

ENVIRONMENTAL NOISE IMPACT STUDY

1842 KING STREET EAST
RESIDENTIAL DEVELOPMENT
CITY OF HAMILTON ON

Prepared for:

New Horizon Development Group
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Prepared By:



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MARCH 2021
Our File No: 21-2129

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1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has conducted a noise impact study on behalf of New Horizon Development Group for the proposed residential development located at 1842 King Street East, Hamilton ON.

The purpose of the study is to determine the noise impact from vehicular traffic from King Street East, Rosedale Ave, Lawrence Rd, and the CP Railway Principal Main Line train traffic, as required for zoning change application approval.

This study will detail vehicular traffic from King Street East, Rosedale Ave, Lawrence Rd, and the CP Railway train traffic noise impact relative to the site plan and recommend noise control measures necessary (if applicable) to meet MOE Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning and CP Rail guidelines while satisfying the planning requirements of the City of Hamilton. Figure 1 Site Location. Vibration is not considered as the CP Railway lines are not within the 75m required setback distances.

2.0 SITE DESCRIPTION

The proposed development is the old Brock University property located at 1842 King Street East, Hamilton. proposed development property facades are located approximately 20m south of King Street East and approximately 20m north of Lawrence Rd, approximately 40m east of Rosedale Ave, and approximately 110m south of the CP Rail Hamilton Principal Main Line. Rosedale Ave and Kenilworth Ave traffic data are not considered in this report due to low traffic volumes, low speed limits, distance separation, and shielding from existing residential dwellings.

The CP Rail line is located south of the proposed development and is a single track that runs east and west of the site development. This track is a through track for CP Rail freight trains only.

Proposed for the site are (4) four 12 storey buildings, BLDGS A, B, C, & D. Building “A” consisting of 345 apartment style units. Building “B” consisting of 343 apartment style units. Building “C” consisting of 319 apartment style units. Building “D” consisting of 320 apartment style units. Also proposed for the site development are (4) Blocks of four storey stacked townhouses totaling 80 residential units. For all buildings and stacked townhouses combined totals 1407 residential units. The proposed development property is situated in an area of existing commercial/residential apartment buildings, 2 storey dwellings and 3 storey commercial properties. The proposed Buildings A, B, C, & D will be equipped with a rooftop mechanical penthouse completely enclosed for all HVAC and other mechanical apparatus.

The CP rail line is a Principle Main Line consisting of one track located 110 metres from the south property line of the proposed development with several building shielding the train activities. Site Plan is illustrated in Figure 2.

3.0 NOISE IMPACT ASSESSMENT

3.1 NOISE CRITERIA

The Ministry of Environment (MOE) specifies limits for road noise relative to new residential developments. The MOE Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning, specifies the criteria, summarized as follows:

TABLE1- Road Traffic Sound Levels Limits	
Time Period	Leq (dBA)
07:00 – 23:00 (16 hr.)	55 Outdoor Living area
	55 Plane of Window
23:00 – 07:00 (8 hr.)	50 Plane of Bedroom window

Where noise levels estimated at windows are equal to or less than the values listed in Table 1, no noise control measures are required. The MOE and CP also publishes specific requirements for land use development next to their principle main line tracks (attached in Appendix “A”).

Where noise levels exceed Table 1 values, the following action is required:

TABLE 2 –Noise Control Requirements		
Time Period	Noise Level Leq (dBA)	Action Required
07:00 - 23:00 Daytime (OLA)	56 to 60	Warning Clause Type “A”
	> 60	Barrier & Warning Clause Type “B”
07:00 – 23:00 Daytime (POW)	>55	Provision for A/C, Warning Clause “C”
	>65	Central A/C, Warning Clause “D”
	>65	Building Component Specification
23:00 to 07:00 Nighttime (POW)	> 50	Provision for A/C and Warning Clause Type “C”
	> 60	Building Component Specification
	> 60	Central Air and Warning Clause Type “D”

Where nighttime noise levels exceed 60 dBA, building components must be designed to meet Table 3 indoor sound level limits.

TABLE 3 - Indoor Road Sound Levels Limits		
Indoor Location	Leq (dBA)	
	Road	Rail
Living/Dining 7:00 – 23:00	45	40
Bedroom 23:00 - 07:00	40	35

The values in Table 3 take into account the low frequency characteristic of train noise, important for designing acoustically better architectural components.

3.2 ROAD NOISE

Predicted road traffic noise levels were calculated for King Street East and Lawrence Rd, the major road noise sources in the site area. Road traffic volumes (2019) for King Street East and (2009) for Lawrence Rd were sourced relative from the City of Hamilton Transportation Management System. The MOE computer program STAMSON version 5.04 was used to carry out prediction calculations (See Appendix “A”). Traffic data is summarized in Table 4.

The daytime/nighttime volume ratio relative to King Street East and Lawrence Rd is typically calculated using a 90/10 split as required by the MOE. The maximum posted speeds for all vehicles are 50 km/hr. The percentage of annual growth for King Street East was figured at 2.0% over 12 years. The percentage of annual growth for Lawrence Rd was figured at 2.0% over 22 years. The AADT (Annual Average Daily Traffic) volumes were used reflective of the worst-case scenario.

Truck volumes were factored at 2% medium and 2% heavy of the total vehicle volumes for King Street East and Lawrence Rd. Table 5 summarizes the “free field” traffic noise prediction results of King Street East and Lawrence Rd and modeled at eleven (11) receptor locations representative of 1st, 6th and 12th floors at the building facades throughout the proposed development.

TABLE 4 – Future Road Traffic Volumes			
King Street East	AADT 31143 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	26908	561	561
Night	2990	62	62
Lawrence Rd	AADT 13330 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	11517	240	240
Night	1280	27	27

The following Table 5 summarizes the “free field” King Street East and Lawrence Rd traffic noise prediction results, modeled at 11 receptor locations represents the façades of specific units within the proposed development.

TABLE 5- Predicted Traffic Noise Levels-Free Field (Combined)		
Location	L _{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1- 1 st Floor Residential North Façade (2m)	65	58
R2- 6 th Floor Residential North Façade (20m)	67	60
R3- 12 th Floor Residential North Façade (38m)	67	61
R4- 1 st Floor Residential West & East Façade (2m)	59	53
R5- 6 th Floor Residential West & East Façade (20m)	62	55
R6- 12 th Floor Residential West & East Façade (38m)	63	56
R7- 1 st Floor Residential Stacked Towns (2m)	52	45
R8- 4 th Floor Residential Stacked Towns (12m)	55	48
R9- 1 st Floor Residential South Façade(2m)	61	55
R10- 6 th Floor Residential South Façade (20m)	63	57
R11- 12 th Floor Residential South Façade (38m)	64	57

3.3 RAIL NOISE

Train traffic data which was used to carry out prediction calculations is using the MOE “Stamson, Version 5.4” computer program. CP train traffic data is summarized in Table 6. It should be noted that CP Rail no longer provides any train traffic data (email attached in Appendix “A”) therefore, on-site train counts and verification at the CP Rail Kinnard Yard (March 2021) was utilized for this noise study.

TABLE 6–CP Train Traffic Data	
Type	Freight
Number of Trains 07:00 - 23:00	4
23:00 - 07:00	3
Number of Cars per Train	144
Number of Locomotives per Train	4
Maximum Train Speed	80 km

CP Rail calculations were performed for both daytime and nighttime at receiver locations relative to the south façade of the proposed buildings B & D. An annual growth factor of 2.5% per annum was projected over 10 years.

The equivalent combined free field sound levels (L_{eq}) due to train and road noise were calculated for locations for specific building façades which are representative of worst-case free field noise impact and are summarized in Table 7.

TABLE 7- Predicted CP Rail Traffic Noise Levels-Free Field		
CP Rail Buildings B & D & Stacked Townhouses	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R7- 1 st Floor Residential Stacked Towns (2m)	41	42
R8- 4 th Floor Residential Stacked Towns (12m)	44	45
R9- 1 st Floor Residential South Façade (2m)	51	53
R11- 12 th Floor Residential South Façade (38m)	62	64

The following Table 8 indicate the combined results of the Rail & Road noise levels calculated at the north façades of buildings B & D. CP Rail has no noise impact on R1-R6 due to rail noise less than 10 dba for daytime and nighttime.

TABLE 8– Predicted Combined Free Field Future Train & Road Traffic Noise (dBA)		
Location	07:00 – 23:00	23:00 – 07:00
R1- 1 st Floor Residential North Façade (2m)	65	58
R2- 6 th Floor Residential North Façade (20m)	67	60
R3- 12 th Floor Residential North Façade (38m)	67	61
R4- 1 st Floor Residential West & East Façade (2m)	59	53
R5- 6 th Floor Residential West & East Façade (20m)	62	55
R6- 12 th Floor Residential West & East Façade (38m)	63	56
R7- 1 st Floor Residential Stacked Towns (2m)	53	46
R8- 4 th Floor Residential Stacked Towns (12m)	56	50
R9- 1 st Floor Residential North Facade	61	57
R11- 12 th Floor Residential North Facade	66	65

4.0 RECOMMENDATIONS - NOISE CONTROL

4.1 OUTDOOR LIVING AREAS

Calculated road noise levels exceed the 55 dBA daytime criteria outlined in Table 1. The draft plan does not include outdoor living areas for the proposed development. Balcony areas may be proposed and are typically less than 4m in depth; therefore, noise mitigations are not required.

