'back up beepers' on construction equipment or other vehicles; occasional movement of vehicles on the property such as delivery of goods to and the removal of goods/refuse from convenience stores, fast food restaurants and similar commercial facilities, etc.; and*
- *parking lots for private passenger vehicles at offices or commercial facilities such as retail stores, plazas or shopping malls, or employee parking lots at industries and commuter parking lots.*

The following are examples of sources, activities, equipment or facilities that are not considered as stationary sources in the context of Part B and Part C of this guideline and that are normally addressed in a qualitative manner in municipal noise by-laws:

- *the operation of auditory signaling devices, including but not limited to the ringing of bells or gongs and the blowing of horns or sirens or whistles, or the production, reproduction or amplification of any similar sounds by electronic means;*
- *noise produced by animals kept as domestic pets such as dogs barking;*

- *tools and devices used by occupants for domestic purposes such as domestic power tools, radios and televisions, etc., or activities associated with domestic situations such as domestic quarrels, noisy parties, etc.;*
- *noise resulting from gathering of people at facilities such as restaurants, fairs and parks; and*
- *activities related to essential services and maintenance of public facilities such as, but not limited to, roadways, parks and sewers, snow removal, road cleaning, road repair and maintenance, lawn mowing and maintenance, sewage removal, garbage collection.*

(6) Sources not requiring noise impact assessment

Noise sources, equipment, activities or facilities connected with emergency measures undertaken for:

- *the immediate health, safety or welfare of inhabitants; and*
- *the preservation or restoration of property; unless such noise is clearly of a longer duration or nature more disturbing than is reasonably necessary for the accomplishment of such emergency purpose;*

are exempt from the application of the limits in Part B and Part C of this guideline.

4.5 Minimum Hour Background Sound Levels at the Residential Receptors

Typical ambient sound levels can be determined through prediction of road traffic volumes in areas where traffic sound is dominant. Where it can be demonstrated that the hourly ambient sound levels are greater than the exclusionary minimum limits listed above, the criterion becomes the lowest predicted one-hour L_{EQ} sound level during each respective period.

Elevated background sound levels due to road traffic on Highway 401 is considerable, especially at the façade adjacent to the roadways. Using the current traffic volumes obtained from the City and MTO, the traffic data was applied to a generic 24-hour traffic pattern developed by the US Department of Transportation, Federal Highways Administration contained in the report titled "Summary of National and Regional Travel Trends 1970 – 1995" dated May 1996. The traffic volumes were then used to predict sound levels at the residential receptors during the day/nighttime

hours to determine the minimum hour background sound levels at those locations due to the traffic on the public roadways.

Further, under MECP guidelines, rail traffic is included in the determination of background sound levels since the following conditions have been satisfied:

- *the contribution of train pass-by sound levels to the background sound level only applies to noise sensitive land uses in Class 1, 2 and 4 areas (not in a Class 3 area);*
- *the noise sensitive land uses are located within 300 metres from the nearest track of railway lines carrying a minimum of 40 trains during daytime or 20 trains during nighttime;*
- *the equivalent sound level during the daytime [L_{eq} (16)] and nighttime [L_{eq} (8)] due to train pass-bys is determined by means of prediction according to Reference [34] or by other methods/models that are acceptable to MOE;*
- *a 10 dBA adjustment is subtracted from the train pass-by day and night equivalent sound levels; and*
- *the adjusted train pass-by day and night equivalent sound levels are then logarithmically (on an energy basis) added to the higher of either the background One-Hour Equivalent Sound Level (L_{eq}) or the exclusion limit.*

Minimum background sound levels were calculated using a numerical computer modelling package (*CadnaA version 2023 MR1, build: 197.5343*). The model is based on the 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 and rail noise sources were included in the model as line sources producing equivalent sound pressure levels at a reference distance to those predicted by STAMSON 5.04, a computer algorithm developed by the MECP. The higher of the minimum background sound levels due to road traffic on the surrounding roadways and rail traffic on the rail lines to the south, and the exclusionary minimum sound levels at the façades of the proposed buildings. The sound level limits as summarized in Table VI will therefore be used in the following sections of this report as the applicable criteria for each façade of the proposed residential buildings.

The receptor locations shown in Figures 4a and 4b are chosen at the worst-case location and elevation for each block.

Table VI: Predicted Minimum Hourly Sound Levels and Noise Level Criteria at Various Residential Receptors [dBA]

Receptor	Floor	Daytime	Nighttime
R1	7th	56	49
R2	2nd	50	43
R3	7th	56	46
R4	32nd	50	44
R5	22nd	51	44
R6	14th	56	48
R7	8th	51	44

Note: Refer to Figures 4a and 4b for receptor locations.

Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may be residual audibility during periods of low background sound.

4.6 Description of the Adjacent Commercial/Industrial Facilities

An aerial imagery attached showing the site and the neighbouring uses is attached as Figure 3. In general, the industries immediately adjacent to the subject lands can be considered Class I/Class II (light/medium) industries. Zoning maps and the relevant zoning by-law for the site and surrounding lands are provided as Appendix F. The distance setbacks and zone of influence for Class I and II facilities are provided in Figure D in Appendix F. To the north are existing commercial uses and future and existing residential uses. To the west of the site are existing residential uses. To the east across Notion Road and to the south of Highway 401 are existing industrial facilities.

Further investigation of the potential noise impact from the neighbouring uses was conducted. A description of the commercial and industrial facilities with potential noise sources is provided below. Observations are based on a site visit conducted in February 2024 and existing noise studies.

Canadian Tire (1735 Pickering Parkway)

A Canadian Tire store is located to the north of the subject site and has operating hours between

8:00 am to 9:00 pm. There is a loading area with three loading bays and garbage compactor at the southeast corner. There are also rooftop mechanical units assumed to be between 5 to 20 Ton units. There are also car servicing bays on the east and north facades.

Walmart Super Centre and Mr. Lube (1899 Brock Road)

This facility is located to the north of the subject site and has operating hours between 7:00 am to 11:00 pm. The loading area is located on the north side of the building, adjacent to existing single-detached dwelling units. Based on the distance, presence of intervening uses, the loading area is expected to have minimal impact on the proposed development. There are numerous rooftop mechanical units including HVAC units assumed to be between 5 to 20 Tons and two large condenser units.

Strada Aggregates (81 Notion Road)

Strada Aggregates is located to the east of the subject site and provides aggregate material such as limestone, sand, gravel and recycle products for construction. The operating hours of the facility are between 7:00 am to 4:30 pm. According to the ECA (Number 5791-ADAQGW), the Noise Abatement Action Plan detailed in the Acoustic Assessment Report provided noise control measures to reduce noise emissions from the facility to achieve compliance with MECP's sound level limits.

The noise sources associated with the facility include: jaw crusher, a diesel fired engine operating at 65% load, secondary jaw crusher with one screen and associated conveyors, and dump truck movement within the facility. According to the ECA, the crusher or screen cannot be used at the same time. From our experience conducting noise studies for various asphalt plants across the GTA, the most significant noise source in such facilities is usually the crusher, which has been included in the model. The supervised entrance to the facility is on the west side of the site, along Notion Road and trucks have been modelled to enter the site at this location.

G.I.P. Paving Inc (83 Orchard Road)

This G.I.P Paving facility (formerly known as Coco Paving) is an asphalt plant located to the further east. According to the Access Environment website, the facility does not appear to have completed an ECA. The facility was assumed to have two loaders transferring material within the site and dump

trucks transporting materials to and from the site. The operating hours of the facility could not be confirmed with site personnel and the facility is assumed to conservatively operate through the daytime and nighttime hours.

Renewable Storage (1700 Squires Beach Road) & GFL Waste Facility (1048 Toy Avenue)

Renewable storage is a facility used for the storage of boats, RVs, trucks, machinery, and vehicles. The operating hours of the facility are between 10:00 am to 6:00 am.

The GFL Waste Facility is used for the processing and transfer of solid, non-hazardous commercial, industrial, institutional and municipal waste. The operating hours of the facility are between 6:00 am to 11:00 pm.

These facilities are located south of Highway 401 and the rail lines. The proposed buildings will have significantly elevated background sound levels from traffic on Highway 401 and the rail lines.

4.7 Stationary Noise Analysis

Predictive noise modelling was used to assess the potential sound impact of neighbouring uses at the proposed buildings. The noise prediction model was based on sound emission levels determined through observations taken during our site visit and taken from HGC Engineering files for other similar projects and established engineering methods for the prediction of outdoor sound propagation. These methods include the effects of distance, air absorption, and acoustical screening by barrier obstacles. The source levels associated with the equipment and activities are listed in Table VII below in terms of sound power level.

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

Source	ID	Octave Band Centre Frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k
Rooftop Unit (5-Ton)	5T	--	67	72	77	76	73	68	61
Rooftop Unit (10-Ton)	10T	--	76	79	84	83	79	73	66
Rooftop Unit (20-Ton)	20T	--	73	81	86	84	78	73	67
Garbage Compactor	GAR	101	95	88	81	77	75	74	67
Car Servicing Bay (i.e. airtool)	BAY	80	79	82	84	86	85	85	88
Condensers	CON	84	79	78	77	76	70	63	59
Asphalt Plant	AP	119	120	117	114	111	108	106	103
Crusher	CRU	98	108	112	113	113	110	103	96
Conveyor	CVY	91	92	89	96	97	95	102	107
Front End Loader	FEL	108	117	104	95	103	91	84	83
Aggregate Truck Acceleration	AGG	109	94	94	94	93	97	98	97
Tractor Trailer Acceleration	TT	101	100	94	96	97	95	91	86
Idling Truck	IDL	96	91	88	88	91	90	81	70

The above data were inputted into a predictive computer model. The software used for this purpose (*Cadna-A version 2023 MR1, build: 197.5343*) 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 barriers.

The following information and assumptions were used in the analysis.

- Typical rooftop mechanical equipment at a height of 1.5 m above the roof was assumed.
- Sound data for the above sources was obtained from past HGC Engineering project files of similar facilities, which were either originally obtained from the manufacturer (for HVAC equipment) or measured at similar facilities.
- Location of stationary noise sources are shown in Figures 4a and 4b. Rooftop mechanical equipment is shown as green crosses. Truck movement paths are shown as green lines.

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

Assumed daytime worst-case hour scenario:

- All rooftop mechanical equipment operating continuously for the full hour.

Strada:

- Equipment operating continuously for the full hour;
- Ten trucks arriving and departing.
- Two front end loaders moving on the site for a full hour.
- A crusher and conveyer operating for the full hour.

GIP:

- Equipment operating continuously for the full hour;
- Ten trucks arriving and departing.

Canadian Tire:

- One truck arriving and departing each of the loading bays;
- Trucks idle for 10 minutes;
- All car service bays in use for 15 minutes each.

Walmart/Mr.Lube

- All car service bays in use for 15 minutes each;

Assumed nighttime worst-case hour scenario:

- All rooftop mechanical equipment operating for 30 minutes out of an hour.

Strada:

- Equipment not in operation at Strada;
- No trucking activity.

GIP:

- Equipment operating continuously for the full hour at GIP;
- Ten trucks are assumed to arrive and depart in an hour.

Canadian Tire

- One truck arriving and departing one loading bay for deliveries and idling for 10 minutes;
- Car service bays not in operation.

Walmart

- Car service bays not in operation.

4.8 Results

The maximum predicted sound levels are summarized in the following table and shown graphically on Figures 5 and 6. Sample calculation summary is provided in Appendix F.

Table VIII: Predicted Sound Levels at Proposed Building [dBA]

Receptor	Block	Floor	Criteria (Daytime / Nighttime)	Daytime (07:00 – 23:00)	Nighttime (23:00 – 07:00)	Compliant? Day/Night
R1	1	7th	56 / 49	51	45	Yes/Yes
R2	2	2nd	50 / 43	52	44	No/Yes
R3	3	7th	56 / 46	54	47	Yes/No
R4	4	32nd	50 / 44	51	41	No/Yes
R5	5	22nd	51 / 44	53	43	No/Yes
R6	6	14th	56 / 48	55	48	No/No
R7	7	8th	51 / 44	56	47	No/No

The results of the calculations indicate that the predicted sound levels, mainly due to the crusher at the Strada facility, has the potential to exceed the MECP limits at the north façades of the proposed towers in Blocks 2 to 7 during an assumed worst-case operational scenario. Mitigation is required. Recommendations are provided in the following sections.

4.9 Discussion and Recommendations With Regard to Stationary Noise Sources

The MECP does not accept mechanical ventilation as a mitigation measure for stationary noise sources since the criteria apply outside the residential windows. On-site mitigation is thereby generally implemented through the provision of property line noise barriers, and in this case such

barriers would be ineffective at upstairs windows due to the height of the receptors and the frontage onto the roadways.

Two options are presented. The recommended Option 1 requests a Class 4 designation from the municipality for the subject lands. Higher sound level criteria apply for lands designated as Class 4. **Note that the following recommendations are based on the current site plan and assumed operating modes and equipment in the existing industrial uses at the date that this report is issued. As the development progresses, the operations at the existing industrial uses should be reviewed to determine the need for the mitigation measures described below.**

4.9.1 Option 1 Mitigation

Request the City of Pickering to designate the buildings in Blocks 2 to 7 as a Class 4 area. This designation provides relaxed (higher) daytime and nighttime sound level limits that are otherwise permitted in a semi-urban area, for both indoor and outdoor areas. A Class 4 Area permits receptor-based noise control measures (noise walls, specific construction techniques and materials, etc.) to be used within a proposed new sensitive land use within the vicinity of industrial uses. Class 4 Areas require formal recognition of the classification by the land use planning authority.

A Class 4 designation for the proposed site is recommended since the mitigation measures required to achieve Class 1 criteria would be considered onerous for the multi-storey buildings. The Strada facility operates with a valid existing ECA and thus they are required to operate in compliance with their ECA at existing noise sensitive uses. Class 4 areas have higher noise criteria than a Class 1 area, that is 60 dBA during the day and 55 dBA at night at the facades and 55 dBA in the OLAs for the proposed buildings.

Mitigation to meet Class 1 limits would include designing the building facades with sound level excesses with no windows to noise sensitivities spaces facing the industries which is often difficult for high-rise buildings. Other municipalities such as Hamilton, Stouffville, Goderich, Vaughan, Welland, Whitby, Mississauga, and Toronto have provided this designation for residential lands when mitigation is significant due to sound levels from an existing commercial/industrial facility and where the increased residential density is desired.

With a Class 4 designation, the following mitigation is required for the buildings in Blocks 2 - 7:

1) All dwellings will require air conditioning.

2) An additional clause is required to be included in the property and tenancy agreements and offers of purchase and sale for all dwelling units with a Class 4 designation:

   Type F:

   > *Purchasers/tenants are advised that sound levels due to the adjacent industry are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed.*

3) Additionally, upgraded building and glazing constructions are recommended for all dwellings with a Class 4 designation. Upgraded exterior façade constructions with a minimum STC-33 rating for all windows into sensitive spaces to further protect the interior spaces of the dwellings with a Class 4 designation.

With the above mitigation measures in place and a Class 4 designation, the predicted sound levels under a worst-case operational scenario will meet the Class 4 criteria at the proposed residential receptors.

4.9.2 Option 2 Mitigation

If a Class 4 designation is not granted by the municipality, the mitigation measures to meet Class 1 criteria are described here for Option 2, and are as follows.

1) For facades with sound level excesses, they could be designed such that there are no windows to noise sensitive spaces for dwellings. Facades requiring mitigation are indicated in Figure 7.

4.9.3 General Recommendations for Options 1 and 2

1) When floor plans, and building elevations are available for the proposed buildings recommended to be designated Class 4, and/or requiring mitigation, the drawings should be reviewed to refine the acoustic mitigation requirements.

5 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 construction and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

6 Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be at or above the minimum exclusionary limits of 50 dBA or more during the day and 45 dBA or more at night. Thus, any electro-mechanical equipment associated with this development (e.g., emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges. At the time of this study, the design of the proposed residential building was in its initial stages, and the mechanical systems had not yet been developed.

The details of the mechanical equipment can be reviewed when that information is available. It appears from the renderings that the majority of rooftop mechanical equipment will be housed in a mechanical penthouse on the roof of the building. Any rooftop equipment not housed in the penthouse will be assessed and sufficiently shielded from neighbouring residences, as needed.

It is also HGC Engineering's experience with numerous developments, that typical HVAC equipment and parking garage exhaust fans can meet the applicable MECP noise criteria at neighbouring residential uses, either with low noise emission fans or relocation of the fans or through mitigation in the form of duct silencers or acoustic lining. Prior to building permit, an acoustical consultant should review the mechanical drawings and details of potential exhaust vents/fans, when available, to help ensure that the noise impact of the development on the environment, and of the development on itself, are maintained within acceptable levels. This is typically completed at the detailed noise study stage.

7 Summary

The following list summarizes the recommendations made in this report.

Transportation Noise Sources

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

2. Upgraded glazing constructions will be required at the façades of the proposed buildings as specified in Section 3.3.3. When detailed floor plans and building elevations are available for the individual blocks, a review should be conducted to determine the required glazing and building façade constructions for each building based on actual window to floor area ratios.

3. Warning clauses should be included in the property and tenancy agreements and offers of purchase and sale for the dwelling units to inform the future owners/occupants of the noise issues and the presence of the roadways and railways.

Stationary Noise Sources

The following recommendations are based on the current site plan and assumed operating modes and equipment at the existing industrial uses at the date that this report is issued. As the development progresses, the operations at the existing industrial uses should be reviewed to determine the need for the mitigation measures described below.

1. Option 1: Mitigation Measures with a Class 4 designation is recommended for Blocks 2 to 7.

i. Class 4 designation for the subject blocks.
ii. Air conditioning is required for the buildings.
iii. Upgraded glazing construction is required. Upgraded exterior façade constructions with a minimum STC-33 rating for all windows into sensitive spaces to further protect the interior spaces of the dwellings with a Class 4 designation.
iv. A warning clause should be included in the property and tenancy agreements and offers of purchase and sale for the dwelling units to inform the future/occupants that the lands have been designated as Class 4 acoustic environment.

2. Option 2: Mitigation Measures to achieve Class 1 Criteria if Class 4 designation is not granted.

i. Design the buildings with no windows into sensitive spaces at the facades with exposure and sound level excesses due to operations at Strada. Refer to Figure 7.

3. When detailed floor plans and building elevations are available for the proposed buildings proposed to be designated Class 4, and/or requiring mitigation, the drawings should be reviewed to refine acoustic mitigation requirements.

The following table summarizes the noise control recommendations and noise warning clauses for the proposed development.

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

Block	Ventilation Requirements*	Type of Warning Clause(1)	STC Requirements(2)	Stationary Mitigation Required
1	Central A/C	A, B, C, D, E	Yes	--
2			Yes +	+
3			Yes +	+
4			Yes +	+
5			Yes +	+
6			Yes +	+
7			Yes +	+

Notes:
-- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
OBC – meeting the minimum requirements of the Ontario Building Code
+ Stationary mitigation requirements are outlined in Section 4.9
When detailed floor plans and building elevations are available, a detailed noise study should be completed to refine the glazing constructions.
(1) – Clause Type F required for all units if Class 4 is designated
(2) – Glazing requirements may be recommended if Class 4 acoustical environment is permitted

