HGC ENGINEERING

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Noise Impact Study
Proposed Change of Use
7715 Beaverdams Road
Niagara Falls, Ontario

Prepared for:

Pranajan Group Ltd.
7715 Beaverdams Road
Niagara Falls, ON,
L2H 2J4

Prepared by

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October 20, 2023

HGC Project No. 02300519

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1 Introduction and Summary

HGC Engineering was retained by Pranajan Group Ltd. to conduct a noise impact study for a proposed change of use for a single-storey building that is currently located at 7715 Beaverdams Road in Niagara Falls, Regional Municipality of Niagara (RMON), Ontario. The study is required as part of the submission to the RMON to assess the impact of traffic noise from surrounding roads and stationary noise from existing commercial uses as part of a Zoning Bylaw Amendment.

The primary traffic noise sources impacting the site are road traffic on Montrose Road and Lundy's Lane. Secondary sources of noise include road traffic on Beaverdams Road and the Queen Elizabeth Way (QEW). Road traffic data was obtained from the relevant authorities. The data was used to predict future traffic sound levels at various locations around the subject building. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the RMON.

The sound level predictions indicate that future road traffic sound levels will exceed MECP guidelines at the subject building. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant will be required for the building. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the building. Warning clauses are also recommended to inform future owners of the building and the occupants of the traffic noise impacts, to address sound level excesses and to indicate the presence of existing retail/commercial uses.

There are existing commercial uses at the east side of the site, including a Dulux Paint and Muller's Work Wear. The sound emissions from the rooftop mechanical equipment associated with these uses have been evaluated. A computer model of the area was created using acoustic modelling software to predict the sound levels from the existing commercial uses at the sensitive receptors of the subject building. Results indicate that the potential sound impact of the existing commercial uses is expected to be within the applicable noise guideline limits of the MECP at the subject building. Noise mitigation is not required for the existing commercial buildings. A warning clause is required to inform future owners/tenants of the subject building of the proximity to existing commercial uses.

2 Site Description and Sources of Sound

A key plan showing the location of the subject site is indicated in Figure 1. The site is located at 7715 Beaverdams Road in Niagara Falls, Ontario. A site plan prepared by Chintan Virani Architect Inc. dated April 20, 2017 is attached as Figure 2. The existing building is currently a senior residence and will become a boarding house. There are no changes to the existing building beyond the proposed use. Appendix A includes the floor plans and building elevations.

A site visit was performed by HGC Engineering personnel in October 2023 to investigate the surrounding land uses and to identify the significant noise sources in the vicinity. The primary sources of noise are road traffic on Montrose Road and Lundy's Lane, with lesser contributions from the QEW and Beaverdams Road.

There are existing lodging and residential uses to the west and north, respectively. There are existing commercial/retail buildings located to the east and south, including a Dulux Paint and a commercial building with uses such as Muller's Work Wear and Pho Bowl Vietnamese. There are small rooftop units atop the existing commercial buildings. During the site visit, traffic sounds dominated the site, nevertheless, a noise warning clause informing future owners and occupants of the subject building of the proximity to existing commercial/retail uses is recommended as included in Section 6.5.

3 Criteria for Acceptable Sound Levels

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 [L_{EQ}] in units of A weighted decibels [dBA]. These criteria have generally been adopted by the Regional Municipality of Niagara.

Table 1: Road Traffic Noise Criteria

	Daytime $L_{EQ(16\ hour)}$ Road	Nighttime $L_{EQ(8\ hour)}$ 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 and offers of purchase and sale for the property. When OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels exceed 65 dBA outside bedroom/living room windows. A forced air ventilation system with ducts sized for the future provision of air conditioning, or some other alternative form of mechanical ventilation, is required where nighttime sound levels at bedroom/living/dining room windows are in the range of 51 – 60 dBA or daytime sound levels are in the range of 56 – 65 dBA.

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

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

levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to road traffic.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Road traffic data for Lundy's Lane (Regional Road 20) and Montrose Road (Regional Road 98) was provided by RMON personnel in the form of Turning Movement Counts. A commercial vehicle percentage of 1.4% was further split into 0.9% heavy trucks and 0.5% medium trucks for Lundy's Lane. A commercial vehicle percentage of 2.2% was further split into 1.4% heavy trucks and 0.8% medium trucks for Montrose Road. The data was projected 20 years to the year 2043 as per RMON requirements using a 2.5% growth rate. A day/night split of 90%/10% and a posted speed limit of 50 km/h were used in the analysis.

Road traffic data for the QEW was obtained from the Ministry of Transportation and projected to the year 2033 at a conservative growth rate of 2.5%/year. A commercial vehicle percentage of 20% was further split into 5% medium trucks and 15% heavy trucks. These vehicles were assumed to be travelling at the posted maximum speed of 100 km/hr. A 67%/33% day/night split was used in the analysis.