4.2 INDOOR NOISE LEVELS

Calculated road noise levels at the Plane of Window (POW) exceed the noise criteria outlined in Table 1 for indoor space for residential units.

Building design specifications were not made available at report time and STC calculations (Sound Transmission Class) method are summarized as an example in Table 9 following with minimum window door and wall construction specified for all residential units throughout the proposed development.

The STC example was calculated for each room type based on typical window to floor ratios of 20% for bedrooms and 30% for living room areas. Wall to floor ratio was factored at 60%. A maximum of two components were factored per room. Specific building component requirements noted in Table 9 for all specified units will satisfy the MOE criterion for noise control relative to indoor living space.

Assessment was conservative from a noise impact perspective with worst-case design options modeled to satisfy MOE requirements for indoor sound levels.

TABLE 9 – Draft Door and Window Construction Requirements			
LOCATION	STC Rating	Door Construction	Walls Example
Buildings A, B, C & D All Floors All Units	Example		
Bedroom	34	N/A	EW2
Living room	34	N/A	EW2
Stacked Towns All Floors All Units	Example		
Bedroom	32	N/A	OBC
Living room	32	N/A	OBC

* Double pane windows - first number denotes glass thickness, followed by spacing, and thickness of second pane, OBC denotes minimum requirements of the Ontario Building Code will suffice. Recommendations assume windows are well-fitted, weather-stripped units that can be opened. The windows recommended are minimum standard sizes supplied by window companies.

5.0 VENTILATION / WARNING CLAUSES

Ventilation and warning clause requirements for all buildings and stacked townhouses are presented in Table 10 following. It is recommended that the appropriate warning clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease and Registered on Title.

TABLE 10- Ventilation and Warning Clause Requirements		
LOCATION	VENTILATION	WARNING CLAUSE
Buildings A, B, C & D All Units	Central Air	Type "D"
All Stacked Towns	Provisions for Central Air	Type "C"

TYPE C: (All Stacked Townhouses)

“This dwelling unit had been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality’s and the Ministry of the Environment’ noise criteria.

(Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)”

TYPE D: (Buildings A, B, C, & D)

“This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality’s and the Ministry of the Environment’s noise criteria.”

CPR also requires the following clause be included:

“Warning: Canadian Pacific Railway Company and/or its assigns, or successors in interest have a rights-of-way within 300m 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 CP Rail or any railway entering into an agreement to sure the right-of-way or their 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). CPR 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.”

6.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures are required to satisfy the indoor and outdoors noise level criterion:

- Warning Clauses inserted into all Offers and Agreements of Purchase and Sale or Lease for all units. (Section 5.0)
- Provisions for Central Air Conditioning for all units. (Section 5.0)
- Central Air Conditioners for specific Buildings A, B, C, & D. (Section 5.0)
- Specific Windows & Walls required (STC) as noted in Section 4.
- Qualified Acoustical Consultant certifies that the required noise control measures have been incorporated into the builder's plans prior to issuance of a building permit.
- Prior to issuance of an occupancy permit or equivalent, it is recommended the Qualified Acoustical Consultant certify that the approved noise control measures have been professionally installed.

7.0 CONCLUSIONS

dBA Acoustical Consultants Inc. has conducted a noise impact study on behalf of New Horizon Development Group for the proposed residential development located at 1842 King Street East, Hamilton ON.

The purpose of the study is to determine the noise impact from vehicular traffic from King Street East, Rosedale Ave, Lawrence Rd, and the CP Railway Principal Main Line train traffic, as required for zoning change application approval.

This study detailed vehicular traffic from King Street East, Rosedale Ave, Lawrence Rd, and the CP Railway train traffic noise impact relative to the site plan and recommend noise control measures necessary to meet MOE Publication NPC-300 entitled "Stationary & Transportation Sources-Approval & Planning and CP Rail guidelines while satisfying the planning requirements of the City of Hamilton. Vibration is not considered as the CP Railway lines are outside the 75m required setback distances.