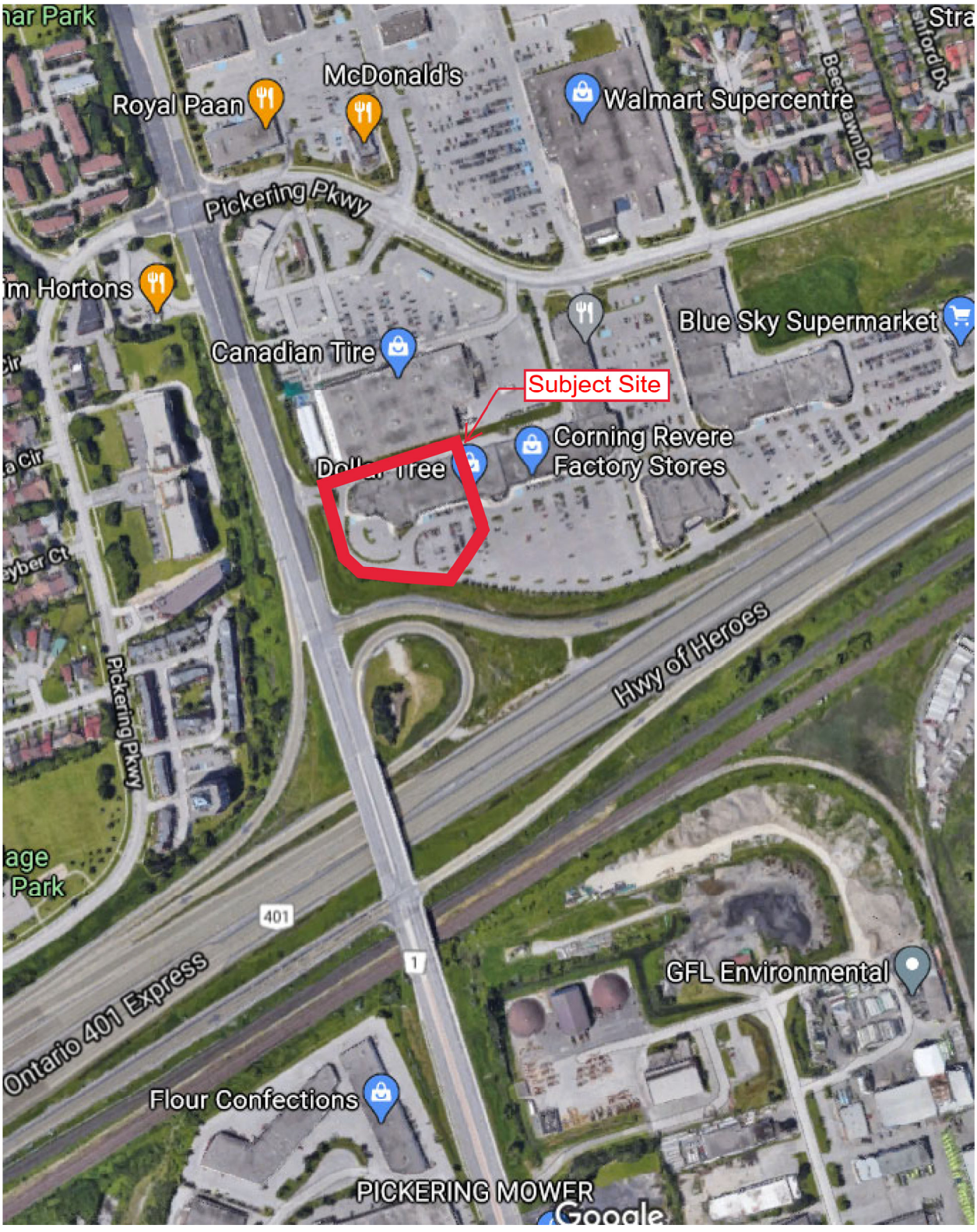


Figure 1: Key Plan

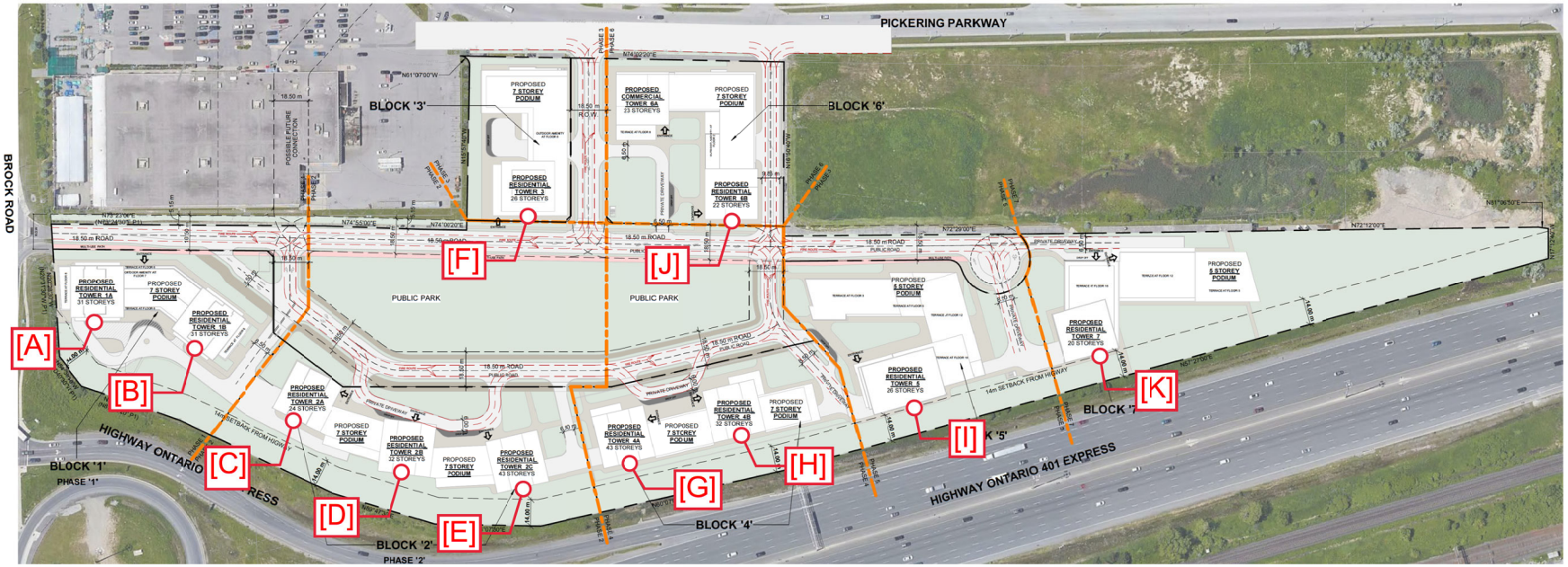


Figure 2: Proposed Site Plan Showing Prediction Locations

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON. M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

BAYFIELD Realty Advisors Inc.

PROJECT
PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING
SITE PLAN / ROOF PLAN

PROJECT NO.	06.037RZ
PROJECT DATE	2024-Q2-20
DRAWN BY	AGO
CHECKED BY	AAF
SCALE	1 : 1100

DRAWING NO. SPA006 REV.

2024-02-23 12:29:37 PM

Figure 3: Aerial Photo Showing Surrounding Land Uses

Figure 4a: Existing Noise Source Locations

Figure 4b: Existing Noise Source Locations

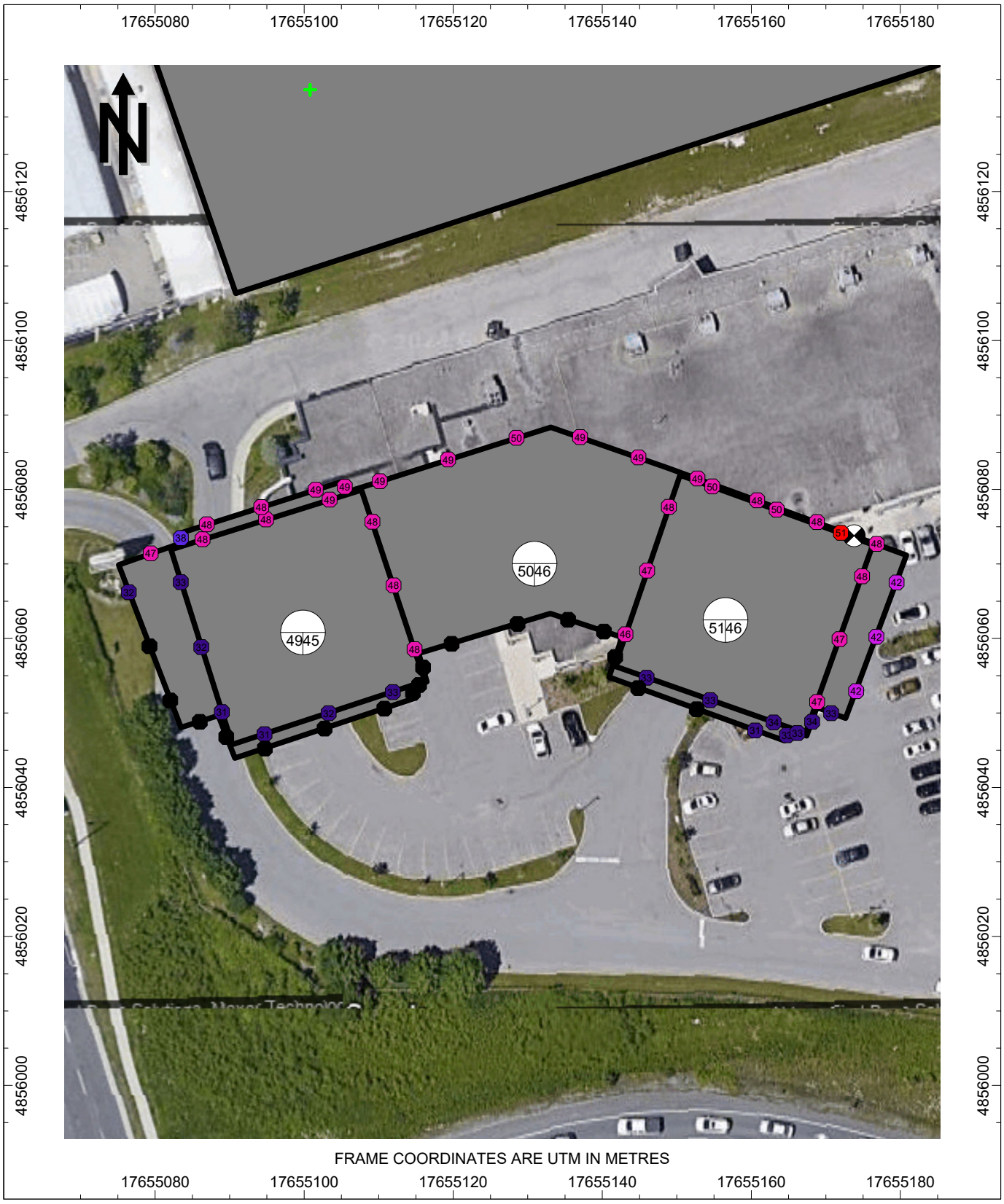


Figure 5a : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 1)

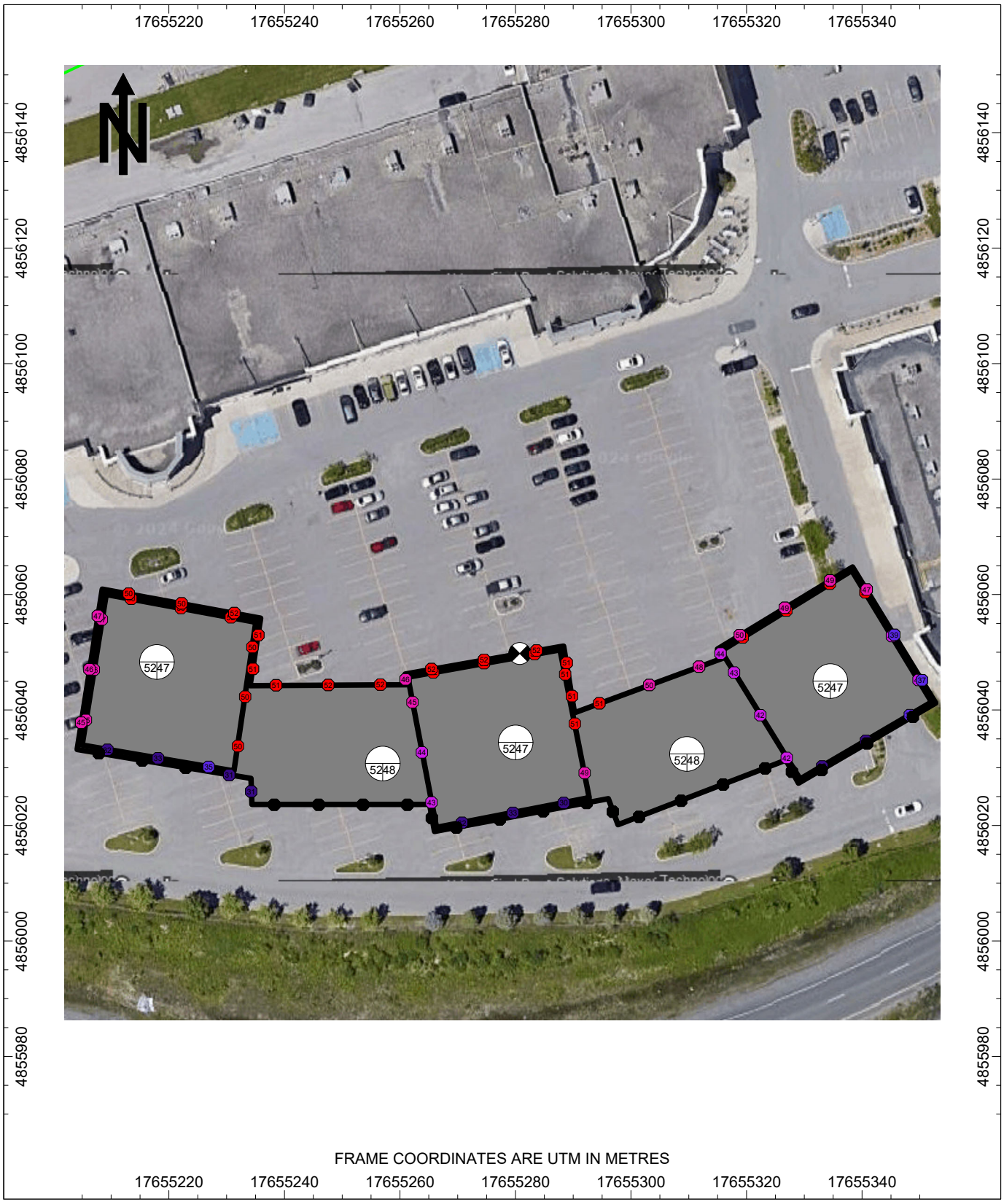


Figure 5b : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 2)

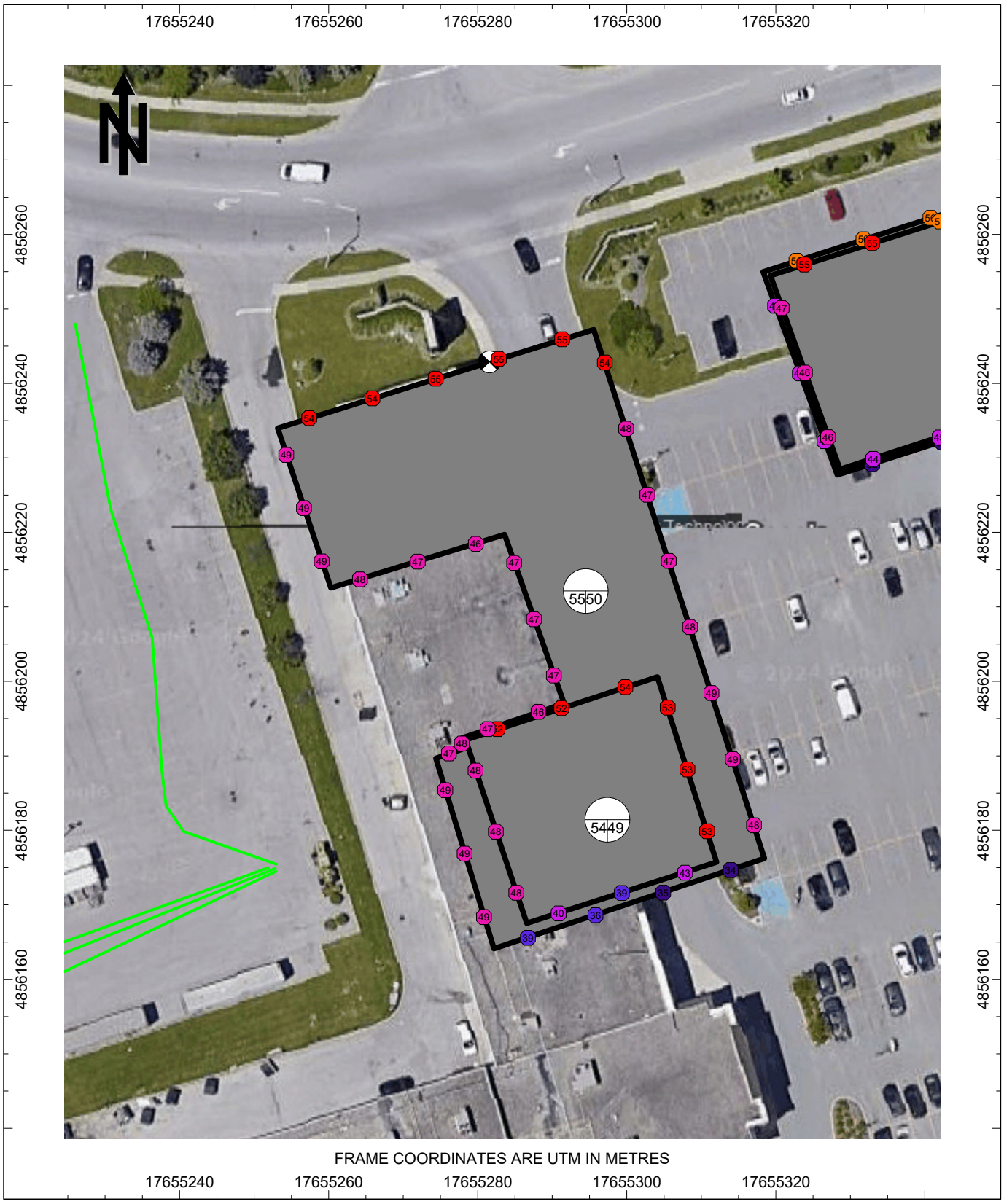


Figure 5c : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 3)

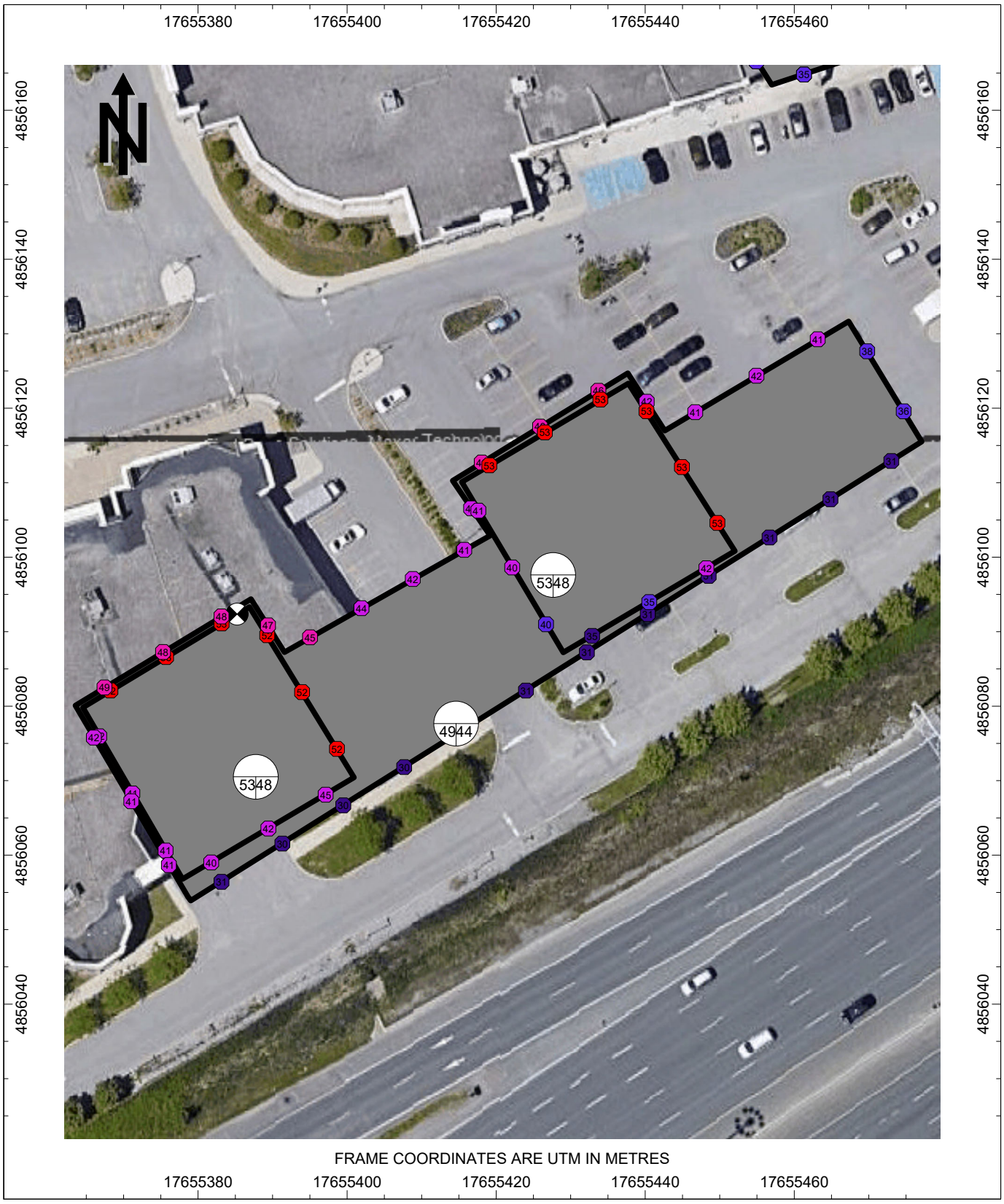


Figure 5d : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 4)

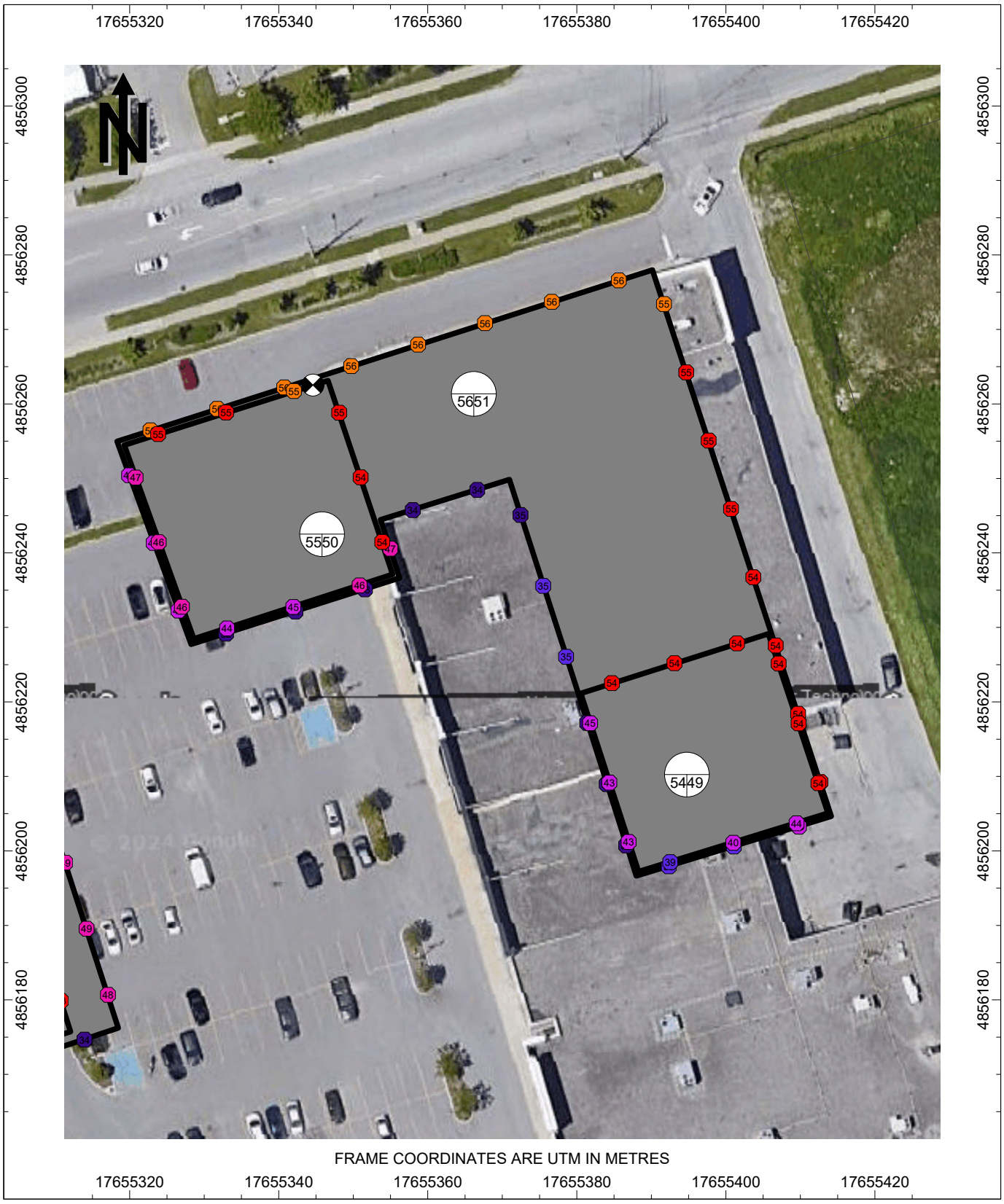


Figure 5e : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 5)

