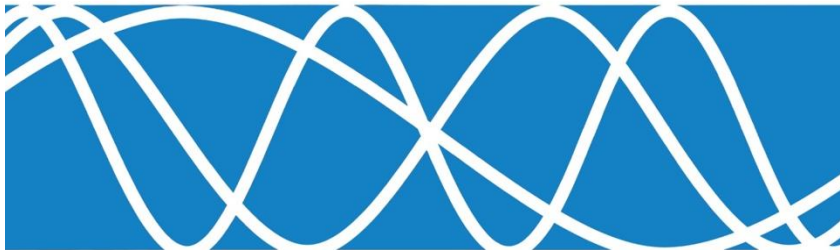


Noise Feasibility Study

**Proposed Residential
Development**

**5558 Drummond Road,
Niagara Falls, Ontario**

December 17, 2025
HGC Project #: 02400228



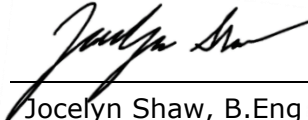
Prepared for:

Blythwood Homes
7058 Ridgewood Cres
Niagara Falls, Ontario
L2J 3H1

Version Control
5558 Drummond Road, Niagara Falls, Ontario


Ver.	Date	Version Description	Prepared By
0	June 13, 2024	Noise Feasibility Study prepared as part of the planning and approvals process.	Y. Lo/ S.Paul
1.0	December 17, 2025	Noise Feasibility Study to reflect changes to the site plan	J. Shaw/ V. Garcia

Prepared by:



Jocelyn Shaw, B.Eng

Reviewed by:



Victor Garcia, P.Eng



Howe Gastmeier Chapnik Limited

Limitations

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1 INTRODUCTION AND SUMMARY

HGC Noise Vibration Acoustics was retained by Blythwood Homes to conduct a noise feasibility study for a proposed residential development to be located at 5558 Drummond Road, in the City of Niagara Falls, Ontario. The proposed development will include 4-storey residential building. The surrounding lands are existing residential and commercial. There is a Tim Hortons to the north and the Columbus Club Hall to the southeast. There are no other significant stationary sources within 500m of the site. The study is required by the City of Niagara Falls as part of the development approval process.

This report has been updated to include the latest site plan dated June 2025 and to include updated road traffic data.

The primary noise source impacting the site was determined to be road traffic on Drummond Road. Highway 420 is a secondary source of noise. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP), Region and the Municipality.

The sound level predictions indicate that future road traffic sound levels will exceed MECP guidelines at the proposed residential development. The provision for the future installation of air conditioning at the occupant's discretion is required for the proposed building. Air conditioning meets and exceeds this requirement. As the Site Plan application progresses, an acoustical consultant should review the mechanical drawings and details of demising constructions, when available, to help ensure that the noise impact of the development on the environment, and of the development on itself, are maintained within acceptable levels. Any building construction and double-glazed windows meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the proposed buildings. Noise warning clauses are also required to inform future occupants of the road traffic sound level excesses, and the proximity of nearby commercial and retail uses.



2 SITE DESCRIPTION AND NOISE SOURCES

Figure 1 shows a key plan which identifies the location of the proposed development. The residential development is located 5558 Drummond Road in Niagara Falls, Ontario. The preliminary site plan prepared by A.C.K Architectures Studio Inc. dated June, 2025 is included as Figure 2, also showing prediction locations. The development is proposed to include one 4-storey residential building along with associated parking.

HGC personnel visited the site in May, 2024. The primary source of noise is road traffic from Drummond Road. Highway 420 is a secondary source of noise. The surrounding lands are existing residential uses. There are commercial/retail buildings such as Tim Hortons to the North and Columbus Club Hall to the southeast. Sounds from these uses were not audible at the subject site over traffic sounds, nevertheless, a noise warning clause is recommended in Section 6 to inform the future occupants of the presence of the existing uses.

3 TRAFFIC NOISE ASSESMENT

3.1 Road Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [LEQ] in units of A weighted decibels [dBA].

Table 1: Road Traffic Noise Criteria

Space	Daytime L _{EQ} (16 hour)	Nighttime L _{EQ} (8 hour)
	Road	Road
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

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

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels at the façade exceed 60 dBA or daytime sound levels at the façade exceed 65 dBA. The provision for the future installation of air conditioning at the occupant's discretion is required when nighttime sound levels at the façade are in the range of 51 to 60 dBA or when daytime sound levels at the façade are in the range of 56 to 65 dBA.

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

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

3.2 Traffic Sound Level Assessment

3.2.1 Road Traffic Data

Traffic data for Drummond Road was obtained from the City of Niagara Falls in the form of turning movement counts for the year 2022 and is included in Appendix A. The commercial vehicle percentage of 2.1% was calculated and further split into 1.3% heavy trucks and 0.8% medium trucks. Traffic volumes were conservatively assumed to grow at a rate of 2.5% per year for ten years (to 2036).

Traffic data for Highway 420 was obtained from the Ministry of Transportation (MTO) in the form of summer average annual traffic data (SADT) for the year 2021 and is included in Appendix A. The commercial vehicle percentage was calculated from the truck AADT as 3.1% with 1.2% medium trucks and 1.9% heavy trucks. Traffic volumes were conservatively assumed to grow at a rate of 2.5% per year for ten years (to 2036).

Table 2 Table 1 summarizes the road traffic volume data used in this study.

Table 2: Projected Road Traffic Data to 2036

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit [km/h]
			Medium	Heavy	
Drummond Road	19,259	90 / 10	1.3	0.8	50
Highway 420	102,974	85 / 15	1.2	1.9	80

3.2.2 Road Traffic Noise Predictions

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

Predictions of the traffic sound levels were made at the various dwelling units. The results of these predictions are summarized in Table 3. The acoustic

requirements may be subject to modifications if the site plan is changed significantly.

Sound levels were predicted at the plane of the top storey windows during daytime and nighttime hours to investigate ventilation requirements and during the daytime in the OLAs. Building setbacks indicated on the site plan have been used in the analysis.

Table 3: Future Traffic Sound Levels, [dBA], Without Mitigation

Prediction Location	Description	Daytime at Façade	Nighttime at Façade
		L _{EQ} (16 hour)	L _{EQ} (8 hour)
A	West Façade	65	58
B	North Façade	62	57
C	East Façade	56	52
D	South Façade	58	51

3.3 Discussions and Recommendations

3.3.1 Building Façade Constructions

Since the daytime and nighttime sound levels at the facades of the residential units will be less than 65 dBA during the day and less than 60 dBA during the night due to road traffic, any exterior wall, and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for all the dwelling units in this development.

3.3.2 Indoor Living Areas and Ventilation Requirements

Provision for Adding Central Air Conditioning

The predicted future sound levels outside the proposed building will be between 56 and 65 dBA during the daytime hours and/or between 51 and 60 dBA during the nighttime. To address this excess, the MECP guidelines recommend that this dwelling be equipped with the provision for the future installation of air

conditioning at the occupant's discretion. Air conditioning meets and exceeds this requirement.

Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-216 and NPC-300, as applicable. The guidelines also recommend warning clauses for all units with ventilation requirements.

3.3.3 Outdoor Living Area

There are no common amenity spaces identified on the site plan. The proposed residential building will include balconies and/or terraces less than 4 meters in depth. These balconies and/or terraces are not considered OLAs under MECP guidelines and therefore do not require a noise assessment.

