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Copperwood Flats, Block 125
1075 March Road, Ottawa

Noise Impact Feasibility Report

COPPERWOOD FLATS

Block 125

City of Ottawa

Noise Impact Feasibility Report

Prepared By:

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Ottawa, Ontario
K2M 1P6

Novatech File: 122144
Ref: R-2025-22

Submitted: March 21, 2025

NOVATECH
Engineers, Planners & Landscape Architects

March 21, 2025

City of Ottawa
Planning, Development and Building Services Department
Development Review – West
110 Laurier Street West, 4th Floor
Ottawa, ON, K1P 1J1

Attention: **Mike Giampa, P.Eng.**
Project Manager, Infrastructure Approvals

Reference: **Copperwood Flats – Block 125**
Noise Impact Feasibility Report
Novatech File No.: 122144

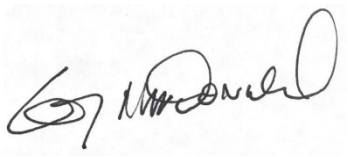
Please find enclosed the 'Noise Impact Feasibility Report' for the above-noted development in the City of Ottawa. This report is being submitted in support of a site plan application for the proposed development.

This report evaluates the environmental impact of noise from traffic and assesses the feasibility of mitigation measures to attenuate noise to acceptable levels.

Please contact the undersigned should you have any questions or comments on this report.

Yours truly,

NOVATECH



Greg MacDonald, P. Eng.
Director, Land Development and Public Sector Infrastructure

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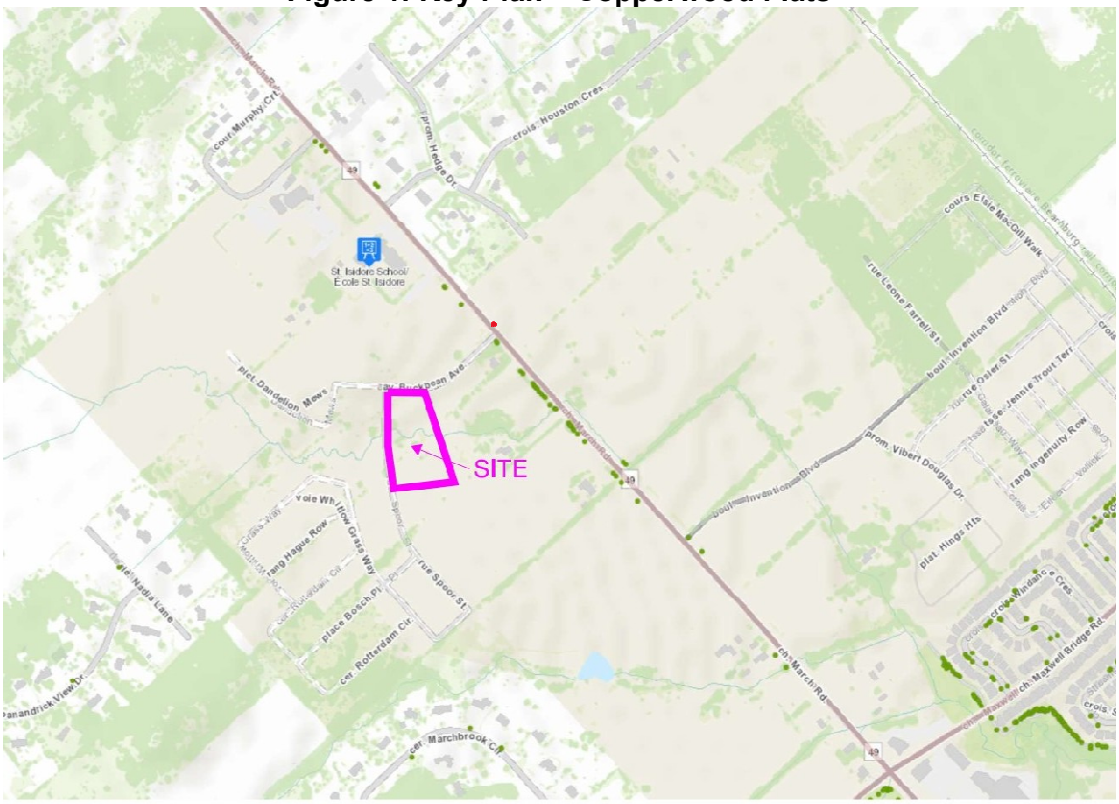
1.0 INTRODUCTION

Novatech has been retained to prepare a Noise Impact Feasibility Report on behalf of Uniform Urban Developments to assess the impact of traffic noise for the proposed site plan for Copperwood Flats Block 125 within the Copperwood Estates Subdivision, located at 1053,1075 and 1145 March Road within the City of Ottawa. The report is in support of a site plan application for the subject development. **Figure 1 - Key Plan** shows an aerial image of the site location.

Figure 1: Key Plan – Copperwood Flats



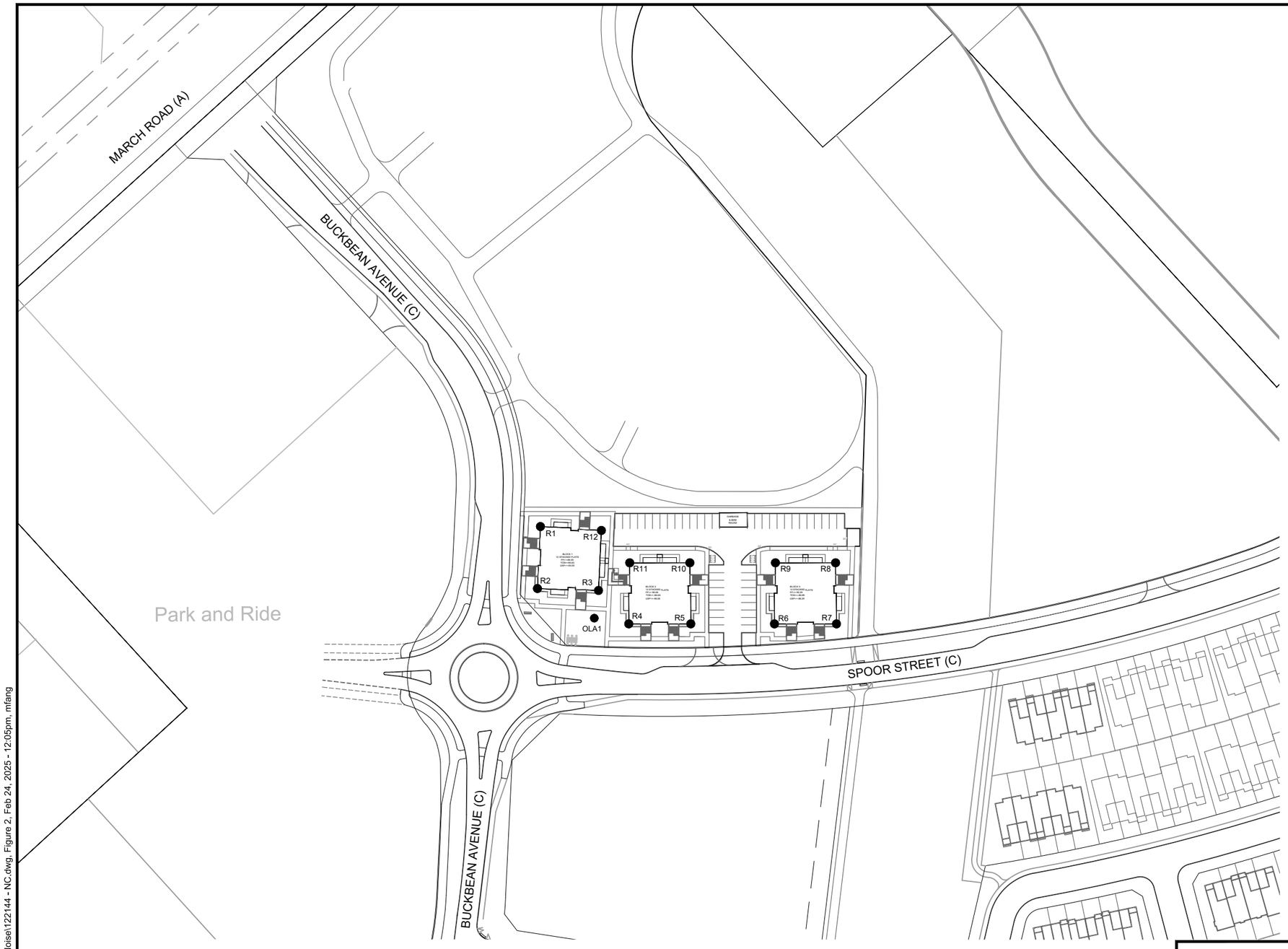
The proposed 0.55 ha development includes 3 stacked townhomes with a total of 36 units, 45 surface parking stalls, and a private communal amenity area. The locations of all nodes used to determine the predicted noise levels are included in **Figure 2 – Receiver Location Plan.**

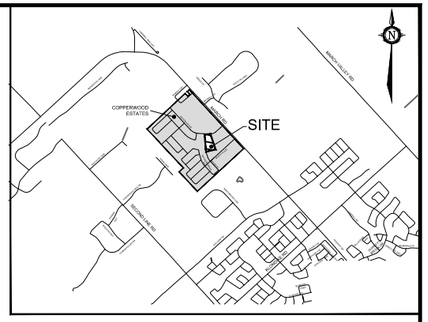
The only Outdoor Living Area (OLA) noise levels that needs to be considered is the designated private communal amenity area, selected 1.5m above finished grade.

The Indoor Living Areas (ILE's) noise levels are considered:

- First Floor for all Blocks, both daytime and nighttime are selected 1.5m above the first-floor grade.
- Second Floor for all Blocks, both daytime and nighttime are selected 1.5m above the second-floor grade, which is 4.60m total.
- Third Floor for all Blocks, both daytime and nighttime are selected 1.5m above the third-floor grade, which is 7.80m total

This report follows recommendations of the City of Ottawa's Environmental Nosie Control Guidelines (ENCG) and the MOE NPC-300 Environmental Noise Guideline.





LEGEND

(A)	ARTERIAL ROAD CLASSIFICATION
(C)	COLLECTOR ROAD CLASSIFICATION
R1	RECEPTOR NODE LOCATION WITH NUMBER
OLA1	OLA NODE LOCATION WITH NODE NUMBER

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

RECEIVER LOCATION PLAN

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIGURE 2

M:\2022\122144\BLOCK 307\CAD\Civil\Figures\Noise\122144 - NC.dwg, Figure 2, Feb 24, 2025 - 12:05pm, mfang

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2.0 NOISE CRITERIA, NOISE SOURCES AND NOISE ATTENATION METHODS

The City of Ottawa criteria for noise from aircraft, roads, transitways, and railways is outlined in **Tables 2.2a: Sound Level Limit for Outdoor Living Areas – Road and Rail, Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail,** and **Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces – Road and Rail** of the ENCG. The maximum suggested sound levels for OLAs and ILE's between 7am and 11pm are 55 dBA and 45 dBA, respectively. The maximum suggested sound level for sleeping quarters is 40 dBA between 11pm and 7am. For reference, **Tables 2.2a, 2.2b and 2.2c** of the ENCG are included in **Appendix A**.

OLA and ILE receivers are defined as:

- **OLA**: The outdoor living area is provided for the quiet enjoyment of the outdoor environment during the day-time period. These amenity areas are typically backyards, gardens, shared terraces and patios of a substantial size.
- **ILE**: The indoor living area is provided for the quiet enjoyment of the living/ dining and sleeping quarters within a dwelling, during both the day-time and night-time periods.

The noise level criteria are summarized in **Table 1** below.

Table 1: Noise Level Criteria

Time Period	Receiver Location	Noise Level Criteria (Leq)
Daytime (07:00 – 23:00)	OLA	55 dBA
Daytime (07:00 – 23:00)	ILE - living/ dining rooms	45 dBA
Nighttime (23:00 – 07:00)	ILE - sleeping quarters	40 dBA

For modelling purposes, predicted noise levels for ILE's are taken at the Plane of Window (POW) with noise attenuation being provided by the building envelope. This will be discussed further in the following sections of this report.

2.1 Noise Sources

The City of Ottawa Official Plan stipulates that a noise study shall be prepared when a new development is proposed within 100 metres of an arterial, major collector or collector roadway, or a rapid-transit corridor. There are no railway, airport, or stationary noise sources that affect this site.

This report considers noise from traffic on urban collector Buckbean Avenue and Spoor Street. All other sources of noise are located beyond the limits of consideration as outlined in Section 2.1 of the ENCG. Buckbean Avenue and Spoor Street have been identified in the TMP as future collector roads as shown in the Land Use Plan (**Appendix C, Figure 16**). They both have an assumed classification of 2-Lane Urban Collector roadway (8,000 veh/day) with a posted speed of 40kph, as per the TMP (**Appendix C)**. **Table 2** outlines the road noise sources for the site.

Table 2: Traffic and Roadway Parameters

	Buckbean Ave.	Spoor St.
Roadway Classification	2-Lane Urban Collector Undivided	2-Lane Urban Collector Undivided
Annual Average Daily Traffic (AADT)	8,000 vehicles/day	8,000 vehicles/day
Day/Night Split (%)	92/8	92/8
Medium Trucks (%)	7	7
Heavy Trucks (%)	5	5
Posted Speed	40 km/hr	40 km/hr

2.2 Methods for Noise Attenuation

When OLA or ILE predicted sound levels are approximately equal to or less than the maximum suggested levels in the ENCG (Table 1), attenuation measures are not required. If the predicted noise levels are found to exceed the limits, noise mitigation and/ or warning clauses are required. Warning clauses are discussed in section 2.5. The City of Ottawa's preferred noise mitigation methods are:

- Increasing the amount of soft ground between the noise sources and noise receptor;
- Inserting noise insensitive land between the noise source and the noise receptor;
- Orientate the building to provide shelter to noise sensitive areas;
- Install acoustic (noise) barriers;
- Install air conditioning and forced air ventilation; and
- Enhance construction techniques and construction quality.

2.3 Ventilation Requirements

A forced air heating system with provisions for a central air conditioning system is required if the POW daytime noise level is between 55 dBA and 65 dBA and/ or the nighttime noise level is between 50 dBA and 60 dBA.

The installation of a central air conditioning system is required when the daytime noise level exceeds 65 dBA and/ or the nighttime noise level exceeds 60 dBA.

2.4 Building Components

When POW noise levels exceed 65 dBA (day-time) or 60 dBA (night-time) the exterior cladding system of the building envelope must be acoustically assessed to ensure indoor sound criteria are achieved. In practice, the exterior shell is comprised of primarily two to four components: exterior walls, windows and patio doors, roofs and ceilings, and exterior doors.

2.5 Warning Clauses

If predicted noise levels are expected to exceed the applicable sound level criteria, the City of Ottawa and the MOE recommends a warning clause(s) be registered on title and incorporated

into the development agreement and the lease/ rental/ sale agreements. The warning clause serves to alert potential purchaser/ buyers/ tenants of the possible noise condition and of any limitations that may exist on his/ her property rights.

Generic warning clauses from the ENCG for surface transportation are listed below.

Warning Clause Type 'A'

"Purchasers/ tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."

Warning Clause Type 'B'

"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 transitway traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."

Warning Clause Type 'C'

"This dwelling unit has 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 City's and the Ministry of the Environment's 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.)"

Warning Clause Type '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 City's and the Ministry of the Environment's noise criteria."

2.6 Summary of Attenuation Requirements

Table 3 summarizes the required noise attenuation measures and warning clauses should sound criteria be exceeded. Excerpts from the ENCG and MOE documents are included in **Appendix A** for reference.

Table 3: Noise Attenuation Measure Requirements

Assessment Location	L_{eq} (dBA)	Outdoor Control Measures	Indoor Control Measures		Warning Clause
			Ventilation Requirements	Building Components	
Outdoor Living Area (OLA)	Less than 55	None required	N/A	N/A	None required
	Between 55 and 60	Control measures (barriers) may not be required but should be considered	N/A	N/A	Required if resultant L_{eq} exceeds 55 dBA Type A* or Type B**
	More than 60	Barriers required	N/A	N/A	Required if resultant L_{eq} exceeds 55 dBA Type A* or Type B*
Plane of Living Room Window (POW)	Less than 55	N/A	None Required	None Required	None Required
	Between 55 and 65	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More Than 65	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D
Plane of Sleeping Quarters Window (POW)	Less than 50	N/A	None Required	None Required	None Required
	Between 50 and 60	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More than 60	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D

*Type A warning clause refers to units requiring a noise barrier that mitigates noise below 55 dBA.
**Type B warning clause refers to units requiring a noise barrier but is technically or economically not feasible to reduce levels below 55 dBA and a tolerance of up to 5dBA can be granted by the City.

3.0 PREDICTED NOISE LEVELS

Noise levels were analyzed using Version 5.03 of the STAMSON computer program. The predicted noise levels for the OLA and ILE's are provided in **Table 4** and **Table 5**, respectively.

Table 4: Simulation Results – Outdoor Living Area

Receiver Location*	Calculated Noise Level (dBa) 7:00-23:00		Outdoor Mitigation Method
	Un-attenuated	Attenuated	
OLA	59.85	N/A	Warning Clause Type B

*Locations found on **Figure 2 – Receiver Location Plan**

From **Table 4**, the predicted noise levels of OLA are more than 55 dBa but less than 60 dBa. As per C7.1.1 of the NPC-300, OLA noise levels up to 60dBA are permitted if noise control measures are not feasible to reduce noise level below 55dBA. The installation of a noise barrier to reduce OLA noise levels below 55dBA was considered but deemed not feasible, due to the potential conflict with the existing Hydro Structure and because of the small amenity area for the site plan development that will see infrequent use outside of peak traffic times. Refer to **Appendix B** for noise calculations. Refer to **Figure 3 – Noise Attenuation Measures Plan** for all proposed noise attenuation measures.