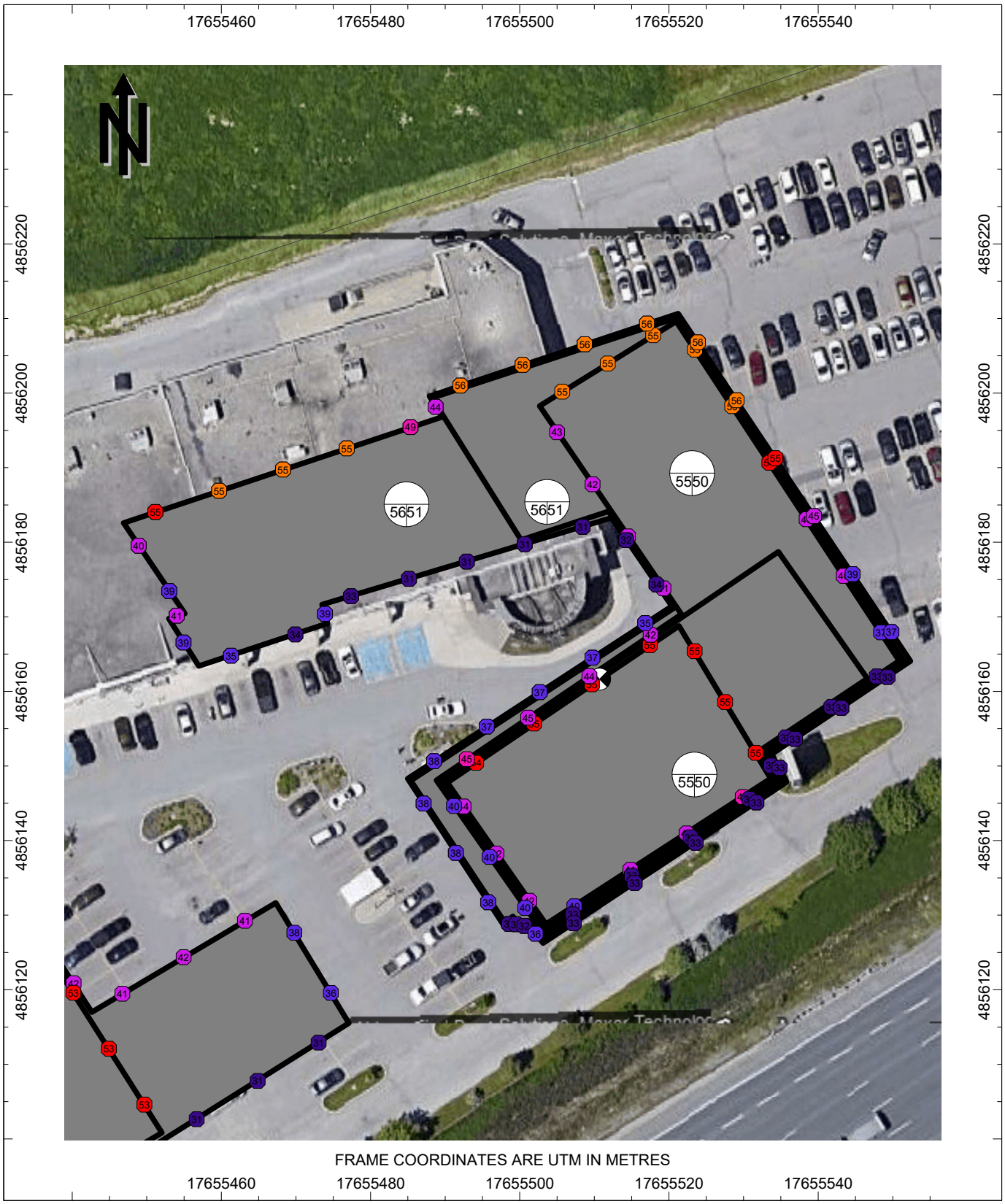


Figure 5f : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 6)

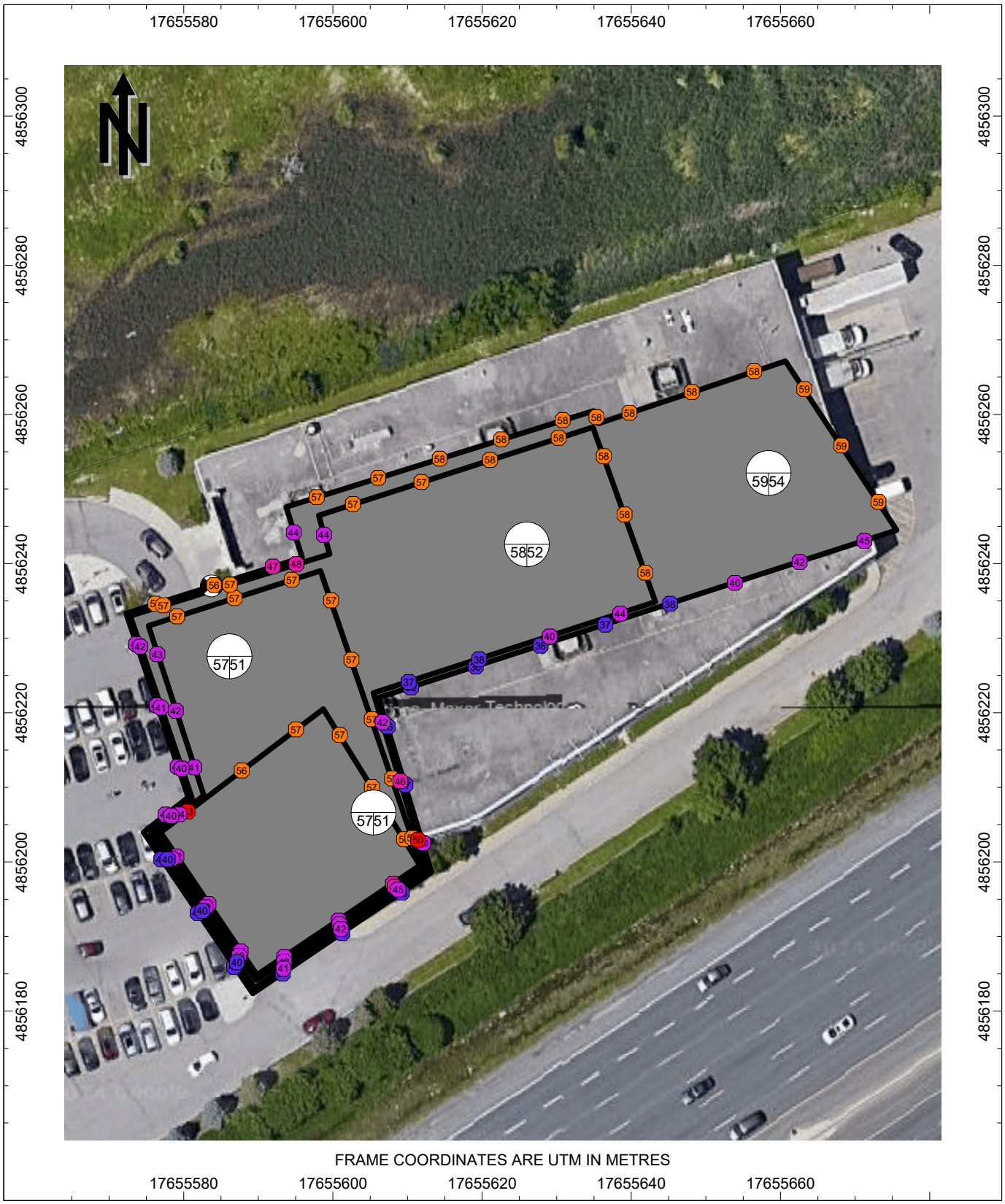


Figure 5g : Predicted Stationary Noise Sources Daytime Sound Level, dBA (Block 7)

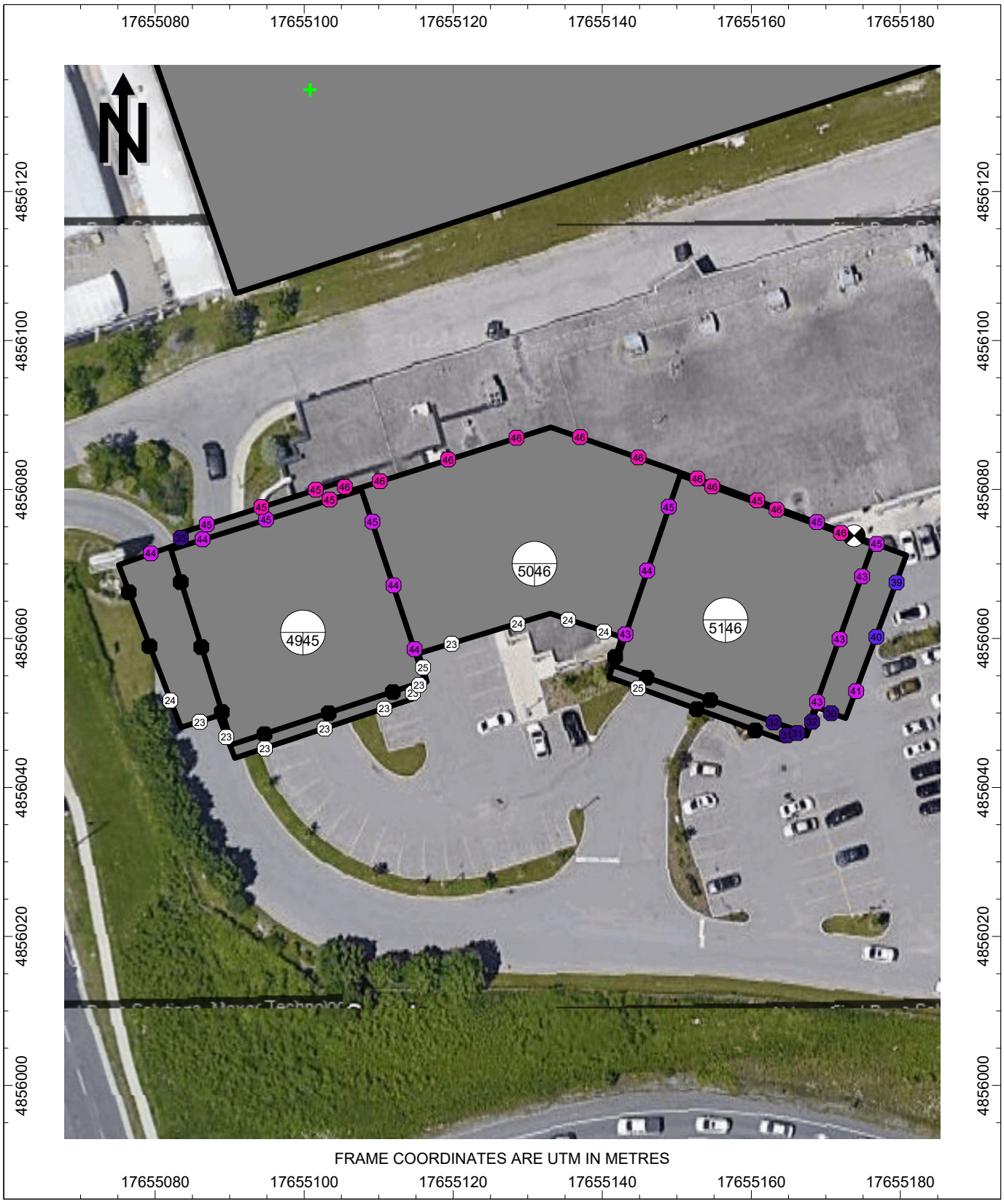


Figure 6a : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 1)

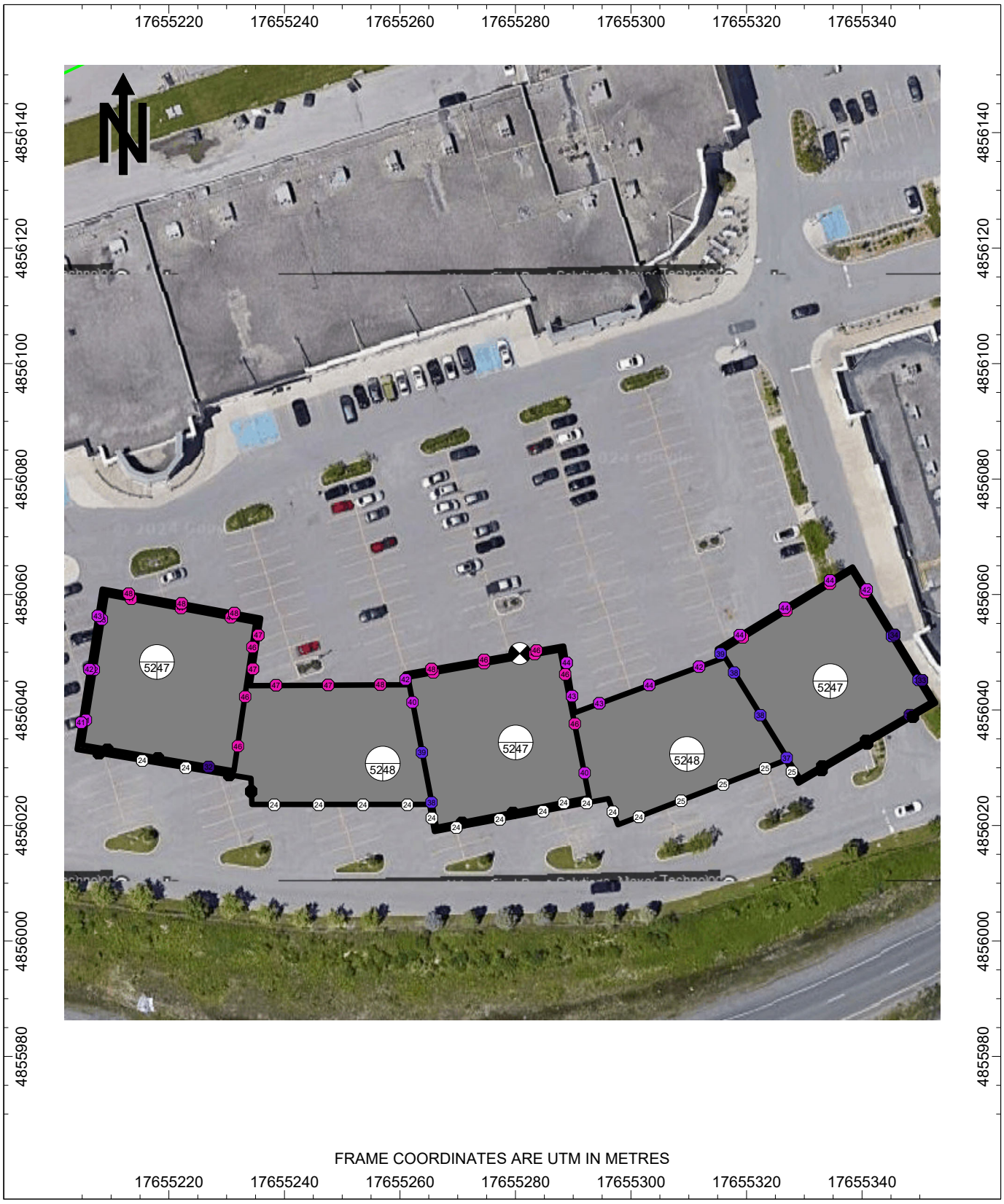


Figure 6b : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 2)

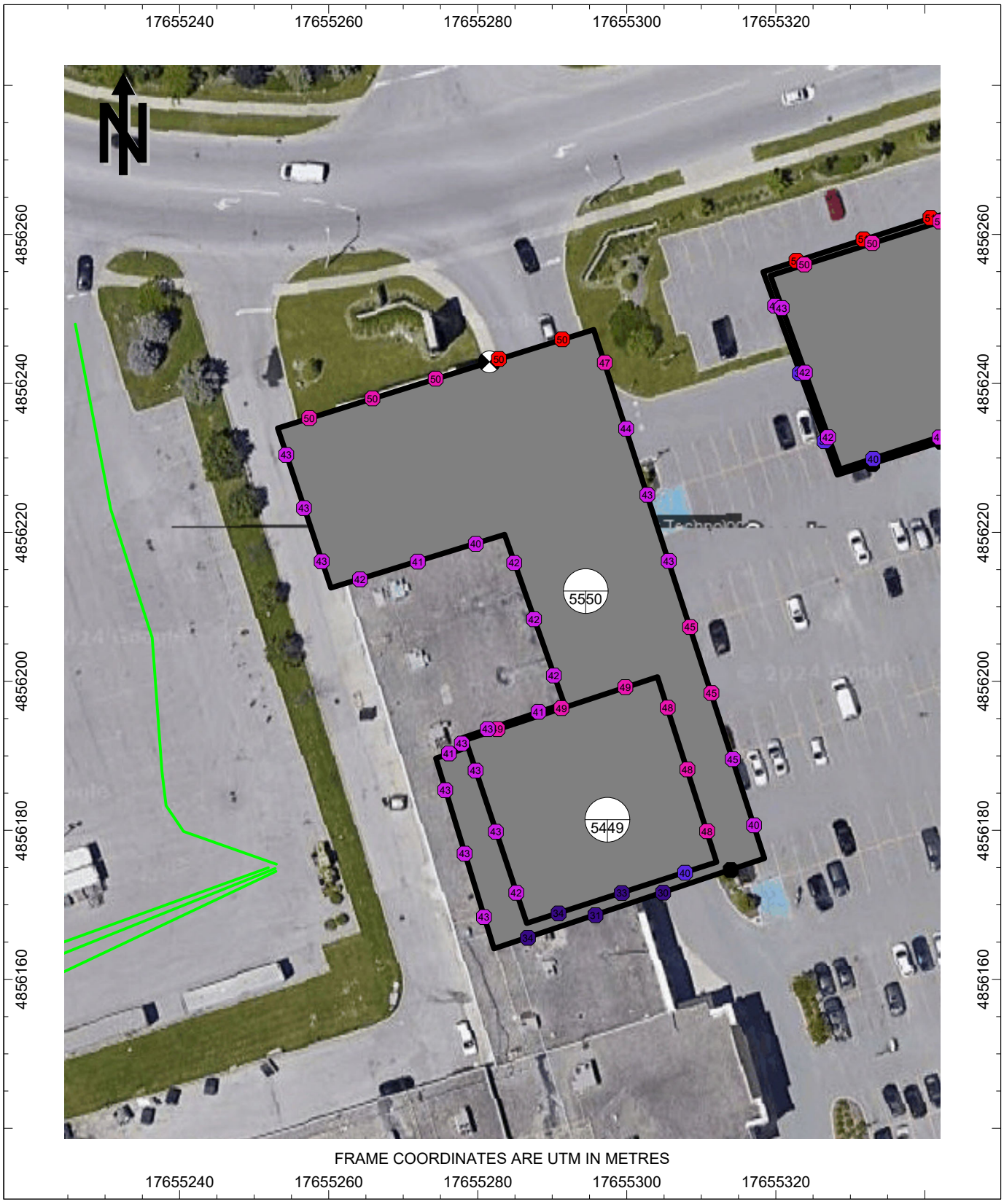


Figure 6c : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 3)