4 IMPACT OF THE DEVELOPMENT ON THE ENVIRONMENT

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception (on or off site). HGC has not performed monitoring of the background sound levels in the area during all daytime and nighttime hours, but experience indicates that, for a typical urban environment, a minimum daytime sound level of 50 dBA and a minimum nighttime sound level of 45 dBA can be assumed during the quietest hours. Thus, any electro-mechanical equipment associated with this development (e.g. emergency generator testing, air handling or air conditioning equipment, etc.) should be designed such that they do not result in noise impact beyond the minimum background sound levels. At the time of this study, the design of the proposed



buildings was in its initial stages, and the mechanical systems had not yet been developed.

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

5 IMPACT OF THE DEVELOPMENT ON ITSELF

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

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



ensure that the noise impact of the development on itself is maintained within acceptable levels.

6 WARNING CLAUSES

MECP guidelines recommend that appropriate warning clauses be used in the Development Agreements and in purchase, sale and lease agreements (typically by reference to the Development Agreements), to inform future owners and occupants about potential noise concerns from sources in the area. The following clauses are recommended:

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

Type A:

Purchasers/tenants are advised that sound levels due to increasing road 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.

Suitable wording for future dwellings requiring the provision for the future installation of air conditioning at the occupant's discretion is given below.

Type C:

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.



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

Type E:

Purchasers/tenants are advised that due to the proximity of the adjacent commercial and retail facilities, noise from the commercial and retail facilities may at times be audible.

These sample clauses are provided only as examples, and can be modified by the owner's legal representative, in consultation with the Municipality, in order to suit site-specific requirements.

7 SUMMARY OF RECOMMENDATIONS

The following list summarizes the conclusions and recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are discussed in more detail:

1. For the building envelope, any double-glazed window and building constructions meeting the minimum requirements of the OBC are required to ensure adequate indoor sound levels from traffic noise, as outlined in Section 3.3.1.
2. Demising assemblies must be selected to meet the minimum requirements of the Ontario Building Code (OBC). Where B19 certification is needed, an acoustical consultant is required to review details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure that any potential impacts on adjacent properties are suitably minimized.
3. Warning clauses are required to inform future residents of the road traffic noise issues and of the presence of the nearby commercial and retail facilities.



7.1 Implementation

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

1. Prior to assumption of the building, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly installed and constructed.

8 CONCLUSIONS

The results of this study indicate that the proposed residential development at 5558 Drummond Road in Niagara Falls, Ontario is feasible from a noise perspective, with the inclusion of standard acoustical design features.

Preliminary design recommendations are provided herein and can be developed in greater detail as the design proceeds through tender and construction if required.



9 REFERENCES

1. *Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning, August 2013.*
2. *Google Maps Aerial Imagery, Internet application: maps.google.com*



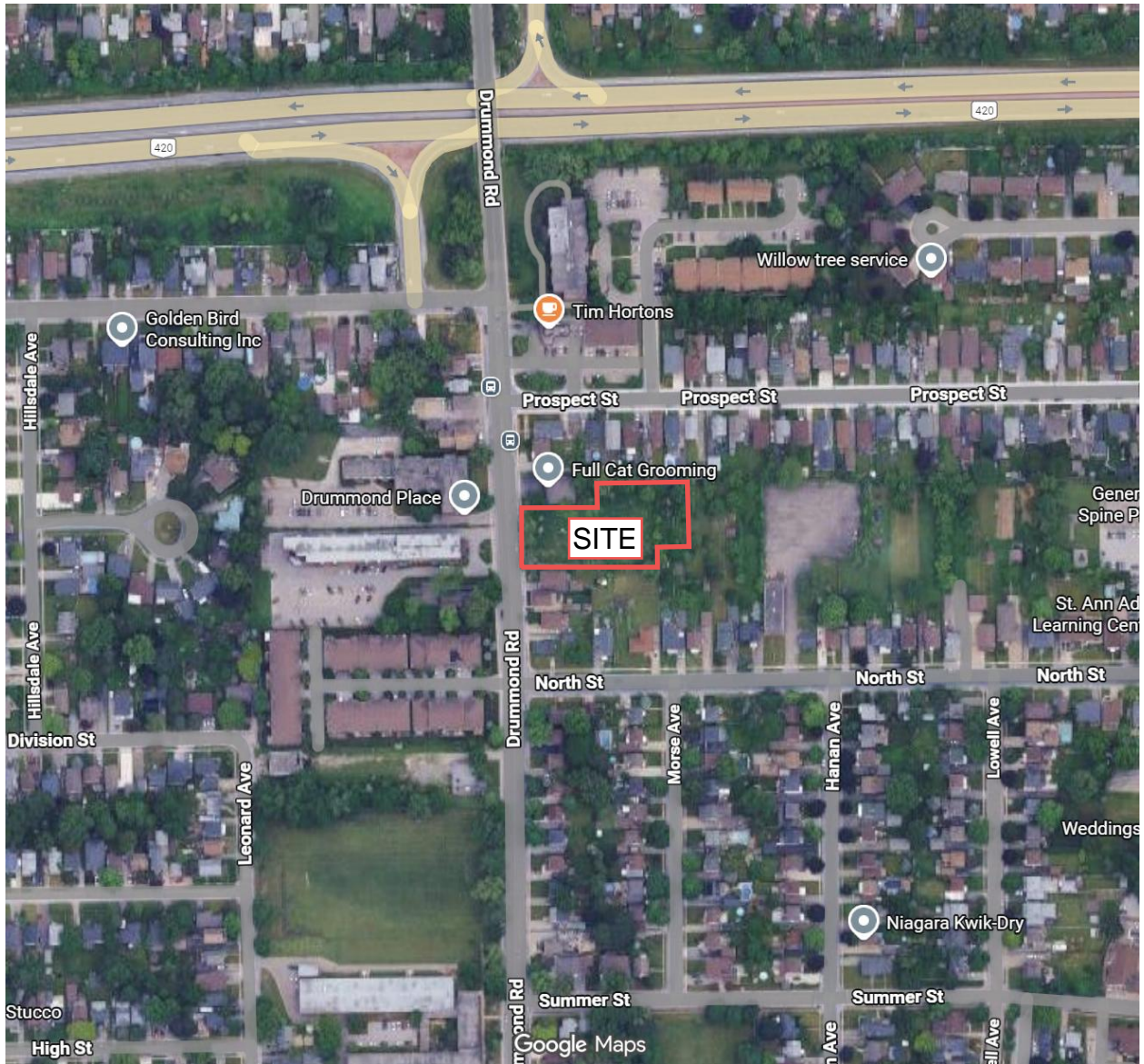
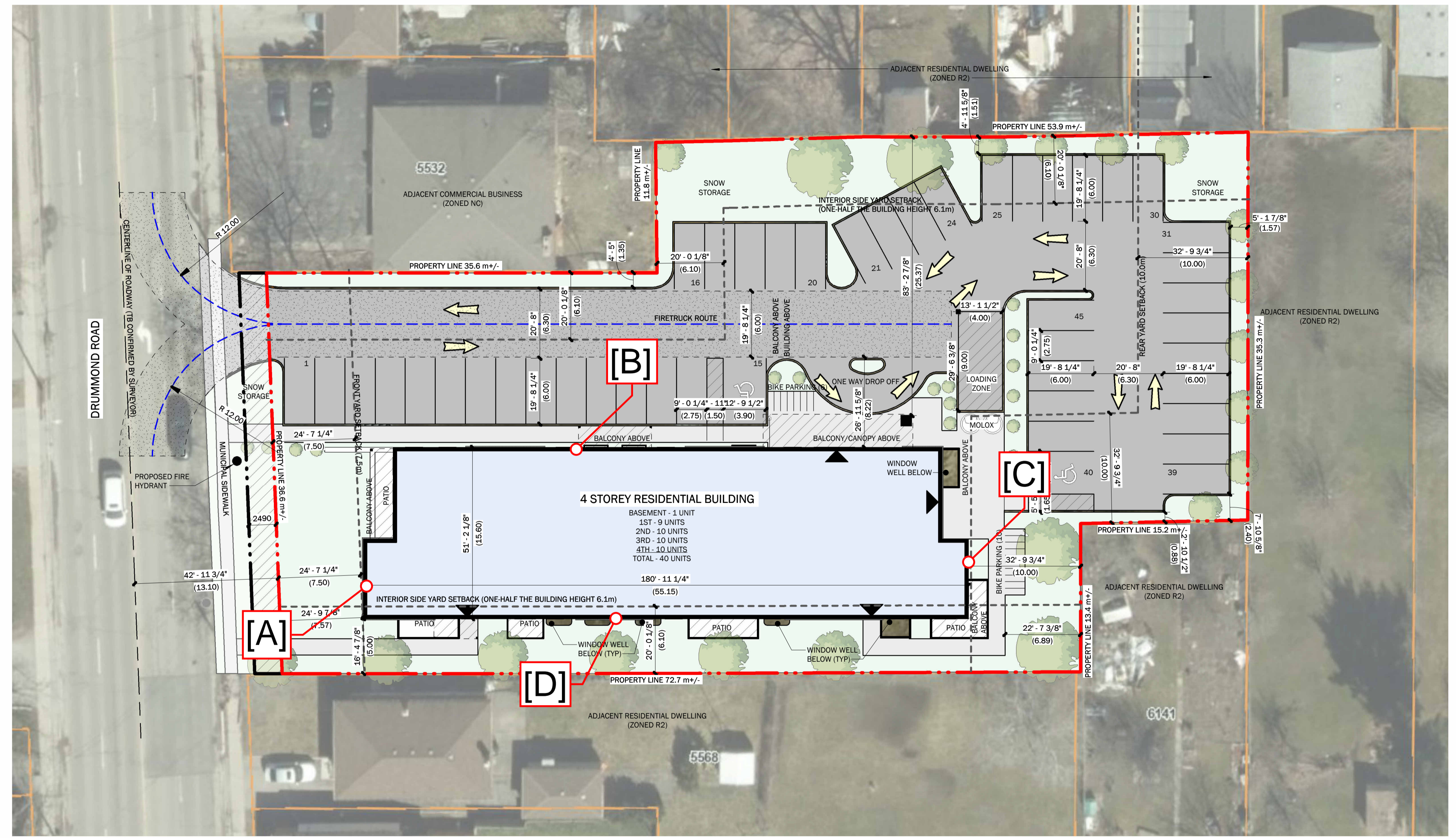
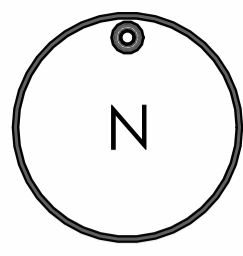