Table 5: Simulation Results – Plane of Window

Receiver Location*	Predicted Noise Level 7:00-23:00 (dBa)	Predicted Noise Level 23:00-7:00 (dBa)	Mitigation Method
	Un-attenuated	Un-attenuated	
R1 (1st Floor)	61.92	54.33	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R1 (3rd Floor)	62.25	54.66	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R2 (1st Floor)	62.40	54.81	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R2 (3rd Floor)	62.87	55.27	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R3 (1st Floor)	56.60	49.01	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R3 (3rd Floor)	57.48	49.88	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R4 (1st Floor)	60.75	53.16	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C

Table 5 (Continued): Simulation Results – Plane of Window

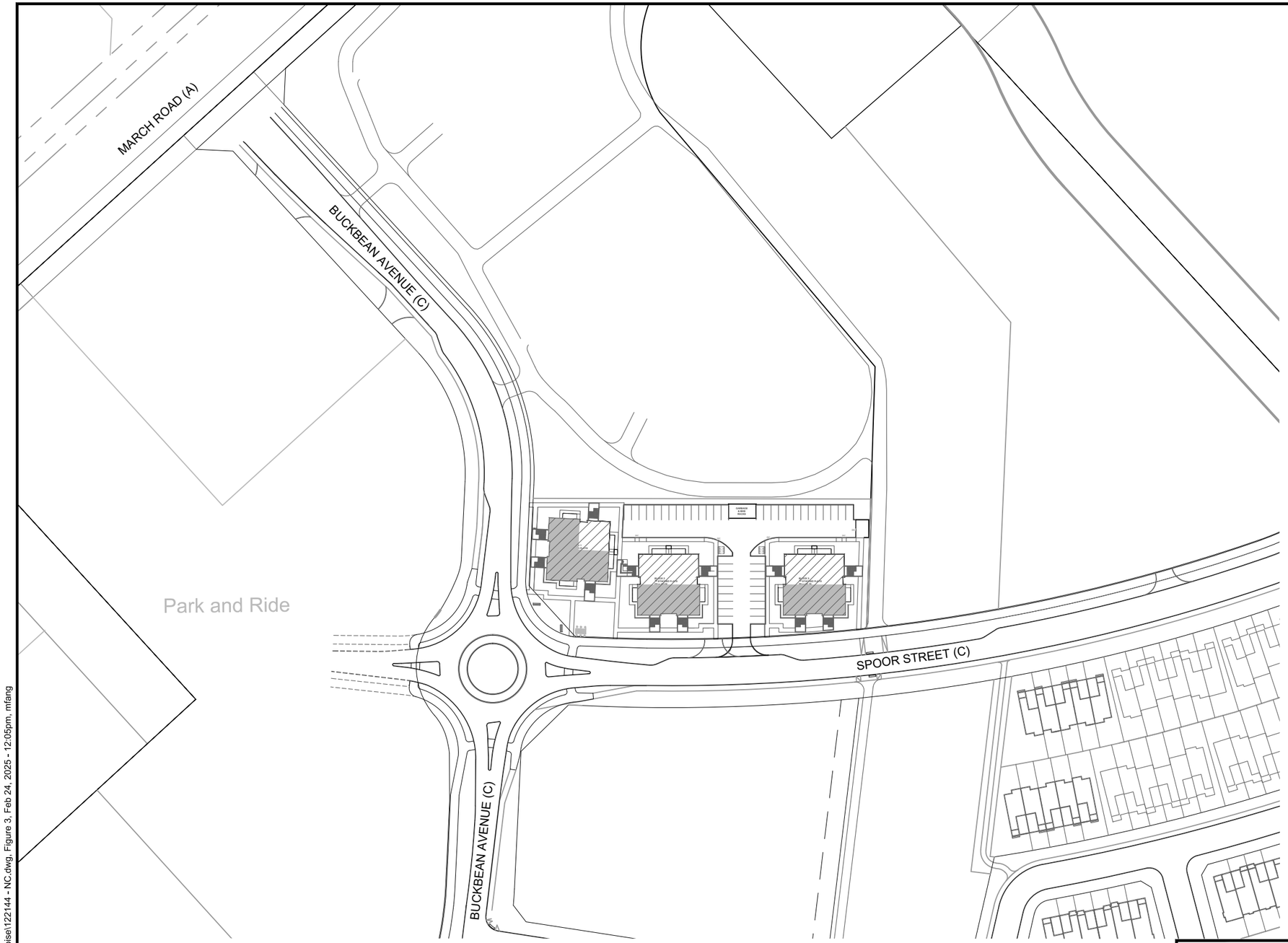
Receiver Location*	Predicted Noise Level 7:00-23:00 (dBa)	Predicted Noise Level 23:00-7:00 (dBa)	Mitigation Method
	Un-attenuated	Un-attenuated	
R4 (3rd Floor)	61.34	53.75	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R5 (1st Floor)	60.19	52.60	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R5 (3rd Floor)	60.81	53.22	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R6 (1st Floor)	60.48	52.89	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R6 (3rd Floor)	61.05	53.45	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R7 (1st Floor)	61.23	53.64	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R7 (3rd Floor)	61.73	54.13	• Installation of Forced Heating with provision for Central Air Conditioning • Warning Clauses Type C
R8 (3rd Floor)	54.33	46.74	• None Required
R9 (3rd Floor)	54.88	47.29	• None Required
R10 (3rd Floor)	52.98	45.38	• None Required
R11 (3rd Floor)	53.48	45.89	• None Required
R12 (3rd Floor)	54.20	46.61	• None Required

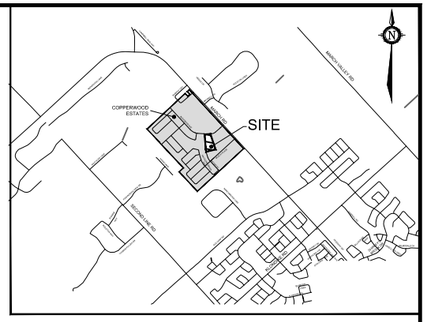
*Locations found on **Figure 2 – Receiver Location Plan**

From **Table 5**, the predicted noise levels at the R1 - R7 POWs from first floor to third floor are expected to exceed the sound level criteria. As such, the following is recommended:

- Installation of Forced Heating with provision for Central Air Conditioning and the inclusion of warning clause Type C to be registered on title and incorporated into the development agreement and the lease/ rental/ sale agreements of all units directly facing Buckbean Avenue and Spoor Street.

Refer to **Appendix B** for noise calculations. Refer to **Figure 3 – Noise Attenuation Measures Plan** for all proposed noise attenuation measures.





LEGEND

MITIGATION METHODS INCLUDE:
- FOR ALL UNITS FROM FIRST FLOOR TO THIRD FLOOR
- INSTALLATION OF FORCED AIR HEATING WITH PROVISION TO CENTRAL AIR CONDITIONING
- WARNING CLAUSE TYPE C TO BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF PURCHASE AND SALES

MITIGATION METHODS INCLUDE:
- FOR ALL UNITS FROM FIRST FLOOR TO THIRD FLOOR
- WARNING CLAUSE TYPE B TO BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF PURCHASE AND SALES

(A) ARTERIAL ROAD CLASSIFICATION

(C) COLLECTOR ROAD CLASSIFICATION

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

NOISE ATTENUATION MEASURES PLAN

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE FEB. 2025 | JOB 122144 | FIGURE FIGURE 3

4.0 CONCLUSION

This study confirms the predicted noise levels from the adjacent Buckbean Avenue and Spoor Street are in excess of the City of Ottawa's required criteria. As such, the following mitigation measures are being proposed:

- Inclusion of warning clause Type B to be registered on title and incorporated into the development agreement and the lease/ rental/ sale agreements of all units due to the private communal amenity area noise level is more than 55 dBa but less than 60 dBa as outlined in **Figure 3 – Noise Attenuation Measures Plan**
- Installation of Forced Heating with provision for Central Air Conditioning and the inclusion of warning clause Type C to be registered on title and incorporated into the development agreement and the lease/ rental/ sale agreements of all the units directly facing Buckbean Avenue or Spoor Street. Refer to **Figure 3 – Noise Attenuation Measures Plan.**

NOVATECH

Report By:

Ming Fang, C.E.T., B.Eng
Design Technologist

Reviewed By:

Greg MacDonald, P. Eng.
Director - Land Development and
Public Sector Infrastructure

APPENDIX A:

Excerpts from City of Ottawa Environmental Noise Control Guidelines, MOE NPC-300, City of Ottawa Transportation Master Plan and Official Plan, and Architect Plans

PLANNING AND GROWTH MANAGEMENT
URBANISME ET GESTION DE LA CROISSANCE

ENVIRONMENTAL NOISE CONTROL GUIDELINES: Introduction and Glossary

January 2016

Table 2.2a: Sound Level Limit for Outdoor Living Areas - Road and Rail
(from NPC-300, 2013 Table C-1)

Time Period	Required L_{eq} (16) (dBA)
16-hour, 07:00 – 23:00	55

Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail
(from NPC-300, 2013 Table C-2)

Type of Space	Time Period	Required L_{eq} (dBA) Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

The Province also provides for supplementary indoor sound level limits for land uses not generally considered noise sensitive (see Table 2.2c below). These good practice design objectives should be addressed in any noise study prepared for the City. These supplementary sound level limits are based on the windows and doors to an indoor space being closed.

Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces - Road and Rail (adapted from NPC-300 Table C-9)

Type of Space	Time Period	Required L_{eq} (dBA) Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Theatres, places of worship, libraries, individual or semi- private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

Environmental Noise Guideline

Stationary and Transportation Sources – Approval and Planning

Publication NPC-300

Ontario

Table C-10
Supplementary Indoor Aircraft Noise Limits
(Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values listed in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

C7 Noise Control Measures

The following sections provide MOE guidance for appropriate noise control measures. These sections constitute requirements that are applied to MOE approvals for stationary sources. This information is also provided as guidance which land use planning authorities may consider adopting.

The definition in Part A describes the various types and application of noise control measures. All the noise control measures described in the definition are appropriate to address the impact of noise of transportation sources (road, rail and aircraft) on planned sensitive land uses. Only some of the noise control measures described in the definition are appropriate to address the noise impact of stationary sources on planned sensitive land uses.

C7.1 Road Noise Control Measures

C7.1.1 Outdoor Living Areas

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA is greater than 55 dBA and less than or equal to 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA. If measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A.

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA is greater than 60 dBA, noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B. In the above situations, any excess above the limit will not be acceptable if it exceeds 5 dBA.

C7.1.2 Plane of a Window – Ventilation Requirements

C7.1.2.1 Daytime Period, 07:00 – 23:00 Hours

Noise control measures may not be required if the L_{eq} (16) daytime sound level in the plane of a bedroom or living/dining room window is less than or equal to 55 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the daytime sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA, installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.2.2 Nighttime Period, 23:00 – 07:00 Hours

Noise control measures may not be required if the L_{eq} (8) nighttime sound level in the plane of a bedroom or living/dining room window is less than or equal to 50 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA and less than or equal to 60 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the nighttime sound level in the plane of a bedroom or living/dining room window is greater than 60 dBA, installation of central air conditioning should be implemented, with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.3 Indoor Living Areas – Building Components

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 60 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 65 dBA, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the

sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) should be specified.

C7.2 Rail Noise Control Measures

C7.2.1 Outdoor Living Areas

Whistle noise is not included in the determination of the outdoor daytime sound level due to railway trains. All the provisions of Section C7.1.1 apply also to noise control requirements for rail noise.

C7.2.2 Plane of a Window – Ventilation Requirements

Whistle noise is not included in the determination of the sound level in the plane of a window. All the provisions of Section C7.1.2 apply also to noise control requirements for rail noise.

C7.2.3 Indoor Living Areas – Building Components

The sound level, L_{eq}, during the daytime (16-hour) and nighttime (8-hour) periods is determined using the prediction method STEAM, Reference [34], immediately outside the dwelling envelope. Whistle noise is included in the determination of the sound level.

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 55 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 60 dBA, building components including windows, walls and doors, where applicable, need to be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) needs to be specified.

In addition, the exterior walls of the first row of dwellings next to railway tracks are to be built to a minimum of brick veneer or masonry equivalent construction, from the foundation to the rafters when the rail traffic L_{eq} (24-hour), estimated at a location of a nighttime receptor, is greater than 60 dBA, and when the first row of dwellings is within 100 metres of the tracks.

C7.3 Combination of Road and Rail Noise

The noise impact in the OLA and in the plane of a window, and the requirements for outdoor measures, ventilation measures and warning clauses, should be determined by combining road and rail traffic sound levels.

The assessment of the indoor sound levels and the resultant requirement for the acoustical descriptors of the building components should be done separately for road

In Class 4 areas, where windows for noise sensitive spaces are assumed to be closed, the use of central air conditioning may be acceptable if it forms an essential part of the overall building designs.

C7.9 Verification of Noise Control Measures

It is recommended that the implementation of noise control measures be verified by qualified individuals with experience in environmental acoustics.

C8 Warning Clauses

The use of warning clauses or easements in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. Direction on the use of warning clauses should be included in agreements that are registered on title to the lands in question. The warning clauses would be included in agreements of Offers of Purchase and Sale, lease/rental agreements and condominium declarations. Alternatively, the use of easements in respect of noise may be appropriate in some circumstances. Additional guidance on the use of noise warning clauses is provided in Section C7.1.1, Section C7.1.2.1, Section C7.1.2.2, Section C7.3 and Section C7.4.

C8.1 Transportation Sources

The following warning clauses may be used individually or in combination:

TYPE A: (see Section C7.1.1)

> "Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

TYPE B: (see Section C7.1.1 and Section C7.4)

> "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

TYPE C: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

> "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of

central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

TYPE D: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

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

C8.2 Stationary Sources

It is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits. Warning clause (Type E) for stationary sources may identify a potential concern due to the proximity of the facility but it is not acceptable to justify exceeding the sound level limits.

TYPE E: (see Section C7.6)

"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."

C8.3 Class 4 Area Notification

TYPE F: (see Section B9.2 and Section C4.4.2)

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) 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."

Appendix A: Warning Clauses

Under the Official Plan and this guideline warning clauses may be required to be incorporated into development through development agreements, registration on title and inclusion in Agreements of Purchase and Sale. This requirement may be included in any development, regardless of whether it is considered a noise sensitive land use.

A warning clause provides recognition for the City, Province landowner or tenants that noise may be a concern, that noise may be audible at times or even quite loud, and, depending on the type of development, provincial guidelines for noise may be exceeded. Warning clauses also recognize that environmental noise is a potential health hazard that does impact people and neighbourhoods. It is for this reason that, unless a non-noise sensitive land use is established, a warning clause should also include noise mitigation.

A warning clause is not considered a form of noise mitigation. It is not acceptable therefore to use warning clauses in place of physical noise control measures to identify an excess over the MOE or City noise limits. The reason for a warning clause on all development is twofold. Firstly, it is important to note that a land use that although the development may not be considered noise sensitive it may include employees or tenants that are personally sensitive to noise. A warning clause provides protection against complaints to the ministry of Environment should provincial guidelines be exceeded. Secondly, a warning clause on title could obviate the need for a new noise study in the future. In a redevelopment scenario the warning clause would provide recognition of the extent noise conditions.

Given the variation in potential intensity and impact of noise it will often be necessary to amend warning clauses to recognize the site specific conditions in each development. Final wording of any warning clause is to be approved by the City.

The following subsections provide example text to be adapted into warning clauses.

Surface Transportation Warning Clauses

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
Generic	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area that is within provincial guidelines. Measures for sound attenuation include:* • *A setback of buildings from the noise source and* • *An acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *Additionally this development includes trees and shrubs to screen the source of noise from occupants.*	The generic warning clause outlines that MOE sound levels may be exceeded but the indoor environment and outdoor amenity areas are within guidelines. Mitigation measures are described including urban design features. Mention is also made of landscaping to screen the development visually from the source of noise.
Extensive mitigation of indoor and	*"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units,*	The warning clause makes reference to MOE sound levels

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
outdoor amenity area	*sound levels due to increasing road/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *an earth berm; and* • *an acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment.*	being exceeded from time to time and that there are sound attenuation features and landscaping within the development that should be maintained. An option for air conditioning is noted as well as landscaping to screen the source of noise.

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
	Additionally this development includes trees and shrubs to screen the source of noise from occupants.	
No outdoor amenity area	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *high sound transmission class walls.* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *This dwelling unit has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment*	This warning clause notes that only an indoor environment is being provided for.

Stationary Source Warning Clauses

The Province notes that it is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits for stationary sources. The generic warning clause for stationary sources (called Type E in NPC-300) may identify a potential concern due to the proximity of the facility but it is not possible to justify exceeding the sound level limits.
The wording of the generic stationary noise warning clause may also be used as the basis for new development adjacent to areas licensed for mineral aggregate extraction.

6

Note:
1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
3) The road network shown in the Kanata West to Fernbank Road area is subject to confirmation.

Note:
1) La présente carte fait partie du Plan directeur de transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente carte doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) Le réseau routier dans le secteur de Kanata Ouest au chemin Fernbank est provisoire et sujet à l'approbation.