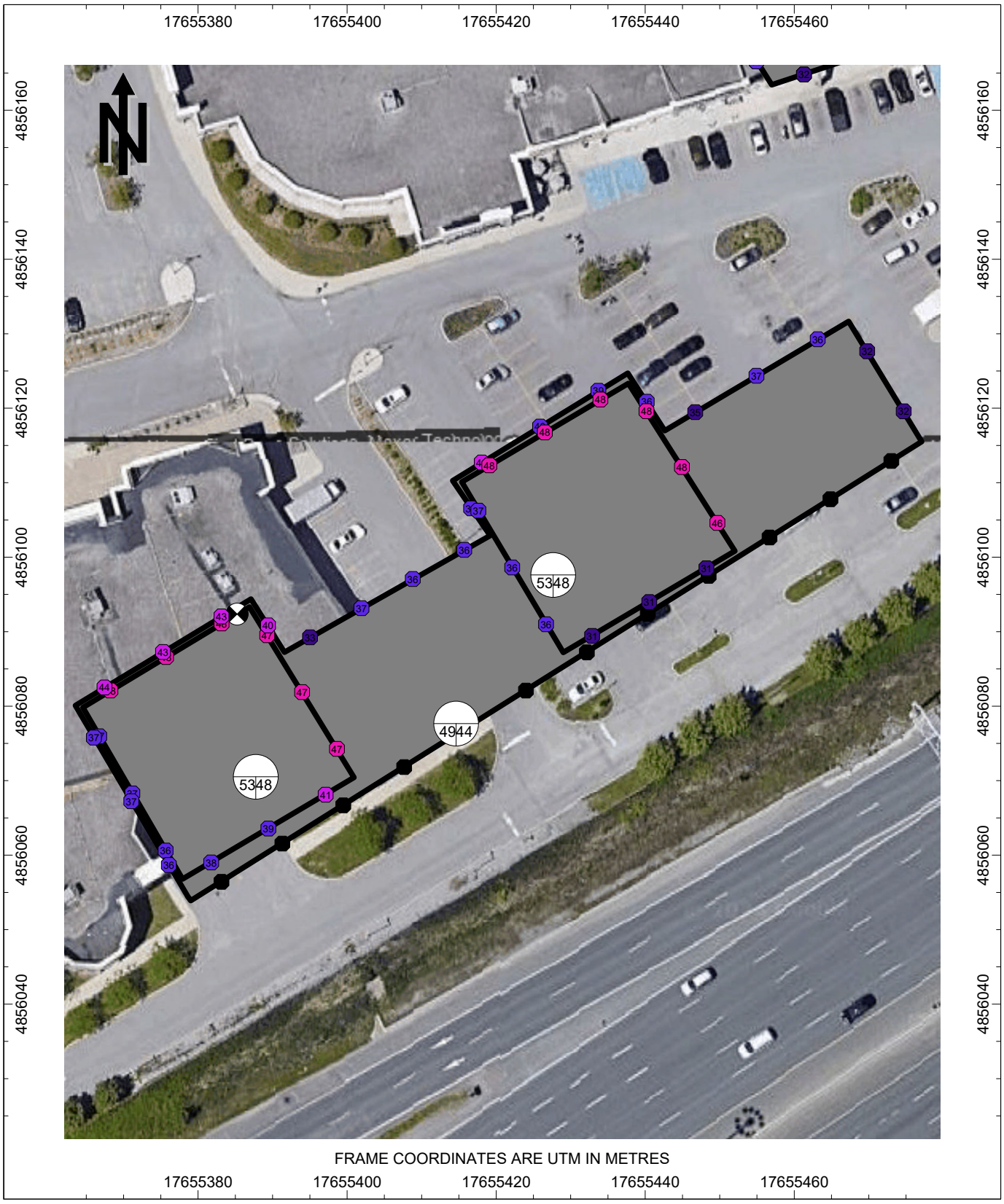


Figure 6d : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 4)

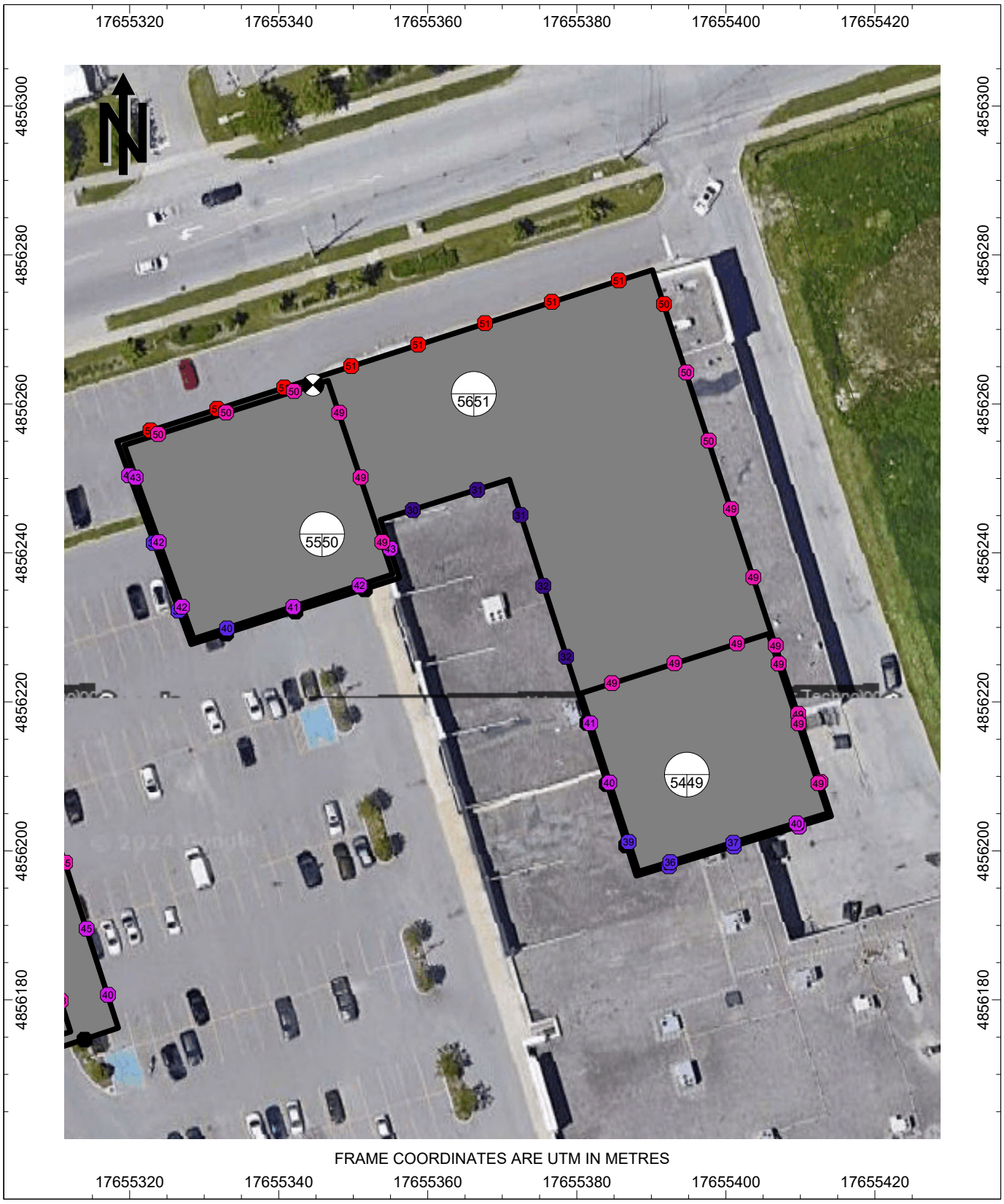


Figure 6e : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 5)

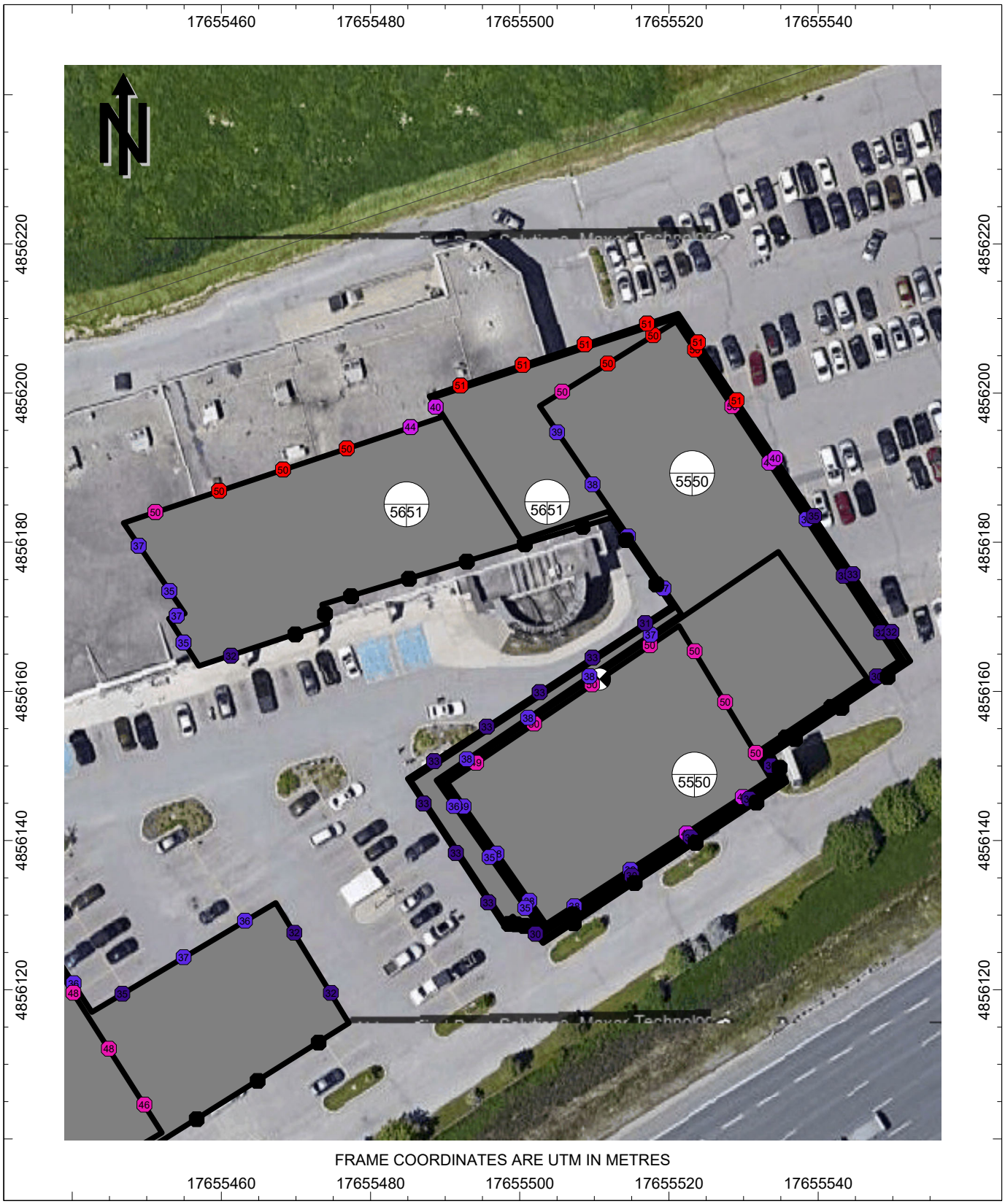


Figure 6f : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 6)

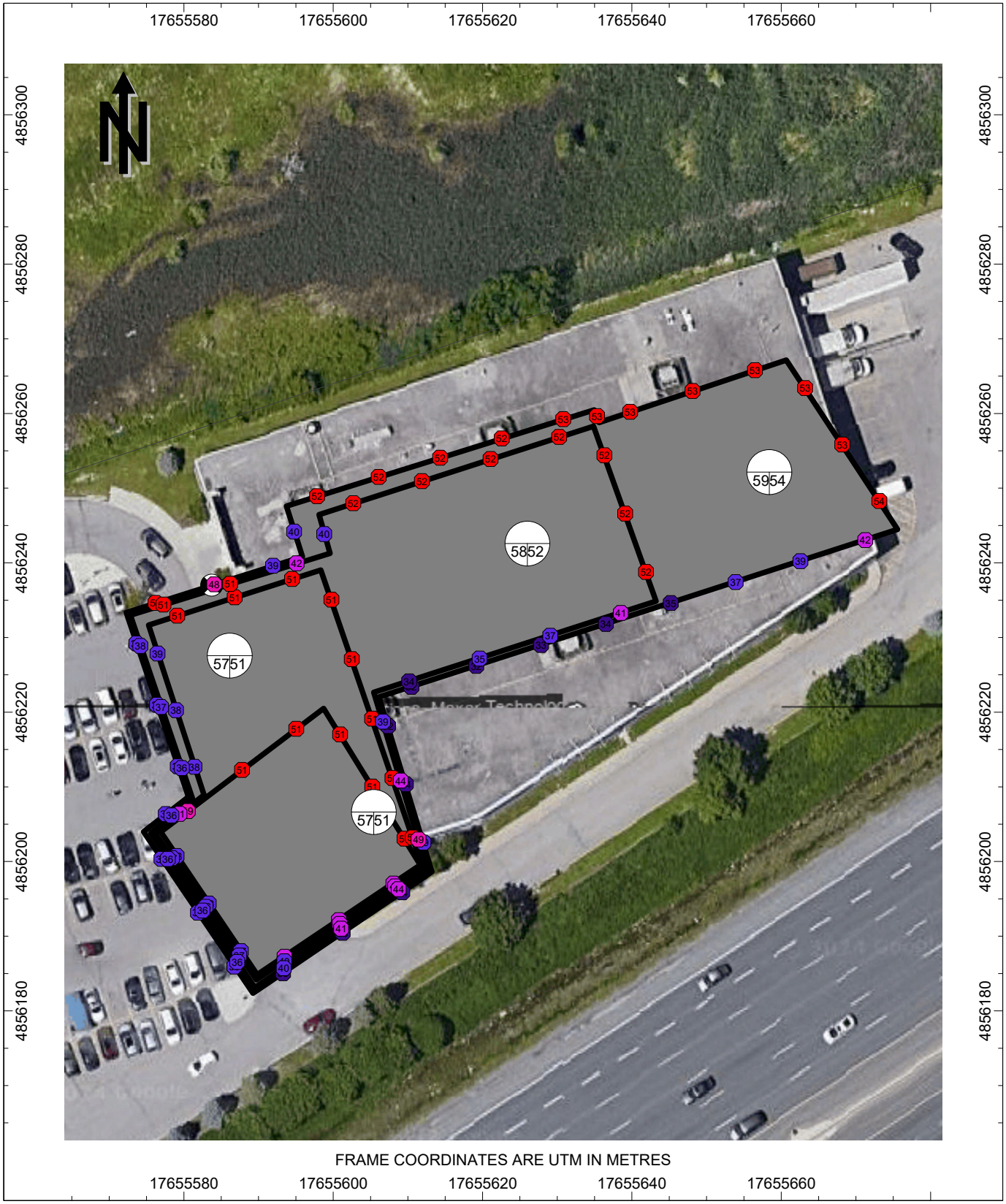
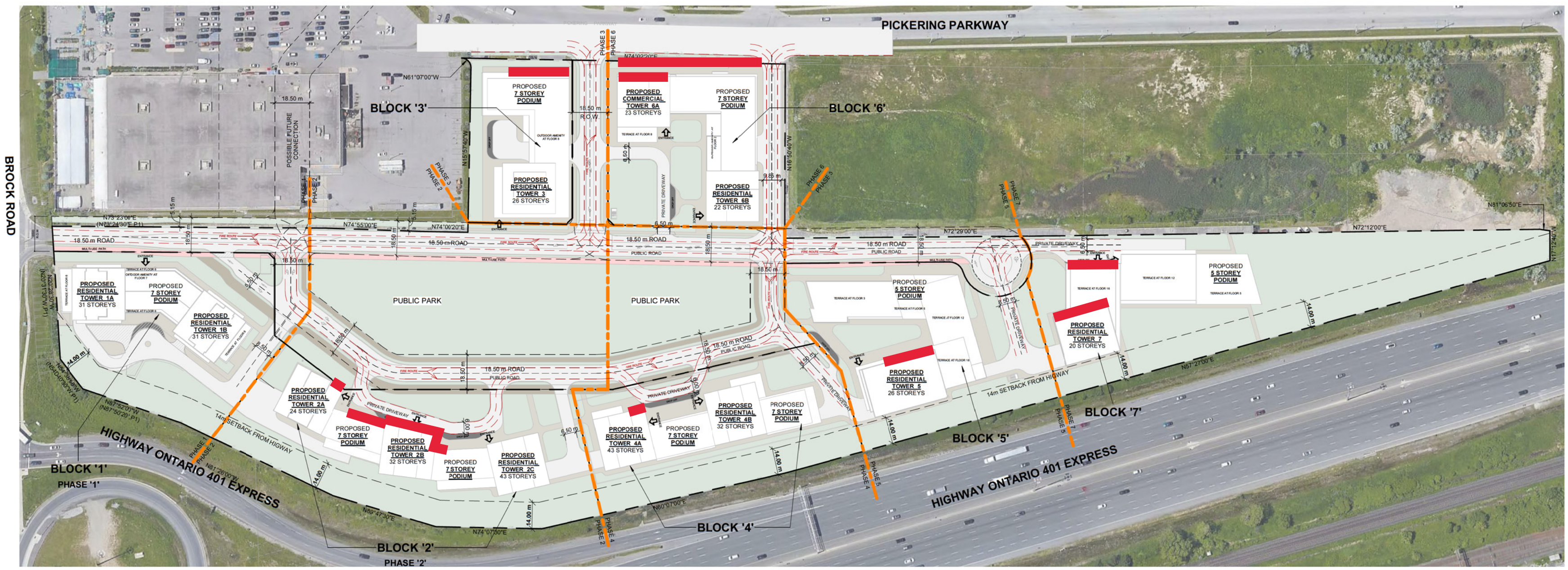


Figure 6g : Predicted Stationary Noise Sources Nighttime Sound Level, dBA (Block 7)



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PROJECT
PICKERING DESIGN CENTRE MASTER PLAN
1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING
SITE PLAN / ROOF PLAN

PROJECT NO.	06.037RZ
PROJECT DATE	2024-02-20
DRAWN BY	AGO
CHECKED BY	AAF
SCALE	1 : 1100
DRAWING NO.	SPA006

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Figure 7: Facades Requiring Mitigation for Option 2

APPENDIX A

Preliminary Drawings

1755 PICKERING PARKWAY SITE STATISTICS

STATISTICS	SM	SF
PROPOSED SITE AREA:	94,841	1,020,858
NEW PROPOSAL NFA	324,344	3,491,214
FSI	3.42	

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LA'

	DIESCRIPTION		RESIDENTIAL					RETAIL/COMMERCIAL NFA		TOTAL NFA		NFA EXCLUDED (*1)		FLOOR PLATE AREA (*1)	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT	m2	ft2	m2	ft2	m2	ft2	m2	ft2
BLOCK 1 (*2)	RESIDENTIAL/RETAIL	31	56,181	604,726	42,279	455,090	630	1,669	17,965	57,850	622,691	27,241	293,220	83,421.00	897,936
BLOCK 2	RESIDENTIAL/LIVE-WORK	43	74,510	802,024	69,022	742,942	1,113	907	9,758	75,417	811,783	9,700	104,405	85,117	916,187
BLOCK 3	RESIDENTIAL/RETAIL	26	29,526	317,816	27,288	293,725	440	1,384	14,893	30,910	332,708	3,195	34,393	34,105	367,102
BLOCK 4	RESIDENTIAL/LIVE-WORK	43	59,007	635,144	53,718	578,218	866	677	7,290	59,684	642,434	7,688	82,751	67,372	725,185
BLOCK 5	RESIDENTIAL/LIVE-WORK	26	39,780	428,185	36,246	390,150	602	712	7,664	40,492	435,849	4,006	43,123	44,498	478,972
BLOCK 6	RESIDENTIAL/COMMERCIAL	23	24,083	259,229	21,550	231,967	348	20,375	219,311	44,458	478,540	4,202	45,232	48,660	523,772
BLOCK 7	RESIDENTIAL/LIVE-WORK	20	41,257	444,091	39,282	422,823	623	380	4,090	41,637	448,181	3,238	34,856	44,876	483,037
GRAND TOTAL		138	324,344	3,491,214	289,385	3,114,914	4,622	26,103	280,972	350,448	3,772,186	59,270	637,980	408,048	4,392,191

1) For extensive statistics for blocks 1 please refer to each buildings drawing set.