Figure 1: Key Plan



SITE PLAN

1" = 20'-0"

Figure 2: Site Plan Showing Prediction Locations



KEY MAP

NOT TO SCALE

ZONING CHART - R4- RESIDENTIAL LOW DENSITY, GROUPED MULTIPLE DWELLING ZONE			
ZONED LIGHT INDUSTRIAL IN ACCORDANCE WITH ZONING BY-LAW NO.79-200			
PROVISION	REQUIREMENT	PROPOSAL	COMPLY
MIN. LOT FRONTAGE	30 m	46.5m	YES
MIN. LOT AREA	7,600.0 m ² (200 m ² /UNIT)	3,690.5 m ² (92.2 m ² /UNIT)	NO
MIN. FRONT YARD DEPTH	7.5 m + 13 m FROM CL. OF ROAD	7.5 m + 13.1 m FROM CL. OF ROAD	YES
MIN. INTERIOR SIDE YARD WIDTH (NORTH)	6.1 m (1/2 BUILDING HEIGHT)	15.9m	YES
MIN. INTERIOR SIDE YARD WIDTH (SOUTH)	6.1 m (1/2 BUILDING HEIGHT)	5.0 m	NO
MIN. REAR YARD DEPTH	10.0 m	10.2 m	YES
MAX. HEIGHT OF BUILDING OR STRUCTURES	10.0 m	12.2 m	NO
MAX. LOT COVERAGE	35.0%	25.3% (932 m ²)	YES
MIN. LANDSCAPED COVERAGE	1,710 m ² 45 m ² PER UNIT	1,200 m ² (30 m ² PER UNIT)	NO
PARKING AND ACCESS REQUIREMENTS	RESIDENTIAL: 1.4 PARKING SPACE FOR EACH UNIT 40 UNITS X 1.4 = 56 PARKING SPACES 2 BARRIER FREE PARKING SPACES REQUIRED	45 PARKING SPACES (1.13 SPACES PER UNIT) 2 BARRIER FREE PARKING PROVIDED 1 - LOADING ZONING PROVIDED (3.0m X 9.0m)	NO
IN ACCORDANCE WITH SECTION 4.19.1	REQUIRED - 56 PARKING SPACES	PROVIDED - 45 PARKING SPACES	
MIN. PARKING STALL WIDTH	2.75 m	2.75 m	YES
MIN. PARKING STALL LENGTH	6 m	6 m	YES
MANEUVERING AISLE WIDTH	6.3m	6.3 m	YES
AMENITY SPACE	800 m ² (20 m ² PER UNIT)	520 m ² (13 m ² PER UNIT)	NO
DENSITY	OP - 50-75 UPH	108.4 UPH	
BUILDING STATS	BASEMENT 1st FLOOR 2nd FLOOR 3rd FLOOR 4th FLOOR	1 UNIT 9 UNITS 10 UNITS 10 UNITS 10 UNITS TOTAL - 40 UNITS	