Site

SEE MAP 7
VOIR CARTE 7

City of / Ville de GATINEAU

Rivière des Outaouais / Ottawa River

MARCH
CARP
HUNTMAR
CARLING
CAMPEAU
PALADIUM
HAZELDEAN
TIMM
ROBERTSON
EAGLESON
TERRY FOX
STITTSVILLE MAIN
FERNBANK
OLD RICHMOND
WEST HUNT CLUB
CEDARVIEW
GREENBANK
FALLOWFIELD
MOODIE
PERTH
BROPHY
BANKFIELD
BASELINE
MEADOWLANDS
WOODROFFE
MERIVALE
PRINCE OF WALES
RIVER
SCOTT
KIRKWOOD
HOLLAND
FISHER
RIVERSIDE
HERON
WEST HUNT CLUB
HUNT CLUB
EARL ARMSTRONG
LEITRIM
ALBION
CONROY
HEMLOCK
MONTREAL
MacARTHUR
ST LAURENT
GLADSTONE
BANK
MAIN
INDUSTRIAL
SMYTH
WALKLEY
HAWTHORNE
RAMSAYVILLE
OGILVIE
BLAIR
INNES
BLACKBURN BYPASS
ANDERSON
ST JOSEPH
JEANNE D'ARC
ORLEANS
TENTH LINE
TRIM
MER BLEUE
NAVAN
RUSSELL
MILTON
FRANK KENNY
MITCH OWENS

Ottawa
1 0.5 0 1 2 3 km

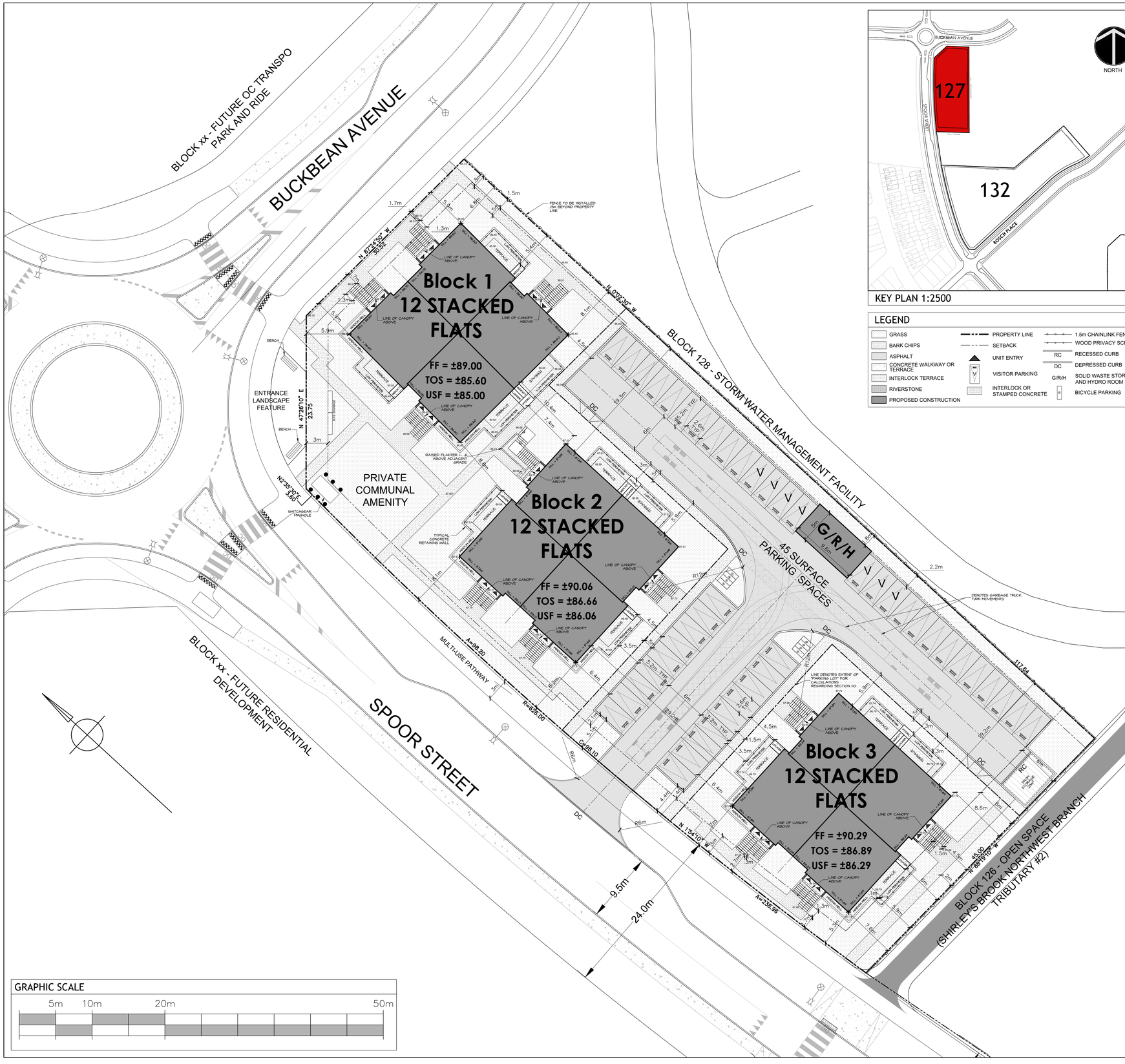
Prepared by: Planning and Growth Management Department, Mapping & Graphics Unit, 2015 Revision
Préparé par: Service de l'urbanisme et de la gestion de la croissance, Unité de la cartographie et des graphiques, Révision 2015

Provincial Highway	Chemins de propriété fédéral
Federally Owned Road	Route provinciale
City Freeway	Autoroute de ville

Arterial - Existing	Artère - Établie
Arterial - Proposed (alignment defined)	Artère - Proposé (alignement déterminée)
Arterial - Conceptual (alignment undefined)	Artère - Conceptuelle (alignement à déterminée)
Major Collector - Existing	Grande collectrice - Établie
Major Collector - Proposed	Grande collectrice - Proposé
Collector - Existing	Collectrice - Établie
Collector - Proposed	Collectrice - Proposé
New Interchange	Nouvel échangeur

TRANSPORTATION MASTER PLAN - Map 6
ROAD NETWORK - URBAN

PLAN DIRECTEUR DES TRANSPORTS - Carte 6
RÉSEAU ROUTIER - URBAIN



KEY PLAN 1:2500

LEGEND

- GRASS
- BARK CHIPS
- ASPHALT
- CONCRETE WALKWAY OR TERRACE
- INTERLOCK TERRACE
- RIVERSTONE
- PROPOSED CONSTRUCTION
- PROPERTY LINE
- SETBACK
- UNIT ENTRY
- VISITOR PARKING
- INTERLOCK OR STAMPED CONCRETE
- 1.5m CHAINLINK FENCE
- WOOD PRIVACY SCREEN
- RC RECESSED CURB
- DC DEPRESSED CURB
- G/R/H SOLID WASTE STORAGE AND HYDRO ROOM
- BICYCLE PARKING

LOCATION MAP N.T.S.

SITE DATA - BLOCK 127

SITE STATISTICS *(# OF UNITS, GROSS BUILDING AREA, GROSS FLOOR AREA)*

BLOCK 1	12 UNITS	447m² (GBA)	1341m² (GFA)
BLOCK 2	12 UNITS	447m² (GBA)	1341m² (GFA)
BLOCK 3	12 UNITS	447m² (GBA)	1341m² (GFA)
TOTAL	36 UNITS	1,341m² (GBA)	4023m² (GFA)

LOT COVERAGE

TOTAL LOT AREA:	5,503m²
TOTAL GROSS BUILDING AREA:	1,376m²
TOTAL LOT COVERAGE	25%
TOTAL VEHICULAR SURFACE AREA:	1,408m²
TOTAL LOT COVERAGE	25.6%
TOTAL SOFT LANDSCAPE AREA:	1,729m²
TOTAL LOT COVERAGE	31.4%
TOTAL HARD LANDSCAPE AREA:	990m²
TOTAL LOT COVERAGE	18%

LANDSCAPING PROVISIONS FOR PARKING LOTS [SECTION 110, 1]

TOTAL PARKING LOT AREA:	1,950m²	
TOTAL LANDSCAPED PARKING AREA:	542m²	
TOTAL PARKING LOT COVERAGE	27.8%	
MIN WIDTH OF LANDSCAPE BUFFER FOR LOT CONTAINING MORE THAN 10 BUT FEWER THAN 100 SPACES	1.5m (REQUIRED)	2.2m (PROVIDED)

SOLID WASTE STORAGE & DISPOSAL

REQUIRED	PROVIDED
GARBAGE STORAGE (0.231/UNIT) = 8.316yd. (3x 3yd. BINS)	GARBAGE STORAGE (3x 3yd. BINS)
FIBRE STORAGE (0.062/UNIT) = 2.23yd. (1x 3yd. BIN)	FIBRE STORAGE (1x 3yd. BIN)
G.M.P. STORAGE (0.018/UNIT) = 0.65yd. (1x 2yd. BIN)	G.M.P. STORAGE (1x 3yd. BIN)
GREEN WASTE STORAGE 1x240L CONTAINER	GREEN WASTE STORAGE 1x240L CONTAINER

AMENITY AREA *[SECTION 137, TABLE 137, (6)]*

REQUIRED	PROVIDED	
PRIVATE AMENITY AREA: 36 DWELLING UNITS x 6m² = 216m²	PRIVATE AMENITY AREA: 36 UNIT TERRACES x 8.6m²	310m²
COMMUNAL AMENITY AREA: (50% of 216m²) = 108m2	COMMUNAL AMENITY AREA: (COMMUNITY PARK)	156m²
TOTAL AMENITY AREA: 324m²	TOTAL PROVIDED:	466m²

ZONING STATISTICS

ZONING: R4Z[2818]-h – RESIDENTIAL FOURTH DENSITY ZONE, SUBZONE Z URBAN EXCEPTION 2818, HOLDING PROVISION

DWELLING TYPE: PUD – 36 STACKED FLATS	REQUIRED	PROPOSED
SETBACKS		
FRONT YARD	3m	5.9m
INTERIOR SIDE YARD	1.8m	5.4m
CORNER SIDE YARD	3m	5.3m
REAR YARD	6m	6m
MIN. LOT WIDTH	18m	45m
MIN. LOT AREA	1400m²	5,503m²
MAX. BUILDING HEIGHT	15m	11m
PLANNED UNIT DEVELOPMENT (SECTION 131)		
MIN. WIDTH OF PRIVATE WAY	6.0m MIN.	6.0m
MIN. SETBACK TO PRIVATE WAY	1.8m MIN.	3.0m
MIN. SEPARATION AREA BETWEEN BUILDINGS	3.0m MIN.	7.4m
MAX. HEIGHT OF COMMUNAL GARBAGE BUILDING	4.5m MAX.	4.5m
MAX. AREA OF COMMUNAL GARBAGE BUILDING	200m² MAX.	35m²
ACCESSORY BUILDINGS (SECTION 55)		
INTERIOR SIDE YARD SETBACK	1.8m MIN.	1.8m
MAX ACCESSORY BUILDING AREA	200m²	48m²
MAX ACCESSORY BUILDING HEIGHT	4.5m	4.5m
PERMITTED PROJECTIONS (SECTION 65)		
TABLE 65 (5)(b)(i)(2)	N/A MAX PROJECTION	1.5m
	.6m MIN FROM LOT LINE	1.7m
TABLE 65 (6)(c)	2.0m MAX PROJECTION	0.1m
	1.0m MIN. FROM LOT LINE	5.9m

PARKING REQUIREMENTS - RESIDENTS

PARKING PROVISIONS – SECTION 101, Table 101 [Area D on Schedule 1A] + SECTION 102, Table 102 [Area D on Schedule 1A] + SECTION 111, Table 111A

BLOCK 127

REQUIRED	PROVIDED
36 RESIDENT PARKING SPACES (1 x 36)	38 RESIDENT PARKING SPACES
7 VISITOR PARKING SPACES (0.2 x 36)	7 VISITOR PARKING SPACES
43 PARKING SPACES TOTAL	45 PARKING SPACES TOTAL
0 BIKE PARKING	8 BIKE PARKING

SURVEY INFORMATION

PLAN OF SUBDIVISION OF PART OF LOTS 13 And 14
CONCESSION 3 Geographic Township of March
CITY OF OTTAWA
Prepared by Annis , O'Sullivan , Vollebekk Ltd. 2024
14 Concourse Gate Suite 500, Nepean, ON K2E 7S6 - (613) 727-0850

SUBJECT SITE IS IDENTIFIED AS BLOCK 127 ON THE PRELIMINARY 4M-PLAN.

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GEOTECHNICAL
PATERSON GROUP
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no.	date	revision
10	2025-01-29	ISSUED FOR REVIEW
9	2025-01-23	ISSUED FOR COORDINATION
8	2025-01-16	ISSUED FOR COORDINATION
7	2024-11-27	ISSUED FOR REVIEW
6	2024-11-22	ISSUED FOR REVIEW
5	2024-09-04	SPC PH2 COMMENTS
4	2024-07-29	ISSUED FOR REVIEW
3	2024-07-16	ISSUED FOR REVIEW
2	2024-06-17	ISSUED FOR REVIEW
1	2024-05-30	ISSUED FOR REVIEW

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and/or omissions to the architect.

All contractors must comply with all pertinent codes and by-laws.

Do not scale drawings.

This drawing may not be used for construction until signed.

uniform URBAN DEVELOPMENTS
117 CENTREPOINTE DR #300, NEPEAN ON, K2G 5X3 - (613) 225-0770

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HOBIN ARCHITECTURE

project title
COPPERWOOD FLATS
LOW-RISE STACKED DWELLINGS
1053, 1075, and 1145 MARCH ROAD

drawing title
PHASE 1 - BLOCK 127
SITE PLAN

drawn	date	scale
TD	APR 2024	1:250

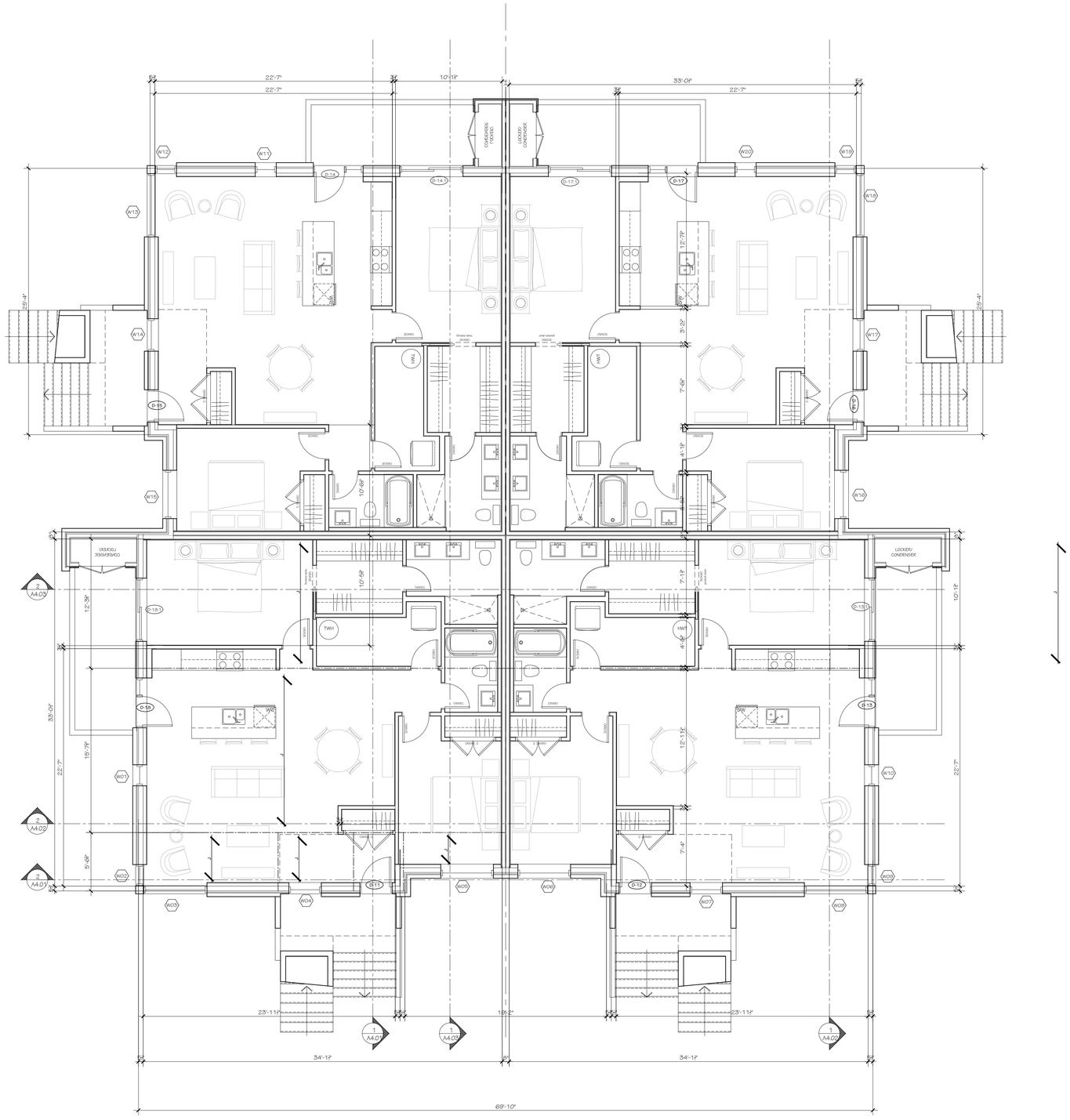
project 2202

drawing no. SP-1

revision no.

File No:PC2024-0316

#XX XXX



1	XXXX/2024	ISSUED FOR BUILDING PERMIT
no.	date	revision

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND/ OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

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hobinarc.com

HOBIN
ARCHITECTURE

PROJECT/LOCATION:
COPPERWOOD SIDE ENTRY
BLOCK 1

DRAWING TITLE:
FIRST FLOOR PLAN

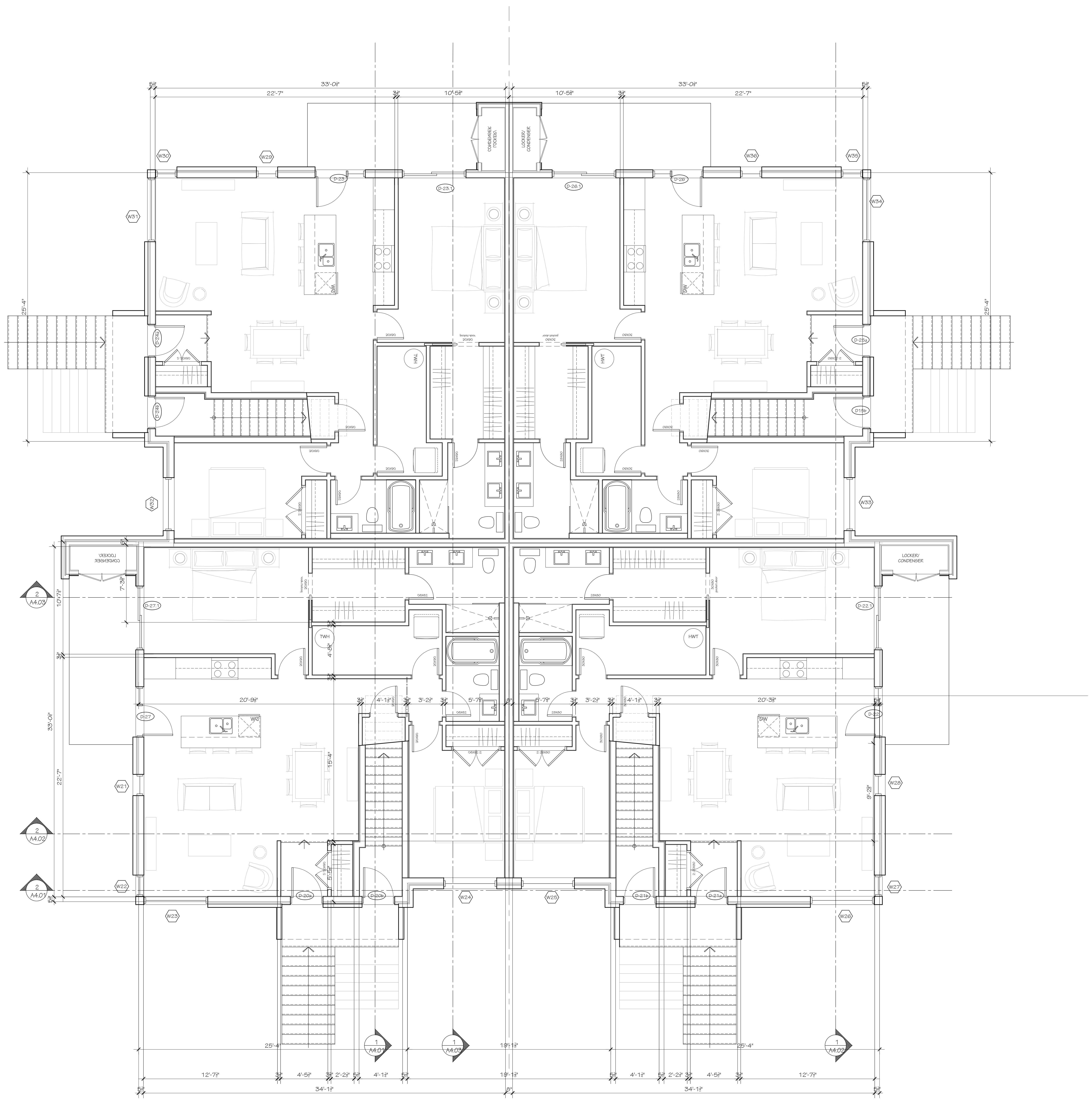
DRAWN BY:	DATE:	SCALE:
KG	09-30-2024	3/16"=1'-0"