	EXISTING SITE (INCLUDING PARK AND ROADS)	
BLOCK	m²	ft²
1	11,814.00	127,164.84
2	25,945.00	279,269.66
3	6,347.70	68,326.07
4	17,437.40	187,694.61
5	10,899.40	117,320.17
6	8,199.00	88,253.30
7	14,162.20	152,440.65
TOTAL	94,804.70	1,020,469.30

BLOCK 2

STATISTICS	SM	SF
PROPOSED SITE AREA:	25,945	279,270
NEW PROPOSAL NFA	75,417	811,783
FSI	2.91	
NEW RESIDENTIAL UNIT#	1,113	
UPH	429	
NET AVERAGE UNIT SIZE	62	667

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					LIVE/WORK		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2,153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL BASE	1	374	4,028				907	9,758	1,281	13,786	1,310	14,103	2,591	27,890
F 2 - F7	RESIDENTIAL BASE	6	19,593	210,899	18,273	196,694	295			19,593	210,899	2,295	24,706	21,888	235,605
F8	RESIDENTIAL BASE	1	3,140	33,800	2,920	31,432	47			3,140	33,800	197	2,120	3,337	35,920
F9 - F43	RESIDENTIAL TOWER	35	51,203	551,145	47,828	514,816	771			51,203	551,145	5,047	54,325	56,250	605,470
MPH	RESIDENTIAL TOWER	1										1,050	11,302	1,050	11,302
GRAND TOTAL		43	74,510	802,024	69,022	742,942	1,113	907	9,758	75,417	811,783	9,700	104,405	85,117	916,187

PARKING REQUESTED

	VISITOR	RESIDENTIAL	TOTAL
RATIO	0.15	0.80	
	167	891	1,058

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO 3.5 / 100 m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	246	249	249	249	82	1,075

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (OUTDOOR) / UNIT,	2227	2227

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	1113	1,113
F7	1113	1,113
TOTAL	2227	2,227

BLOCK 3

STATISTICS	SM	SF
PROPOSED SITE AREA:	6,348	68,327
NEW PROPOSAL NFA	30,910	332,711
FSI	4.87	
NEW RESIDENTIAL UNIT#	440	
UPH	693	
NET AVERAGE UNIT SIZE	62	667

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					RETAIL NFA		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2,153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL BASE	1	318	3,426				1,384	14,893	1,702	18,319	563	6,061	2,265	24,380
F 2 - F7	RESIDENTIAL BASE	6	14,626	157,433	13,846	149,039	223			14,626	157,433	1,178	12,681	15,804	170,115
F8	RESIDENTIAL BASE	1	2,124	22,860	1,994	21,461	32			2,124	22,860	123	1,324	2,247	24,184
F9 - F26	RESIDENTIAL TOWER	18	12,258	131,944	11,448	123,225	185			12,258	131,944	1,242	13,369	13,500	145,313
MPH	RESIDENTIAL TOWER	1										289	3,111	289	3,111
GRAND TOTAL		26	29,526	317,816	27,288	293,725	440	1,384	14,893	30,910	332,708	3,195	34,393	34,105	367,102

PARKING REQUESTED

	VISITOR	RESIDENTIAL	TOTAL
RATIO	0.15	0.80	
	66	352	418

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO 3.5 / 100 m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	125	127	127	83	0	462

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (OUTDOOR) / UNIT,	880	880

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	440	440
F7	440	440
TOTAL	880	880

BLOCK 4

STATISTICS	SM	SF
PROPOSED SITE AREA:	17,437	187,695
NEW PROPOSAL NFA	59,684	642,434
FSI	3.42	
NEW RESIDENTIAL UNIT#	866	
UPH	497	
NET AVERAGE UNIT SIZE	62	667

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					LIVE/WORK		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2,153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL BASE	1	630	6,781				677	7,290	1,307	14,071	1,039	11,188	2,347	25,260
F 2 - F7	RESIDENTIAL BASE	6	15,496	166,802	14,353	154,492	231			15,496	166,802	1,904	20,499	17,401	187,301
F8	RESIDENTIAL BASE	1	2,501	26,925	2,336	25,149	38			2,501	26,925	173	1,862	2,674	28,787
F9 - F43	RESIDENTIAL TOWER	35	40,179	432,483	37,029	398,577	597			40,179	432,483	4,071	43,820	44,250	476,303
MPH	RESIDENTIAL TOWER	1										700	7,535	700	7,535
GRAND TOTAL		43	59,007	635,144	53,718	578,218	866	677	7,290	59,684	642,434	7,688	82,751	67,372	725,185

PARKING REQUESTED

	VISITOR	RESIDENTIAL	TOTAL
RATIO	0.15	0.80	
	130	693	823

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO 3.5 / 100 m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	169	172	172	172	140	825

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (OUTDOOR) / UNIT,	1733	1733

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	866	866
F7	866	866
TOTAL	1733	1,733

BLOCK 5

STATISTICS	SM	SF
PROPOSED SITE AREA:	10,899	117,320
NEW PROPOSAL NFA	40,492	435,849
FSI	3.72	
NEW RESIDENTIAL UNIT#	602	
UPH	552	
NET AVERAGE UNIT SIZE	60	648

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					RETAIL NFA		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2,153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL BASE	1	1,782	19,180	834	8,973	12	712	7,664	2,494	26,844	723	7,778	3,216	34,622
F 2 - F5	RESIDENTIAL BASE	4	10,862	116,919	10,202	109,811	183			10,862	116,919	1,086	11,686	11,948	128,605
F6 - F8	RESIDENTIAL BASE	3	5,997	64,554	5,502	59,226	89			5,997	64,554	363	3,907	6,360	68,461
F9 - F14	RESIDENTIAL BASE	6	8,847	95,230	8,307	89,417	134			8,847	95,230	726	7,815	9,573	103,044
F15 - F20	RESIDENTIAL TOWER	6	7,201	77,514	6,841	73,639	110			7,201	77,514	510	5,490	7,711	83,004
F21 - F26	RESIDENTIAL TOWER	6	4,890	52,636	4,560	49,083	74			4,890	52,636	510	5,490	5,400	58,125
MPH	RESIDENTIAL TOWER	1										289	3,111	289	3,111
GRAND TOTAL		26	39,780	428,185	36,246	390,150	602	712	7,664	40,492	435,849	4,006	43,123	44,498	478,972

PARKING REQUESTED

	VISITOR	RESIDENTIAL	TOTAL
RATIO	0.15	0.80	
	90	481	572

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO = 3.5 / 100 m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	192	195	195	0	0	582

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (OUTDOOR) / UNIT,	1203	1203

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	602	602
F6	602	602
TOTAL	1203	1,203

BLOCK 6

STATISTICS	SM	SF
PROPOSED SITE AREA:	8,199	88,253
NEW PROPOSAL NFA	44,458	478,540
FSI	5.42	
NEW RESIDENTIAL UNIT#	348	
UPH	424	
NET AVERAGE UNIT SIZE	62	667

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					COMMERCIAL NFA		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2,153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL / COMMERCIAL BASE	1	687	7,398				1,720	18,514	2,407	25,912	489	5,259	2,896	31,171
F 2 - F7	RESIDENTIAL / COMMERCIAL BASE	6	12,688	136,570	11,817	127201	191	6,493	69,895	19,181	206,465	1,194	12,848	20,375	219,313
F8	RESIDENTIAL / COMMERCIAL BASE	1	2,009	21,626	1,864	20065	30	911	9,809	2,920	31,434	141	1,518	3,061	32,952
F9 - F23	RESIDENTIAL / COMMERCIAL TOWER	15	8,499	91,482	7,869	84701	127	11,250	121,094	19,749	212,576	2,001	21,539	21,750	234,115
MPH	RESIDENTIAL / COMMERCIAL TOWER	1										578	6,222	578	6,222
GRAND TOTAL		23	24,083	259,229	21,550	231,967	348	20,375	219,311	44,458	478,540	4,202	45,232	48,660	523,772

PARKING REQUESTED

	VISITOR	RESIDENTIAL	COMMERCIAL	TOTAL
RATIO	0.15	0.80	3.5 / 100m2	
	52	278	713	1,043

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO = 3.5 / 100m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	231	237	237	237	123	1,065

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (INDOOR) / UNIT,	695	695

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	348	348
F7	348	348
TOTAL	695	695

BLOCK 7

STATISTICS	SM	SF
PROPOSED SITE AREA:	14,162	152,441
NEW PROPOSAL NFA	41,637	448,181
FSI	2.94	
NEW RESIDENTIAL UNIT#	623	
UPH	440	
NET AVERAGE UNIT SIZE	63	679

NFA CALCULATION
(NFA EXCLUDES PARKING, LOADING SPACE, STORAGE, ELECTRICAL & MECHANICAL, AMENITY AREA, MECHANICAL PENTHOUSE, ELEVATOR, GARBAGE AND VENTILATING SHAFTS AS PER CITY OF PICKERING ZONING BY-LAW

	DIESCRIPTION		RESIDENTIAL					RETAIL NFA		TOTAL NFA		NFA EXCLUDED		FLOOR PLATE AREA	
			TOTAL NFA		NET SALEABLE										
	TYPE	FLOORS #	m2	ft2	m2	ft2	UNIT#(3)	m2	ft2	m2	ft2	m2	ft2	m2	ft2
U/G PARKING		1	200	2153						200	2,153	-200	-2,153	0	0
F1	RESIDENTIAL BASE	1	1,450	15611	1,300	13,992	10	380	4,090	1,830	19,701	744	8,004	2,574	27,705
F 2 - F5	RESIDENTIAL BASE	4	11,803	127044	11,202	120,581	181			11,803	127,044	1,107	11,911	12,909	138,955
F6 - F9	RESIDENTIAL BASE	4	9,287	99963	8,907	95,873	144			9,287	99,963	412	4,435	9,699	104,398
F10 - F12	RESIDENTIAL BASE	3	6,281	67612	5,996	64,544	97			6,281	67,612	309	3,326	6,590	70,938
F13 - F14	RESIDENTIAL BASE	2	3,689	39708	3,599	38,740	58			3,689	39,708	158	1,701	3,847	41,409
F15 - F17	RESIDENTIAL BASE	3	4,676	50327	4,541	48,874	73			4,676	50,327	237	2,551	4,913	52,878
F18 - F20	RESIDENTIAL BASE	3	3,872	41673	3,737	40,220	60			3,872	41,673	183	1,970	4,055	43,643
MPH	RESIDENTIAL BASE	1										289	3,111	289	3,111
GRAND TOTAL		20	41,257	444,091	39,282	422,823	623	380	4,090	41,637	448,181	3,238	34,856	44,876	483,037

PARKING REQUESTED

	VISITOR	RESIDENTIAL	TOTAL
RATIO	0.15	0.80	
	93	498	591

1) ASSUMING RESIDENTIAL PARKING RATIO= 0.8 / UNIT
2) ASSUMING VISITOR PARKING RATIO= 0.15 / UNIT
3) ASSUMING RETAIL PARKING RATIO= 3.5 / 100m2

PARKING PROVIDED

SURFACE	UG1	UG2	UG3	UG4	UG5	TOTAL
0	172	175	175	90	0	612

AMENITY REQUIRED

RATIO	INDOOR (M2)	OUTDOOR(M2)
2 M2 (INDOOR) / UNIT,2 M2 (OUTDOOR) / UNIT,	1245	1245

AMENITY PROVIDED

	OUTDOOR(M2)	INDOOR(M2)
F1/ GRADE	623	623
F6	623	623
TOTAL	1245	1,245

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#	DATE	DESCRIPTION	BY

BAYFIELD Realty Advisors Inc.

PROJECT
PICKERING DESIGN CENTRE MASTER PLAN
1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING
STATISTICS

PROJECT NO. 06.037RZ
PROJECT DATE 2024-02-20
DRAWN BY AGO
CHECKED BY AYU
SCALE

DRAWING NO. SPA002
REV.

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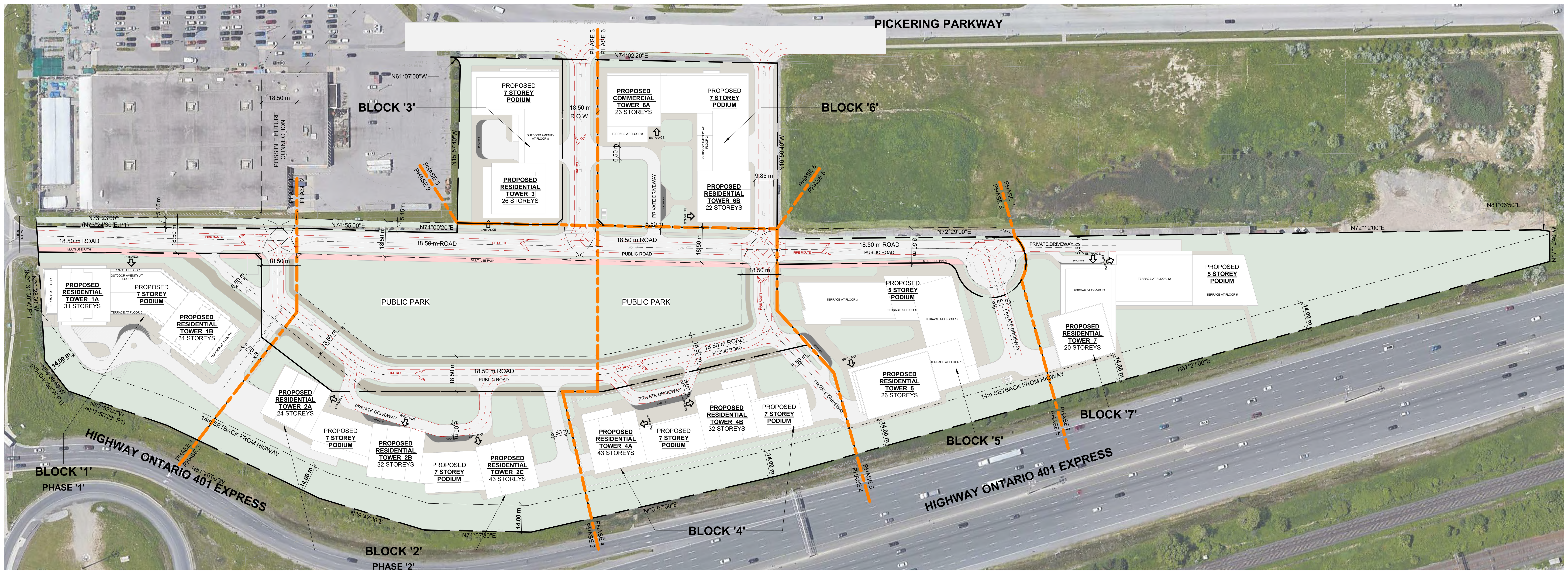

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#	DATE	DESCRIPTION	BY

BAYFIELD
Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

SITE PLAN / ROOF PLAN

PROJECT NO.	06.037RZ
PROJECT DATE	2024-02-20
DRAWN BY	AGO
CHECKED BY	AAF
SCALE	1 : 1100

DRAWING NO. SPA006

REV.

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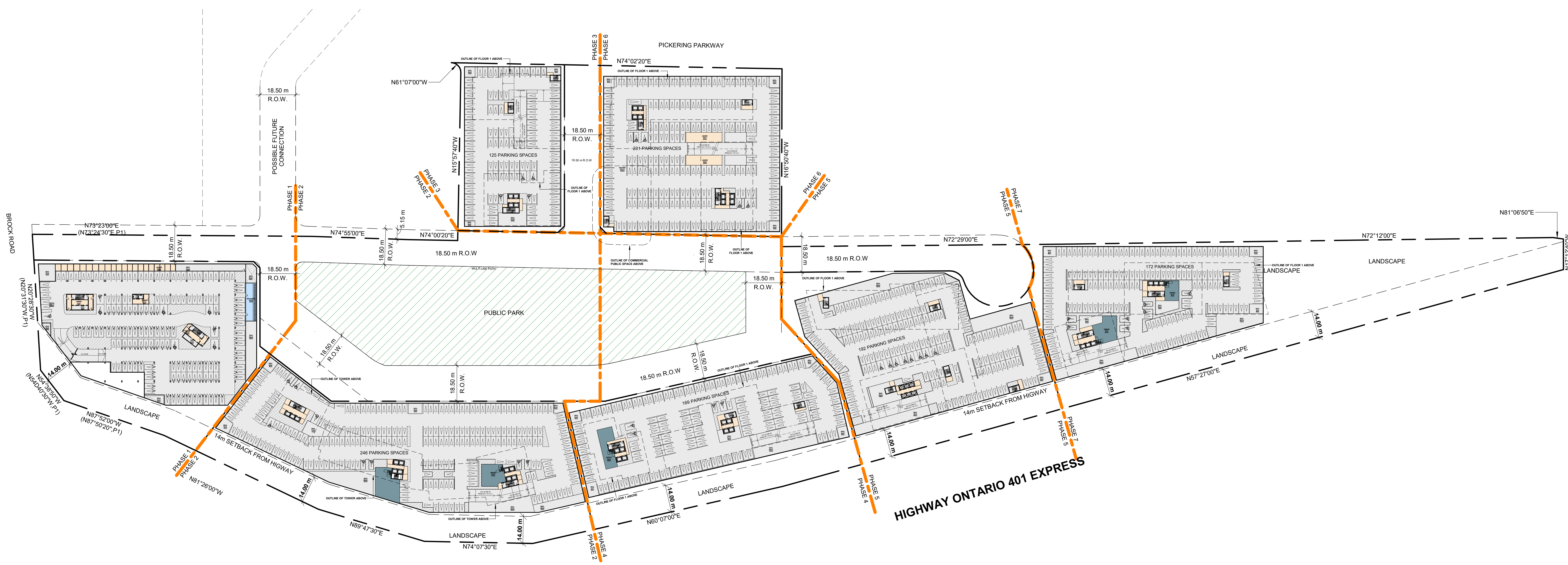

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#	DATE	DESCRIPTION	BY

BAYFIELD
Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

UNDERGROUND 01

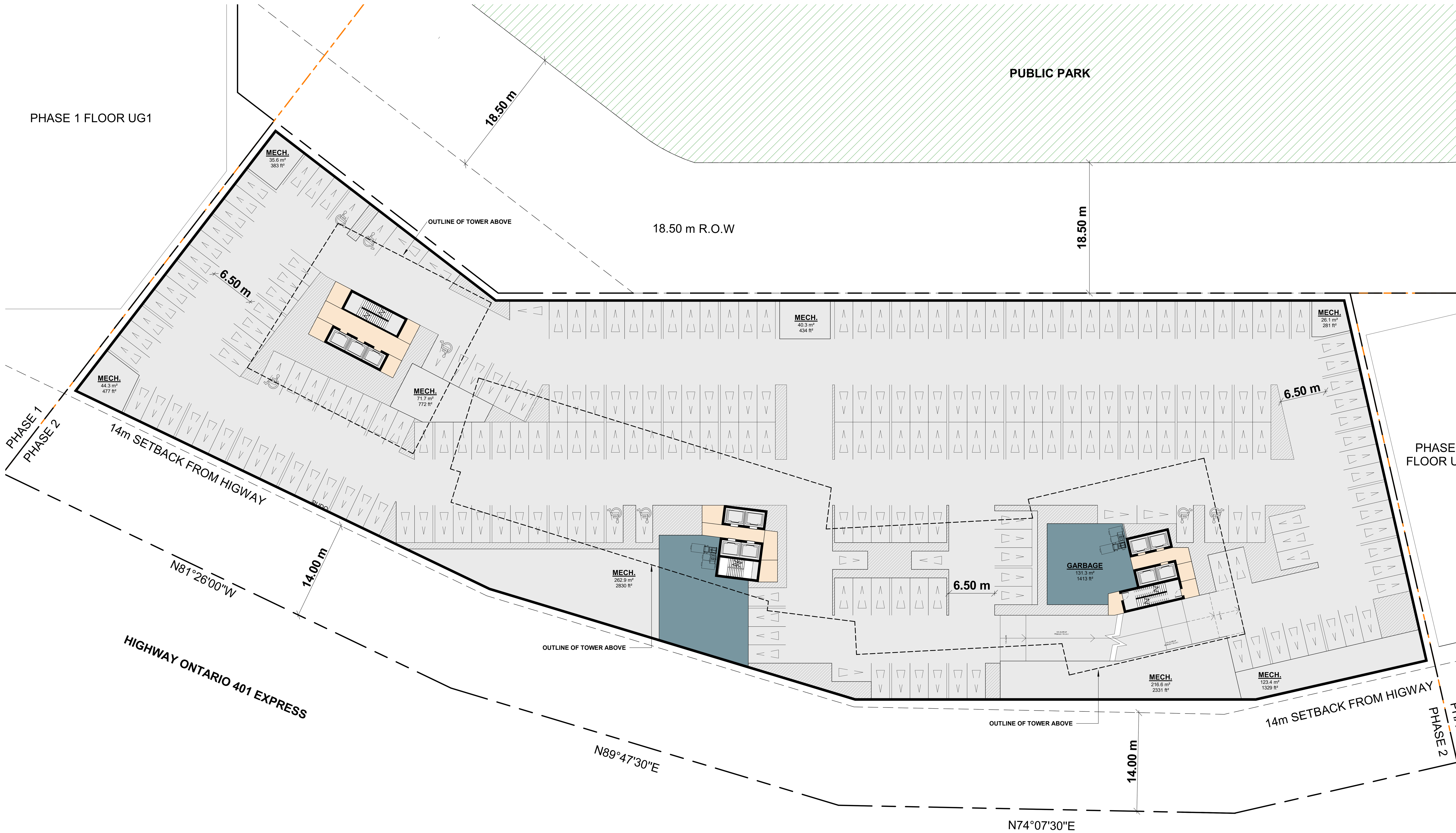
PROJECT NO.	06.037RZ
PROJECT DATE	2024-02-20
DRAWN BY	VVA
CHECKED BY	AYU
SCALE	1 : 1100

N

DRAWING NO. SPA102

REV.