FIGURE 1
SITE LOCATION



FIGURE 2
SITE PLAN

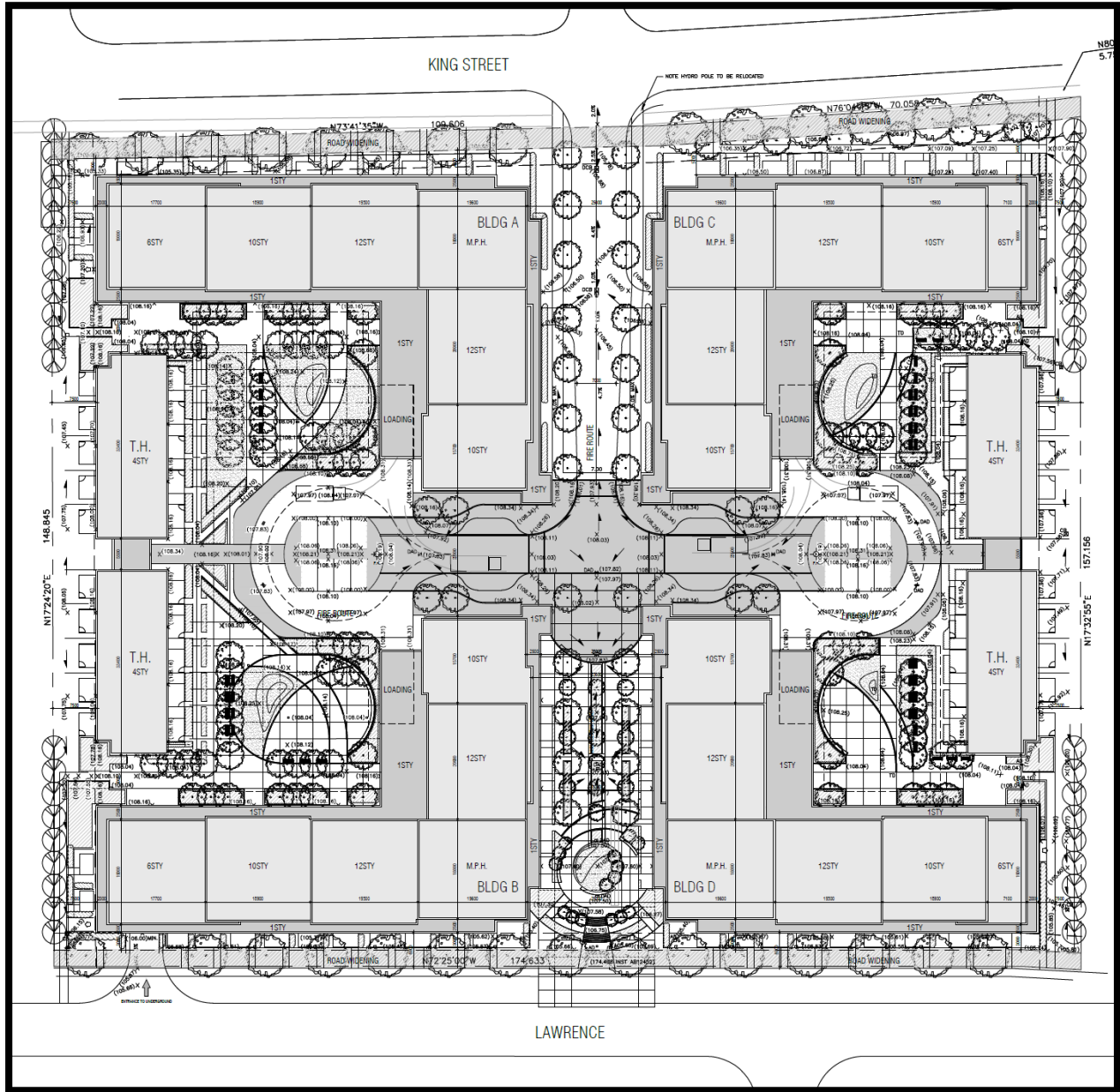
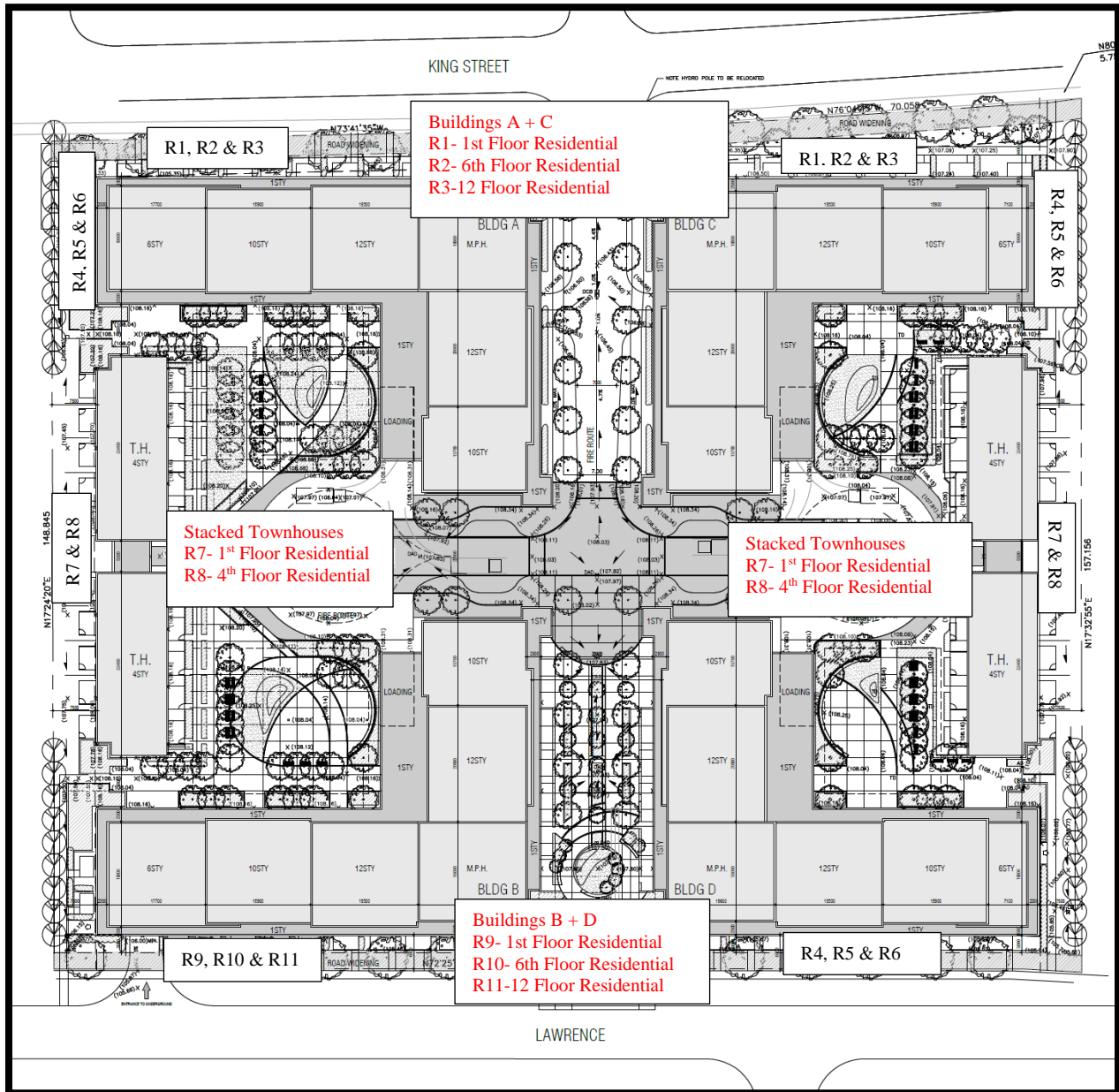
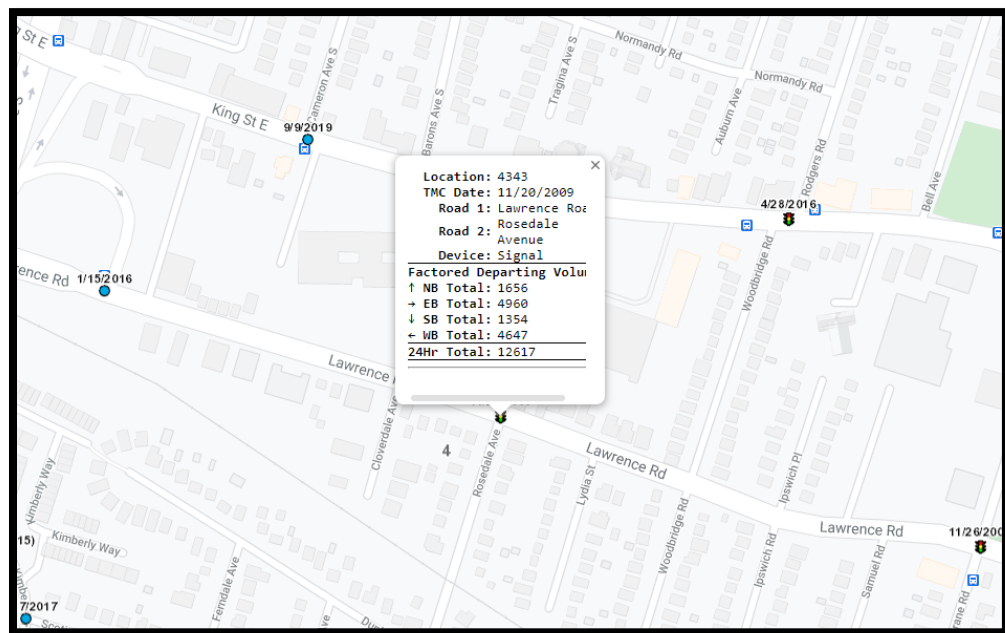
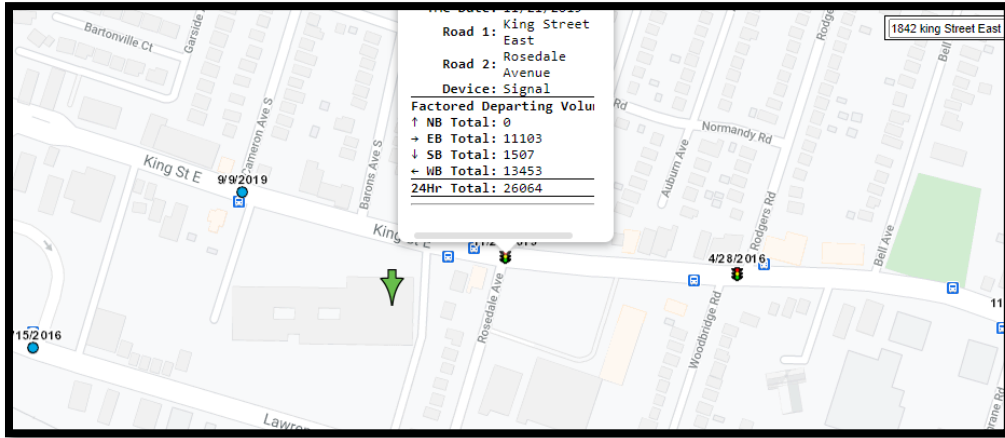


FIGURE 3
RECEPTOR LOCATIONS



APPENDIX “A”

CITY OF HAMILTON 2009 & 2019 AADT TRAFFIC King Street East & Lawrence Rd



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CP RAIL EMAIL

Good Morning Frank,

Wed 2020-12-16 12:50 PM

Per our phone call conversation this morning, please note that CP Real Estate has changed its position regarding the sharing of train information and will no longer provide Rail Data information.

We appreciate that this is a change to what was previously provided by our group.

CP freight trains operate 24/7 and scheduled/volumes are subject to change.

The attached link provides some basic information related to train information for any given corridor.

<https://www.cpr.ca/en/community/living-near-the-railway>

To be clear, CP is not in favour of residential uses adjacent to its rail facilities and/or operations.

Recommend a clause be inserted in all offers of purchase and sale or lease and in the title deed or lease of each dwelling within 300m of the railway right of way, warning prospective purchasers or tenants of the existence of the Railway's operating right-of-way; the possibility of alterations including the possibility that the Railway may expand its operations, which expansion may affect the living environment of the residents notwithstanding the inclusion of noise and vibration attenuating measures in the design of the subdivision and the individual units, and that the Railway will not be responsible for complaints or claims arising from the use of its facilities and/or operations.

Sincerely,



Frank Gulas
Manager Real Estate –
Ontario & Manitoba
O 403-319-3436
F 403-319-3727
7550 Ogden Dale Road SE
Calgary AB T2C 4X9

STAMSON SUMMARY SHEETS

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 12:13:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R1Law.te Time Period: Day/Night 16/8 hours
Description: R1- 1st Floor North Facade Buildings A & C

TOTAL Leq FROM ALL SOURCES

(DAY): 65.02
(NIGHT): 58.48

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.00 / 20.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Larence Rd (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Lawrence Rd (day/night)

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 153.00 / 153.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

```
-----
! source ! Road ! Total
! height ! Leq ! Leq
! (m) ! (dBA) ! (dBA)
-----+-----+-----+-----
1.King St East ! 1.19 ! 65.01 ! 65.01
2.Lawrence Rd ! 1.19 ! 38.55 ! 38.55
-----+-----+-----+-----
Total 65.02 dBA
```

Result summary (night)

```
-----
! source ! Road ! Total
! height ! Leq ! Leq
! (m) ! (dBA) ! (dBA)
-----+-----+-----+-----
1.King St East ! 1.19 ! 58.47 ! 58.47
2.Larence Rd ! 1.19 ! 32.06 ! 32.06
-----+-----+-----+-----
Total 58.48 dBA
```

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 12:51:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2law.te Time Period: Day/Night 16/8 hours
Description: R2- 6th Floor North Facade Buildings A & C

TOTAL Leq FROM ALL SOURCES

(DAY): 66.83
(NIGHT): 60.29

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.00 / 20.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 153.00 / 153.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	66.81	! 66.81
2.Lawrence	! 1.19 !	44.05	! 44.05
	Total		66.83 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	60.27	! 60.27
2.Lawrence	! 1.19 !	37.55	! 37.55
	Total		60.29 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 13:09:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3law.te Time Period: Day/Night 16/8 hours
Description: R3- 12th Floor North Facade Buildings A & C

TOTAL Leq FROM ALL SOURCES

(DAY) : 67.31
(NIGHT) : 60.76

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.00 / 20.00 m
Receiver height : 38.00 / 38.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 153.00 / 153.00 m
Receiver height : 38.00 / 38.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	67.28	! 67.28
2.Lawrence	! 1.19 !	45.21	! 45.21
	Total		67.31 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	60.73	! 60.73
2.Lawrence	! 1.19 !	38.71	! 38.71
	Total		60.76 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 13:52:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4law.te Time Period: Day/Night 16/8 hours
Description: R4- 1st Floor East & West Facade Buildings A & C