PROJECT: 2202.01

DRAWING NO.: A2.01

REVISION NO.:

None
None



None
None

1	XXXXXX/2024	ISSUED FOR BUILDING PERMIT
no.	date	revision

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HOBIN
ARCHITECTURE

PROJECT/LOCATION:
COPPERWOOD SIDE ENTRY
BLOCK 1

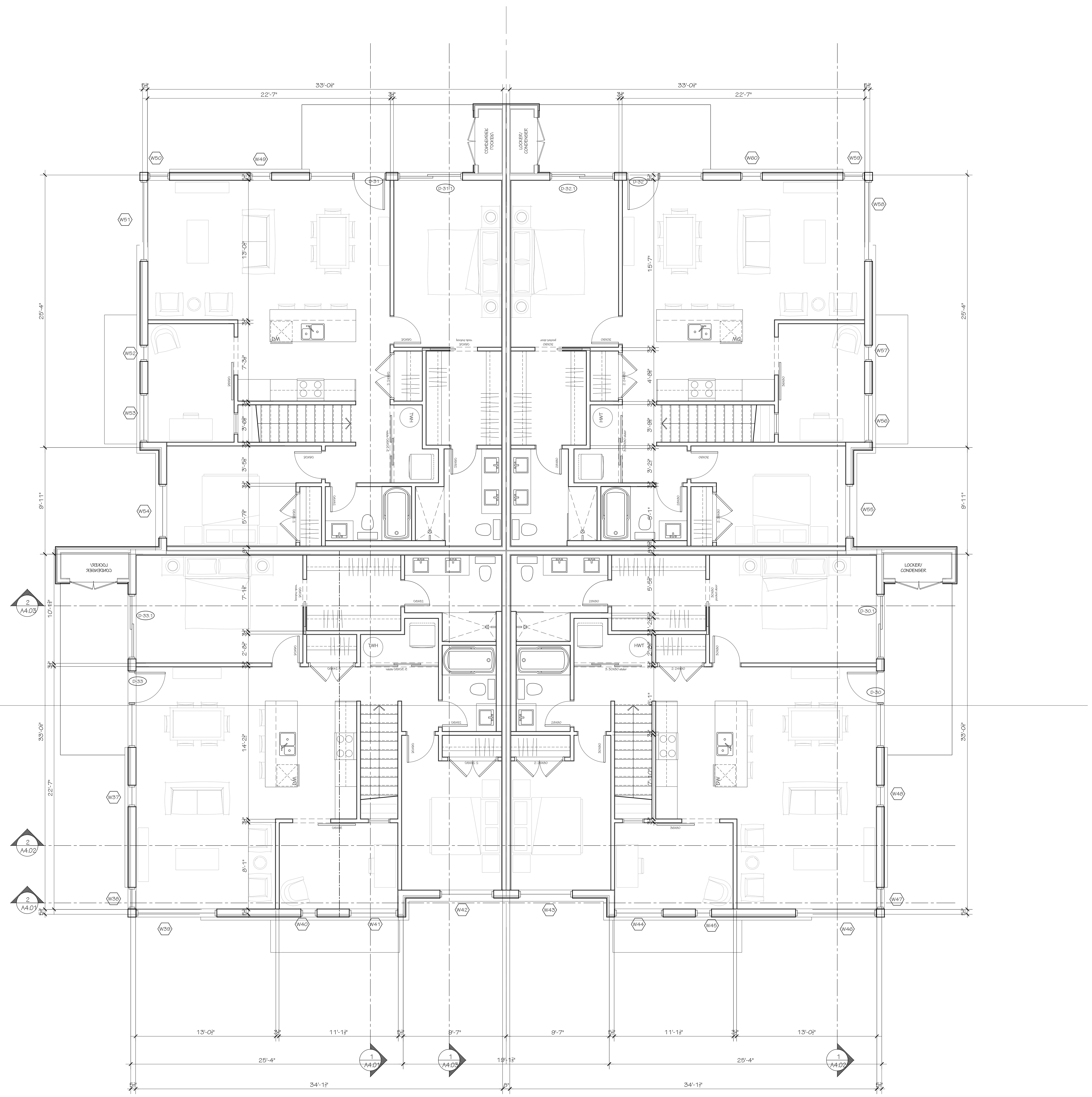
DRAWING TITLE:
SECOND FLOOR PLAN

DRAWN BY:	DATE:	SCALE:
KG	09-30-2024	3/16"=1'-0"

PROJECT:
2202.01

DRAWING NO.:
A2.03

REVISION NO.:



1	XXXX/2024	ISSUED FOR BUILDING PERMIT
no.	date	revision

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HOBIN ARCHITECTURE

PROJECT/LOCATION:
COPPERWOOD SIDE ENTRY
BLOCK 1

DRAWING TITLE:
THIRD FLOOR PLAN

DRAWN BY:	DATE:	SCALE:
KG	09-30-2024	3/16"=1'-0"

PROJECT: 2202.01

DRAWING NO.: A2.04

REVISION NO.:

None
None

None
None

no.	date	revision
1	10/18/2024	ISSUED FOR SITE PLAN

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URBAN DEVELOPMENTS

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ARCHITECTURE

PROJECT/LOCATION:
COPPERWOOD
BLOCK 1

DRAWING TITLE:
FRONT AND
RIGHT SIDE ELEVATIONS

DRAWN BY:	DATE:	SCALE:
KG	09-30-2024	3/16"=1'-0"

PROJECT: 2202.01

DRAWING NO.: A3.01

REVISION NO.:

None
None

no.	date	revision
1	10/18/2024	ISSUED FOR SITE PLAN

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND/ OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

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uniform
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HOBIN
ARCHITECTURE

PROJECT/LOCATION:
COPPERWOOD
BLOCK 1

DRAWING TITLE:
REAR AND
LEFT SIDE ELEVATIONS

DRAWN BY:	DATE:	SCALE:
KG	09-30-2024	3/16"=1'-0"

PROJECT: 2202.01

DRAWING NO.: A3.02

REVISION NO.:

APPENDIX B

Sound Level Calculations

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 10:04:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola.te Time Period: Day/Night 16/8 hours
Description: Outdoor Amenity Area

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -80.00 deg 67.00 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 : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 27.00 deg Angle2 : 67.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 86.50 m
Receiver elevation : 86.50 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	: -90.00 deg	60.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 1 / 1	
House density	: 20 %	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 22.00 / 22.00	m
Receiver height	: 1.50 / 1.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -90.00 deg	Angle2 : -75.00 deg
Barrier height	: 10.50 m	
Barrier receiver distance	: 3.00 / 3.00	m
Source elevation	: 87.75 m	
Receiver elevation	: 86.50 m	
Barrier elevation	: 90.06 m	
Reference angle	: 0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	54.61	54.61
2.Spoor	1.50	58.31	58.31
Total			59.85 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)

1.Buckbean	1.50	47.01	47.01
2.Spoor	1.50	50.71	50.71
Total			52.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.85
(NIGHT): 52.25

STAMSON 5.0 SUMMARY REPORT Date: 09-01-2025 14:38:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1-1.te Time Period: Day/Night 16/8 hours
Description: R1 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -84.00 deg 72.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 / 16.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  53.00 / 53.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	61.83	61.83
2.Spoor	1.50	44.81	44.81
Total			61.92 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	54.24	54.24
2.Spoor	1.50	37.21	37.21
Total			54.33 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 61.92
                           (NIGHT): 54.33
```

STAMSON 5.0 SUMMARY REPORT Date: 20-02-2025 13:10:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te Time Period: Day/Night 16/8 hours
Description: R1 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -84.00 deg 72.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 16.00 / 16.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  53.00 / 53.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	62.15	62.15
2.Spoor	1.50	45.86	45.86
Total			62.25 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	54.56	54.56
2.Spoor	1.50	38.26	38.26
Total			54.66 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 62.25
                       (NIGHT): 54.66
```

STAMSON 5.0 SUMMARY REPORT Date: 20-02-2025 13:53:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r21.te Time Period: Day/Night 16/8 hours
Description: R2 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -83.00 deg 77.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.00 / 17.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -70.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -70.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  89.00 m
Barrier elevation         :  90.06 m
Reference angle           :   0.00

♠
Road data, segment # 3: Spoor (day/night)
-----------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -70.00 deg   28.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
```

Reference angle : 0.00

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	61.46	61.46
2.Spoor	1.50	34.70	34.70
3.Spoor	1.50	55.27	55.27
Total			62.40 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	53.87	53.87
2.Spoor	1.50	27.11	27.11
3.Spoor	1.50	47.67	47.67
Total			54.81 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 62.40
(NIGHT): 54.81

↟
↟

STAMSON 5.0 SUMMARY REPORT Date: 20-02-2025 13:34:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te Time Period: Day/Night 16/8 hours
Description: R2 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -83.00 deg 77.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 17.00 / 17.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -70.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -70.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  89.00 m
Barrier elevation         :  90.06 m
Reference angle           :   0.00

↟
Road data, segment # 3: Spoor (day/night)
-----------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -70.00 deg   28.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      1       (Flat/gentle slope; no barrier)
```

Reference angle : 0.00

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	61.84	61.84
2.Spoor	1.50	38.53	38.53
3.Spoor	1.50	56.04	56.04
Total			62.87 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	54.24	54.24
2.Spoor	1.50	30.93	30.93
3.Spoor	1.50	48.45	48.45
Total			55.27 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 62.87
(NIGHT): 55.27

↟
↟

STAMSON 5.0 SUMMARY REPORT Date: 20-02-2025 15:14:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r31.te Time Period: Day/Night 16/8 hours
Description: R3 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -80.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  89.00 m
Barrier elevation         :  90.06 m
Reference angle           :   0.00
```

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	52.44	52.44
2.Spoor	1.50	54.50	54.50
Total			56.60 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	44.85	44.85
2.Spoor	1.50	46.91	46.91
Total			49.01 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.60
(NIGHT): 49.01

STAMSON 5.0 SUMMARY REPORT Date: 20-02-2025 15:08:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R3.te Time Period: Day/Night 16/8 hours
Description: R3 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -80.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -44.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  89.00 m
Barrier elevation         :  90.06 m
Reference angle           :   0.00
```

```
Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Buckbean         !     1.50 !    53.49 !    53.49
 2.Spoor            !     1.50 !    55.27 !    55.27
--------------------+----------+----------+----------
                      Total                   57.48 dBA
```

```
Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Buckbean         !     1.50 !    45.90 !    45.90
 2.Spoor            !     1.50 !    47.67 !    47.67
--------------------+----------+----------+----------
                      Total                   49.88 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 57.48
(NIGHT): 49.88

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 11:07:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r41.te Time Period: Day/Night 16/8 hours
Description: R4 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -75.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 / 49.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 19.00 deg Angle2 : 60.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 15.00 / 15.00 m
Source elevation : 86.50 m
Receiver elevation : 90.06 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	-85.00 deg	67.00 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	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)
Reference angle	0.00	

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	51.91	51.91
2.Spoor	1.50	60.14	60.14
Total			60.75 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	44.32	44.32
2.Spoor	1.50	52.55	52.55
Total			53.16 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 60.75
(NIGHT): 53.16

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 11:02:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4.te Time Period: Day/Night 16/8 hours
Description: R4 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -75.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 49.00 / 49.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 19.00 deg Angle2 : 60.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 15.00 / 15.00 m
Source elevation : 86.50 m
Receiver elevation : 90.06 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	-85.00 deg	67.00 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	7.80 / 7.80	m
Topography	1	(Flat/gentle slope; no barrier)
Reference angle	0.00	

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	53.11	53.11
2.Spoor	1.50	60.63	60.63
Total			61.34 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	45.52	45.52
2.Spoor	1.50	53.04	53.04
Total			53.75 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 61.34
(NIGHT): 53.75

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 11:36:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r51.te Time Period: Day/Night 16/8 hours
Description: R5 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -66.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 71.00 / 71.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  21.00 / 21.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -85.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  90.06 m
Barrier elevation         :  90.29 m
Reference angle           :   0.00
```

```
Result summary (day)
--------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Buckbean         !     1.50 !    47.46 !    47.46
 2.Spoor            !     1.50 !    59.95 !    59.95
--------------------+----------+----------+----------
                      Total                   60.19 dBA
```

```
Result summary (night)
----------------------

                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Buckbean         !     1.50 !    39.87 !    39.87
 2.Spoor            !     1.50 !    52.36 !    52.36
--------------------+----------+----------+----------
                      Total                   52.60 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 60.19
(NIGHT): 52.60

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 11:32:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5.te Time Period: Day/Night 16/8 hours
Description: R5 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -66.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 71.00 / 71.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  21.00 / 21.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -85.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :  87.75 m
Receiver elevation        :  90.06 m
Barrier elevation         :  90.29 m
Reference angle           :   0.00
```

```
Result summary (day)
--------------------

                   !  source  !   Road   !  Total
                   !  height  !   Leq    !   Leq
                   !   (m)    !  (dBA)   !  (dBA)
-------------------+----------+----------+----------
 1.Buckbean        !     1.50 !    48.93 !    48.93
 2.Spoor           !     1.50 !    60.52 !    60.52
-------------------+----------+----------+----------
                     Total                  60.81 dBA
```

```
Result summary (night)
----------------------

                   !  source  !   Road   !  Total
                   !  height  !   Leq    !   Leq
                   !   (m)    !  (dBA)   !  (dBA)
-------------------+----------+----------+----------
 1.Buckbean        !     1.50 !    41.34 !    41.34
 2.Spoor           !     1.50 !    52.93 !    52.93
-------------------+----------+----------+----------
                     Total                  53.22 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 60.81
(NIGHT): 53.22

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 14:02:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r61.te Time Period: Day/Night 16/8 hours
Description: R6 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -57.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 / 100.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -3.00 deg Angle2 : 32.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 29.00 / 29.00 m
Source elevation : 86.50 m
Receiver elevation : 90.29 m
Barrier elevation : 90.06 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h

```
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
--------------------------------------
Angle1   Angle2           : -85.00 deg   83.00 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           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	44.32	44.32
2.Spoor	1.50	60.37	60.37
Total			60.48 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	36.73	36.73
2.Spoor	1.50	52.78	52.78
Total			52.89 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 60.48
(NIGHT): 52.89

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 13:50:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6.te Time Period: Day/Night 16/8 hours
Description: R6 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -57.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 100.00 / 100.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -3.00 deg Angle2 : 32.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 29.00 / 29.00 m
Source elevation : 86.50 m
Receiver elevation : 90.29 m
Barrier elevation : 90.06 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h

Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -85.00 deg 83.00 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 : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	46.12	46.12
2.Spoor	1.50	60.91	60.91
Total			61.05 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	38.52	38.52
2.Spoor	1.50	53.31	53.31
Total			53.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.05
(NIGHT): 53.45

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 14:24:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7-1.te Time Period: Day/Night 16/8 hours
Description: R7 - First Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -51.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 122.00 / 122.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  18.00 / 18.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	42.68	42.68
2.Spoor	1.50	61.17	61.17
Total			61.23 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	35.09	35.09
2.Spoor	1.50	53.58	53.58
Total			53.64 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 61.23
(NIGHT): 53.64

↟
↟

STAMSON 5.0 SUMMARY REPORT Date: 21-02-2025 14:21:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7.te Time Period: Day/Night 16/8 hours
Description: R7 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -51.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 122.00 / 122.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   86.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  18.00 / 18.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	44.52	44.52
2.Spoor	1.50	61.65	61.65
Total			61.73 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	36.93	36.93
2.Spoor	1.50	54.05	54.05
Total			54.13 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 61.73
                       (NIGHT): 54.13
```

STAMSON 5.0 SUMMARY REPORT Date: 24-02-2025 08:58:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8.te Time Period: Day/Night 16/8 hours
Description: R8 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -3.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 120.00 / 120.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -3.00 deg Angle2 : 5.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 80.00 / 80.00 m
Source elevation : 86.50 m
Receiver elevation : 90.29 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	-90.00 deg	4.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	39.00 / 39.00	m
Receiver height	7.80 / 7.80	m
Topography	1	(Flat/gentle slope; no barrier)
Reference angle	0.00	

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	43.40	43.40
2.Spoor	1.50	53.96	53.96
Total			54.33 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	35.81	35.81
2.Spoor	1.50	46.37	46.37
Total			46.74 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.33
(NIGHT): 46.74

STAMSON 5.0 SUMMARY REPORT Date: 24-02-2025 09:41:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9.te Time Period: Day/Night 16/8 hours
Description: R9 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -60.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 99.00 / 99.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -38.00 deg Angle2 : -3.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 30.00 / 30.00 m
Source elevation : 86.50 m
Receiver elevation : 90.29 m
Barrier elevation : 90.06 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

```
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Buckbean (day/night)
------------------------------------------
Angle1   Angle2           :  -3.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  99.00 / 99.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  -3.00 deg   Angle2 : 8.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :  60.00 / 60.00  m
Source elevation          :  86.50 m
Receiver elevation        :  90.29 m
Barrier elevation         :  89.00 m
Reference angle           :   0.00

♠
Road data, segment # 3: Spoor (day/night)
-----------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Spoor (day/night)
---------------------------------------
Angle1   Angle2           :   6.00 deg   72.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  58.00 deg   Angle2 : 72.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :  10.00 / 10.00  m
Source elevation          :  87.75 m
Receiver elevation        :  90.29 m
Barrier elevation         :  90.06 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	42.39	42.39
2.Buckbean	1.50	44.11	44.11
3.Spoor	1.50	54.23	54.23
Total			54.88 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	34.80	34.80
2.Buckbean	1.50	36.52	36.52
3.Spoor	1.50	46.64	46.64
Total			47.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.88
(NIGHT): 47.29