2024-02-22 12:29:44 PM



2024-02-22 12:29:46 PM

TURNER
FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

BAYFIELD Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

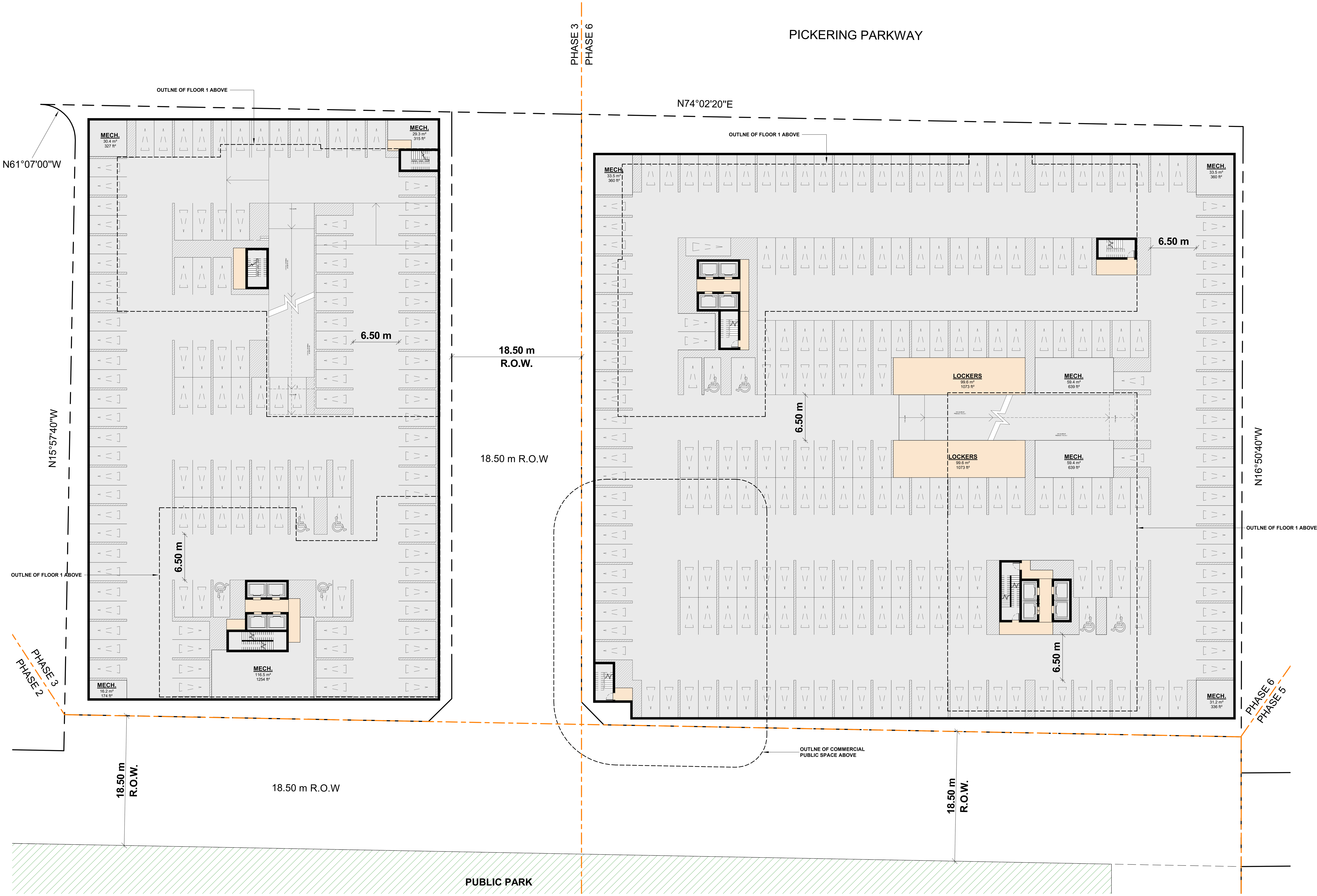
DRAWING

UNDERGROUND 01 - PHASE 2

PROJECT NO.
06.037RZ
PROJECT DATE
2024-02-20
DRAWN BY
VVA
CHECKED BY
AYU
SCALE
1 : 300

N

DRAWING NO.
SPA102.1
REV.



2024-02-22 12:29:48 PM

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

BAYFIELD
Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

UNDERGROUND 01 - PHASES 3 & 6

PROJECT NO.
06.037RZ

PROJECT DATE
2024-02-20

DRAWN BY
VVA

CHECKED BY
AYU

SCALE
1 : 250

DRAWING NO.
SPA102.2

REV.

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

BAYFIELD Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

UNDERGROUND 01 - PHASE 4

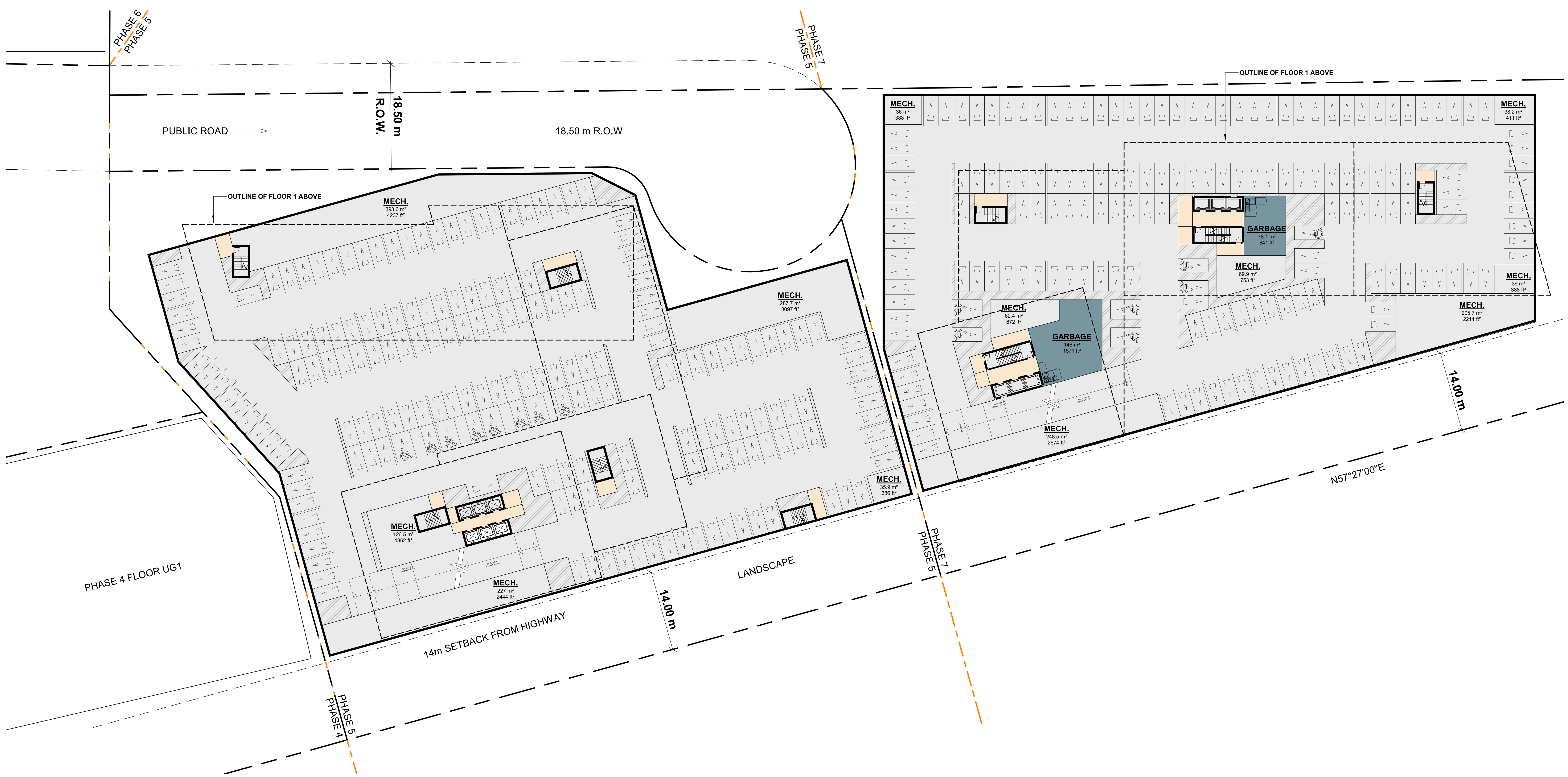
PROJECT NO.	06.037RZ
PROJECT DATE	2024-02-20
DRAWN BY	VVA
CHECKED BY	AYU
SCALE	1 : 250

N

DRAWING NO. SPA102.3

REV.

2024-02-22 12:29:50 PM



2024-02-22 12:29:52 PM

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

BAYFIELD
Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

UNDERGROUND 01 - PHASES 5 & 7

PROJECT NO.
06.037RZ

PROJECT DATE
2024-02-20

DRAWN BY
VVA

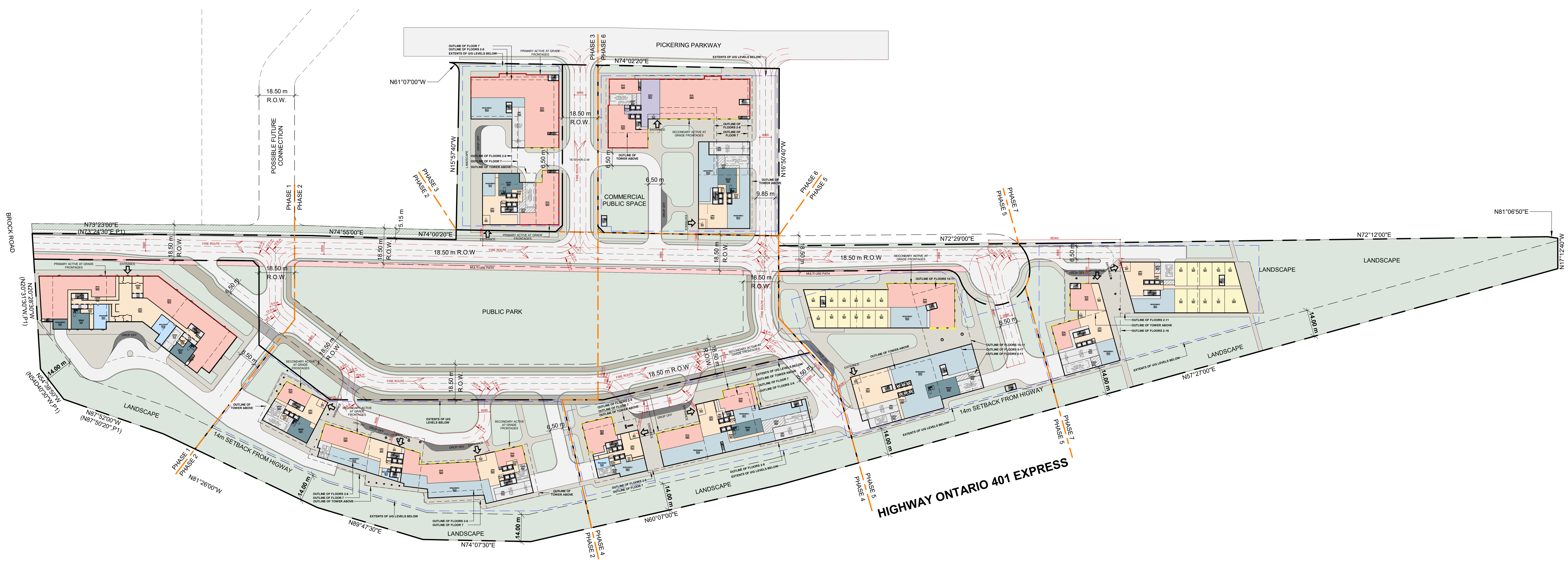
CHECKED BY
AYU

SCALE
1 : 400

N

DRAWING NO.
SPA102.4

REV.



TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON, M3B 2T8
T 416 425 2222
turnerfleischer.com

LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION
- CONVEX MIRROR
- TRANSFORMER WITH CLEARANCES
- FIRE ROUTE SIGN
- 000.00 SPOT ELEVATION
- GAS/HYDRO METER

#	DATE	DESCRIPTION	BY

BAYFIELD Realty Advisors Inc.

PROJECT

PICKERING DESIGN CENTRE MASTER PLAN

1775 PICKERING PARKWAY
PICKERING, ON.

DRAWING

FLOOR 01

PROJECT NO.	06.037RZ
PROJECT DATE	2024-02-20
DRAWN BY	VVA
CHECKED BY	AYU
SCALE	1:1100

DRAWING NO. SPA151

REV.

2024-02-22 12:29:57 PM

APPENDIX B

Principle Mainline Requirements

PRINCIPAL MAIN LINE REQUIREMENTS FOR NEW DEVELOPMENT

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. Noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, GO Transit may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, $\pm$ 3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way.

> **Warning:** Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the right-of-way or their assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.

F. Any proposed alterations to the existing drainage pattern affecting the railway right-of-way must receive prior concurrence from GO Transit and be substantiated by a drainage report to the satisfaction of GO Transit.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of GO Transit.

H. The Owner enter into an Agreement stipulating how GO Transit's concerns will be resolved and will pay GO Transit's reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant GO Transit an environmental easement for operational emissions, registered on title against the subject property in favour of GO.

Canadian National Railway Properties Inc.
Propriétés ferroviaires du Canadien National Inc.

277 Front Street West
Floor 8
Toronto, Ontario
M5V 2X7

Telephone: (416) 217-6961
Facsimile: (416) 217-6743

277, rue Front ouest
8e étage
Toronto (Ontario)
M5V 2X7

Téléphone: (416) 217-6961
Télécopieur: (416) 217-6743

PRINCIPAL MAIN LINE REQUIREMENTS

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. The Owner shall engage a consultant to undertake an analysis of noise. At a minimum, a noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, the Railway may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, ±3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way: "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."

F. Any proposed alterations to the existing drainage pattern affecting railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of CN.

H. The Owner enter into an Agreement stipulating how CN's concerns will be resolved and will pay CN's reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant CN an environmental easement for operational noise and vibration emissions, registered against the subject property in favour of CN.

APPENDIX C

Road Traffic Data

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
401			1998	C	137100	154900	154900	123400
401			1999	C	139600	156400	157700	125600
401			2000	C	142200	160700	160700	128000
401			2001	C	144800	163100	163400	130400
401			2002	C	147400	165100	166300	132600
401			2003	C	150000	167600	168600	135400
401			2004	C	152500	171800	172100	137300
401			2005	C	155100	172700	174100	139300
401			2006	C	157700	175200	176600	141900
401			2007	C	160300	178100	180600	144000
401			2008	C	162900	179800	177300	146200
401			2009	C	165400	181900	183600	148900
401			2010	C	168000	185100	186800	151200
401			2011	C	170600	188000	189700	153500
401			2012	C	173200	190800	186800	156000
401			2013	C	175800	193700	191300	158300
401			2014	C	188000	206800	201200	169200
401			2015	C	205000	225500	219400	184500
401			2016	C	210000	231000	224700	189000
401			2017	C	196000	214400	213900	177800
401			2018	C	199200	218400	217100	179800
401			2019	C	202400	221200	219900	183200
401	BROCK RD IC-399 REG RD 1 PICKERING	1.7	1988	C	108500	120400	120400	97600
401			1989	C	110000	122100	123200	99000
401			1990	C	118800	131900	131900	106900
401			1991	C	113000	124300	125400	102800
401			1992	C	114500	123700	127100	105300
401			1993	C	116500	127000	128900	107200
401			1994	C	124700	136500	139000	112900
401			1995	C	128100	139800	143500	117200
401			1996	C	131500	149000	149600	118700
401			1997	C	134800	152300	153700	121300
401			1998	C	138200	156200	156200	124400
401			1999	C	148000	165800	167200	133200
401			2000	C	151600	171300	171300	136400
401			2001	C	156500	176300	176600	141000
401			2002	C	161400	180800	182100	145200
401			2003	SC	172000	181600	200700	152200
401			2004	SC	180000	192000	210800	158600
401			2005	SC	189000	200100	220700	166300
401			2006	SC	187100	198000	218700	165000
401			2007	SC	190700	201600	220500	167700
401			2008	SC	194300	203800	192200	170900
401			2009	SC	202300	214400	236700	178000
401			2010	SC	201500	213100	235900	177700

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
401			2011	SC	212300	271700	248100	169000
401			2012	SC	217700	230600	216800	192100
401			2013	SC	223000	235900	214900	196700
401			2014	SC	213000	225300	219900	187900
401			2015	SC	220000	232700	227200	194000
401			2016	SC	223000	235900	230300	196700
401			2017	SC	237100	252100	252300	210400
401			2018	SC	242000	258500	257100	212900
401			2019	SC	246900	262100	260500	218200
401	LIVERPOOL RD IC-397 REG RD 29 PICKERING	2.6	1988	C	122000	135400	135400	109800
401			1989	C	125100	138900	140100	112600
401			1990	C	128300	142400	142400	115500
401			1991	C	131400	144500	145900	119600
401			1992	C	134600	145400	149400	123800
401			1993	C	137700	150100	152400	126700
401			1994	C	140900	154300	157100	127500
401			1995	C	144000	157200	161400	131700
401			1996	C	147200	166800	167400	132900
401			1997	C	150300	169800	171300	135300
401			1998	C	153500	173500	173500	138200
401			1999	C	165300	185100	186800	148800
401			2000	C	171100	193300	193300	154000
401			2001	C	172500	194300	194700	155400
401			2002	C	174400	195300	196800	156900
401			2003	C	178800	199700	201000	161400
401			2004	C	183200	206300	206700	165000
401			2005	C	187700	209000	210700	168600
401			2006	C	193000	214400	216100	173600
401			2007	C	197400	219400	222400	177400
401			2008	C	201900	222800	219800	181100
401			2009	C	206300	226900	229000	185700
401			2010	C	210800	232300	234400	189800
401			2011	C	215200	237200	239300	193700
401			2012	C	219700	242100	237000	197800
401			2013	C	222000	244700	241600	199800
401			2014	C	224000	246400	239700	201600
401			2015	C	228000	250800	244000	205200
401			2016	C	230000	253000	246100	207000
401			2017	C	238800	261200	260600	216700
401			2018	C	243100	266500	265000	219400
401			2019	C	247300	270300	268700	223800
401	WHITES RD IC-394 REG RD 38 PICKERING	3.7	1988	C	140700	156200	156200	126600
401			1989	C	143300	159100	160500	129000
401			1990	C	145800	161800	161800	131200
401			1991	C	148400	163200	164700	135000

Yvonne Lo

From: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Sent: January 20, 2021 7:39 PM
To: Yvonne Lo
Cc: Bee, Christopher (MTO)
Subject: RE: Commercial Vehicle % - HWY401 at Westney Road and Brock Rd

Follow Up Flag: Follow up
Flag Status: Flagged

To Yvonne Lo, HGC:

I am keeping safe and healthy so far.
I hope you are as well.

Official MTO "% commercial" data at:

H401 and Brock Rd – 12 % for at least 10 years to 2016
H401 and Westney -- 11 % for at least 10 years to 2016.

"% commercial " includes long heavy trucks, short light trucks, buses, cars with trailer, vans, and specials, but NOT REGULAR CARS.
There are no further breakdown details available.

Regards.

Christopher Bee
MTO CR Traffic Office
STIRCS

From: Yvonne Lo <ylo@hgcengineering.com>
Sent: January-19-21 3:53 PM
To: Bee, Christopher (MTO) <Christopher.Bee@ontario.ca>
Subject: Commercial Vehicle % - HWY401 at Westney Road

Hi Christopher,

HGC Engineering is currently conducting a noise feasibility study for a proposed development located at 73 Cedar Street, in Ajax, ON, as shown in the link below:

https://goo.gl/maps/xiJhF1J8ZNrn5Hxk7

Can you please provide commercial vehicle percentages for Highway 401 near Westney Road in Ajax, ON?

Thank you!

Best,

Planning and Economic
Development Department

Planning Division

605 ROSSLAND RD. E.
4TH FLOOR
P.O. BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-666-6208
E-Mail: planning@durham.ca

www.durham.ca

Brian Bridgeman, MCIP, RPP
Commissioner of Planning and
Economic Development

The Regional Municipality of Durham

ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

Provided For:

Name / Name of Firm: Yvonne Lo, HGC Engineering

Address: 2000 Argentia Road, Plaza One, Suite 203, Mississauga, ON

Telephone: (905) 826-4044 Fax:

Location of Proposal:

1755 Pickering Parkway (south side, east of Brock Road)

Municipality: Pickering Lot(s): Concession:

Durham Region File No. (if available):

Name of Property Owner (if available):

Date Request Received: January 19, 2021 Received By: Chris Leitch

Date Forecast Sent: January 29, 2021

Name of Road Segment	Forecasted AADT*	No. of Lanes	% of Trucks	Heavy : Medium Truck Ratio		Speed (km/h)
Brock Road, south of Pickering Parkway	40,000	6	12	70	30	60
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.

Yvonne Lo

From: Chris Leitch <Chris.Leitch@Durham.ca>
Sent: February 8, 2024 12:03 PM
To: Yvonne Lo
Subject: RE: Road Traffic Data - 1755 PIckering Parkway

Hi Yvonne,

Yes, the data provided to you in 2021 is still current for the noise impact study you are working on.

Thanks for checking with us,
Chris

Chris Leitch, MUP, MCIP, RPP | Principal Planner
Transportation Planning
Planning and Economic Development Department
The Regional Municipality of Durham | **Celebrating 50 years!**
Chris.Leitch@durham.ca | 905-668-4113 extension 2567 | durham.ca
My pronouns are he/him | durham.ca/50years

From: Yvonne Lo <ylo@hgcengineering.com>
Sent: Friday, February 2, 2024 9:10 AM
To: Chris Leitch <Chris.Leitch@Durham.ca>
Subject: Road Traffic Data - 1755 PIckering Parkway

Hi Chris,

I hope you are well! We are currently updating a noise study located at 1755 Pickering Parkway.

https://maps.app.goo.gl/iJxkeWfgs5Lr4W3p6

Can you please confirm whether the traffic data attached is still applicable for Brock Road? If not, can you please provide the latest available information?

Thank you.