TOTAL Leq FROM ALL SOURCES

(DAY) : 59.14
(NIGHT) : 52.59

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (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 : 30.00 / 30.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	59.09	! 59.09
2.Lawrence	! 1.19 !	39.45	! 39.45
	Total		59.14 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	52.54	! 52.54
2.Lawrence	! 1.19 !	32.96	! 32.96
	Total		52.59 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 14:03:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5law.te Time Period: Day/Night 16/8 hours
Description: R5- 6th Floor East & West Facade Buildings A & C
TOTAL Leq FROM ALL SOURCES

(DAY) : 61.92
(NIGHT) : 55.37

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (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 : 30.00 / 30.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	61.84	! 61.84
2.Lawrence	! 1.19 !	44.65	! 44.65
	Total		61.92 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	55.29	! 55.29
2.Lawrence	! 1.19 !	38.16	! 38.16
	Total		55.37 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 14:15:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6law.te Time Period: Day/Night 16/8 hours
Description: R6- 12th Floor East & West Facade Buildings A & C
TOTAL Leq FROM ALL SOURCES

(DAY) : 62.60
(NIGHT) : 56.05

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (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 : 30.00 / 30.00 m
Receiver height : 38.00 / 28.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 38.00 / 28.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	62.51	! 62.51
2.Lawrence	! 1.19 !	45.76	! 45.76
	Total		62.60 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	55.96	! 55.96
2.Lawrence	! 1.19 !	39.26	! 39.26
	Total		56.05 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 14:15:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7law.te Time Period: Day/Night 16/8 hours
Description: R7- 1st Floor East & West Facade Stacked Towns

TOTAL Leq FROM ALL SOURCES

(DAY) : 51.73
(NIGHT) : 45.19

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (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 : 90.00 / 90.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 90.00 / 90.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	! source !	Road !	Total !
	! height !	Leq !	Leq !
	! (m) !	(dBA) !	(dBA) !
1.King St East	! 1.19 !	51.20 !	51.20
2.Lawrence	! 1.19 !	42.37 !	42.37
	Total		51.73 dBA

Result summary (night)

	! source !	Road !	Total !
	! height !	Leq !	Leq !
	! (m) !	(dBA) !	(dBA) !
1.King St East	! 1.19 !	44.65 !	44.65
2.Lawrence	! 1.19 !	35.87 !	35.87
	Total		45.19 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 15:22:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8law.te Time Period: Day/Night 16/8 hours
Description: R8- 4th Floor East & West Facade Stacked Towns
TOTAL Leq FROM ALL SOURCES

(DAY) : 54.57
(NIGHT) : 48.02

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (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 : 90.00 / 90.00 m
Receiver height : 12.00 / 12.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 90.00 / 90.00 m
Receiver height : 12.00 / 12.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	54.09	! 54.09
2.Lawrence	! 1.19 !	44.73	! 44.73
	Total		54.57 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	47.54	! 47.54
2.Lawrence	! 1.19 !	38.23	! 38.23
	Total		48.02 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 15:48:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9law.te Time Period: Day/Night 16/8 hours
Description: R9- 1st Floor Facing Lawrence Rd Blocks B & D

TOTAL Leq FROM ALL SOURCES

(DAY): 61.40
(NIGHT): 54.89

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Lawrence (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 : 20.00 / 20.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	43.14	! 43.14
2.Lawrence	! 1.19 !	61.33	! 61.33
	Total		61.40 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	36.59	! 36.59
2.Lawrence	! 1.19 !	54.83	! 54.83
	Total		54.89 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 15:58:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10law.te Time Period: Day/Night 16/8 hours
Description: 10- 6th Floor Facing Lawrence Rd Blocks B & D

TOTAL Leq FROM ALL SOURCES

(DAY) : 63.27
(NIGHT) : 56.77

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Lawrence (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 : 20.00 / 20.00 m
Receiver height : 20.00 / 20.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	48.34	! 48.34
2.Lawrence	! 1.19 !	63.13	! 63.13
	Total		63.27 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	41.79	! 41.79
2.Lawrence	! 1.19 !	56.63	! 56.63
	Total		56.77 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 16:07:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1llaw.te Time Period: Day/Night 16/8 hours
Description: 11- 12th Floor Facing Lawrence Rd Blocks B & D

TOTAL Leq FROM ALL SOURCES

(DAY) : 63.75
(NIGHT) : 57.25

Road data, segment # 1: King St East (day/night)

Car traffic volume : 26908/2990 veh/TimePeriod *
Medium truck volume : 561/62 veh/TimePeriod *
Heavy truck volume : 561/62 veh/TimePeriod *
Posted speed limit : 50 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): 24556
Percentage of Annual Growth : 2.00
Number of Years of Growth : 12.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: King St East (day/night)

Angle1 Angle2 : -0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 39.00 / 38.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Road data, segment # 2: Lawrence (day/night)

Car traffic volume : 11517/1280 veh/TimePeriod *
Medium truck volume : 240/27 veh/TimePeriod *
Heavy truck volume : 240/27 veh/TimePeriod *
Posted speed limit : 50 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): 9607
Percentage of Annual Growth : 1.50
Number of Years of Growth : 22.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Lawrence (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 : 20.00 / 20.00 m
Receiver height : 38.00 / 38.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	49.44	! 49.44
2.Lawrence	! 1.19 !	63.59	! 63.59
	Total		63.75 dBA

Result summary (night)

	! source !	Road	! Total
	! height !	Leq	! Leq
	! (m) !	(dBA)	! (dBA)
1.King St East	! 1.19 !	42.90	! 42.90
2.Lawrence	! 1.19 !	57.09	! 57.09
	Total		57.25 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 16:58:57
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: cpr7.te Time Period: Day/Night 16/8 hours
 Description: R7-CP Rail Free Field Stacked Towns 1st Floor

TOTAL Leq FROM ALL SOURCES

(DAY) : 40.71
 (NIGHT) : 42.44

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

Train Type	Trains	Speed (km/h)	# loc / Train	# Cars	Eng type	Cont weld
* 1. CP Rail	5.1/3.8	80.0	4.0	140.0	Diesel	Yes

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

Train No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	CP Rail	4.0/3.0	2.50	10.00

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

Angle1	Angle2	: -0.00 deg	90.00 deg
Wood depth		: 0	(No woods.)
No of house rows		: 1 / 1	
House density		: 25 %	
Surface		: 1	(Absorptive ground surface)
Receiver source distance		: 145.00 / 145.00 m	
Receiver height		: 2.00 / 2.00 m	
Topography		: 1	(Flat/gentle slope; no barrier)

Result summary (day)

	Loc (dBA)	Wheel (dBA)	Whistle Left (dBA)	Whistle Right (dBA)	Total Leq (dBA)
1.Freight	40.00	32.50	--	--	40.71 *
Total					40.71 dBA

Result summary (night)

	Loc (dBA)	Wheel (dBA)	Whistle Left (dBA)	Whistle Right (dBA)	Total Leq (dBA)
1.Freight	41.73	34.24	--	--	42.44 *
Total					42.44 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 16:55:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: cprR8.te Time Period: Day/Night 16/8 hours
Description: R8-CP Rail Free Field Stacked Towns 4th Floor

TOTAL Leq FROM ALL SOURCES

(DAY): 43.67
(NIGHT): 45.40

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

Train Type	Trains	Speed (km/h)	# loc / Train	# Cars	Eng type	Cont weld
* 1. CP Rail	5.1/3.8	80.0	4.0	140.0	Diesel	Yes

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

Train No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	CP Rail	4.0/3.0	2.50	10.00

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

Angle1 Angle2 : -0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 25 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 145.00 / 145.00 m
Receiver height : 12.00 / 12.00 m
Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	Loc (dBA)	Wheel (dBA)	Whistle Left (dBA)	Whistle Right (dBA)	Total Leq (dBA)
1.Freight	42.98	35.34	--	--	43.67 *
Total					43.67 dBA

Result summary (night)

	Loc (dBA)	Wheel (dBA)	Whistle Left (dBA)	Whistle Right (dBA)	Total Leq (dBA)
1.Freight	44.71	37.07	--	--	45.40 *
Total					45.40 dBA

STAMSON 5.04 SUMMARY REPORT Date: 23-03-2021 16:42:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: cpr11.te Time Period: Day/Night 16/8 hours
Description: R11 12th Floor Build B & D CP Rail

TOTAL Leq FROM ALL SOURCES

(DAY): 62.21
(NIGHT): 63.94

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

Train Type	Trains	Speed (km/h)	# loc / Train	# Cars / Train	Eng type	Cont weld
* 1. CP Rail	5.1/3.8	80.0	4.0	140.0	Diesel	Yes

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

Train No	Name	Unadj. Trains	Annual % Increase	Years of Growth
1.	CP Rail	4.0/3.0	2.50	10.00

Data for Segment # 1: Freight (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 : 110.00 / 110.00 m
Receiver height : 38.00 / 38.00 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle