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3



SITE PLAN

DWG. No.
.SP1

SCALE: AS SHOWN
DATE: JUNE 2025
PROJECT No.: 2025-140

Appendix A

Road Traffic Data



NOISE



VIBRATION



ACOUSTICS

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
1991	420			CTR	24,600	31,000	30,800	21,400	1,250	13	1.4	0	0.0
1992	420			CTR	24,800	30,500	29,500	21,600	1,250	19	2.0	0	0.0
1993	420			CTR	24,400	30,700	29,500	20,700	1,200	13	1.4	1	0.1
1994	420			IR	25,400	31,300	27,900	21,300	1,250	15	1.5	2	0.2
1995	420			IR	27,500	33,900	30,300	23,400	1,400	7	0.7	0	0.0
1996	420			IR	28,300	35,200	31,600	24,100	850	11	1.0	1	0.1
1997	420			CTR	29,000	37,100	35,700	24,400	870	16	1.4	0	0.0
1998	420			CTR	29,700	37,700	36,200	24,900	890	19	1.6	1	0.1
1999	420			CTR	30,000	37,800	36,300	25,200	1,500	19	1.6	0	0.0
2000	420			CTR	32,000	40,300	38,700	26,900	1,600	11	0.9	1	0.1
2001	420			CTR	32,600	41,100	39,400	27,500	1,650	9	0.7	1	0.1
2002	420			CTR	33,500	42,300	40,500	28,300	1,700	22	1.7	1	0.1
2003	420			CTR	33,800	42,000	40,400	28,700	1,700	40	3.0	0	0.0
2004	420			CTR	34,600	43,700	41,900	29,200	1,750	12	0.9	0	0.0
2005	420			CTR	34,500	42,700	41,000	29,300	2,050	4	0.3	0	0.0
2006	420			CTR	36,300	44,900	43,100	30,800	2,200	13	0.9	2	0.1
2007	420			CTR	37,100	46,000	45,600	31,400	2,250	13	0.9	2	0.1
2008	420			CTR	37,900	46,900	46,000	32,200	1,500	9	0.6	0	0.0
2009	420			CTR	38,700	47,200	45,700	32,900	1,550	5	0.3	0	0.0
2010	420			CTR	39,600	48,200	46,300	33,600	1,600	8	0.5	0	0.0
2011	420			CTR	40,400	49,200	47,300	34,300	1,600	7	0.4	0	0.0
2012	420			CTR	38,000	46,100	45,500	32,400	1,500	8	0.5	0	0.0
2013	420			CTR	36,900	44,900	46,400	31,300	1,050	4	0.3	0	0.0
2014	420			CTR	41,200	50,300	50,700	35,000	1,200	12	0.7	0	0.0
2015	420			CR	42,400	50,000	49,700	36,100	1,250	21	1.3	0	0.0
2016	420			CR	42,700	50,300	50,000	36,400	1,250	15	0.9	0	0.0
2017	420			CR	43,400	50,300	50,600	39,100	1,250	30	1.8	0	0.0
2018	420			CR	44,200	51,400	51,700	39,700	1,300	42	2.4	0	0.0
2019	420			CR	44,900	52,100	52,400	40,300	1,300	44	2.5	1	0.1
2021	420			CR	46,300	53,300	53,600	41,800	1,400	22	1.2	2	0.1
1988	420	DRUMMOND RD IC NIAGARA FALLS	1.1	CTR	22,200	28,900	27,100	18,600	890	6	0.7	0	0.0
1989	420			CTR	23,500	29,800	28,400	20,200	940	6	0.7	0	0.0
1990	420			CTR	24,700	30,900	29,100	21,500	990	3	0.3	0	0.0
1991	420			CTR	24,200	30,500	30,200	21,100	970	2	0.2	0	0.0
1992	420			CTR	24,400	30,000	29,000	21,200	980	3	0.3	0	0.0
1993	420			CTR	24,600	31,000	29,800	20,900	980	3	0.3	0	0.0
1994	420			CTR	25,100	32,100	30,600	21,100	1,000	4	0.4	0	0.0
1995	420			CTR	25,600	32,900	31,500	21,500	1,000	4	0.4	0	0.0
1996	420			CTR	26,200	33,500	32,200	22,000	1,050	1	0.1	0	0.0
1997	420			CTR	26,800	34,300	33,000	22,500	1,050	6	0.6	1	0.1
1998	420			CTR	27,400	34,800	33,400	23,000	1,100	1	0.1	0	0.0

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
1999	420			CTR	30,400	38,300	36,800	25,500	1,200	1	0.1	0	0.0
2000	420			CTR	31,700	39,900	38,400	26,600	1,250	5	0.4	0	0.0
2001	420			CTR	34,400	43,400	41,600	29,000	1,400	1	0.1	0	0.0
2002	420			CTR	34,300	43,300	41,500	29,000	1,350	3	0.2	0	0.0
2003	420			CTR	35,600	44,200	42,500	30,200	1,400	15	1.1	0	0.0
2004	420			CTR	36,900	46,600	44,600	31,100	1,500	12	0.8	1	0.1
2005	420			CTR	35,800	44,400	42,600	30,400	1,450	13	0.9	0	0.0
2006	420			CTR	38,700	47,900	45,900	32,800	1,550	3	0.2	0	0.0
2007	420			CTR	39,900	49,400	49,000	33,800	1,600	2	0.1	0	0.0
2008	420			CTR	42,100	52,100	51,100	35,800	1,700	6	0.4	0	0.0
2009	420			CTR	41,500	50,600	49,000	35,300	1,650	0	0.0	0	0.0
2010	420			CTR	43,500	52,900	50,900	36,900	1,750	5	0.3	0	0.0
2011	420			CTR	44,700	54,400	52,300	38,000	1,800	7	0.4	0	0.0
2012	420			CTR	45,900	55,700	55,000	39,100	1,850	6	0.3	0	0.0
2013	420			CTR	47,100	57,300	59,200	40,000	1,900	6	0.3	0	0.0
2014	420			CTR	41,600	50,800	51,200	35,400	1,650	7	0.4	0	0.0
2015	420			CTR	47,900	58,400	58,900	40,700	1,900	11	0.6	0	0.0
2016	420			CTR	49,000	59,800	60,300	41,600	1,950	18	0.9	1	0.1
2017	420			CTR	50,100	67,000	66,600	40,800	2,000	17	0.9	0	0.0
2018	420			CTR	51,200	68,400	68,100	41,700	2,050	12	0.6	0	0.0
2019	420			CTR	51,100	68,100	67,800	41,600	1,550	13	0.7	1	0.1
2021	420			CTR	54,500	71,100	70,700	44,500	1,650	7	0.3	0	0.0
1988	420	DORCHESTER RD IC NIAGARA FALLS	0.7	CTR	22,200	28,900	27,100	18,600	890	0	0.0	0	0.0
1989	420			CTR	23,500	29,800	28,400	20,200	940	2	0.3	0	0.0
1990	420			CTR	24,800	31,000	29,300	21,600	990	4	0.6	0	0.0
1991	420			CTR	24,900	31,400	31,100	21,700	1,000	0	0.0	0	0.0
1992	420			CTR	25,100	30,900	29,900	21,800	1,000	1	0.2	0	0.0
1993	420			CTR	25,300	31,900	30,600	21,500	1,000	3	0.5	0	0.0
1994	420			CTR	24,300	31,100	29,600	20,400	970	2	0.3	0	0.0
1995	420			CTR	24,700	31,700	30,400	20,700	990	3	0.5	1	0.2
1996	420			CTR	25,200	32,200	31,000	21,100	1,000	6	1.0	0	0.0
1997	420			CTR	25,600	32,800	31,500	21,500	1,000	0	0.0	0	0.0
1998	420			CTR	26,100	33,100	31,800	21,900	1,050	2	0.3	0	0.0
1999	420			CTR	26,500	33,400	32,100	22,300	1,050	7	1.1	1	0.2
2000	420			CTR	27,000	34,000	32,700	22,700	1,100	3	0.4	0	0.0
2001	420			CTR	27,400	34,600	33,200	23,100	1,100	3	0.4	1	0.1
2002	420			CTR	27,900	35,200	33,800	23,600	1,100	1	0.1	0	0.0
2003	420			CTR	30,400	37,800	36,300	25,800	1,200	5	0.7	0	0.0
2004	420			CTR	29,800	37,600	36,100	25,100	1,200	3	0.4	0	0.0
2005	420			CTR	29,200	36,200	34,700	24,800	1,150	6	0.8	0	0.0
2006	420			CTR	22,100	27,400	26,200	18,800	880	5	0.9	0	0.0