STAMSON 5.0 SUMMARY REPORT Date: 24-02-2025 10:03:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10.te Time Period: Day/Night 16/8 hours
Description: R10 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -3.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 69.00 / 69.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -3.00 deg Angle2 : 18.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 30.00 / 30.00 m
Source elevation : 86.50 m
Receiver elevation : 90.06 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 42.00 / 42.00	m
Receiver height	: 7.80 / 7.80	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -90.00 deg	Angle2 : -54.00 deg
Barrier height	: 10.50 m	
Barrier receiver distance	: 3.00 / 3.00	m
Source elevation	: 87.75 m	
Receiver elevation	: 90.06 m	
Barrier elevation	: 90.29 m	
Reference angle	: 0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	45.75	45.75
2.Spoor	1.50	52.07	52.07
Total			52.98 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	38.15	38.15

2.Spoor	1.50	44.47	44.47
	Total		45.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.98
(NIGHT): 45.38

STAMSON 5.0 SUMMARY REPORT Date: 24-02-2025 10:48:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11.te Time Period: Day/Night 16/8 hours
Description: R11 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -74.00 deg 56.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 48.00 / 48.00 m
Receiver height : 7.80 / 7.80 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -43.00 deg Angle2 : 47.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 11.00 / 11.00 m
Source elevation : 86.50 m
Receiver elevation : 90.06 m
Barrier elevation : 89.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT)	8000
Percentage of Annual Growth	0.00
Number of Years of Growth	0.00
Medium Truck % of Total Volume	7.00
Heavy Truck % of Total Volume	5.00
Day (16 hrs) % of Total Volume	92.00

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

Angle1 Angle2	0.00 deg	49.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	42.00 / 42.00	m
Receiver height	7.80 / 7.80	m
Topography	1	(Flat/gentle slope; no barrier)
Reference angle	0.00	

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	49.18	49.18
2.Spoor	1.50	51.46	51.46
Total			53.48 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	41.59	41.59
2.Spoor	1.50	43.87	43.87
Total			45.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.48
(NIGHT): 45.89

STAMSON 5.0 SUMMARY REPORT Date: 24-02-2025 11:39:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12.te Time Period: Day/Night 16/8 hours
Description: R12 - Third Floor

Road data, segment # 1: Buckbean (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : 0.00 deg 55.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 7.80 / 7.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   -72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -84.00 deg   Angle2 : -72.00 deg
Barrier height            :  10.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :  87.75 m
Receiver elevation        :  89.00 m
Barrier elevation         :  90.29 m
Reference angle           :   0.00