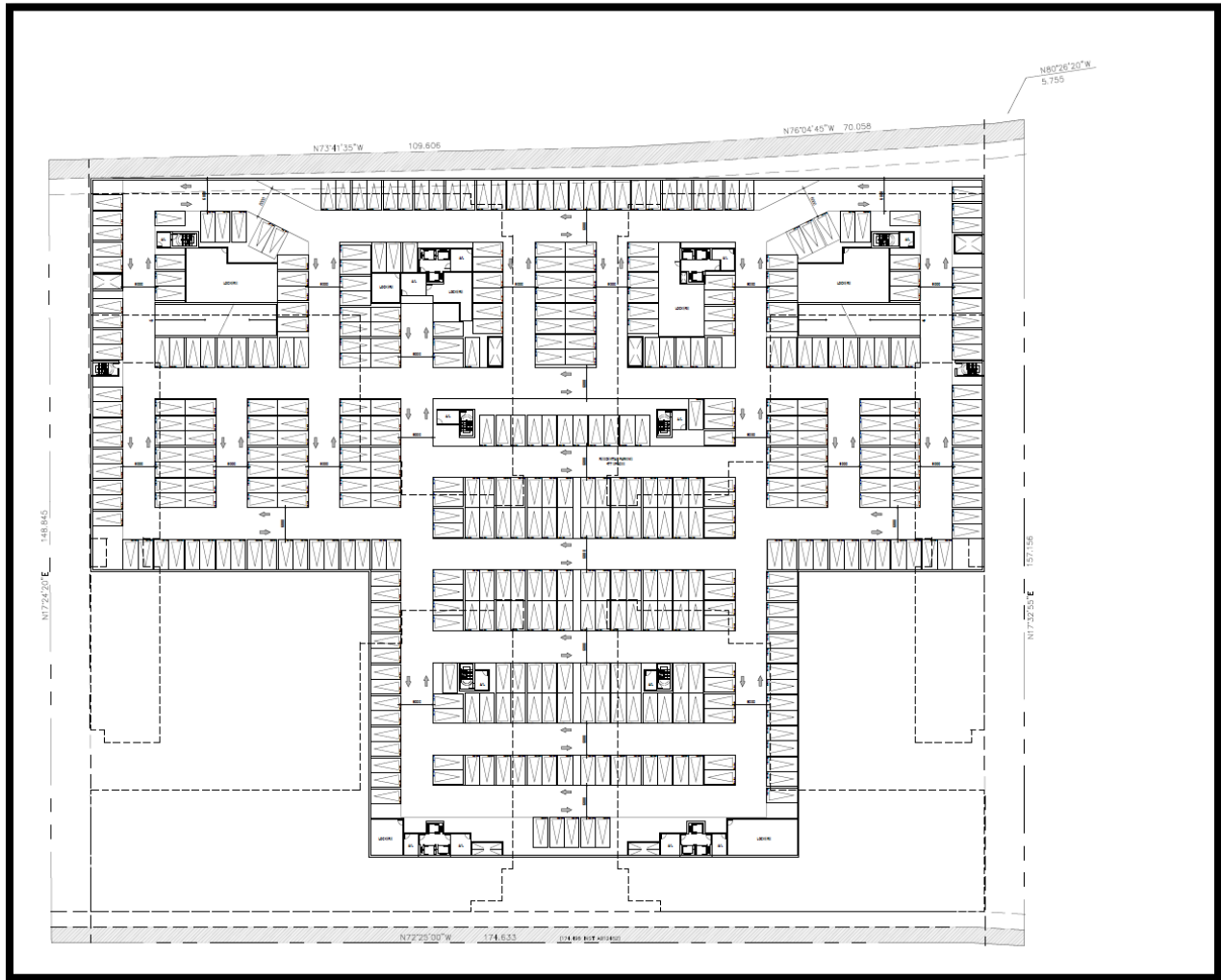
Result summary (day)

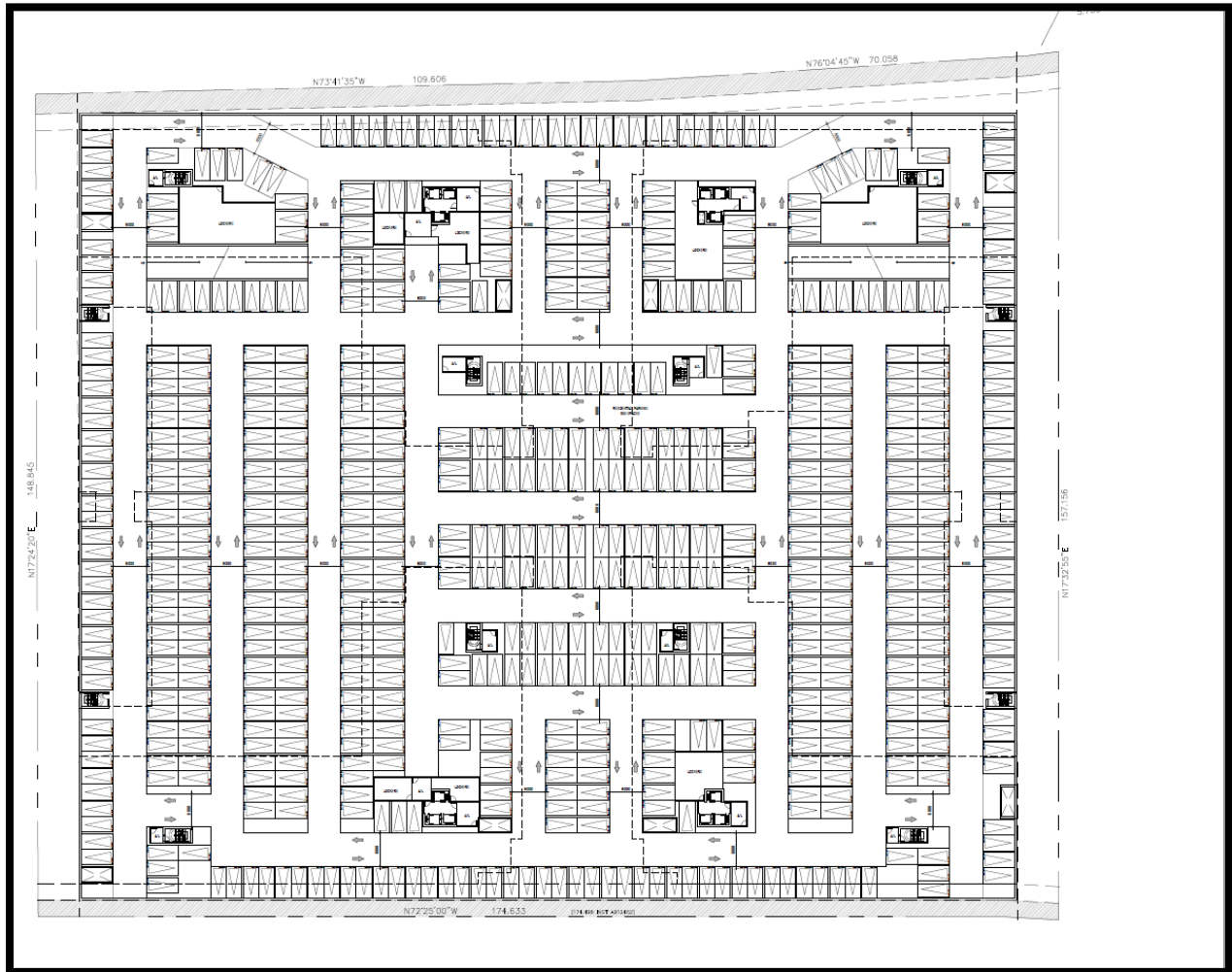
	Loc (dBA)	Wheel (dBA)	Whistle (dBA)	Whistle (dBA)	Total Leq (dBA)
1.Freight	61.35	54.75	--	--	62.21 *
Total					62.21 dBA