Drummond Rd @ North St

Morning Peak Diagram

Specified Period

From: 8:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Niagara Falls
Site #: 000000011
Intersection: Drummond Rd & North St
TFR File #: 11
Count date: 12-May-2022

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Drummond Rd runs N/S

North Leg Total: 1025
North Entering: 525
North Peds: 5
Peds Cross: \bowtie

Cyclists	0	2	0	2
Trucks	0	17	1	18
Cars	5	417	83	505
Totals	5	436	84	



Cyclists	0
Trucks	13
Cars	487
Totals	500

East Leg Total: 162
East Entering: 55
East Peds: 6
Peds Cross: \bowtie

Cyclists	Trucks	Cars	Totals
0	0	7	7

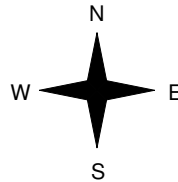


Drummond Rd

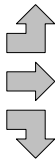
Cars	Trucks	Cyclists	Totals
42	0	0	42
0	0	0	0
12	1	0	13
54	1	0	



Townhouses



Cyclists	Trucks	Cars	Totals
0	0	4	4
0	0	1	1
0	0	5	5
0	0	10	



Drummond Rd



North St



Cars	Trucks	Cyclists	Totals
105	2	0	107

Peds Cross: \bowtie
West Peds: 19
West Entering: 10
West Leg Total: 17

Cars	434	Cars	2	441	21	464
Trucks	18	Trucks	0	13	1	14
Cyclists	2	Cyclists	0	0	0	0
Totals	454	Totals	2	454	22	



Peds Cross: \bowtie
South Peds: 3
South Entering: 478
South Leg Total: 932

Comments

Drummond Rd @ North St

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:15:00

To: 13:15:00

Municipality: Niagara Falls
Site #: 000000011
Intersection: Drummond Rd & North St
TFR File #: 11
Count date: 12-May-2022

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Drummond Rd runs N/S

North Leg Total: 1117
 North Entering: 609
 North Peds: 0
 Peds Cross: \times

Cyclists	0	1	0	1
Trucks	1	11	1	13
Cars	3	533	59	595
Totals	4	545	60	



Cyclists 3
 Trucks 8
 Cars 497
 Totals 508

East Leg Total: 134
 East Entering: 57
 East Peds: 7
 Peds Cross: \times

Cyclists	0	Trucks	1	Cars	8	Totals	9
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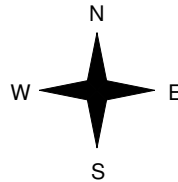


Drummond Rd

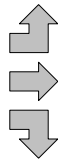
Cars	39	Trucks	1	Cyclists	0	Totals	40
Cars	1	Trucks	0	Cyclists	0	Totals	1
Cars	16	Trucks	0	Cyclists	0	Totals	16
Totals	56	1	0				



Townhouses



Cyclists	0	Trucks	0	Cars	6	Totals	6
Cyclists	0	Trucks	0	Cars	3	Totals	3
Cyclists	0	Trucks	0	Cars	0	Totals	0
Totals	0	0	0	9			



North St



Cars	76	Trucks	1	Cyclists	0	Totals	77
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Peds Cross: \times
 West Peds: 7
 West Entering: 9
 West Leg Total: 18

Cars	549	Cars	4	452	14	470
Trucks	11	Trucks	0	7	0	7
Cyclists	1	Cyclists	0	3	0	3
Totals	561	Totals	4	462	14	



Peds Cross: \times
 South Peds: 0
 South Entering: 480
 South Leg Total: 1041

Comments

Drummond Rd @ North St

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:45:00

To: 16:45:00

Municipality: Niagara Falls
Site #: 000000011
Intersection: Drummond Rd & North St
TFR File #: 11
Count date: 12-May-2022

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Drummond Rd runs N/S

North Leg Total: **1363**
 North Entering: 727
 North Peds: 2
 Peds Cross: \times

Cyclists	0	1	1	2
Trucks	0	11	2	13
Cars	6	628	78	712
Totals	6	640	81	



Cyclists 3
 Trucks **15**
 Cars 618
 Totals 636

East Leg Total: 178
 East Entering: 77
 East Peds: 5
 Peds Cross: \times

Cyclists	0	0	9	Totals
0	0	9		9

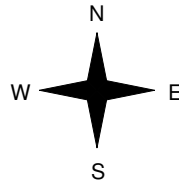


Drummond Rd

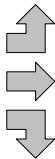
Cars	57	2	0	Totals
0	0	0		0
18	0	0		18
75	2	0		



Townhouses



Cyclists	0	0	4	Totals
0	0	1		1
0	0	3		3
0	0	8		



North St



Cars	97	3	1	Totals
				101

Peds Cross: \times
 West Peds: 13
 West Entering: 8
 West Leg Total: 17

Cars	649
Trucks	11
Cyclists	1
Totals	661



Cars	3	557	18	578
Trucks	0	13	1	14
Cyclists	0	3	0	3
Totals	3	573	19	

Peds Cross: \times
 South Peds: 2
 South Entering: 595
 South Leg Total: 1256

Comments

Drummond Rd @ North St

Total Count Diagram

Municipality: Niagara Falls
Site #: 000000011
Intersection: Drummond Rd & North St
TFR File #: 11
Count date: 12-May-2022

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Drummond Rd runs N/S

North Leg Total: 8934
 North Entering: 4704
 North Peds: 9
 Peds Cross: \times

Cyclists	0	7	1	8
Trucks	1	104	6	111
Cars	32	4064	489	4585
Totals	33	4175	496	



Cyclists	14
Trucks	92
Cars	4124
Totals	4230

East Leg Total: 1107
 East Entering: 466
 East Peds: 46
 Peds Cross: \times

Cyclists	0
Trucks	1
Cars	52
Totals	53

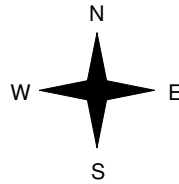
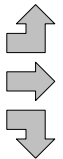


Drummond Rd

Cars	335	Trucks	9	Cyclists	0	Totals	344
	1		0		0		1
	118		2		1		121
	454		11		1		



Cyclists	0
Trucks	0
Cars	33
Totals	33
	0
	1
	9
	10
	0
	0
	20
	20
	0
	1
	62



Townhouses

North St



Cars	630	Trucks	10	Cyclists	1	Totals	641
------	-----	--------	----	----------	---	--------	-----

Peds Cross: \times
 West Peds: 79
 West Entering: 63
 West Leg Total: 116

Cars	4202	Cars	19	3756	132	3907
Trucks	106	Trucks	0	83	3	86
Cyclists	8	Cyclists	0	14	0	14
Totals	4316	Totals	19	3853	135	



Peds Cross: \times
 South Peds: 8
 South Entering: 4007
 South Leg Total: 8323

Comments

From: [John Grubich](#)

Sent on: November 17, 2025 11:56:54 AM

To: [Victor Garcia](#)

Subject: RE: [EXTERNAL]-Road Traffic Data Request - Drummond Road, Niagara Falls, Ontario

Victor;

The 2022 count is the most up-to-date data we have for this intersection.