↟
Road data, segment # 3: Spoor (day/night)
-----------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Spoor (day/night)
---------------------------------------
Angle1   Angle2           : -72.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :   7.80 / 7.80   m
Topography                :      2       (Flat/gentle slope; with barrier)
```

Barrier angle1 : -72.00 deg Angle2 : -19.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 6.00 / 6.00 m
Source elevation : 87.75 m
Receiver elevation : 89.00 m
Barrier elevation : 90.06 m
Reference angle : 0.00

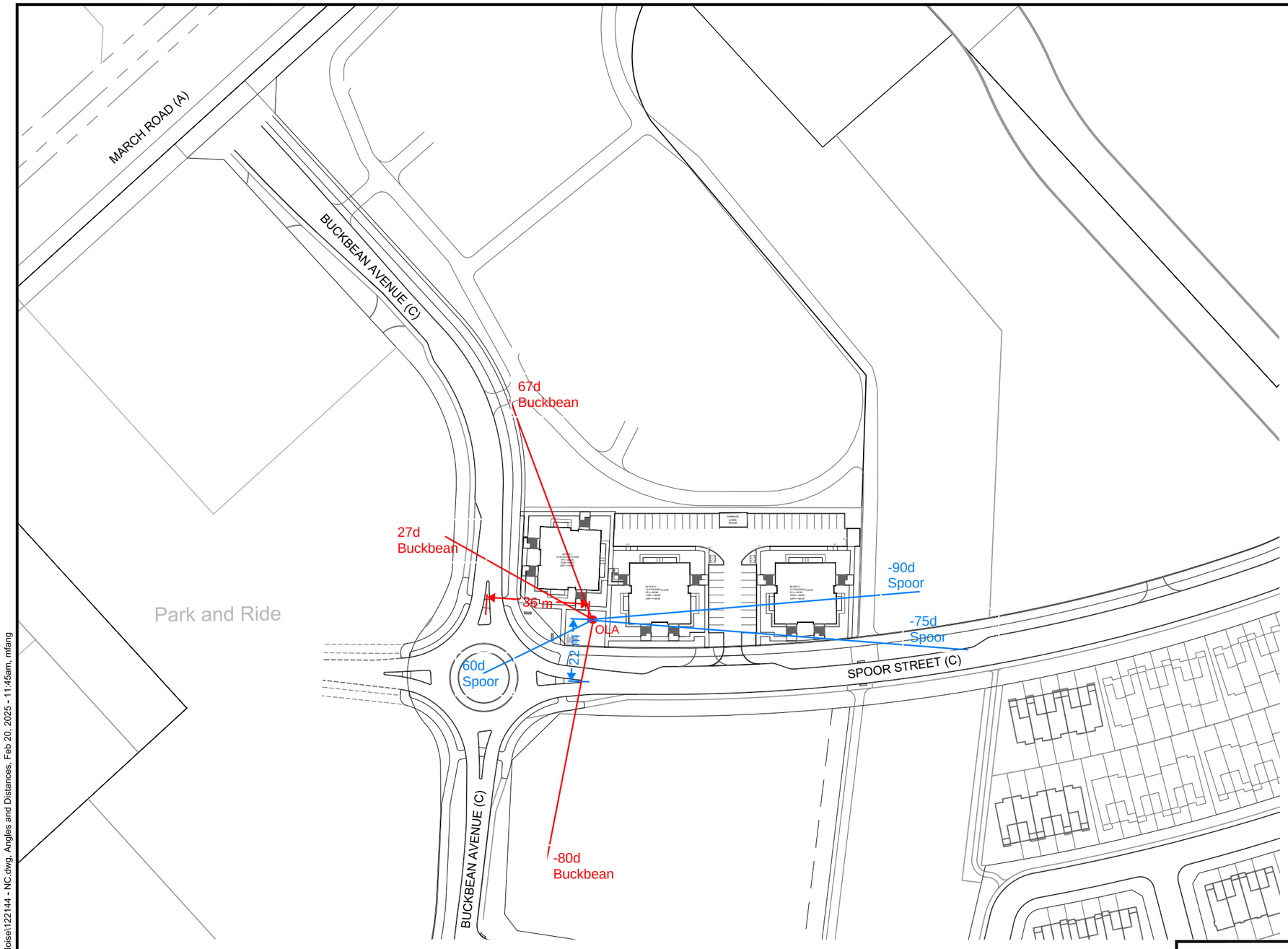
Result summary (day)

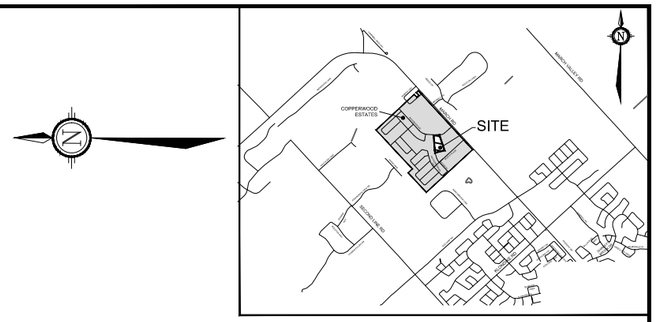
	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	52.53	52.53
2.Spoor	1.50	37.01	37.01
3.Spoor	1.50	48.97	48.97
Total			54.20 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Buckbean	1.50	44.94	44.94
2.Spoor	1.50	29.41	29.41
3.Spoor	1.50	41.37	41.37
Total			46.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.20
(NIGHT): 46.61





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● OLA

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-OLA

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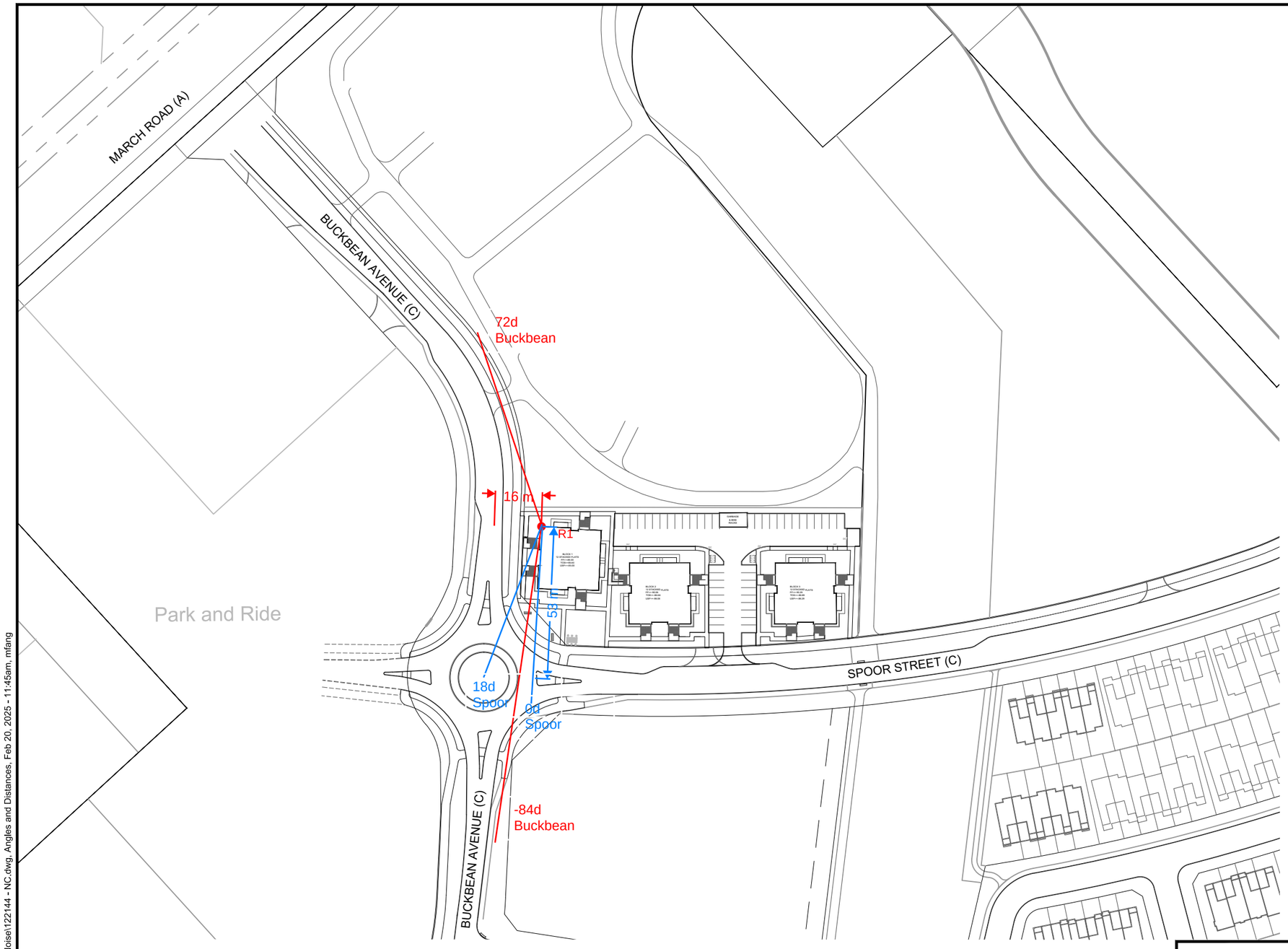

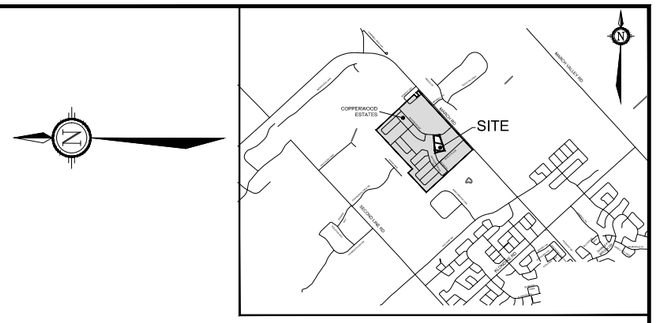

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● R1

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CITY OF OTTAWA
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R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R1

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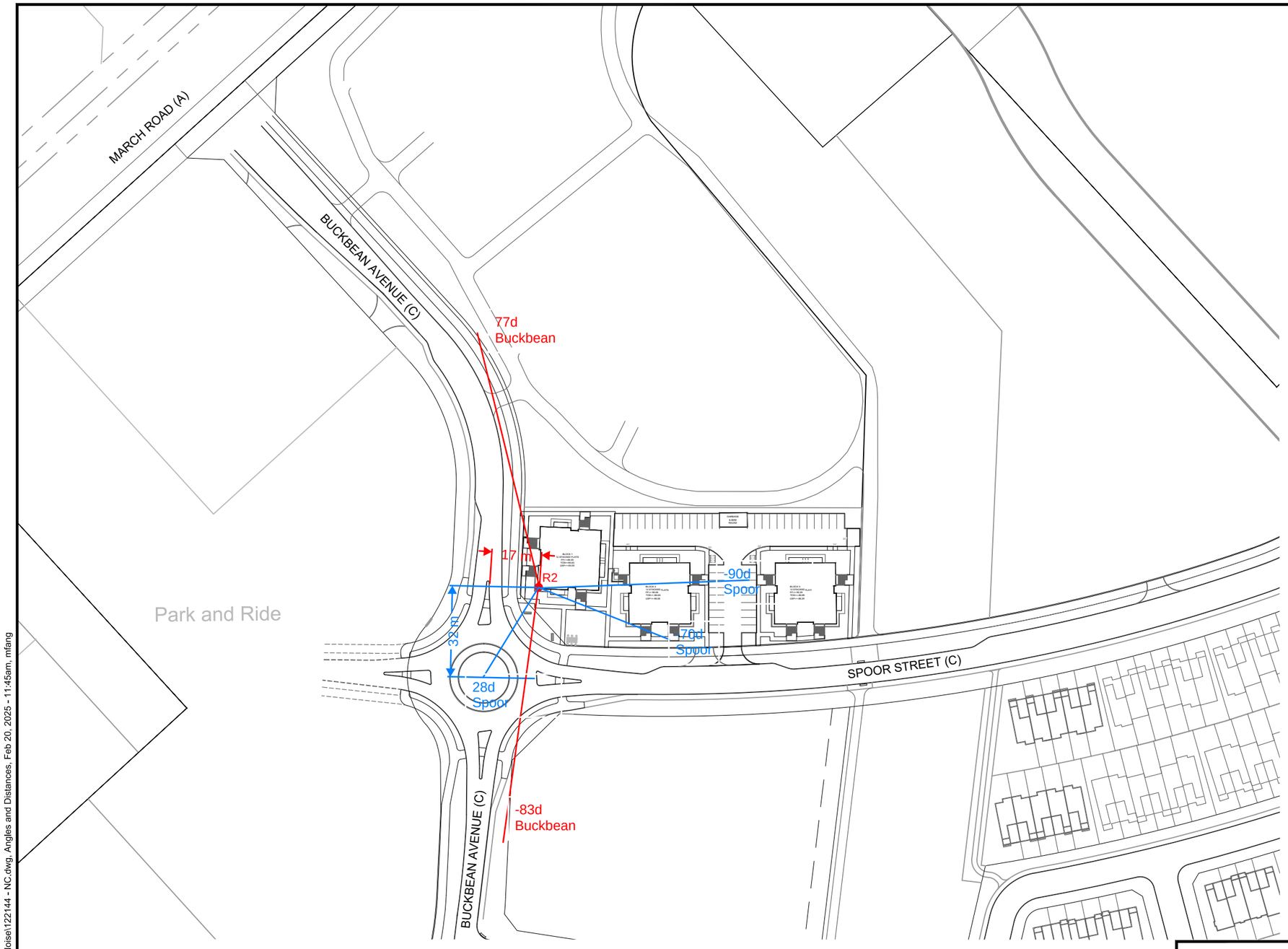

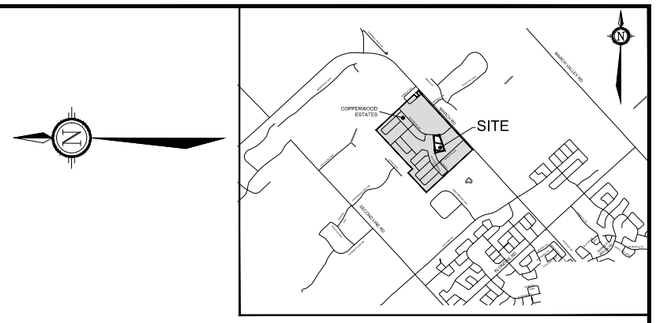

LEGEND

● R2

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R2

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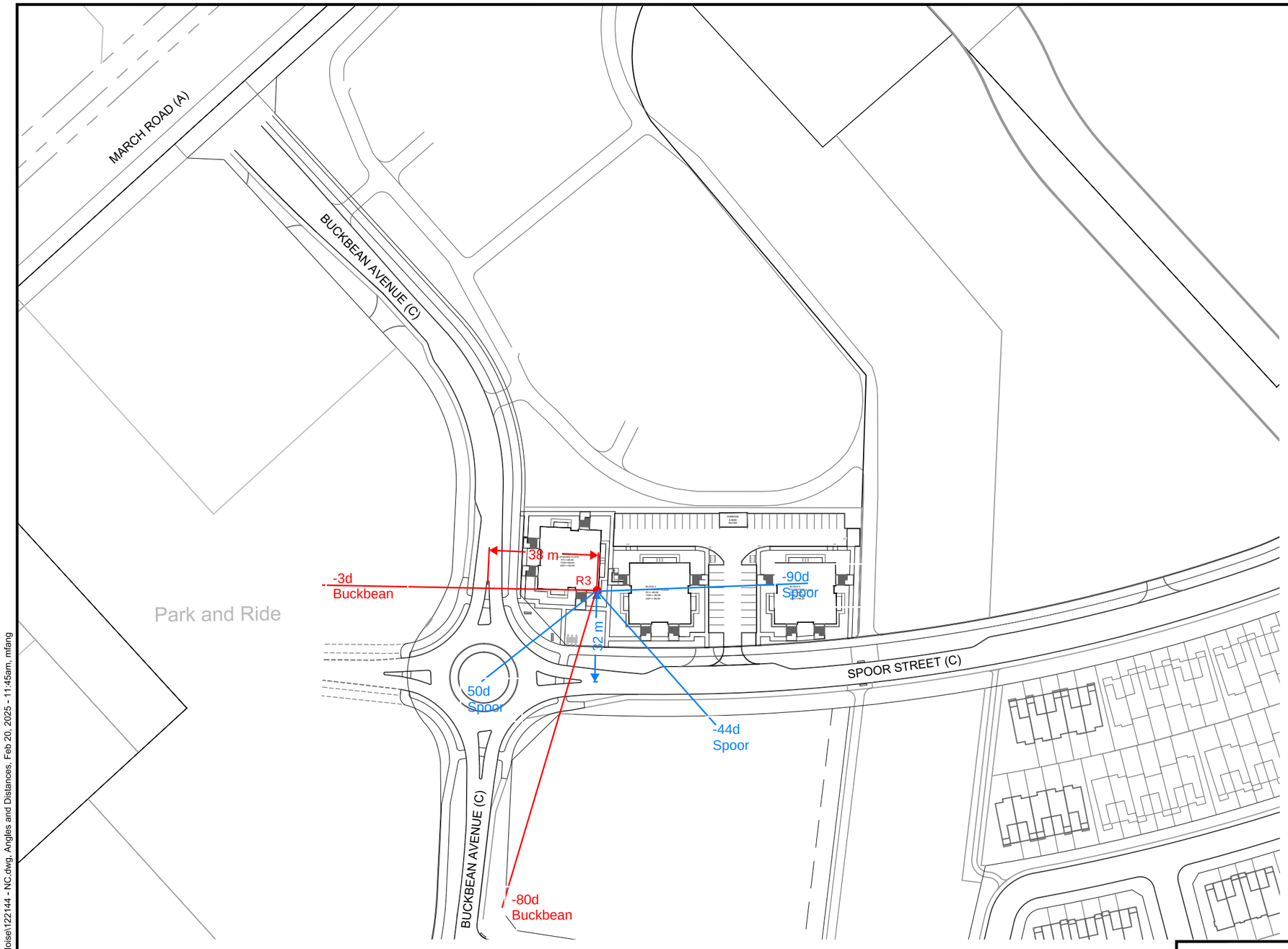

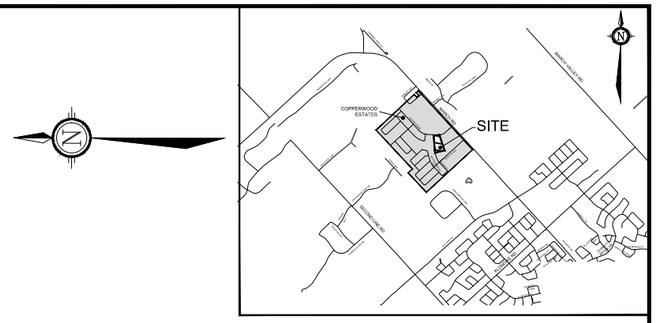

LEGEND

● R3

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R3

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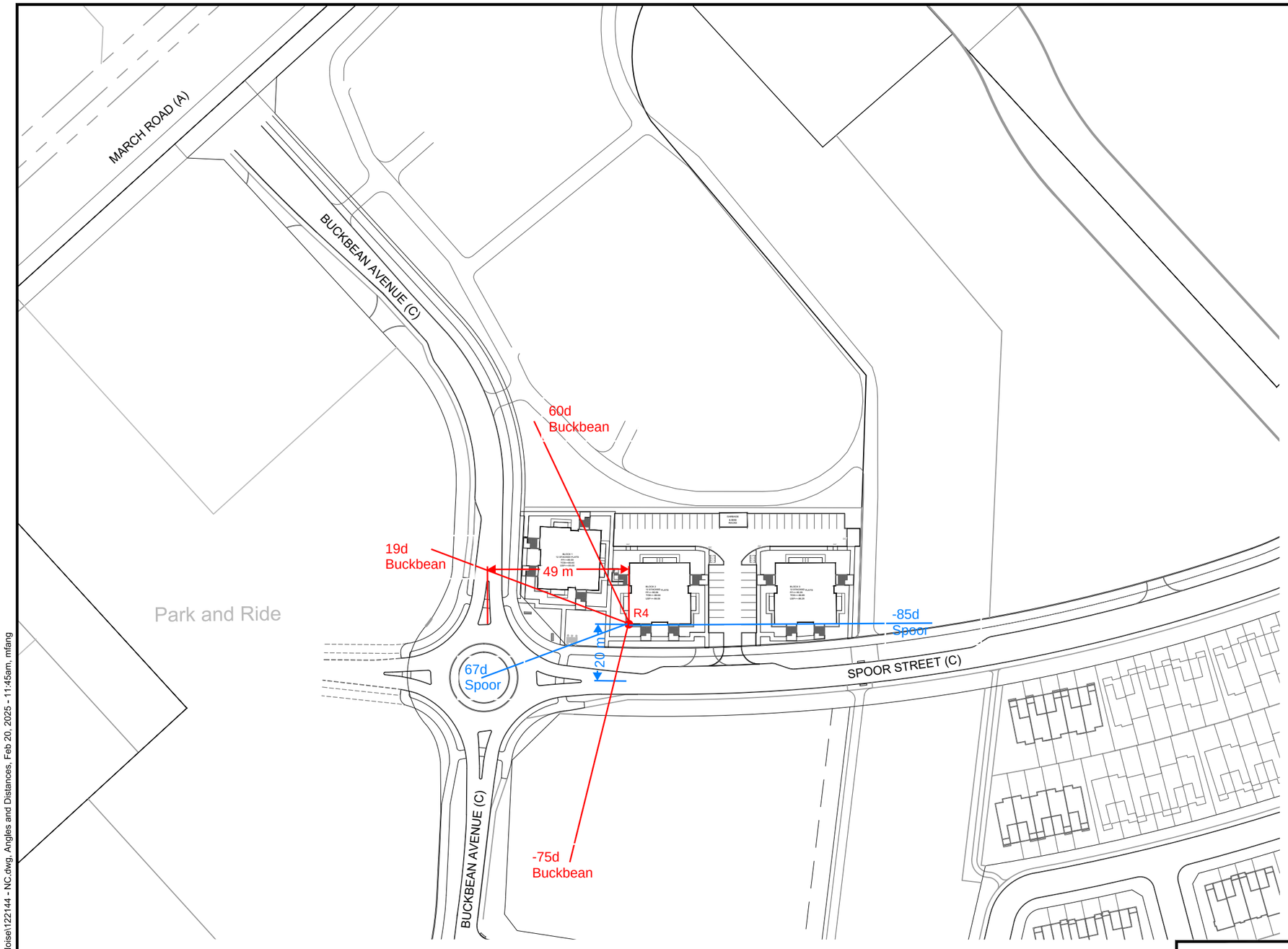

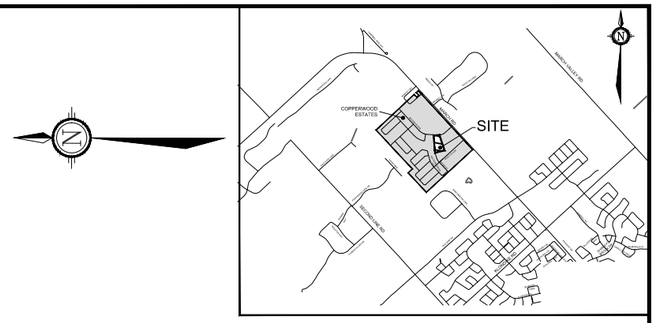

LEGEND

● R4

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R4

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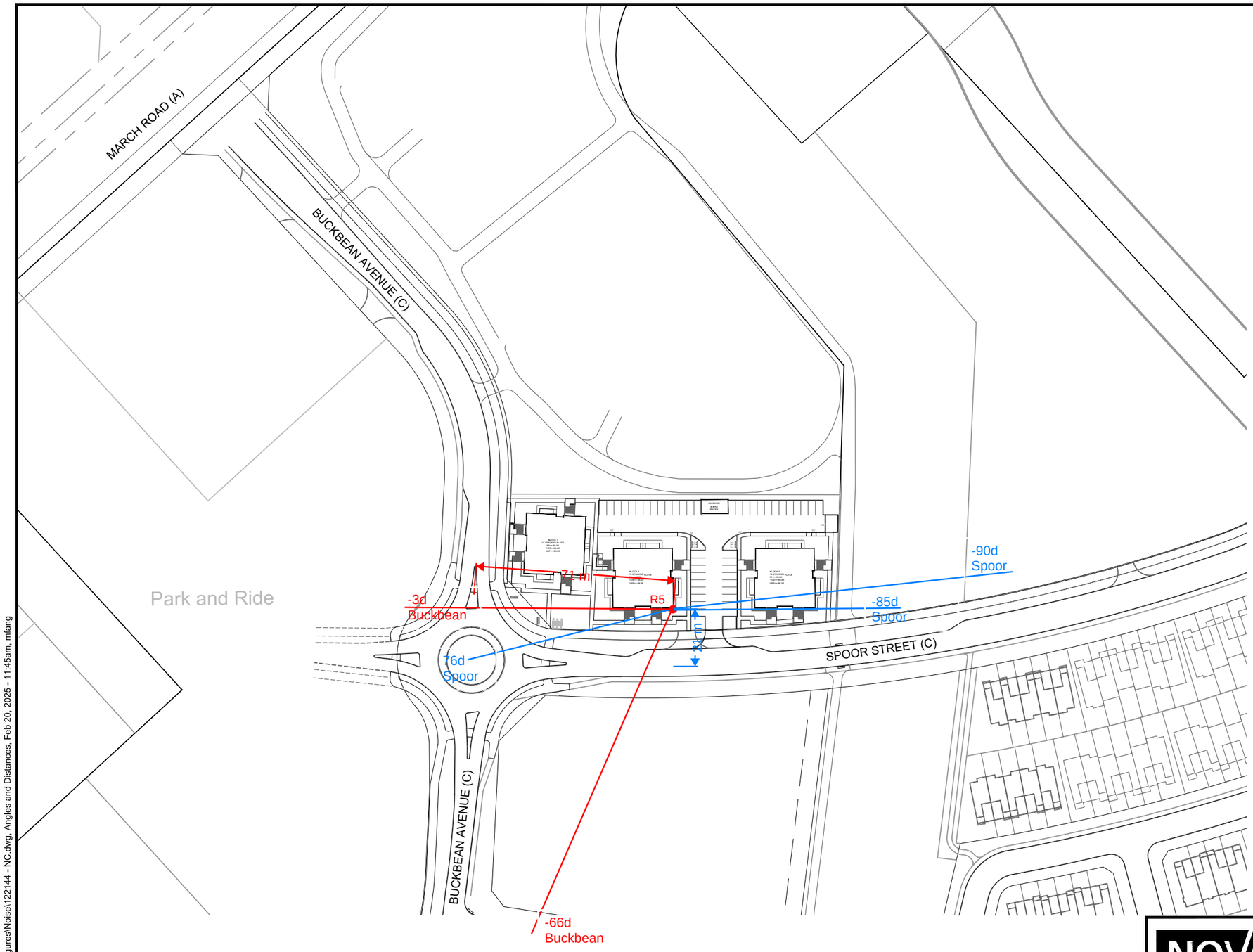

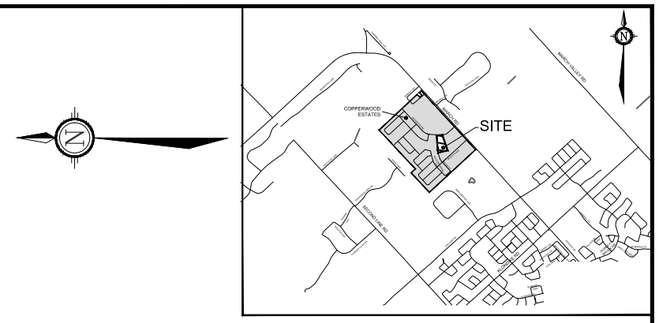

LEGEND

● R5

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R5

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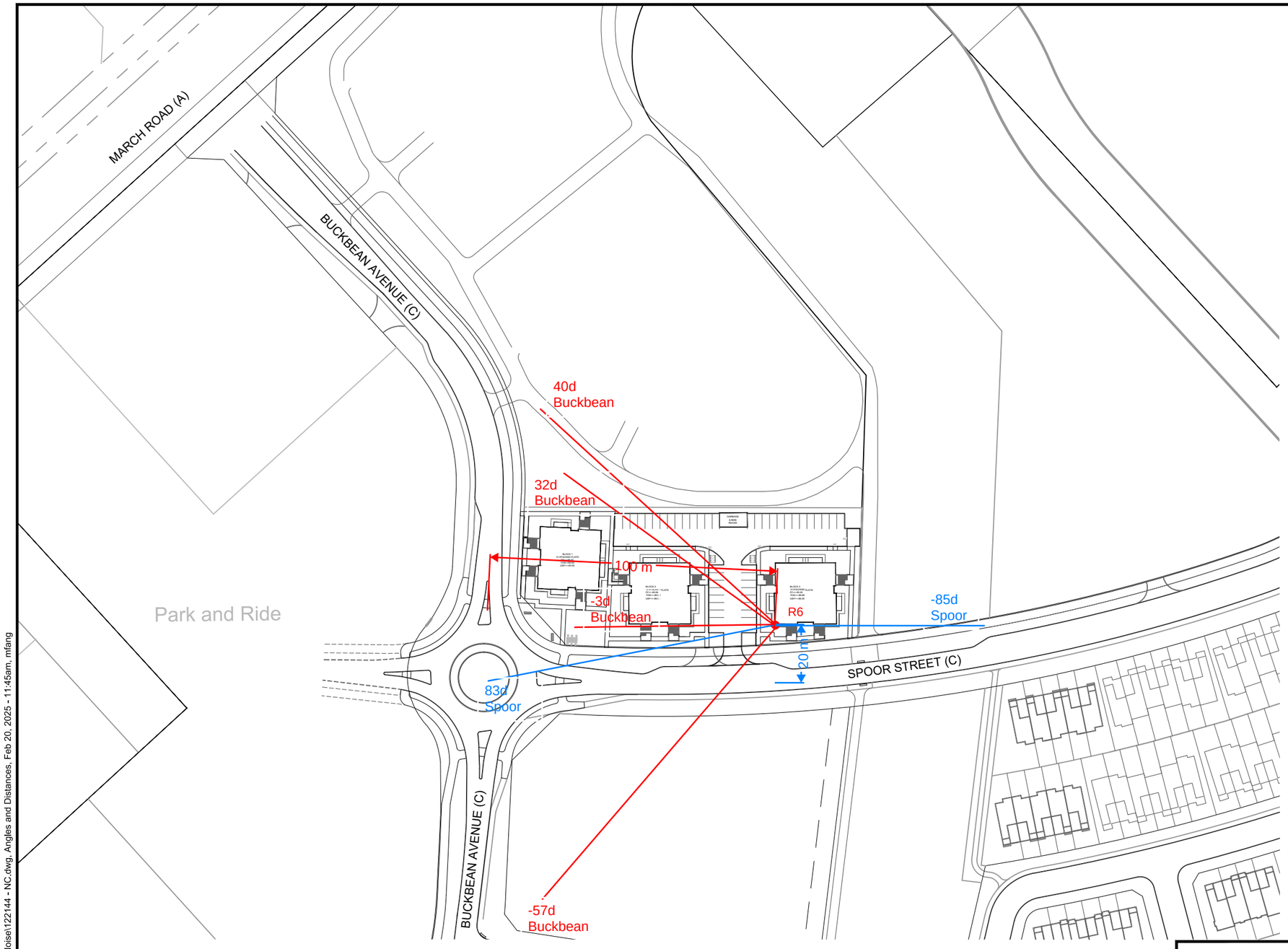

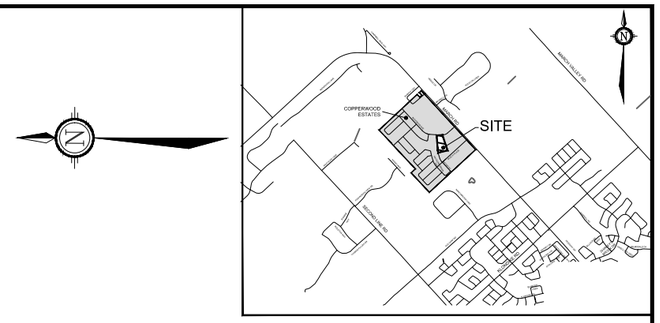

LEGEND

● R6

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE FEB. 2025 | JOB 122144 | FIGURE FIG-R6

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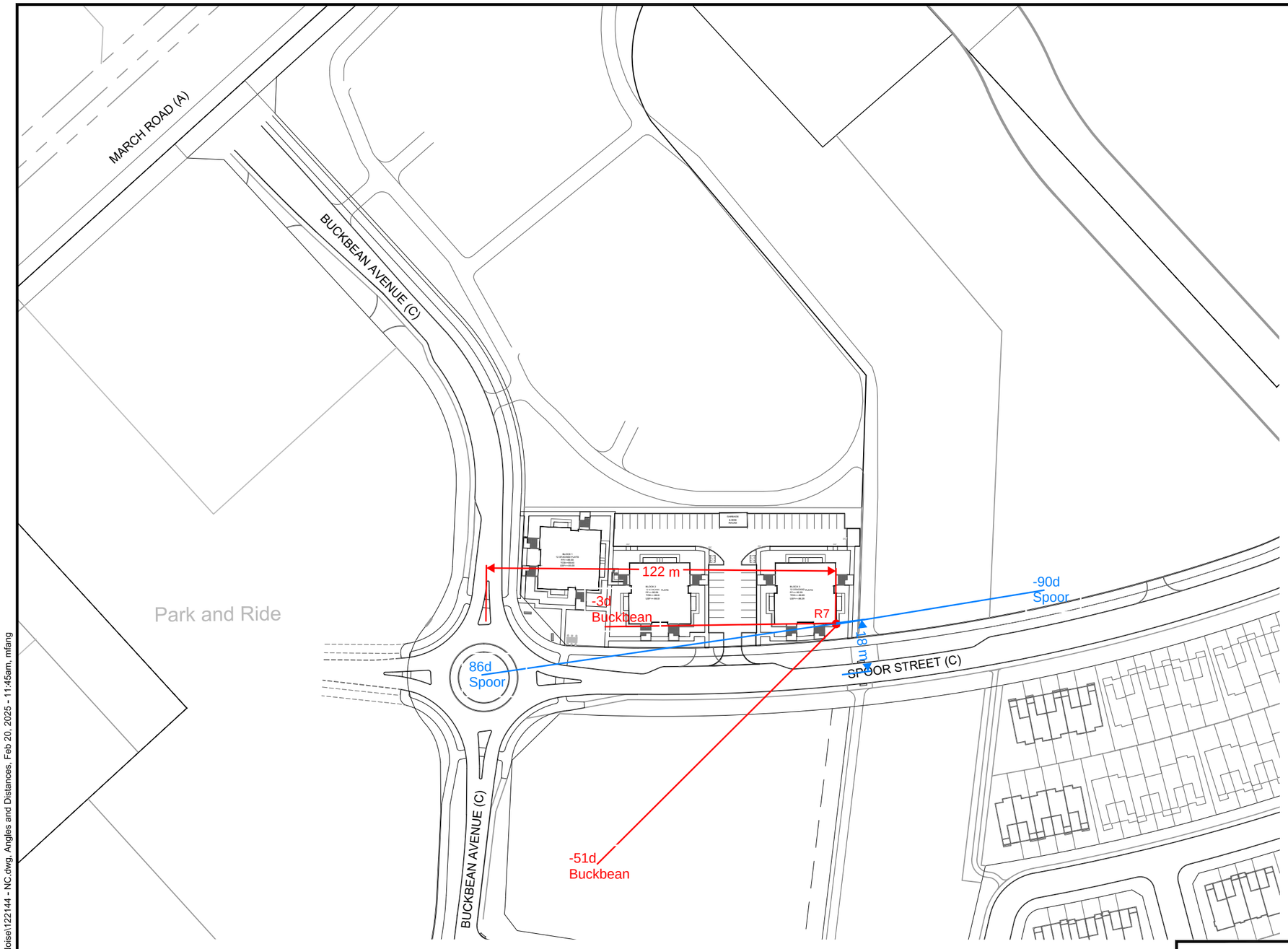

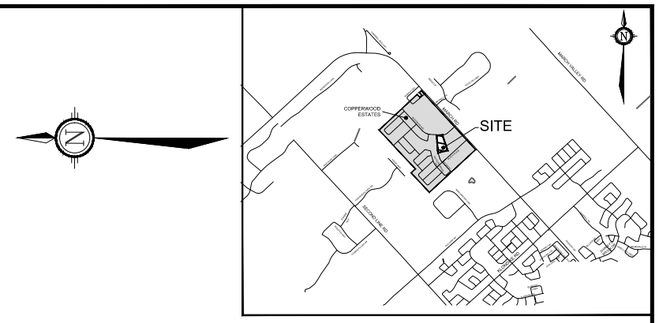

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● R7

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 125

R1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
FEB. 2025	122144	FIG-R7

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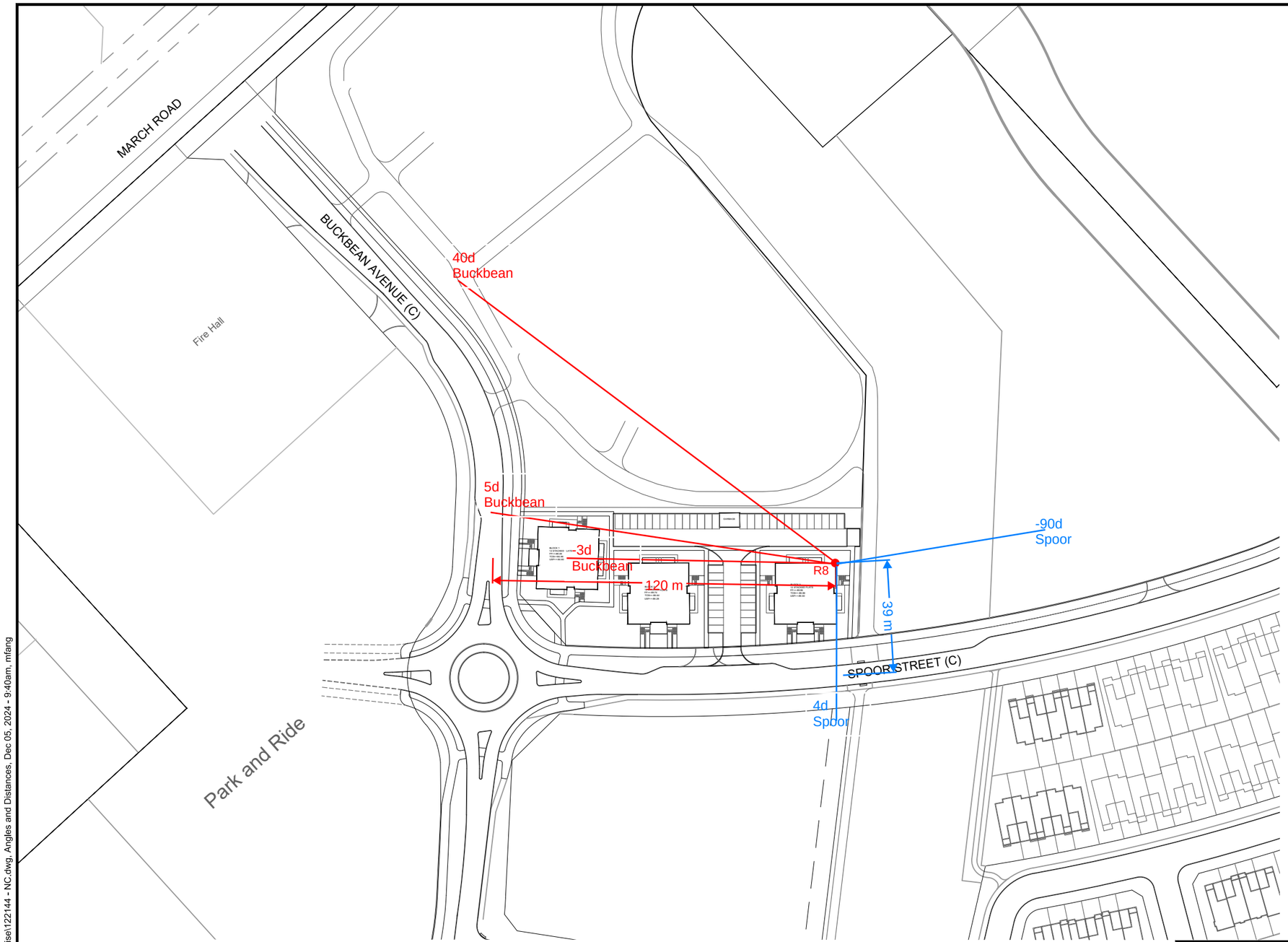

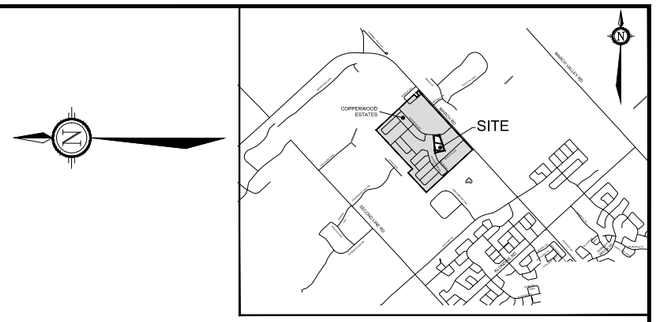

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● R8

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 307

R8 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE DEC. 2024 | JOB 122144 | FIGURE FIG-R8

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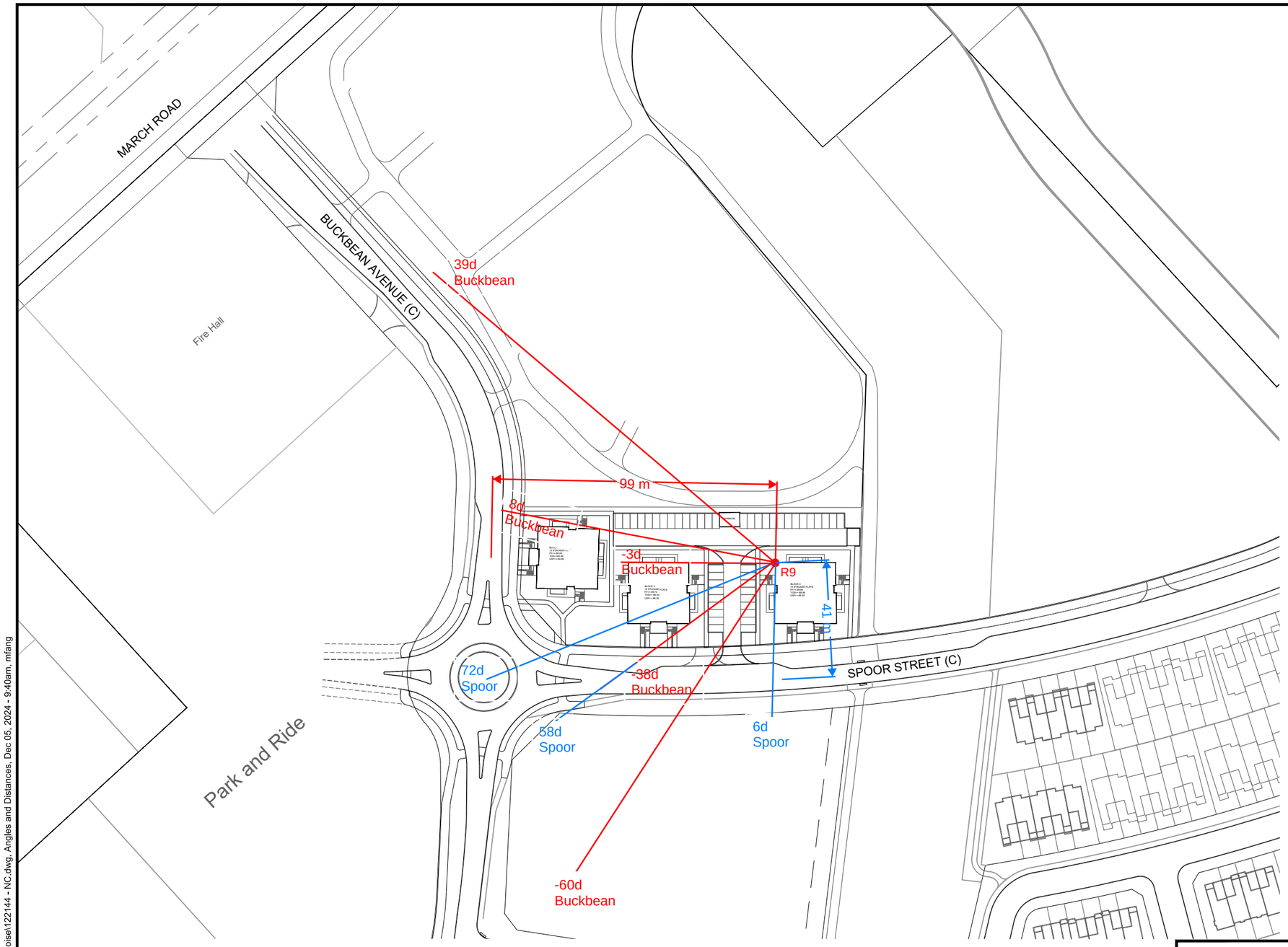

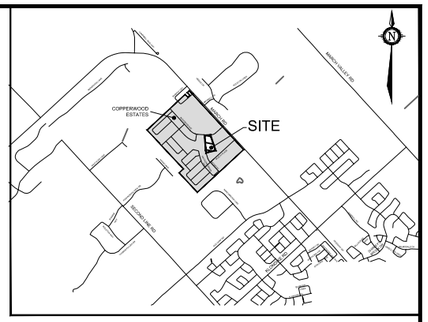

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● R9

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 307

R9 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE DEC. 2024 | JOB 122144 | FIGURE FIG-R9

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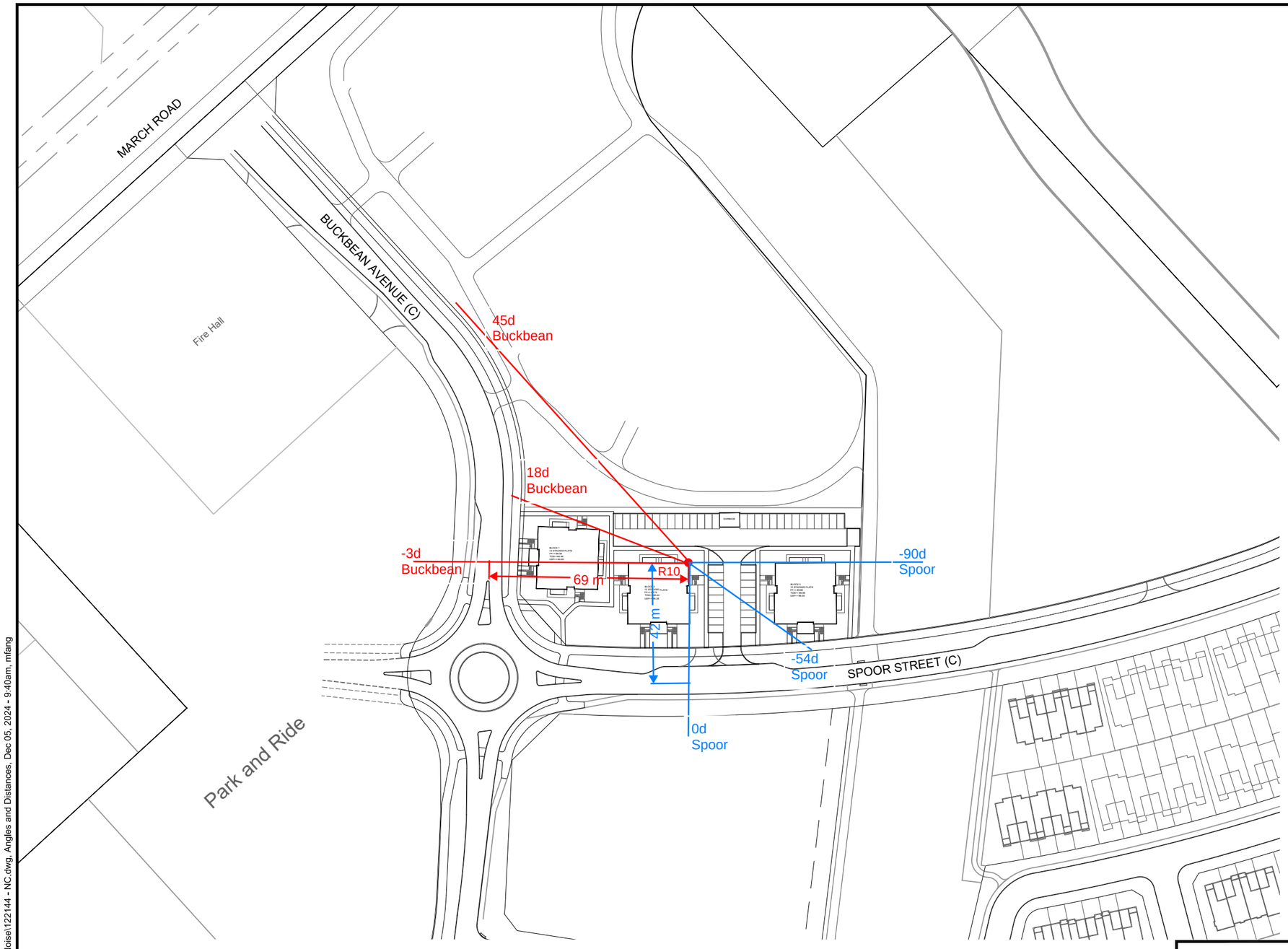

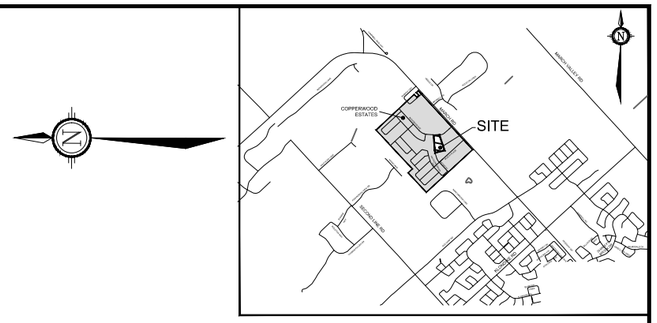

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● R10

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CITY OF OTTAWA
COPPERWOOD FLATS
LOWER-RISE APPARTMENTS - BLOCK 307

R10ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
DEC. 2024	122144	FIG-R10

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MARCH ROAD

BUCKBEAN AVENUE (C)

Fire Hall

Park and Ride

SPOOR STREET (C)

56d
Buckbean

47d
Buckbean

48 m

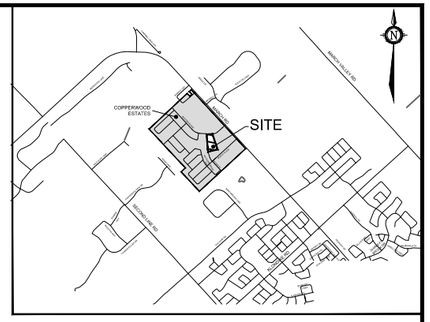
R11

-43d
Buckbean

49d
Spoor

0d
Spoor

-74d
Buckbean



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● R11

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CITY OF OTTAWA
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LOWER-RISE APPARTMENTS - BLOCK 307

R11 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE DEC. 2024 | JOB 122144 | FIGURE FIG-R11

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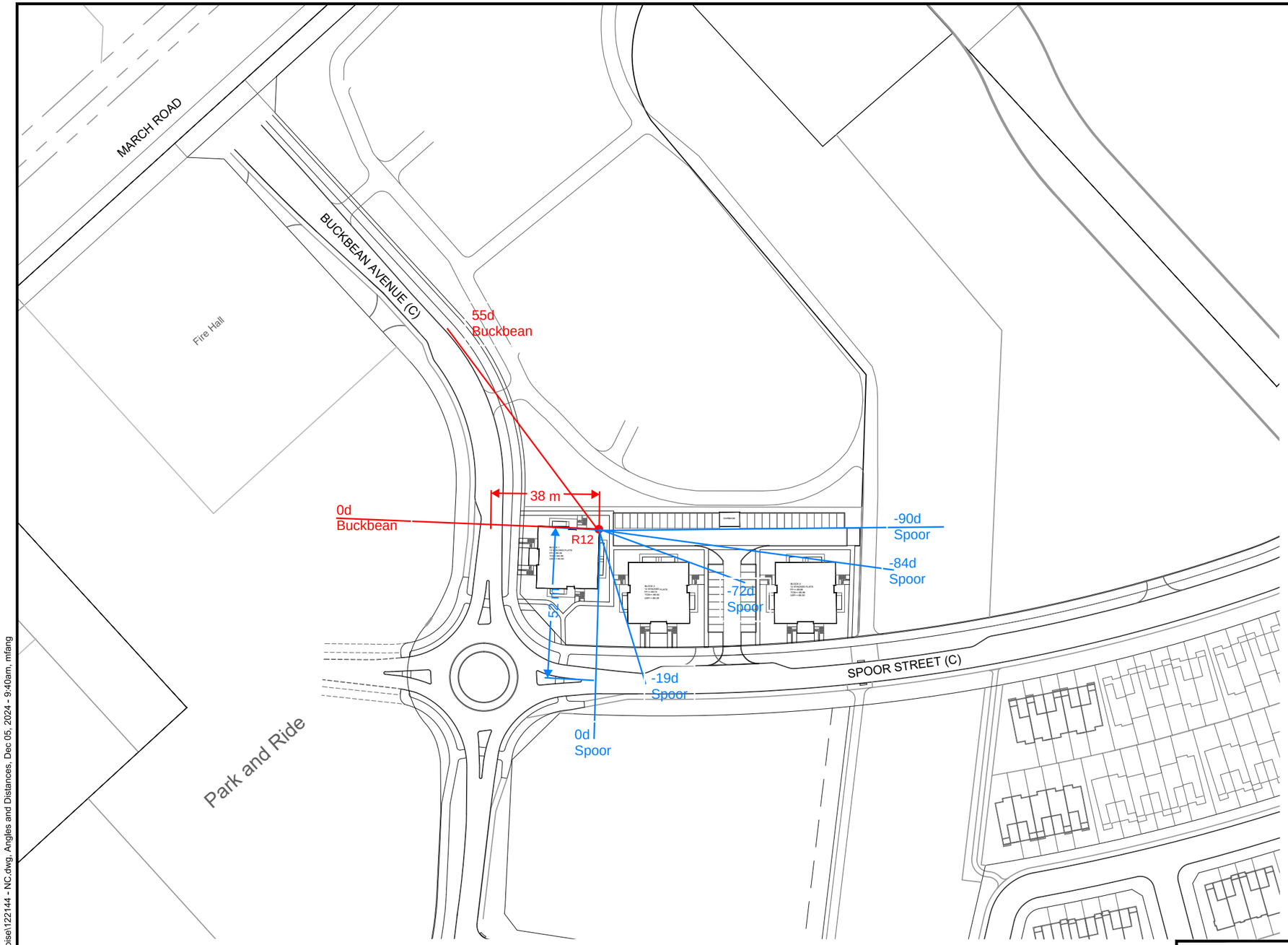

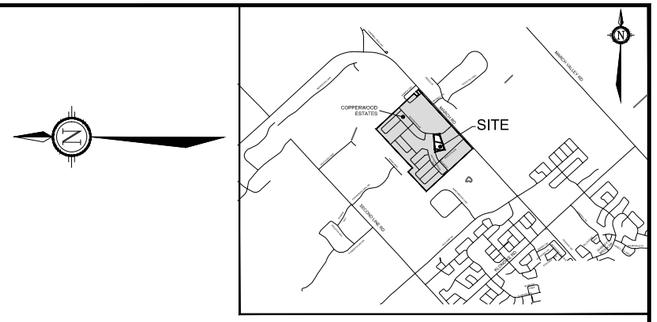

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● R12

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R12ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE DEC. 2024 | JOB 122144 | FIGURE FIG-R12

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APPENDIX C

Kanata North Community Design Plan – Report No.: R – 2016 – 020, dated June 28, 2016,

Excerpts

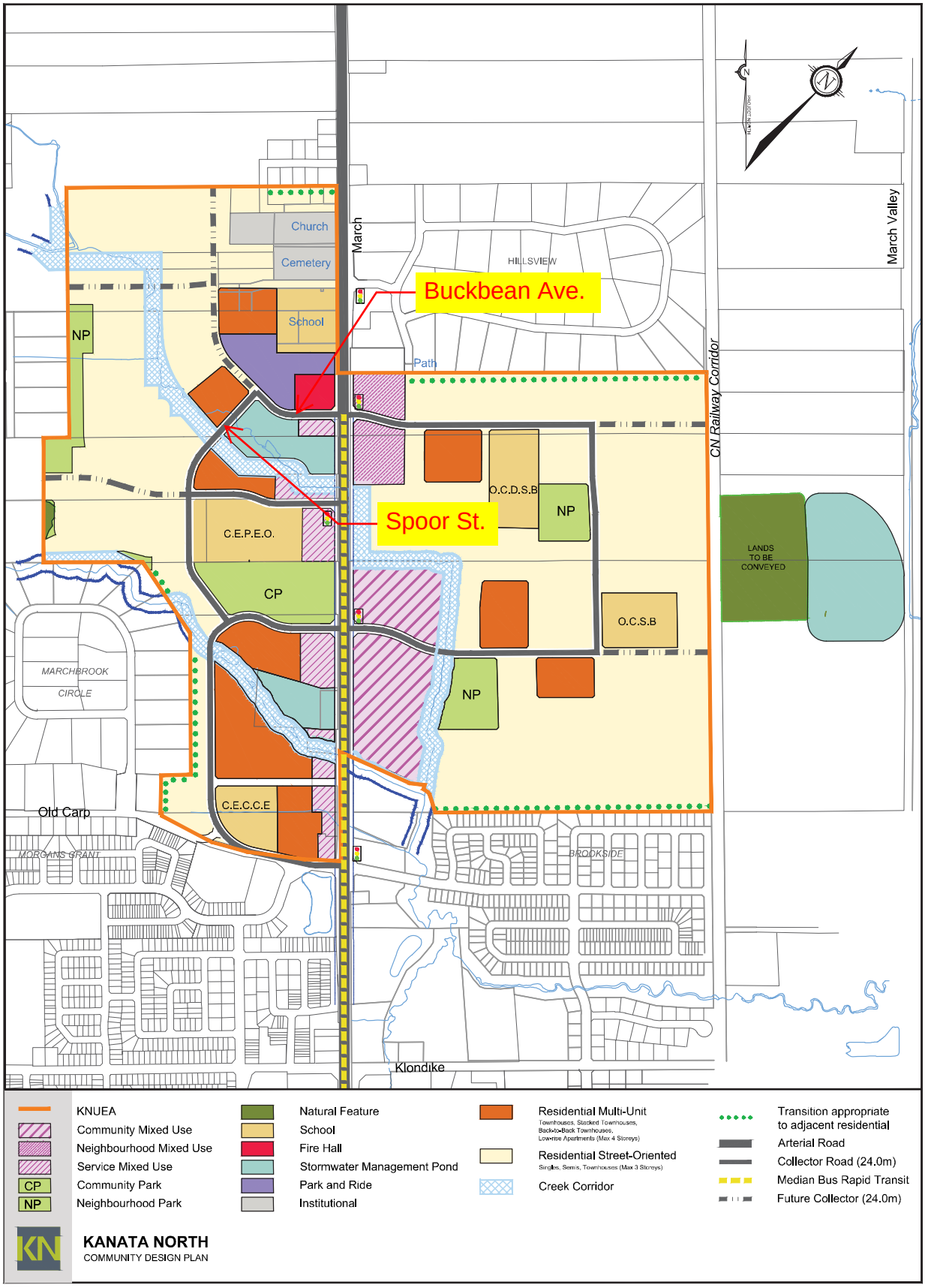

FIGURE 16 | Land Use Plan

5.5 TRANSPORTATION MASTER PLAN