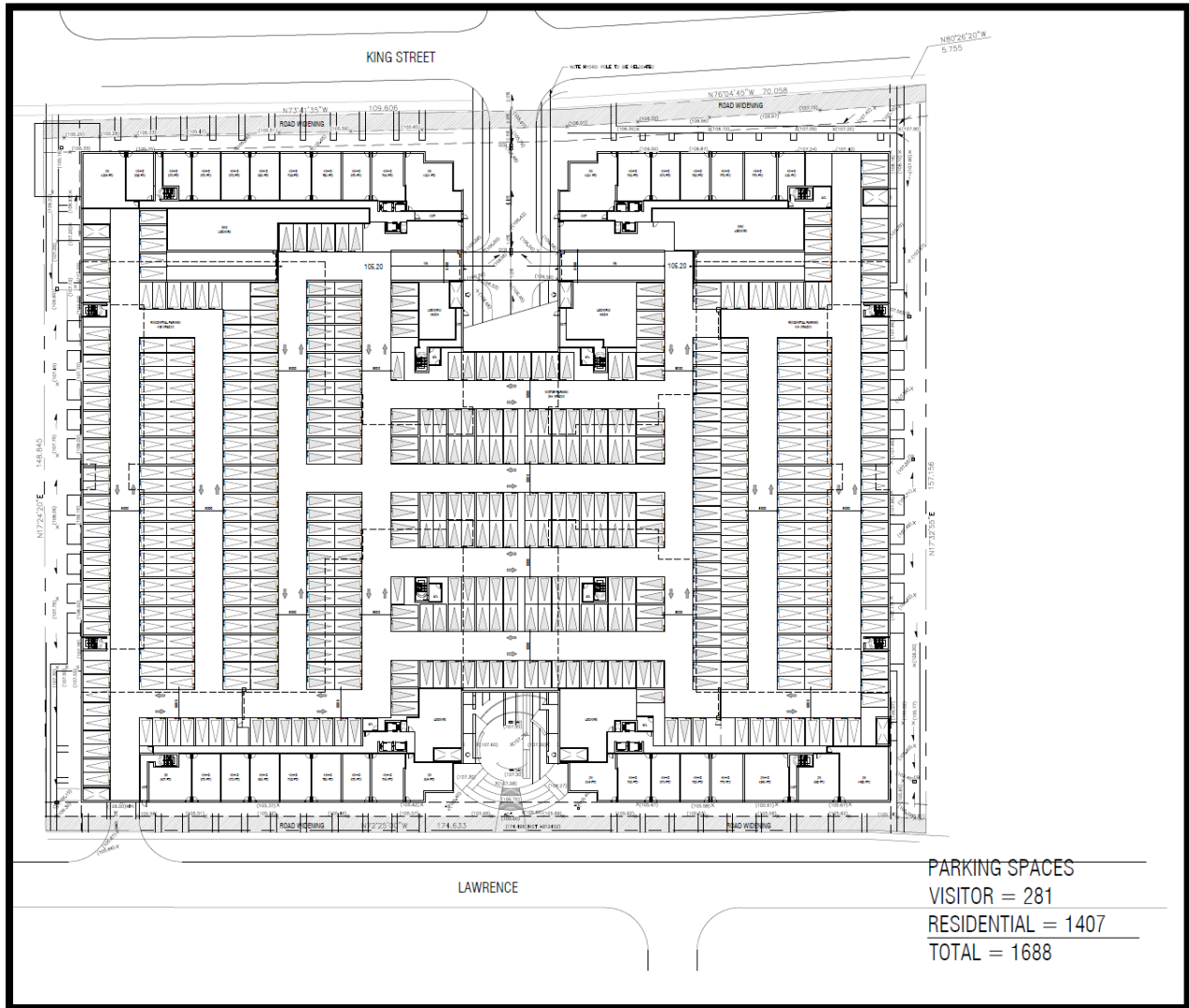
Result summary (night)

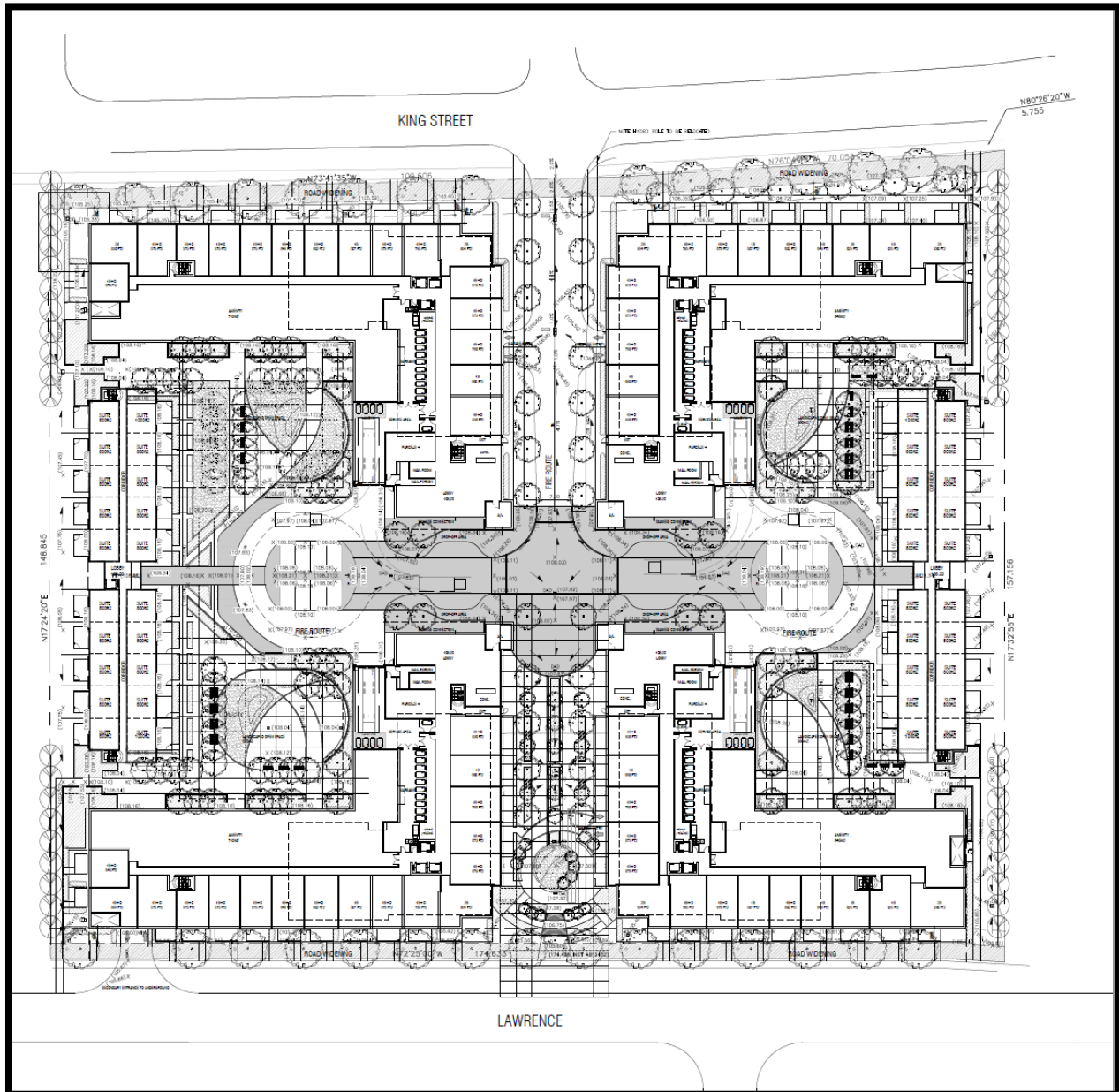
	Loc (dBA)	Wheel (dBA)	Whistle (dBA)	Whistle (dBA)	Total Leq (dBA)
1.Freight	63.08	56.48	--	--	63.94 *
Total					63.94 dBA