John Grubich, C.E.T. | Traffic Planning Supervisor | Municipal Works - Transportation Services | City of Niagara Falls
4343 Morrison Street, Niagara Falls, ON L2E 6Z9 | (905) 356-7521 ext 5214 | jgrubich@niagarafalls.ca

From: Victor Garcia <vgarcia@hgcacoustics.com>

Sent: Monday, November 17, 2025 11:52 AM

To: John Grubich <jgrubich@niagarafalls.ca>

Subject: [EXTERNAL]-Road Traffic Data Request - Drummond Road, Niagara Falls, Ontario

Good morning,

HGC is preparing an update to a noise study located at 5558 Drummond Road in Niagara Falls, Ontario. A google link is included below for your reference:

<https://maps.app.goo.gl/DeKYYdHex1ZHj4Vi9>

We currently have the attached data. Is this data still valid or do you have updated traffic data available?

Thanks,

Victor Garcia, P.Eng
Senior Engineer, Associate



HGC NOISE VIBRATION ACOUSTICS

2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7

t: 905-826-4044 x242 e: vgarcia@hgcacoustics.com

Visit our website – www.hgcacoustics.com Follow Us – [LinkedIn](#) | [X](#) | [YouTube](#)

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Appendix B

Sample STAMSON Calculations



NOISE



VIBRATION



ACOUSTICS

Filename: a.te Time Period: Day/Night 16/8 hours Description: Prediction
Location A

Road data, segment # 1: 420 (day/night)

Car traffic volume : 84815/14967 veh/TimePeriod *
Medium truck volume : 1050/185 veh/TimePeriod *
Heavy truck volume : 1663/293 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 71100
Percentage of Annual Growth : 2.50
Number of Years of Growth : 15.00
Medium Truck % of Total Volume : 1.20
Heavy Truck % of Total Volume : 1.90
Day (16 hrs) % of Total Volume : 85.00
Data for Segment # 1: 420 (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 252.00 /
252.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

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

Car traffic volume : 16969/1885 veh/TimePeriod *
Medium truck volume : 139/15 veh/TimePeriod *
Heavy truck volume : 225/25 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 13630 Percentage of Annual Growth :
2.50
Number of Years of Growth : 14.00
Medium Truck % of Total Volume : 0.80
Heavy Truck % of Total Volume : 1.30
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface) Receiver source distance : 20.60 /
20.60 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Results segment # 1: 420 (day)

Source height = 1.17 m

ROAD (0.00 + 56.49 + 0.00) = 56.49 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 90 0.40 77.63 0.00 -17.15 -3.99 0.00 0.00 0.00 56.49

Segment Leq : 56.49 dBA

Results segment # 2: Drummond (day)

Source height = 1.07 m

ROAD (0.00 + 63.88 + 0.00) = 63.88 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.00 65.26 0.00 -1.38 0.00 0.00 0.00 0.00 63.88

Segment Leq : 63.88 dBA

Total Leq All Segments: 64.61 dBA

Results segment # 1: 420 (night)

Source height = 1.17 m

ROAD (0.00 + 51.96 + 0.00) = 51.96 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 90 0.40 73.11 0.00 -17.15 -3.99 0.00 0.00 0.00 51.96

Segment Leq : 51.96 dBA

Results segment # 2: Drummond (night)

Source height = 1.07 m

ROAD (0.00 + 57.34 + 0.00) = 57.34 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.00 58.72 0.00 -1.38 0.00 0.00 0.00 0.00 57.34

Segment Leq : 57.34 dBA

Total Leq All Segments: 58.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.61
(NIGHT): 58.45

Appendix C

Supporting Drawings



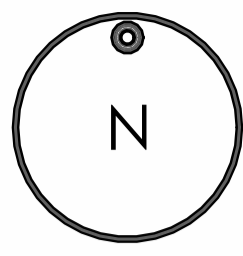
NOISE



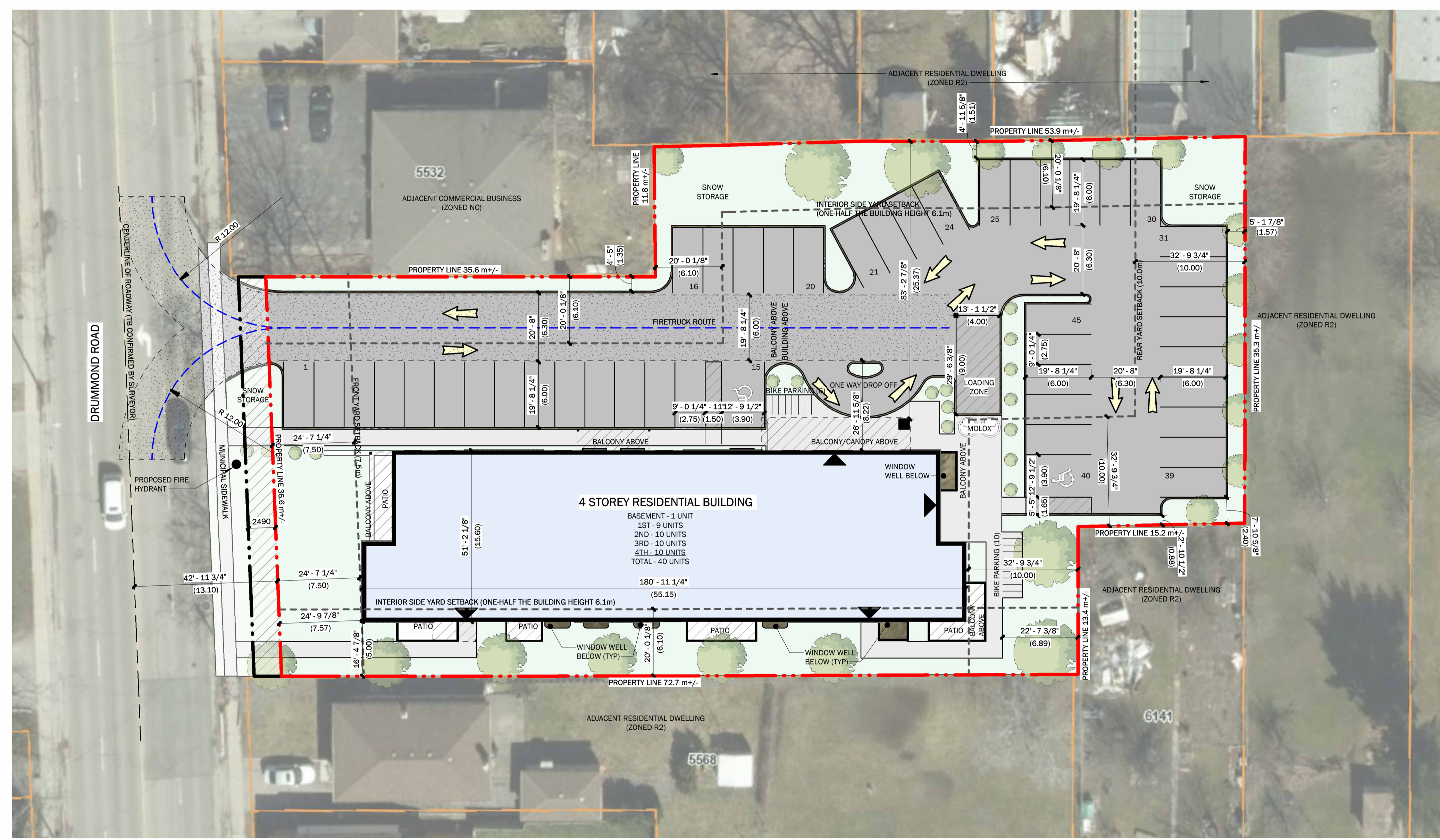
VIBRATION



ACOUSTICS



KEY MAP
NOT TO SCALE



SITE PLAN

1" = 20'-0"