The Transportation Master Plan (TMP) analyzes the future long-term transportation infrastructure needs of the new community, including the collector road network, access locations, provisions for pedestrian and cycling linkages, and interim and ultimate road cross sections that incorporate the planned widening of March Road and the extension of planned transit facilities.

The TMP identifies the transportation plan for the community in conjunction with the needs already established in the City of Ottawa 2013 Transportation Master Plan. The TMP also serves as the Environmental Assessment document for the proposed transportation and transit infrastructure and satisfies the requirements of Phase 1 and 2 of the Integrated EA & Planning Act Process. The projects identified in supporting studies of the TMP are also subject to the class EA process.

Traffic calculations were based on the Demonstration Plan and include a contingency of 10% to ensure that the road network can accommodate between 2,900 and 3,300 units.

INTERSECTION LOCATIONS

The Kanata North community will be well served by the adjacent arterial and collector road network, including March Road, Old Carp Road, Second Line Road and Terry Fox Drive. A network of seven collector roads is recommended to safely and adequately distribute traffic throughout the new community. Possible future road connections to the north, east and west allow for future connectivity.

The Land Use Plan includes five signalized intersections along March Road:

- In the south, the existing signalized intersection at March Road and Maxwell Bridge Road;
- In the north, a new signal at the existing intersection of March Road and Maxwell Road across from St Isidore School;
- Two signalized intersections where the proposed collector roads intersect with March Road; and
- A signalized intersection north of the high school to facilitate north bound left turns into the community on the west side of March Road and to provide a second signalized access for the northwest quadrant. The proposed location also provides a pedestrian crossing to maintain the connectivity of the trail system and improve connectivity within the core area of the community, facilitating access to the high school, Community Park and Community Mixed-Use area.

Right-in right-out driveways are assumed for the commercial uses along the east side of March Road.

A full movement intersection on Old Carp Road is also included. In response to concerns from the community about the impact of increased traffic volume and speed on Old Carp Road, the proposed alignment of the collector in the southwest quadrant was revised to have Old Carp Road form a T intersection with the new collector. Halton Terrace will also be realigned to meet the proposed collector at a T intersection.

While the projected amount of development traffic travelling west on Old Carp Road is expected to be minimal, should problems arise, a variety of mitigation measures could be considered to address adverse impacts, including:

- Turn restrictions at Old Carp Road and the proposed north-south collector
- Speed cushions on Old Carp Road

Monitoring of traffic along Old Carp Road will be required once approximately 750 units have been constructed on the west side of March Road within the CDP area.

INTERSECTION CONTROL

The feasibility of roundabout and signalized intersection control along March Road at the proposed KNUEA access intersections was discussed with the TAC and PAC. It was determined that a roundabout would require an outer diameter of 55m to 60m to provide acceptable conditions on all approaches, and that signal control yielded favourable results, assuming optimized signal timing.

In light of the analysis presented, traffic signals are considered the preferred type of control at the March Road access locations for the following reasons:

- The constraints of the 44.5m ROW corridor;
- The need to give greater priority to March Road traffic.

Analysis was also undertaken to determine the preferred type of intersection control at four internal collector/collector intersections within the KNUEA. Alternative control types considered include stop control and a conventional single lane roundabout.

Based on the analysis presented, the collector/collector intersections in the northwest and southwest quadrants could be considered as possible candidates for roundabout control. The collector/collector intersections in the northeast and southeast quadrants should be considered as possible candidates for stop control or mini roundabout. Mini roundabouts are generally small enough to fit within a standard right-of-way.

The form of stop control will be determined at the Draft Plan of Subdivision stage as volume projections may be determined more accurately at that time.

MARCH ROAD INTERIM AND ULTIMATE

March Road will be widened in two phases to accommodate the increase in vehicular traffic and to extend the future Kanata North Transitway for Bus Rapid Transit (BRT). A 44.5m right-of-way width is recommended along the March Road corridor between the current urban area boundary and the northern limit of the KNUEA. This right-of-way width will provide for the interim four lane widening of March Road and the ultimate widening to accommodate extension of the median BRT system.