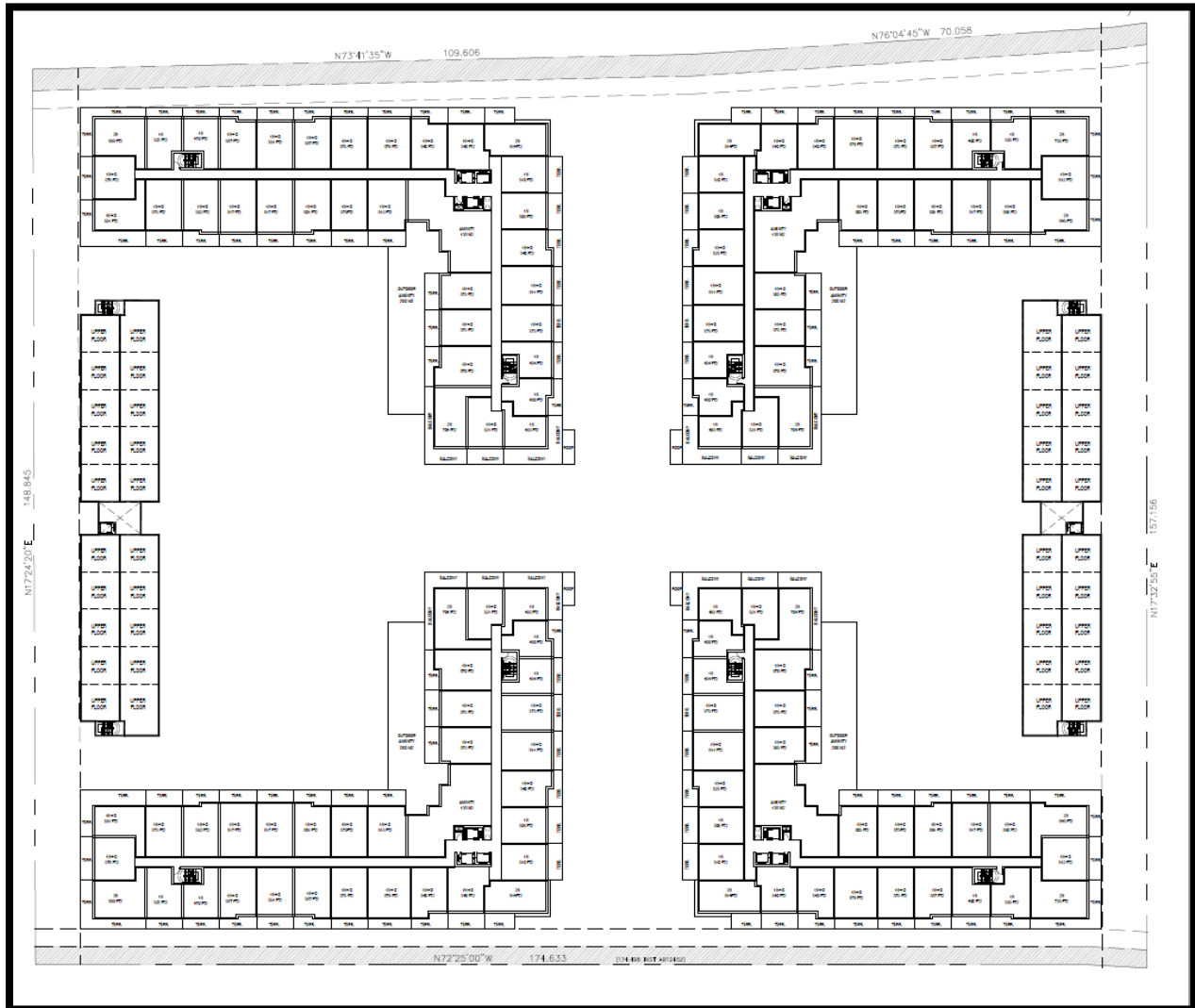
BUILDING DESIGNS



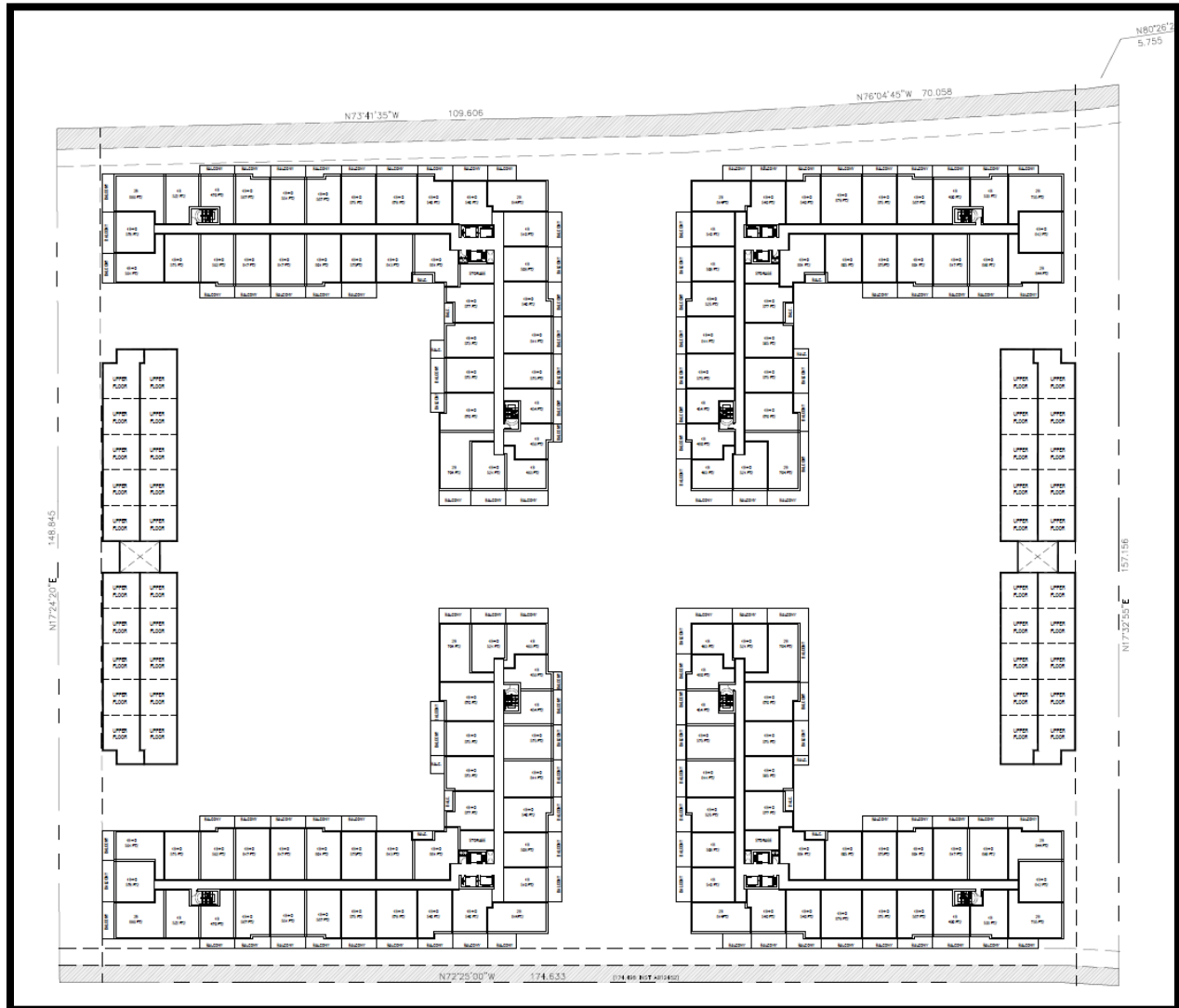






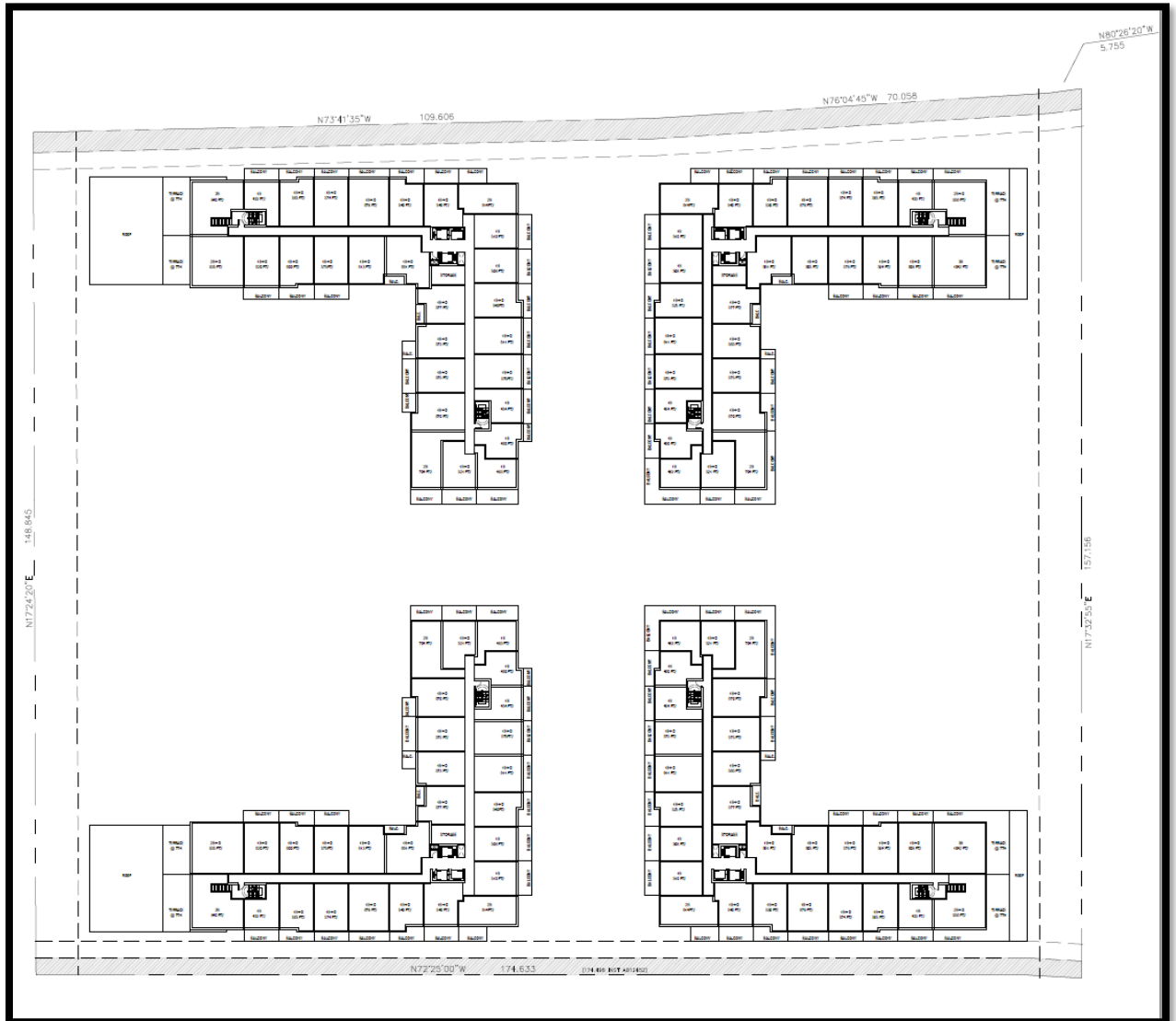


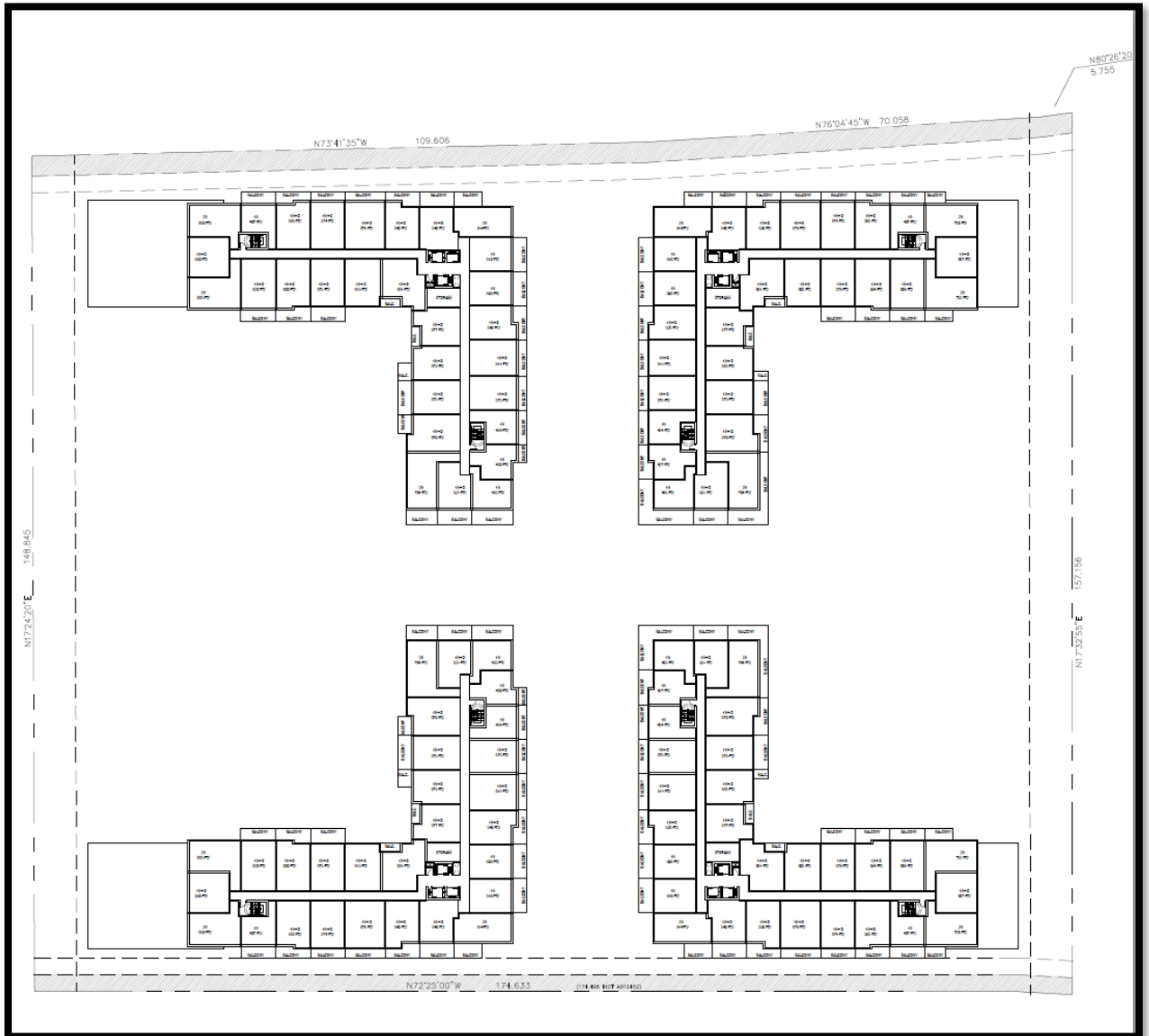








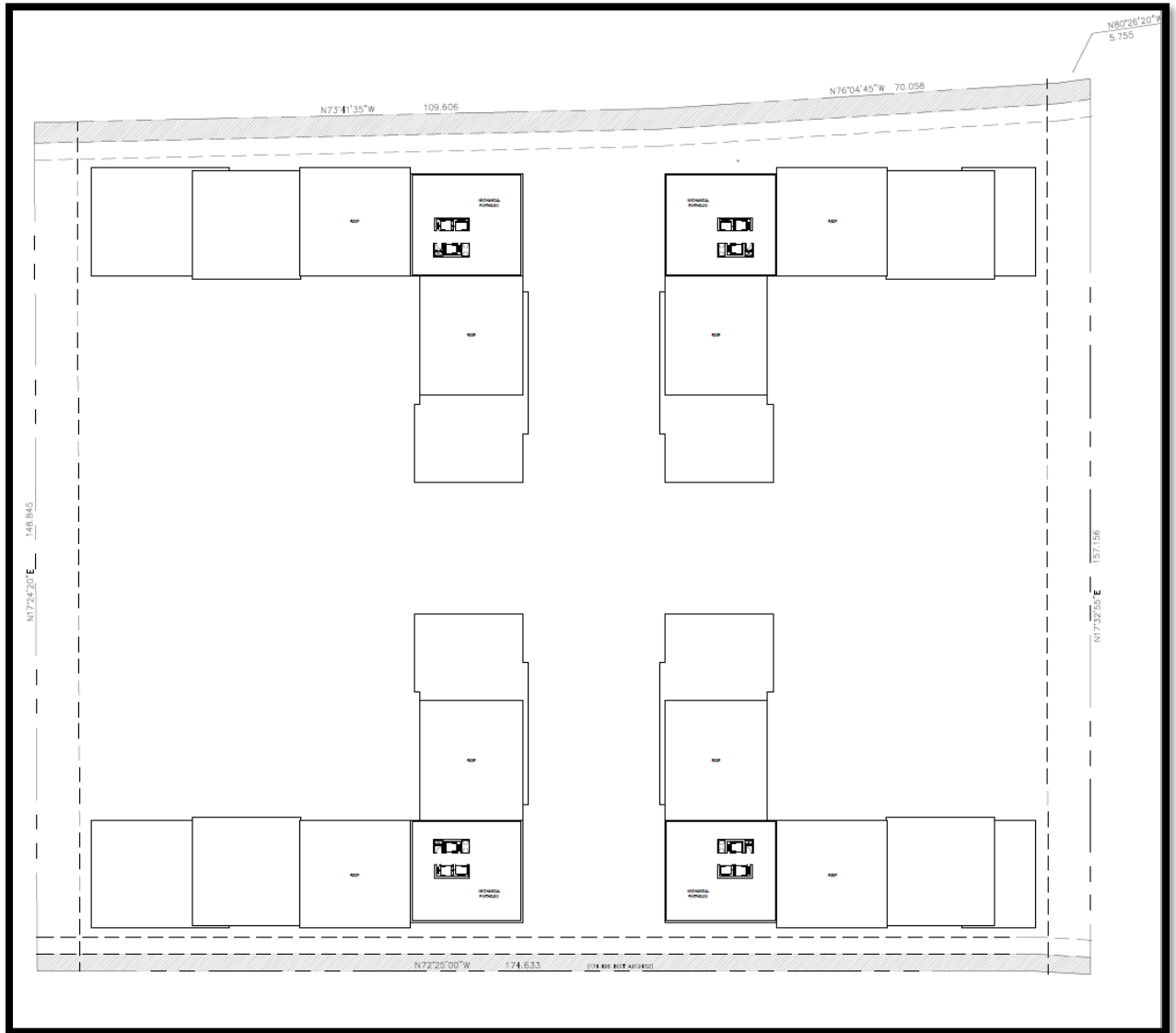












PROJECT STATISTICS

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JOB No: 1804.20. 1842 KING STREET							
DATE: MAR.12.2021							
01. SITE AREA		(m ²)	(ha)	(ft ²)	(ac)		
		26825.47	2.68	288746.68	6.63		
02. G.C.A. (m ²)							
	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL	
BELOW GRADE	0	1255	946.5	931.1	1031.2	4163.8	
ABOVE GRADE	5371.2	22491.4	22491.4	21241.1	21241.1	92836.2	
TOTAL	5371.2	23746.4	23437.9	22172.2	22272.3	97000	
03. F.S.I							
PROPOSED							
	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL	
	0.20	0.89	0.87	0.83	0.83	3.62	
04. SETBACKS * (m)							
		PROPOSED			By-Law XX		
BELOW GRADE	NORTH	3.00					
	EAST	7.50					
	SOUTH	3.00					
	WEST	7.50					
ABOVE GRADE	NORTH	3.00					
	EAST	7.50					
	SOUTH	3.00					
	WEST	7.50					
05. UNIT BREAKDOWN							
	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL	
RESIDENTIAL UNITS	Studio	0	0	0	0	0	0
	1 Bedroom	0	298	297	268	266	1129