ZONING CHART - R4- RESIDENTIAL LOW DENSITY, GROUPED MULTIPLE DWELLING ZONE			
ZONED LIGHT INDUSTRIAL IN ACCORDANCE WITH ZONING BY-LAW NO.79-200			
PROVISION	REQUIREMENT	PROPOSAL	COMPLY
MIN. LOT FRONTAGE	30 m	46.5m	YES
MIN. LOT AREA	7,600.0 m ² (200 m ² /UNIT)	3,690.5 m ² (92.2 m ² /UNIT)	NO
MIN. FRONT YARD DEPTH	7.5 m + 13 m FROM CL. OF ROAD	7.5 m + 13.1 m FROM CL. OF ROAD	YES
MIN. INTERIOR SIDE YARD WIDTH (NORTH)	6.1 m (1/2 BUILDING HEIGHT)	15.9m	YES
MIN. INTERIOR SIDE YARD WIDTH (SOUTH)	6.1 m (1/2 BUILDING HEIGHT)	5.0 m	NO
MIN. REAR YARD DEPTH	10.0 m	10.2 m	YES
MAX. HEIGHT OF BUILDING OR STRUCTURES	10.0 m	12.2 m	NO
MAX. LOT COVERAGE	35.0%	25.3% (932 m ²)	YES
MIN. LANDSCAPED COVERAGE	1,710 m ² 45 m ² PER UNIT	1,000 m ² (30 m ² PER UNIT)	NO
PARKING AND ACCESS REQUIREMENTS	RESIDENTIAL - 1.4 PARKING SPACE FOR EACH UNIT 40 UNITS X 1.4 = 56 PARKING SPACES 2 BARRIER FREE PARKING SPACES REQUIRED	45 PARKING SPACES (1.13 SPACES PER UNIT) 2 BARRIER FREE PARKING PROVIDED 1 - LOADING ZONING PROVIDED (3.0m X 9.0m)	NO
IN ACCORDANCE WITH SECTION 4.19.1	REQUIRED - 56 PARKING SPACES	PROVIDED - 45 PARKING SPACES	
MIN. PARKING STALL WIDTH	2.75 m	2.75 m	YES
MIN. PARKING STALL LENGTH	6 m	6 m	YES
MANEUVERING AISLE WIDTH	6.3m	6.3 m	YES
AMENITY SPACE	800 m ² (20 m ² PER UNIT)	520 m ² (13 m ² PER UNIT)	NO
DENSITY	OP - 50-75 UPH	108.4 UPH	
BUILDING STATS	BASEMENT 1st FLOOR 2nd FLOOR 3rd FLOOR 4th FLOOR	1 UNIT 9 UNITS 10 UNITS 10 UNITS 10 UNITS TOTAL - 40 UNITS	

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

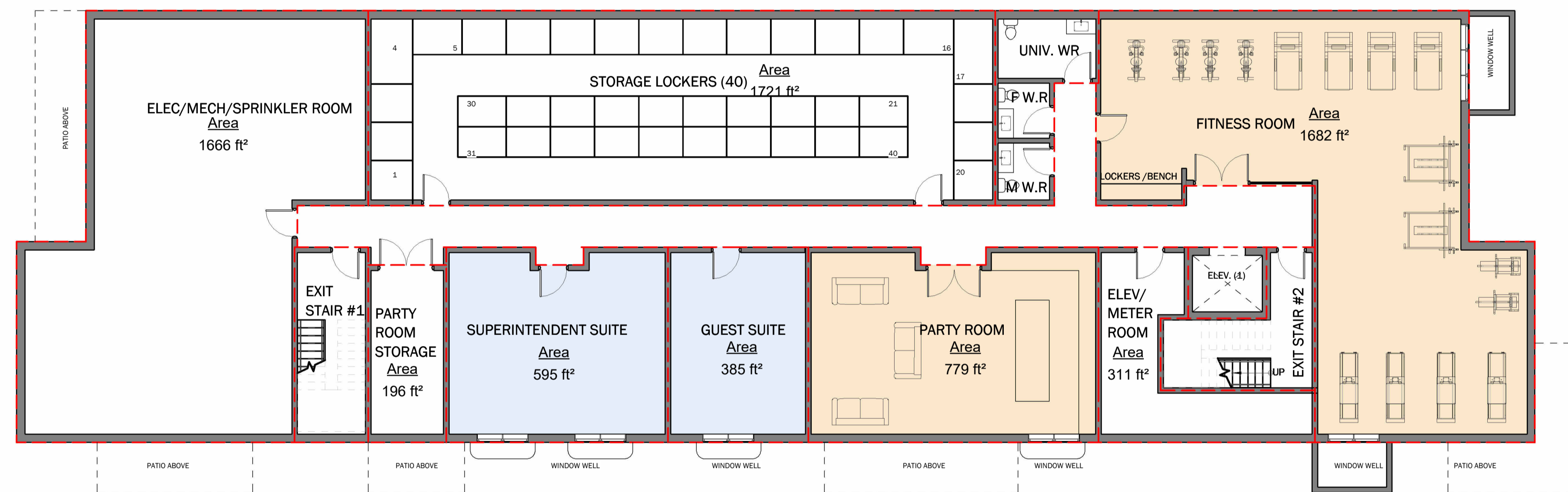
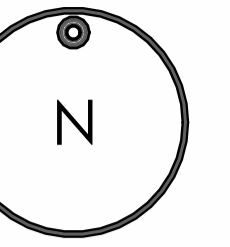
5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3



SITE PLAN

DWG. No.
.SP1

SCALE: AS SHOWN
DATE: JUNE 2025
PROJECT No.: 2025-140



BASEMENT
1" = 10'-0"
8780 SQ.FT
1 UNIT

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4-STOREY RESIDENTIAL DEVELOPMENT