Best,

Yvonne Lo, MEng, PEng
Project Engineer

HGC Engineering NOISE | VIBRATION | ACOUSTICS
Howe Gastmeier Chapnik Limited

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/09/15	0	28	7	2	0	0	0	0	0	0	0	0	0	37
01:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
02:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
04:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
05:00	0	15	3	0	0	**3**	0	0	0	1	0	0	0	22
06:00	0	47	10	4	0	0	0	2	0	1	0	0	1	65
07:00	1	70	27	3	0	0	0	1	0	0	1	0	0	103
08:00	0	98	26	7	1	0	**1**	3	0	2	**2**	0	**3**	143
09:00	0	96	39	**10**	1	2	0	**5**	**1**	1	2	0	1	158
10:00	**3**	126	33	4	**3**	3	0	2	0	2	0	0	1	177
11:00	0	**167**	**46**	7	2	3	1	1	1	**3**	1	0	1	**233**
12 PM	0	209	55	6	2	4	**2**	1	0	0	0	0	**2**	281
13:00	0	222	49	**10**	1	**5**	2	3	**1**	2	1	0	1	297
14:00	0	249	62	8	**6**	2	1	3	0	**3**	**2**	0	1	337
15:00	1	334	54	8	4	4	0	1	0	2	0	0	1	409
16:00	1	**440**	69	3	4	4	1	**4**	1	0	0	0	1	528
17:00	0	438	**101**	5	3	2	1	1	1	0	0	0	0	**552**
18:00	1	405	59	5	3	1	1	0	0	1	0	**1**	1	478
19:00	0	254	73	4	2	3	0	1	0	0	0	0	1	338
20:00	**2**	195	55	1	0	1	0	1	0	0	0	0	0	255
21:00	0	155	51	0	0	1	0	1	0	0	0	0	0	208
22:00	0	81	31	1	1	0	0	0	0	0	0	0	0	114
23:00	0	44	13	0	1	1	0	0	0	0	0	0	0	59
Day Total	9	3713	867	88	34	39	10	30	5	18	9	1	15	4838
Percent	0.2%	76.7%	17.9%	1.8%	0.7%	0.8%	0.2%	0.6%	0.1%	0.4%	0.2%	0.0%	0.3%	
AM Peak	10:00	11:00	11:00	09:00	10:00	05:00	08:00	09:00	09:00	11:00	08:00		08:00	11:00
Vol.	3	167	46	10	3	3	1	5	1	3	2		3	233
PM Peak	20:00	16:00	17:00	13:00	14:00	13:00	12:00	16:00	13:00	14:00	14:00	18:00	12:00	17:00
Vol.	2	440	101	10	6	5	2	4	1	3	2	1	2	552

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/10/15	**1**	35	7	1	0	0	0	0	0	0	0	0	0	44
01:00	0	22	1	0	0	0	0	0	0	0	0	0	0	23
02:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
03:00	0	9	1	1	0	0	0	0	0	0	0	0	0	11
04:00	0	10	2	0	0	0	0	1	0	0	0	0	0	13
05:00	0	20	4	1	0	3	0	0	0	0	0	0	0	28
06:00	0	61	15	3	0	1	**1**	6	**1**	0	0	0	0	88
07:00	0	94	31	6	**2**	2	0	3	0	**5**	0	0	1	144
08:00	0	108	29	**10**	2	1	0	6	0	1	1	0	**4**	162
09:00	0	120	32	8	1	8	0	**8**	1	1	1	0	1	181
10:00	0	153	44	4	2	3	0	6	1	2	0	0	2	217
11:00	0	**188**	**56**	8	1	**9**	0	8	0	1	**3**	0	3	**277**
12 PM	**4**	168	59	6	2	3	0	5	0	2	0	0	1	250
13:00	3	206	61	**7**	3	4	**1**	**6**	0	4	**2**	0	0	297
14:00	0	256	46	7	**5**	**5**	0	6	1	3	1	0	1	331
15:00	1	272	90	5	3	3	0	1	0	4	2	0	0	381
16:00	1	334	86	4	2	4	0	4	**2**	**6**	0	0	**3**	446
17:00	0	**402**	94	6	1	3	1	0	1	0	0	0	2	**510**
18:00	0	346	**96**	3	2	5	0	1	0	0	0	0	0	453
19:00	1	248	40	6	3	3	0	2	1	0	0	0	0	304
20:00	1	241	32	1	0	5	0	3	0	0	0	0	0	283
21:00	0	168	28	1	1	0	0	0	1	0	0	0	0	199
22:00	0	99	13	1	1	1	0	0	0	0	0	0	0	115
23:00	0	78	7	0	1	1	0	0	0	0	0	0	0	87
Day Total	12	3648	877	89	32	64	3	66	9	29	10	0	18	4857
Percent	0.2%	75.1%	18.1%	1.8%	0.7%	1.3%	0.1%	1.4%	0.2%	0.6%	0.2%	0.0%	0.4%	
AM Peak	00:00	11:00	11:00	08:00	07:00	11:00	06:00	09:00	06:00	07:00	11:00		08:00	11:00
Vol.	1	188	56	10	2	9	1	8	1	5	3		4	277
PM Peak	12:00	17:00	18:00	13:00	14:00	14:00	13:00	13:00	16:00	16:00	13:00		16:00	17:00
Vol.	4	402	96	7	5	5	1	6	2	6	2		3	510

Ontario Traffic, Inc.
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Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/11/15	1	33	5	2	0	1	0	0	0	0	0	0	0	42
01:00	0	25	3	0	0	1	1	0	1	0	0	0	0	31
02:00	0	17	3	0	0	0	0	0	0	0	0	0	0	20
03:00	0	8	1	0	1	1	0	0	0	0	0	0	0	11
04:00	0	8	2	1	0	0	0	0	0	0	0	0	1	12
05:00	0	22	5	2	0	0	0	0	0	0	0	0	0	29
06:00	1	66	20	2	1	1	0	2	0	1	**2**	0	1	97
07:00	**3**	88	31	**8**	**3**	1	1	2	0	**7**	0	0	**2**	146
08:00	1	127	39	8	0	2	**2**	**12**	0	2	1	0	1	195
09:00	1	117	36	7	2	3	0	11	1	0	1	0	2	181
10:00	2	196	41	8	2	2	0	10	**3**	5	2	0	1	272
11:00	0	**257**	**54**	7	1	**4**	0	11	1	2	1	0	1	**339**
12 PM	**6**	211	53	6	2	4	0	6	1	2	1	0	**2**	294
13:00	0	232	56	8	0	3	0	**12**	1	**3**	1	0	2	318
14:00	3	291	64	8	3	4	**1**	12	0	2	0	0	2	390
15:00	1	376	71	**11**	**4**	3	1	12	0	2	**4**	0	1	486
16:00	1	466	70	7	1	1	1	3	0	2	0	0	2	554
17:00	0	**492**	**86**	4	1	2	1	4	1	1	1	0	0	**593**
18:00	1	444	69	8	2	**6**	0	5	**2**	0	0	0	0	537
19:00	0	285	76	2	3	4	1	0	0	0	1	0	0	372
20:00	1	280	64	0	0	1	0	1	0	1	1	0	0	349
21:00	0	204	35	1	3	0	0	2	0	0	0	0	0	245
22:00	2	121	25	1	0	0	0	0	0	0	0	0	0	149
23:00	0	54	14	1	1	1	0	0	0	0	0	0	0	71
Day Total	24	4420	923	102	30	45	9	105	11	30	16	0	18	5733
Percent	0.4%	77.1%	16.1%	1.8%	0.5%	0.8%	0.2%	1.8%	0.2%	0.5%	0.3%	0.0%	0.3%	
AM Peak	07:00	11:00	11:00	07:00	07:00	11:00	08:00	08:00	10:00	07:00	06:00		07:00	11:00
Vol.	3	257	54	8	3	4	2	12	3	7	2		2	339
PM Peak	12:00	17:00	17:00	15:00	15:00	18:00	14:00	13:00	18:00	13:00	15:00		12:00	17:00
Vol.	6	492	86	11	4	6	1	12	2	3	4		2	593
Grand Total	45	11781	2667	279	96	148	22	201	25	77	35	1	51	15428
Percent	0.3%	76.4%	17.3%	1.8%	0.6%	1.0%	0.1%	1.3%	0.2%	0.5%	0.2%	0.0%	0.3%	

Ontario Traffic, Inc.
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Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/09/15	0	10	2	0	0	0	0	0	0	0	0	0	0	12
01:00	0	4	0	1	0	2	0	0	0	0	0	0	0	7
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	4	2	1	0	0	0	0	0	0	0	0	**2**	9
04:00	0	9	2	0	1	3	0	0	0	0	0	0	0	15
05:00	0	52	11	0	2	3	0	0	**1**	1	0	0	1	71
06:00	1	144	26	5	2	7	0	0	1	0	0	0	0	186
07:00	1	208	**49**	5	2	3	0	2	1	**2**	0	0	0	273
08:00	**2**	**243**	44	**13**	0	4	0	2	0	1	0	0	0	**309**
09:00	1	181	49	10	**5**	**9**	0	2	1	1	0	0	0	259
10:00	1	129	45	7	2	5	**1**	2	0	0	0	0	0	192
11:00	0	190	37	7	1	6	0	**5**	1	0	0	0	1	248
12 PM	1	164	40	5	2	**6**	0	**7**	0	0	0	0	0	225
13:00	0	172	**46**	6	**3**	3	0	5	0	0	**1**	0	0	**236**
14:00	1	164	44	5	1	4	0	0	**1**	0	0	0	0	220
15:00	0	161	42	**7**	3	4	0	0	0	0	0	0	0	217
16:00	0	180	36	1	0	0	0	2	0	0	1	0	0	220
17:00	**3**	186	32	2	0	2	0	0	0	0	0	0	0	225
18:00	1	**187**	35	3	1	0	0	0	0	0	0	0	0	227
19:00	1	165	42	4	1	0	0	0	0	0	0	0	0	213
20:00	0	143	17	1	0	0	0	0	0	0	0	0	0	161
21:00	1	82	14	1	0	0	0	0	0	0	0	0	0	98
22:00	0	42	10	0	0	4	0	0	0	0	0	0	0	56
23:00	0	22	4	0	0	0	0	1	0	0	0	0	0	27
Day Total	14	2843	629	84	26	65	1	28	6	5	2	0	4	3707
Percent	0.4%	76.7%	17.0%	2.3%	0.7%	1.8%	0.0%	0.8%	0.2%	0.1%	0.1%	0.0%	0.1%	
AM Peak	08:00	08:00	07:00	08:00	09:00	09:00	10:00	11:00	05:00	07:00			03:00	08:00
Vol.	2	243	49	13	5	9	1	5	1	2			2	309
PM Peak	17:00	18:00	13:00	15:00	13:00	12:00		12:00	14:00		13:00			13:00
Vol.	3	187	46	7	3	6		7	1		1			236

Ontario Traffic, Inc.
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Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/10/15	0	20	0	0	0	0	0	0	0	0	0	0	0	20
01:00	0	8	3	0	1	0	0	0	0	0	0	0	0	12
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	1	1	0	0	0	0	0	0	0	0	0	**2**	4
04:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
05:00	0	42	18	3	2	6	0	0	**2**	1	0	0	0	74
06:00	0	146	26	9	3	6	0	2	1	1	0	0	0	194
07:00	2	191	49	12	**6**	6	0	13	1	0	0	0	0	280
08:00	**3**	**251**	**55**	15	0	6	**1**	12	1	**3**	0	0	0	**347**
09:00	3	185	51	10	2	3	0	14	1	1	0	0	0	270
10:00	0	142	41	10	1	4	0	**15**	1	0	0	0	0	214
11:00	0	201	39	**17**	0	**13**	0	8	2	1	0	**1**	0	282
12 PM	1	155	36	**13**	**6**	**5**	0	**3**	0	0	0	0	**1**	220
13:00	**2**	163	39	10	0	3	0	3	0	0	**2**	0	0	222
14:00	1	149	35	8	1	4	0	0	0	0	0	0	0	198
15:00	2	149	**41**	10	2	4	0	2	0	**2**	1	0	0	213
16:00	1	142	34	6	2	2	0	0	**1**	0	0	0	0	188
17:00	1	174	36	6	1	1	0	0	1	0	0	0	0	220
18:00	0	**206**	26	3	0	0	0	1	0	0	0	0	0	**236**
19:00	0	158	31	2	0	0	0	0	0	0	0	0	0	191
20:00	1	134	26	2	1	0	0	1	0	0	0	0	0	165
21:00	0	83	15	1	0	0	0	0	0	0	0	0	0	99
22:00	0	54	4	1	0	1	0	0	0	0	0	0	0	60
23:00	0	19	4	0	0	0	0	0	0	0	0	0	0	23
Day Total	17	2791	611	138	28	64	1	74	11	9	3	1	3	3751
Percent	0.5%	74.4%	16.3%	3.7%	0.7%	1.7%	0.0%	2.0%	0.3%	0.2%	0.1%	0.0%	0.1%	
AM Peak	08:00	08:00	08:00	11:00	07:00	11:00	08:00	10:00	05:00	08:00		11:00	03:00	08:00
Vol.	3	251	55	17	6	13	1	15	2	3		1	2	347
PM Peak	13:00	18:00	15:00	12:00	12:00	12:00		12:00	16:00	15:00	13:00		12:00	18:00
Vol.	2	206	41	13	6	5		3	1	2	2		1	236

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Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
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Date Start: 09-Jun-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/11/15	0	10	2	0	0	4	0	0	0	0	0	0	0	16
01:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
02:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	3	4	0	0	0	0	0	0	0	0	0	**1**	8
04:00	0	9	1	0	0	3	0	0	0	0	0	0	0	13
05:00	0	41	16	5	2	4	0	0	**3**	1	0	0	0	72
06:00	1	154	25	13	1	5	0	7	1	1	0	0	0	208
07:00	3	224	**50**	11	**5**	7	0	12	1	0	0	0	0	313
08:00	2	**254**	50	**20**	2	8	**1**	14	2	0	0	0	0	**353**
09:00	2	193	41	10	1	10	0	**21**	1	0	0	0	1	280
10:00	**6**	177	43	9	1	13	0	15	1	0	**1**	0	0	266
11:00	2	169	46	11	1	**14**	0	18	0	**2**	0	0	0	263
12 PM	**3**	204	**53**	7	2	**13**	0	14	**1**	**2**	0	0	0	**299**
13:00	1	191	42	8	0	12	0	14	1	1	**2**	0	0	272
14:00	2	185	38	**11**	**3**	3	0	10	0	1	2	**1**	0	256
15:00	2	196	24	6	0	7	0	**15**	0	0	2	0	**1**	253
16:00	3	189	28	8	1	7	0	12	0	1	1	0	0	250
17:00	1	190	37	1	0	0	0	3	0	1	0	0	0	233
18:00	3	**230**	32	3	0	0	0	2	0	0	0	0	0	270
19:00	2	179	28	1	0	0	0	0	0	0	0	0	0	210
20:00	0	155	22	1	0	0	0	0	0	0	0	0	0	178
21:00	0	85	20	1	0	1	0	0	0	0	0	0	0	107
22:00	0	58	11	1	0	1	0	0	0	0	0	0	0	71
23:00	0	27	5	1	0	0	**1**	0	0	0	0	0	0	34
Day Total	33	3136	619	128	19	112	2	157	11	10	8	1	3	4239
Percent	0.8%	74.0%	14.6%	3.0%	0.4%	2.6%	0.0%	3.7%	0.3%	0.2%	0.2%	0.0%	0.1%	
AM Peak	10:00	08:00	07:00	08:00	07:00	11:00	08:00	09:00	05:00	11:00	10:00		03:00	08:00
Vol.	6	254	50	20	5	14	1	21	3	2	1		1	353
PM Peak	12:00	18:00	12:00	14:00	14:00	12:00	23:00	15:00	12:00	12:00	13:00	14:00	15:00	12:00
Vol.	3	230	53	11	3	13	1	15	1	2	2	1	1	299
Grand Total	64	8770	1859	350	73	241	4	259	28	24	13	2	10	11697
Percent	0.5%	75.0%	15.9%	3.0%	0.6%	2.1%	0.0%	2.2%	0.2%	0.2%	0.1%	0.0%	0.1%	

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Date Start: 09-Jun-15
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EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/09/15	0	38	9	2	0	0	0	0	0	0	0	0	0	49
01:00	0	16	1	1	0	2	0	0	0	0	0	0	0	20
02:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
03:00	0	13	3	1	0	0	0	0	0	0	0	0	2	19
04:00	0	18	4	0	1	3	0	0	0	0	0	0	0	26
05:00	0	67	14	0	2	6	0	0	1	2	0	0	1	93
06:00	1	191	36	9	2	7	0	2	1	1	0	0	1	251
07:00	2	278	76	8	2	3	0	3	1	2	1	0	0	376
08:00	2	341	70	**20**	1	4	**1**	5	0	**3**	**2**	0	**3**	452
09:00	1	277	**88**	20	**6**	**11**	0	**7**	**2**	2	2	0	1	417
10:00	**4**	255	78	11	5	8	1	4	0	2	0	0	1	369
11:00	0	**357**	83	14	3	9	1	6	2	3	1	0	2	**481**
12 PM	1	373	95	11	4	**10**	**2**	**8**	0	0	0	0	**2**	506
13:00	0	394	95	**16**	4	8	2	8	**1**	2	**2**	0	1	533
14:00	1	413	106	13	**7**	6	1	3	1	**3**	2	0	1	557
15:00	1	495	96	15	7	8	0	1	0	2	0	0	1	626
16:00	1	620	105	4	4	4	1	6	1	0	1	0	1	748
17:00	**3**	**624**	**133**	7	3	4	1	1	1	0	0	0	0	**777**
18:00	2	592	94	8	4	1	1	0	0	1	0	**1**	1	705
19:00	1	419	115	8	3	3	0	1	0	0	0	0	1	551
20:00	2	338	72	2	0	1	0	1	0	0	0	0	0	416
21:00	1	237	65	1	0	1	0	1	0	0	0	0	0	306
22:00	0	123	41	1	1	4	0	0	0	0	0	0	0	170
23:00	0	66	17	0	1	1	0	1	0	0	0	0	0	86
Day Total	23	6556	1496	172	60	104	11	58	11	23	11	1	19	8545
Percent	0.3%	76.7%	17.5%	2.0%	0.7%	1.2%	0.1%	0.7%	0.1%	0.3%	0.1%	0.0%	0.2%	
AM Peak	10:00	11:00	09:00	08:00	09:00	09:00	08:00	09:00	09:00	08:00	08:00		08:00	11:00
Vol.	4	357	88	20	6	11	1	7	2	3	2		3	481
PM Peak	17:00	17:00	17:00	13:00	14:00	12:00	12:00	12:00	13:00	14:00	13:00	18:00	12:00	17:00
Vol.	3	624	133	16	7	10	2	8	1	3	2	1	2	777

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: N41
Station ID: M6
Pickering Pkwy from Marshcourt Dr to Beechlawn Dr
Date Start: 09-Jun-15
Date End: 11-Jun-15
Date Start: 09-Jun-15

EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/10/15	1	55	7	1	0	0	0	0	0	0	0	0	0	64
01:00	0	30	4	0	1	0	0	0	0	0	0	0	0	35
02:00	0	15	3	0	0	0	0	0	0	0	0	0	0	18
03:00	0	10	2	1	0	0	0	0	0	0	0	0	2	15
04:00	0	23	3	0	0	0	0	1	0	0	0	0	0	27
05:00	0	62	22	4	2	9	0	0	**2**	1	0	0	0	102
06:00	0	207	41	12	3	7	**1**	8	2	1	0	0	0	282
07:00	2	285	80	18	**8**	8	0	16	1	**5**	0	0	1	424
08:00	**3**	359	84	**25**	2	7	1	18	1	4	1	0	**4**	509
09:00	3	305	83	18	3	11	0	**22**	2	2	1	0	1	451
10:00	0	295	85	14	3	7	0	21	2	2	0	0	2	431
11:00	0	**389**	**95**	25	1	**22**	0	16	2	2	**3**	**1**	3	**559**
12 PM	**5**	323	95	**19**	**8**	8	0	8	0	2	0	0	2	470
13:00	5	369	100	17	3	7	**1**	**9**	0	4	**4**	0	0	519
14:00	1	405	81	15	6	**9**	0	6	1	3	1	0	1	529
15:00	3	421	**131**	15	5	7	0	3	0	**6**	3	0	0	594
16:00	2	476	120	10	4	6	0	4	**3**	6	0	0	**3**	634
17:00	1	**576**	130	12	2	4	1	0	2	0	0	0	2	**730**
18:00	0	552	122	6	2	5	0	2	0	0	0	0	0	689
19:00	1	406	71	8	3	3	0	2	1	0	0	0	0	495
20:00	2	375	58	3	1	5	0	4	0	0	0	0	0	448
21:00	0	251	43	2	1	0	0	0	1	0	0	0	0	298
22:00	0	153	17	2	1	2	0	0	0	0	0	0	0	175
23:00	0	97	11	0	1	1	0	0	0	0	0	0	0	110
Day Total	29	6439	1488	227	60	128	4	140	20	38	13	1	21	8608
Percent	0.3%	74.8%	17.3%	2.6%	0.7%	1.5%	0.0%	1.6%	0.2%	0.4%	0.2%	0.0%	0.2%	
AM Peak	08:00	11:00	11:00	08:00	07:00	11:00	06:00	09:00	05:00	07:00	11:00	11:00	08:00	11:00
Vol.	3	389	95	25	8	22	1	22	2	5	3	1	4	559
PM Peak	12:00	17:00	15:00	12:00	12:00	14:00	13:00	13:00	16:00	15:00	13:00		16:00	17:00
Vol.	5	576	131	19	8	9	1	9	3	6	4		3	730

cars = 7556+1542 = 9098/9972 = 91.2%

mt = 230+49+157+11 = 438/9972 = 4.4%

100-91.2-4.4 = 4.4%

Ontario Traffic, Inc.
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Date Start: 09-Jun-15
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EB, WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/11/15	1	43	7	2	0	5	0	0	0	0	0	0	0	58
01:00	0	31	4	0	0	1	1	0	1	0	0	0	0	38
02:00	0	24	3	0	0	0	0	0	0	0	0	0	0	27
03:00	0	11	5	0	1	1	0	0	0	0	0	0	1	19
04:00	0	17	3	1	0	3	0	0	0	0	0	0	1	25
05:00	0	63	21	7	2	4	0	0	3	1	0	0	0	101
06:00	2	220	45	15	2	6	0	9	1	2	2	0	1	305
07:00	6	312	81	19	**8**	8	1	14	1	**7**	0	0	2	459
08:00	3	381	89	**28**	2	10	**3**	26	2	2	1	0	1	548
09:00	3	310	77	17	3	13	0	**32**	2	0	1	0	**3**	461
10:00	**8**	373	84	17	3	15	0	25	**4**	5	**3**	0	1	538
11:00	2	**426**	**100**	18	2	**18**	0	29	1	4	1	0	1	**602**
12 PM	**9**	415	106	13	4	**17**	0	20	**2**	**4**	1	0	**2**	593
13:00	1	423	98	16	0	15	0	26	2	4	3	0	2	590
14:00	5	476	102	**19**	**6**	7	**1**	22	0	3	2	**1**	2	646
15:00	3	572	95	17	4	10	1	**27**	0	2	**6**	0	2	739
16:00	4	655	98	15	2	8	1	15	0	3	1	0	2	804
17:00	1	**682**	**123**	5	1	2	1	7	1	2	1	0	0	**826**
18:00	4	674	101	11	2	6	0	7	2	0	0	0	0	807
19:00	2	464	104	3	3	4	1	0	0	0	1	0	0	582
20:00	1	435	86	1	0	1	0	1	0	1	1	0	0	527
21:00	0	289	55	2	3	1	0	2	0	0	0	0	0	352
22:00	2	179	36	2	0	1	0	0	0	0	0	0	0	220
23:00	0	81	19	2	1	1	1	0	0	0	0	0	0	105
Day Total	57	7556	1542	230	49	157	11	262	22	40	24	1	21	9972
Percent	0.6%	75.8%	15.5%	2.3%	0.5%	1.6%	0.1%	2.6%	0.2%	0.4%	0.2%	0.0%	0.2%	
AM Peak	10:00	11:00	11:00	08:00	07:00	11:00	08:00	09:00	10:00	07:00	10:00		09:00	11:00
Vol.	8	426	100	28	8	18	3	32	4	7	3		3	602
PM Peak	12:00	17:00	17:00	14:00	14:00	12:00	14:00	15:00	12:00	12:00	15:00	14:00	12:00	17:00
Vol.	9	682	123	19	6	17	1	27	2	4	6	1	2	826
Grand Total	109	20551	4526	629	169	389	26	460	53	101	48	3	61	27125
Percent	0.4%	75.8%	16.7%	2.3%	0.6%	1.4%	0.1%	1.7%	0.2%	0.4%	0.2%	0.0%	0.2%	

APPENDIX D

Rail Traffic Data

Yvonne Lo

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: February 8, 2024 11:45 AM
To: Yvonne Lo
Subject: RE: Rail Traffic Data Request - 1755 Pickering Parkway

Good afternoon Yvonne,

Further to your request dated February 1, 2024, the subject lands (1755 Pickering Parkway, Pickering) are located within 300 metres of the Metrolinx Kingston Subdivision (which carries Lakeshore East GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 5 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 324 trains. *The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	1 Electric Locomotive		1 Diesel Locomotive	1 Electric Locomotive
Day (0700-2300)	64	213	Night (2300-0700)	10	37

The current track design speed near the subject lands is 100 mph (161 km/h).