	2 Bedroom	80	44	45	48	51	268
	3 Bedroom	0	3	1	3	3	10
TOTAL	80	345	343	319	320	1407	
05. B.F UNIT BREAKDOWN							
	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL	
RESIDENTIAL UNITS	Studio	0	0	0	0	0	15%
	1 Bedroom	0	45	45	40	40	169
	2 Bedroom	12	7	7	7	8	40
	3 Bedroom	0	0	0	0	0	2
TOTAL	12	52	51	48	48	211	
06. PARKING							
		PROPOSED			By-Law XX		
RESIDENTIAL	Studio						
	1 Bedroom	1	1407				
	2 Bedroom						
	3 Bedroom						
NON RESIDENTIAL/VISITOR	0.2	281					
TOTAL	1688						
07. BIKE PARKING							
		PROPOSED			By-Law XX		
RESIDENTIAL							
NON RESIDENTIAL/VISITOR							
TOTAL							
08. STORAGE LOCKERS							
PROPOSED							
09. ESTABLISHED GRADE							
10. BUILDING HEIGHT (m)							
		PROPOSED					
TO MAIN ROOF SLAB	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D		
	4 STY	12 STY	12 STY	12 STY	12 STY		
TO MECH. PENTHOUSE							
11. AMENITY (m ²)							
	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL	
INDOOR	0	846	846	781	781	3254	
OUTDOOR	0	4656	4656	4675	4675	18661	
TOTAL	0	5502	5502	5456	5456	21915	
NOTES:							
* setbacks to main building face							
** actual unit count may vary depending on market demand							