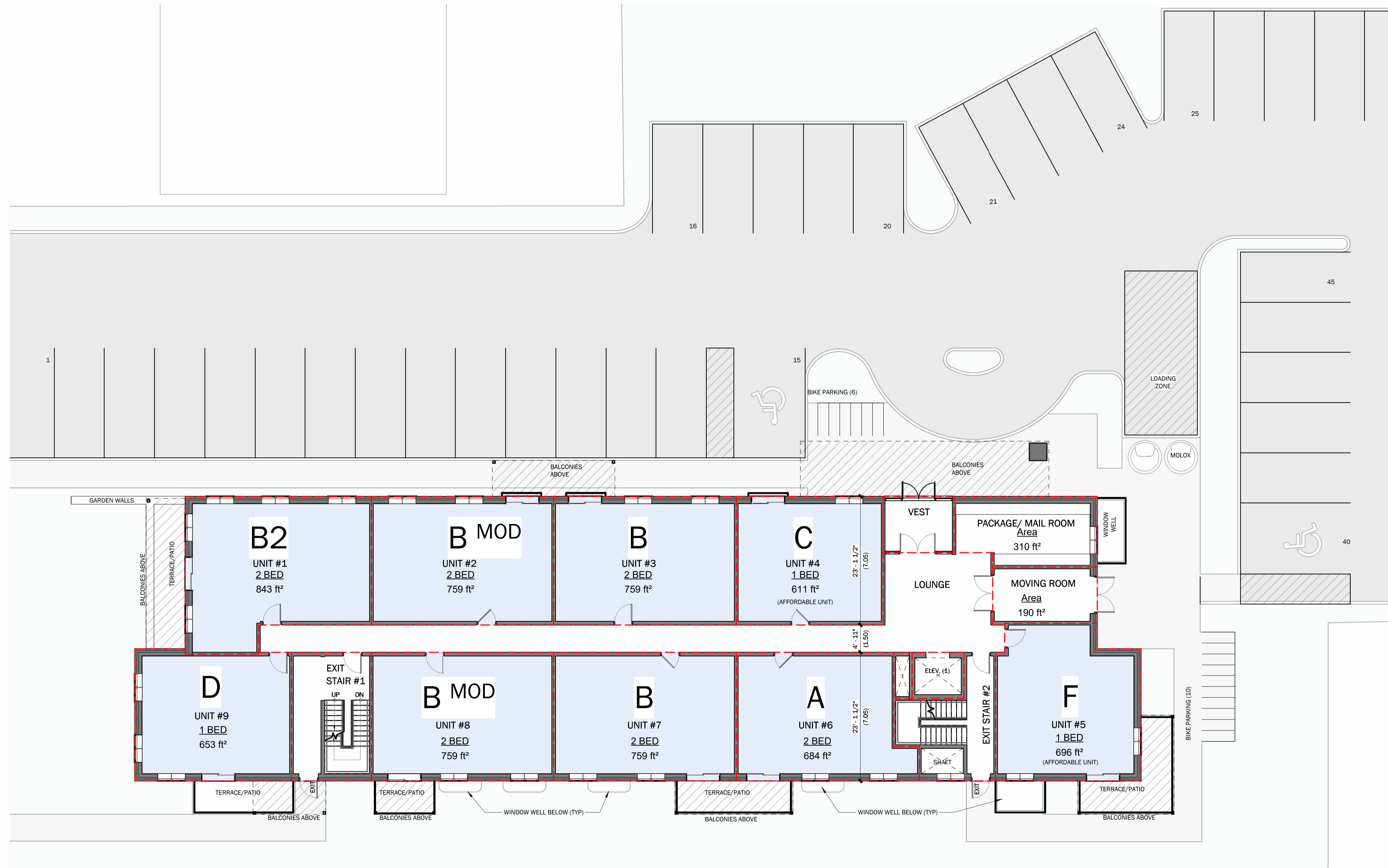
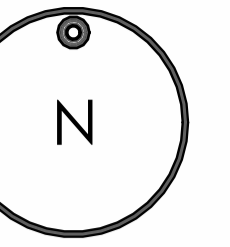
5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3

A · C · K
architects
STUDIO INC.

BASMENT FLOOR
PLATE

DWG. No.
A.0

SCALE: AS SHOWN
DATE: JUNE 2025
PROJECT No.: 2025-140



GROUND FLOOR
 1" = 10'-0"
8.780 SQ.FT
 9 UNITS

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

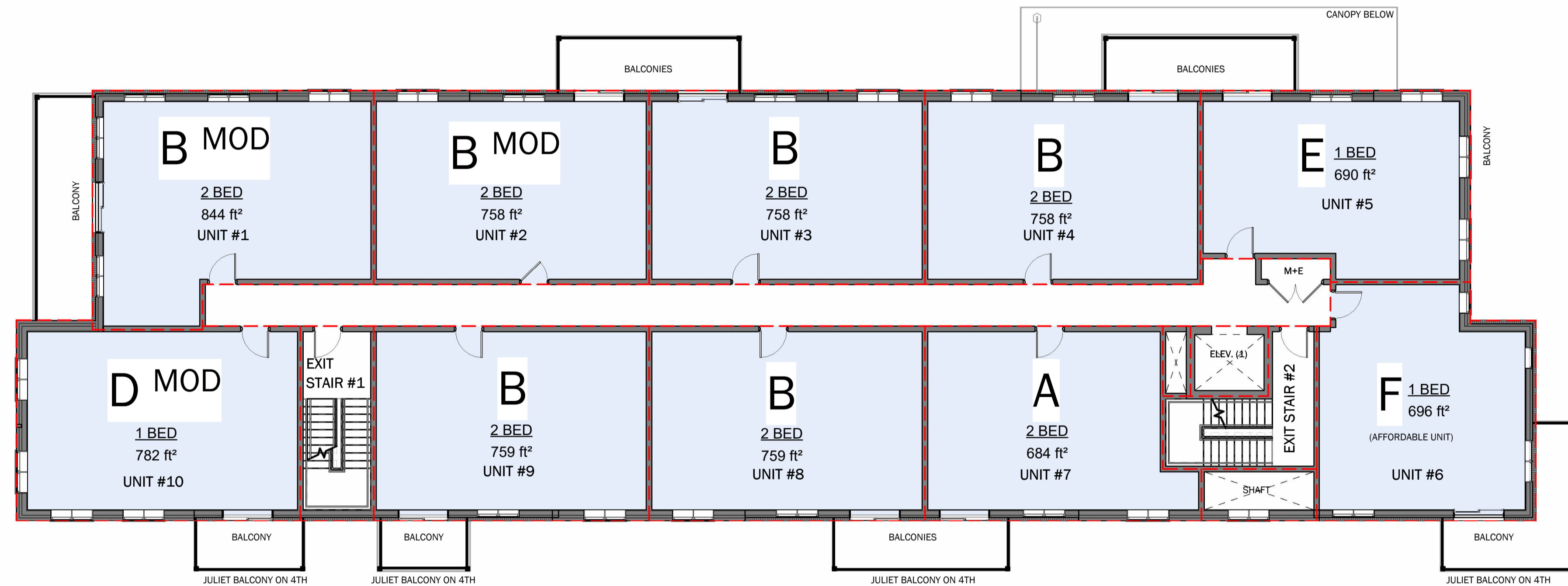
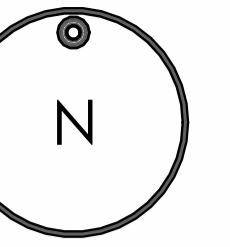
5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3

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 architects
 STUDIO INC.

FIRST FLOOR

DWG. No.
A.1

SCALE: AS SHOWN
 DATE: JUNE 2025
 PROJECT No.: 2025-140



2ND -4TH FLOOR PLATE
 1" = 10'-0"
8.780 SQ.FT
 10 UNITS

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3

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 architects
 STUDIO INC.

2ND -4TH FLOOR
 PLATE

DWG. No.

A.2

SCALE: AS SHOWN
 DATE: JUNE 2025
 PROJECT No.: 2025-140



FRONT (DRUMMOND) ELEV.

1" = 10'-0"



RIGHT (SOUTH) ELEVATION

1" = 10'-0"

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3

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STUDIO INC.

FRONT AND RIGHT
ELEVATION

DWG. No.

A.3

SCALE: AS SHOWN
DATE: JUNE 2025
PROJECT No.: 2025-140



REAR (EAST) ELEVATION

1" = 10'-0"



REAR PERSPECTIVE



LEFT (NORTH) ELEVATION

1" = 10'-0"

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

4-STOREY RESIDENTIAL DEVELOPMENT

5558 DRUMMOND ROAD, NIAGARA FALLS ONTARIO, L2G 4L3

A · C · K
architects
STUDIO INC.

REAR AND LEFT
ELEVATION

DWG. No.

A.4

SCALE: AS SHOWN
DATE: JUNE 2025
PROJECT No.: 2025-140