There are no *anti-whistling by-laws* in affect near the subject lands.

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.

Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the Development Phase. ONxpress will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. Construction to support GO Expansion is currently underway.

However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel- track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.

Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

*At this time we do not expect the frequency of trains to increase beyond 2032. It is expected that the number of passenger cars may increase during peak periods to increase capacity as required. Exact numbers are unknown at this time.

Best Regards,

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	HGC Engineering 2000 Argentia Rd Plaza, Suite 203 Mississauga ON L5N 1P7	*Project :*	KNG - 312.02 – Brock Road, Pickering ON
Att'n:	Yvonne Lo	*Routing:*	ylo@hgcengineering.com
From: *Expéditeur :*	Michael Vallins	*Date:*	2021/04/26
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ☐ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Kingston Subdivision near Brock Road in Pickering ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca.

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager, Public Works- Eastern Canada
Permits.gld@cn.ca

Date: 2021/04/26 Project Number: KNG - 312.02 – Brock Road, Pickering ON

Dear Yvonne Lo:

Re: Train Traffic Data – CN Kingston Subdivision near Brock Road in Pickering ON

The following is provided in response to Yvonne's 2021/01/19 request for information regarding rail traffic in the vicinity of Brock Road in Pickering at approximately Mile 312.02 on CN's Kingston Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	12	140	65	4
Way Freight	0	25	65	4
Passenger	34	10	95	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	4	140	65	4
Way Freight	4	25	65	4
Passenger	1	10	95	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Kingston Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is no at-grade crossing in the immediate vicinity of the study area. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The triple mainline track is considered to be continuously welded rail throughout the study area. The presence of 4 switches located at Mile 313.02, 313.04, 313.12, and 313.13 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Michael Vallins P.Eng
Manager, Public Works- Eastern Canada
Permits.gld@cn.ca

APPENDIX E

Sample STAMSON 5.04 Output

STAMSON 5.0 NORMAL REPORT Date: 04-03-2024 15:42:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te Time Period: Day/Night 16/8 hours
Description: **Predicted daytime and nighttime sound levels at the south façade of the podium, prediction location [A].**

Rail data, segment # 1: GO (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. 1D	64.0/10.0	150.0	1.0	5.0	Diesel	Yes
2. 1E	213.0/37.0	150.0	1.0	5.0	Diesel	Yes

Data for Segment # 1: GO (day/night)

Angle1 Angle2	-90.00 deg	90.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	300.00 / 300.00 m	
Receiver height	93.00 / 93.00 m	
Topography	1	(Flat/gentle slope; no barrier)
No Whistle		
Reference angle	0.00	

Rail data, segment # 2: CN (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
* 1. FREIGHT	16.5/5.5	105.0	4.0	140.0	Diesel	Yes
* 2. WAY	0.0/5.5	105.0	4.0	25.0	Diesel	Yes
* 3. PASSENGER	46.9/1.4	150.0	2.0	10.0	Diesel	Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

No	Train type: Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	FREIGHT	12.0/4.0	2.50	13.00
2.	WAY	0.0/4.0	2.50	13.00
3.	PASSENGER	34.0/1.0	2.50	13.00

Data for Segment # 2: CN (day/night)

Angle1 Angle2	-90.00 deg	45.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	285.00 / 285.00 m	

```
Receiver height           :  93.00 / 93.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Results segment # 1: GO (day)
------------------------------

LOCOMOTIVE (0.00 + 67.50 + 0.00) = 67.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  80.51 -13.01   0.00   0.00   0.00   0.00  67.50
-------------------------------------------------------------------------

WHEEL (0.00 + 58.22 + 0.00) = 58.22 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  71.23 -13.01   0.00   0.00   0.00   0.00  58.22
-------------------------------------------------------------------------

Segment Leq : 67.98 dBA

Results segment # 2: CN (day)
------------------------------

LOCOMOTIVE (0.00 + 65.25 + 0.00) = 65.25 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     45   0.00  79.28 -12.79  -1.25   0.00   0.00   0.00  65.25
-------------------------------------------------------------------------

WHEEL (0.00 + 57.82 + 0.00) = 57.82 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     45   0.00  71.86 -12.79  -1.25   0.00   0.00   0.00  57.82
-------------------------------------------------------------------------

Segment Leq : 65.97 dBA

Total Leq All Segments: 70.10 dBA

Results segment # 1: GO (night)
------------------------------

LOCOMOTIVE (0.00 + 62.81 + 0.00) = 62.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  75.82 -13.01   0.00   0.00   0.00   0.00  62.81
-------------------------------------------------------------------------

WHEEL (0.00 + 53.53 + 0.00) = 53.53 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  66.54 -13.01   0.00   0.00   0.00   0.00  53.53
```

```
------------------------------------------------------------------------

Segment Leq : 63.29 dBA

Results segment # 2: CN (night)
-------------------------------

LOCOMOTIVE (0.00 + 62.49 + 0.00) = 62.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
------------------------------------------------------------------------
   -90     45   0.00  76.53 -12.79  -1.25   0.00   0.00   0.00  62.49
------------------------------------------------------------------------

WHEEL (0.00 + 55.48 + 0.00) = 55.48 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
------------------------------------------------------------------------
   -90     45   0.00  69.52 -12.79  -1.25   0.00   0.00   0.00  55.48
------------------------------------------------------------------------

Segment Leq : 63.28 dBA

Total Leq All Segments: 66.30 dBA

Road data, segment # 1: HWY401 (day/night)
------------------------------------------
Car traffic volume  : 111349/55675 veh/TimePeriod  *
Medium truck volume :  5821/2910  veh/TimePeriod  *
Heavy truck volume  :  9363/4682  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT): 131050
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  15.00
    Medium Truck % of Total Volume     :   4.60
    Heavy Truck  % of Total Volume     :   7.40
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 1: HWY401 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 210.00 / 210.00 m
Receiver height           :  93.00 / 93.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: HWY401 (day/night)
------------------------------------------
```

```
Car traffic volume  : 111349/55675 veh/TimePeriod  *
Medium truck volume :  5821/2910  veh/TimePeriod  *
Heavy truck volume  :  9363/4682  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT): 131050
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  15.00
    Medium Truck % of Total Volume     :   4.60
    Heavy Truck  % of Total Volume     :   7.40
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 2: HWY401 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 235.00 / 235.00 m
Receiver height           :  93.00 / 93.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: Brock (day/night)
-----------------------------------------
Car traffic volume  : 31680/3520  veh/TimePeriod  *
Medium truck volume :  1296/144   veh/TimePeriod  *
Heavy truck volume  :  3024/336   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  40000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.60
    Heavy Truck  % of Total Volume     :   8.40
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: Brock (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  36.00 / 36.00  m
Receiver height           :  93.00 / 93.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
```

```
Reference angle           :   0.00

Results segment # 1: HWY401 (day)
---------------------------------

Source height = 1.65 m

ROAD (0.00 + 73.13 + 0.00) = 73.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  84.59   0.00 -11.46   0.00   0.00   0.00   0.00
73.13
-------------------------------------------------------------------------
---

Segment Leq : 73.13 dBA

Results segment # 2: HWY401 (day)
---------------------------------

Source height = 1.65 m

ROAD (0.00 + 72.64 + 0.00) = 72.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  84.59   0.00 -11.95   0.00   0.00   0.00   0.00
72.64
-------------------------------------------------------------------------
---

Segment Leq : 72.64 dBA

Results segment # 3: Brock (day)
---------------------------------

Source height = 1.70 m

ROAD (0.00 + 68.42 + 0.00) = 68.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  75.24   0.00  -3.80  -3.01   0.00   0.00   0.00
68.42
-------------------------------------------------------------------------
---

Segment Leq : 68.42 dBA

Total Leq All Segments: 76.62 dBA
```

```
Results segment # 1: HWY401 (night)
----------------------------------

Source height = 1.65 m

ROAD (0.00 + 73.13 + 0.00) = 73.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  84.59   0.00 -11.46   0.00   0.00   0.00   0.00
73.13
-------------------------------------------------------------------------
---

Segment Leq : 73.13 dBA

Results segment # 2: HWY401 (night)
----------------------------------

Source height = 1.65 m

ROAD (0.00 + 72.64 + 0.00) = 72.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  84.59   0.00 -11.95   0.00   0.00   0.00   0.00
72.64
-------------------------------------------------------------------------
---

Segment Leq : 72.64 dBA

Results segment # 3: Brock (night)
----------------------------------

Source height = 1.70 m

ROAD (0.00 + 61.89 + 0.00) = 61.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  68.70   0.00  -3.80  -3.01   0.00   0.00   0.00
61.89
-------------------------------------------------------------------------
---

Segment Leq : 61.89 dBA

Total Leq All Segments: 76.07 dBA
```

```
TOTAL Leq FROM ALL SOURCES (DAY): 77.49
                           (NIGHT): 76.51
```

APPENDIX F

Supporting Information

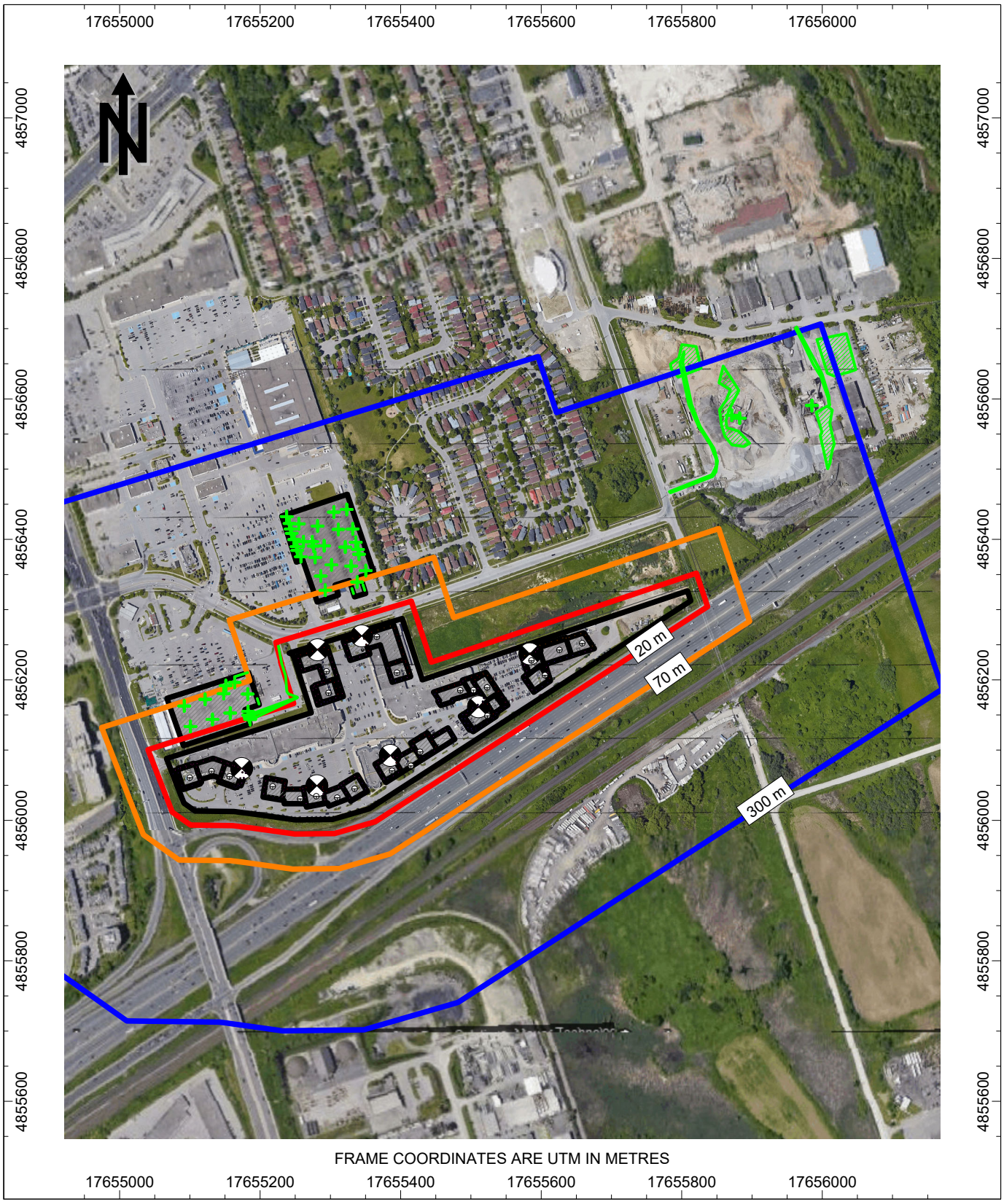

Figure D : Separation Distances

Auto-generated parse of CadnaA Protocol file
HGC Engineering
Project: Project 1
Start Time: 04-Mar-24 21:45
Input Protocol File: N:\LandUseDivision\1755 Pickering Pkwy 02000790\cadna\1755 Pickering day.cnaprot

R7		17655584	4856237	12.0																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	ReflD	ReflE	ReflN	LrD	LrE	LrN
	5T	17655178	4856178	6.5	80	--	77	63.2	0	0.0	-2.1	21.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
	5T	17655234	4856433	5.5	80	--	77	63.0	0	0.0	-1.9	0.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	14
	5T	17655330	4856398	5.5	80	--	77	60.4	0	0.0	-1.8	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	17
	5T	17655338	4856385	5.5	80	--	77	60.1	0	0.0	-1.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	17
	5T	17655338	4856378	5.5	80	--	77	60.0	0	0.0	-1.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	17
	5T	17655352	4856354	5.5	80	--	77	59.4	0	0.0	-1.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	--	18
	5T	17655336	4856338	5.5	80	--	77	59.5	0	0.0	-1.4	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	17
	5T	17655158	4856192	6.5	80	--	77	63.8	0	0.0	-2.1	22.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
	5T	17655262	4856376	5.5	80	--	77	62.0	0	0.0	-1.9	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	15
	5T	17655254	4856385	5.5	80	--	77	62.2	0	0.0	-1.9	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	15
	5T	17655254	4856391	5.5	80	--	77	62.3	0	0.0	-1.9	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	15
	5T	17655242	4856400	5.5	80	--	77	62.4	0	0.0	-1.9	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	14
	5T	17655242	4856409	5.5	80	--	77	62.6	0	0.0	-1.9	0.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	14
	5T	17655242	4856416	5.5	80	--	77	62.7	0	0.0	-1.9	0.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	14
	5T	17655240	4856424	5.5	87	--	84	62.8	0	0.0	-1.9	0.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	--	21
	10T	17655166	4856198	6.5	87	--	84	63.5	0	0.0	-2.1	22.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	--	--
	10T	17655096	4856162	6.5	87	--	84	64.9	0	0.0	-2.1	20.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	--	--
	10T	17655128	4856174	6.5	87	--	84	64.4	0	0.0	-2.1	21.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	--	--
	10T	17655144	4856182	6.5	87	--	84	63.9	0	0.0	-2.1	21.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	--	--
	10T	17655160	4856153	6.5	87	--	84	63.8	0	0.0	-2.2	16.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	--	4
	10T	17655102	4856135	6.5	87	--	84	64.9	0	0.0	-2.2	12.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	--	7
	10T	17655272	4856376	5.5	87	--	84	61.5	0	0.0	-1.9	0.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	22
	10T	17655294	4856392	5.5	87	--	84	61.4	0	0.0	-1.9	0.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	22
	10T	17655326	4856442	5.5	87	--	84	61.4	0	0.0	-1.9	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	22
	10T	17655330	4856416	5.5	87	--	84	60.8	0	0.0	-1.9	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	23
	10T	17655294	4856328	5.5	87	--	84	60.7	0	0.0	-1.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	23
	20T	17655134	4856144	6.5	88	--	85	64.3	0	0.0	-2.2	14.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	--	7
	20T	17655288	4856350	5.5	88	--	85	61.0	0	0.0	-1.7	0.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	24
	20T	17655298	4856362	5.5	88	--	85	60.8	0	0.0	-1.8	0.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	24
	20T	17655330	4856361	5.5	88	--	85	60.1	0	0.0	-1.6	0.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	25
	20T	17655262	4856424	5.5	88	--	85	62.5	0	0.0	-1.9	0.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	22
	20T	17655298	4856440	5.5	88	--	85	61.7	0	0.0	-1.9	0.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	23
	20T	17655326	4856390	5.5	88	--	85	60.6	0	0.0	-1.8	0.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	24
	20T	17655306	4856416	5.5	88	--	85	61.2	0	0.0	-1.9	0.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	24
	20T	17655288	4856418	5.5	88	--	85	61.9	0	0.0	-1.9	0.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	23
	20T	17655262	4856398	5.5	88	--	85	62.1	0	0.0	-1.9	0.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	23
	IDL	17655178	4856146	2.5	87	--	87	63.2	0	0.0	-2.1	10.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	--	13
	IDL	17655178	4856152	2.5	87	--	--	63.3	0	0.0	-2.1	13.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	--	--
	IDL	17655192	4856144	2.5	87	--	--	63.2	0	0.0	-2.1	6.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	--
	GAR	17655176	4856154	2.5	80	--	--	63.2	0	0.0	-1.9	11.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	--	--
	CON	17655272	4856392	5.5	80	--	77	61.7	0	0.0	-1.9	0.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	15
	CON	17655272	4856398	5.5	80	--	77	61.8	0	0.0	-1.9	0.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	15
	CVY	17655880	4856574	1.5	109	--	--	64.1	0	0.0	-1.6	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
	CRU	17655872	4856577	4.0	119	--	--	64.0	0	0.0	-1.7	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55	--	--
	AP	17655992	4856592	3.0	117	--	117	65.6	0	0.0	-1.6	5.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46	--	46
	COMP	17655270	4856203	2.5	70	--	65	61.9	0	0.0	-1.9	19.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
	TT	17655224	4856162	2.5	80	--	--	62.4	0	0.0	-2.0	17.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--
	TT	17655224	4856161	2.5	80	--	80	62.4	0	0.0	-2.0	16.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	--	1
	TT	17655206	4856153	2.5	80	--	--	62.5	0	0.0	-2.1	14.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	--	--
	AGG	17655812	4856544	2.5	101	--	--	62.8	0	0.0	-1.6	0.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
	AGG	17655990	4856638	2.5	97	--	97	66.3	0	0.0	-2.2	2.5	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	--	24
	FEL	17655820	4856575	2.5	106	--	--	64.1	0	0.0	-1.4	0.5	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--
	FEL	17656022	4856665	2.5	106	--	106	66.7	0	0.0	-1.8	3.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	36
	FEL	17655934	4856544	2.5	106	--	106	65.5	0	0.0	-1.3	6.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	35
	FEL	17655806	4856650	2.5	106	--	--	64.5	0	0.0	-1.4	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--
	BAY	17655180	4856169	1.5	87	--	--	62.9	3	0.0	-1.6	21.8	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	--	--
	BAY	17655180	4856163	1.5	87	--	--	62.9	3	0.0	-1.6	20.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	--	--
	BAY	17655170	4856203	1.5	87	--	--	63.3	3	0.0	-1.6	24.4	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
	BAY	17655340	4856329	1.5	87	--	--	59.1	3	0.0	-1.3	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
	BAY	17655340	4856331	1.5	87	--	--	59.2	3	0.0	-1.4	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
	BAY	17655332	4856321	1.5	87	--	--	59.5	3	0.0	-1.2	17.9	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	--	--
	BAY	17655332	4856329	1.5	87	--	--	59.6	3	0.0	-1.2	18.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	--	--