Subject to City and Development Charges funding, March Road will be widened to a four lane divided urban cross section. It is recommended that the City examine and implement interim transit priority measures as required through the study area as part of the initial widening from two to four lanes in preparation for the next City of Ottawa TMP update. Transit priority measures typically include dedicated bus lanes, transit signal priority treatments and bus queue jumps.

Road cross-sections for both the Interim and Ultimate March Road are shown on as Figures 27 and 28 in Section 6.2.4.

BUS RAPID TRANSIT (BRT)

The Kanata North Transitway study proposes to implement a Bus Rapid Transit (BRT) system within the median of March Road. The City of Ottawa's 2013 TMP identifies the median BRT system along March Road between Corkstown Road and Solandt Road in its 2031 affordable rapid transit network. The Affordable Network also identifies isolated transit priority measures along March Rd. between Solandt and Maxwell Bridge/Halton Terrace.

The City of Ottawa's 2013 TMP identifies the median BRT system along March Road between Corkstown Road and Solandt Road in its 2031 Affordable Rapid Transit and Transit Priority Network. The 2013 TMP also identifies the future need to extend the median BRT system to Maxwell Bridge Road/Halton Terrace post 2031, with a conceptual future transit corridor extending further north towards Dunrobin Road.

The Kanata North CDP TMP satisfies the requirements of the Municipal Class EA process for the portion of the conceptual future transit corridor, as shown in the City's 2013 TMP, that extends between Maxwell Bridge Road/Halton Terrace and the North Collector. Additional studies will need to be completed to fulfill the Municipal Class EA requirements for any further extension of the median BRT north of the March Road/North Collector intersection.

Median BRT stations will be identified along the corridor within the KNUEA as development occurs and detailed BRT plans are developed.

When the City of Ottawa extends the median BRT system through the KNUEA lands, the March Road interim cross-section can be widened to the west to accommodate the ultimate median BRT cross-section as shown in Figure 28.

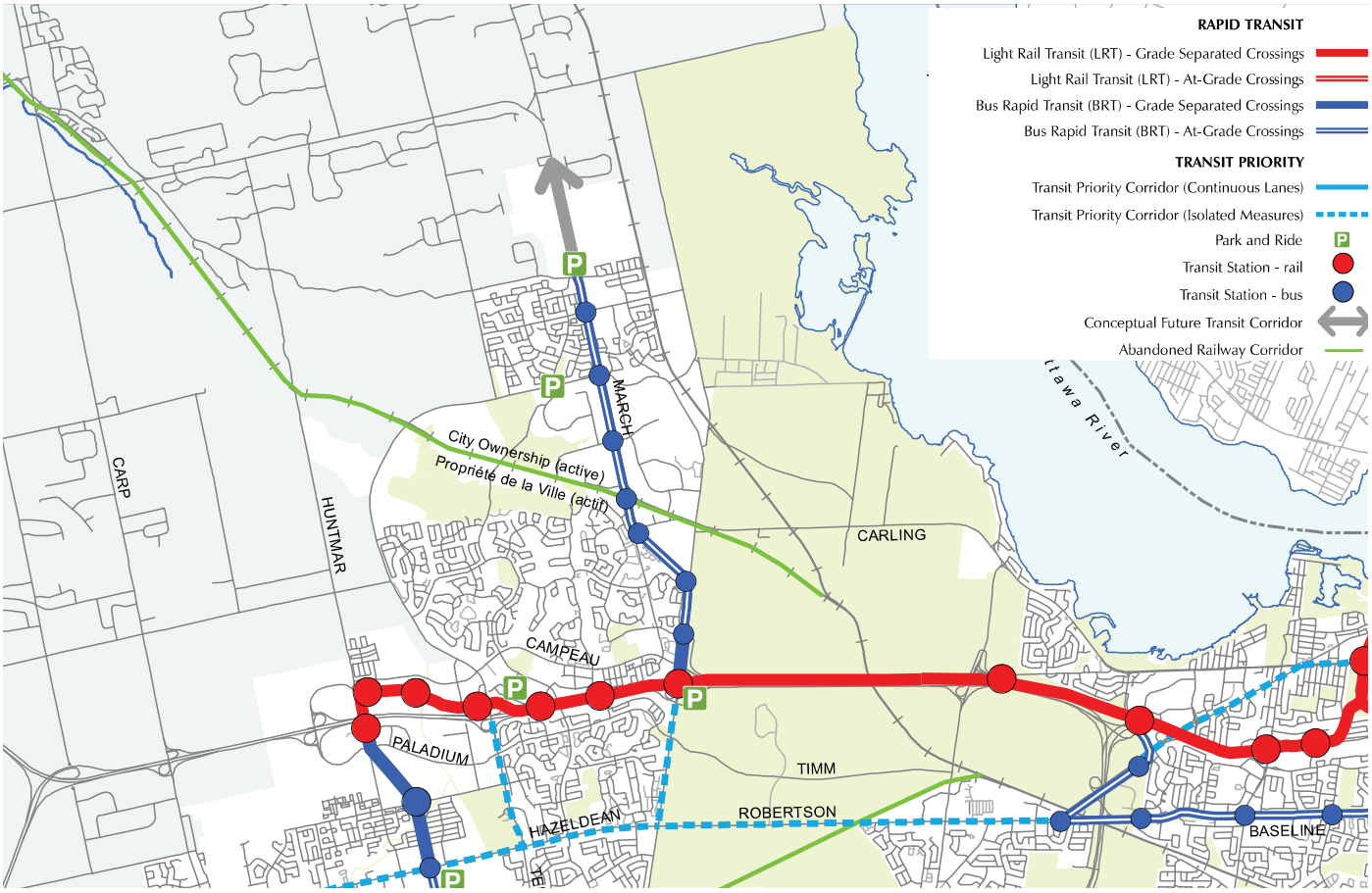

FIGURE 24 | Rapid Transit and Transit Priority Ultimate Network Concept

Figure 24 is an excerpt from Official Plan Schedule D - Rapid Transit and Transit Priority Network and illustrates the City's Rapid Transit and Transit Priority – Ultimate Network which shows the proposed extension of the BRT through the KNUEA post 2031.

PARK AND RIDE

The Kanata North Transitway Environmental Project Report (October 2013) and City of Ottawa 2013 TMP identified a future Park and Ride Lot to be located along March Road north of Maxwell Bridge Road, as shown on the excerpt from Official Plan Schedule D provided as Figure 24. Through the CDP process it was determined that the optimal location for the future Park and Ride facility would be further north, at the northwest corner of the March Road/North Collector Road intersection. This location allows the Park and Ride to be at the end of the line for peak hour transit routes and to allow the Park and Ride to function as the terminus of the BRT along March Road.

The park and ride parcel shown in the Land Use Plan wraps around the proposed fire hall in the northwest quadrant of the March Road intersection. This configuration provides the opportunity for an access on the collector road as well as March Road if desired.

It was determined that the park and ride should have a minimum of 500 parking spaces to account for additional ridership from the surrounding rural areas. It was determined that this could be accommodated on a 2.5ha parcel.

TRANSIT SERVICING

OC Transpo will provide service on March Road and on the collector roads. OC Transpo will determine the final transit routes through the KNUEA and provide input on the desired stop locations and service frequency as the community builds out. The cross-sections developed accommodate transit amenities, such as bus shelters, on the inbound side of the street. Design and construction of the collector roads will be such that they are appropriate for transit operation. Provision for transit service in early phases of development will be encouraged through the creation of Early Service Agreements between developers and City of Ottawa, OC Transpo. Early transit service will to help achieve the projected ridership targets and minimize vehicular site traffic.

ON STREET PARKING

Parking will be permitted on one side of collector roadways except the Midblock Collector adjacent to the high school, which will permit parking on both sides of the roadway. Parking will be permitted on both sides of all local roadways within the KNUEA.

The following strategies promoted by Building Better and Smarter Suburbs (BBSS) should be considered during the draft plan of subdivision process.

- Construct townhouse blocks with either four or six units (all paired driveways);
- Wide and shallow townhouse lots;
- Multi-unit residential with rear-access parking;
- Multi-unit residential with basement-level parking;
- Communal parking areas;
- Visitor parking areas;
- Increased mixing with singles and townhouses.