Road traffic data for Beaverdams Road was provided by City of Niagara Falls personnel in the form of hourly traffic counts. A commercial vehicle percentage of 2.0% was further split into 0.8% heavy trucks and 1.2% medium trucks for Lundy's Lane. The data was projected to the year 2033 at a conservative growth rate of 2.5%/year. A day/night split of 90%/10% and a posted speed limit of 50 km/h were used in the analysis.

The projected road traffic volumes are shown in Table 2 below and included in Appendix B.

Table 2: Projected Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Lundy's Lane *(projected to 2043)*	Daytime	25 301	128	231	25 661
	Nighttime	2 811	14	26	2 851
	Total	**28 113**	**143**	**257**	**28 512**
Montrose Road *(projected to 2043)*	Daytime	19 875	163	285	20 322
	Nighttime	2 208	18	32	2 258
	Total	**22 083**	**181**	**316**	**22 580**
Queen Elizabeth Way *(projected to 2033)*	Daytime	55 768	3 486	10 457	69 010
	Nighttime	27 880	1 742	5 227	34 850
	Total	**83 648**	**5 228**	**15 684**	**104 560**
Beaverdams Road *(projected to 2033)*	Daytime	2 520	23	28	2 572
	Nighttime	280	3	3	284
	Total	**2 800**	**26**	**31**	**2 857**

4.2 Road Traffic Noise Predictions

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

Prediction locations were chosen around the site to obtain a good representation of the future sound levels at the building facades with exposure to the surrounding roadways. Since the building is a single-storey building, a maximum ground floor window height of 1.5 m was used in the analysis. The results of these predictions are summarized in Table 3.

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

Prediction Location	Description	Daytime in OLA $L_{EQ-16\ hr}$	Daytime at Façade $L_{EQ-16\ hr}$	Nighttime at Façade $L_{EQ-8\ hr}$
[A]	East Façade	--	60	52
[B]	North Façade	--	<55	<50
[C]	West Façade	--	55	<50
[D]	South Façade	--	57	52
[E]	Outdoor Amenity Area	55	--	--

5 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the subject site. Recommendations to address these excesses are discussed below.

5.1 Outdoor Living Areas

The predicted daytime sound level in the assumed outdoor amenity area at the south side of the building (Prediction Location [E]) will be 55 dBA. Physical mitigation will not be required for this area.

5.2 Indoor Living Areas

Provision for the Future Installation of Air Conditioning

The predicted future sound levels outside the top storey windows of the building will be between 56 and 65 dBA during the daytime hours and between 51 and 60 dBA during the nighttime. To address this excess, the MECP guidelines recommend that the building be equipped with a forced air ventilation system with ducts sized to accommodate the future installation of air conditioning by the occupant.

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-300, as applicable. The guidelines also recommend warning clauses for all units with ventilation requirements.

5.3 Building Façade Constructions

The maximum predicted sound level at the top storey façade of the subject building will be less than 65 dBA during the daytime and less than 60 dBA during the nighttime. For the building, any exterior wall, and double glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the dwelling units.

5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. Examples are provided below.

Suggested wording for dwellings which have sound level excesses but do not require mitigation measures 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 unit occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria.

A suggested wording for future dwellings requiring forced air ventilation systems is given below.

Type B:

> 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, Conservation and Parks.

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

6 Stationary Noise Assessment

An industrial or commercial facility is classified in MECP Guideline NPC-300 as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. In terms of background sound, the development is located in an urban (Class I) acoustical environment which is characterized by an acoustical environment dominated by road traffic and human activity. The rooftop mechanical equipment associated with the existing commercial uses to the east and south are considered stationary noise sources and have the potential to impact the subject building.

6.1 Stationary Noise Criteria

NPC-300 is intended for use in the planning of both residential and commercial/industrial land uses and provides the acceptability limits for sound due to commercial operations in that regard. The façade of a residence (i.e., in the plane of a window), or any associated usable outdoor area is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound level limit for a stationary noise source in an urban Class 1 area is taken to be 50 dBA during daytime/evening hours (07:00 to 23:00), and 45 dBA during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds. To ensure a conservative analysis, the exclusionary minimum criteria has been adopted at all receptors.

Commercial activities such as the occasional movement of customer vehicles, occasional deliveries, and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. The occasional movement of customer vehicles on the property are not of themselves considered to be significant noise sources in the MECP guidelines. Noise from safety equipment (e.g. back-up beepers) is also exempt from consideration and may be audible on occasion.

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

6.2 Noise Source Description

The primary source of sound associated with the existing commercial development to the east and south (including Dulux Paints and Muller's Work Wear) is the rooftop HVAC equipment. Typical sound levels associated with these sources were obtained from HGC Engineering's project files for similar past projects and the locations are indicated on the aerial view. Sensitive receptor locations were taken at the facades of the subject building. Each receptor location was assessed at the closest top floor window of the building as these represent the most potentially impacted locations.

6.3 Assumptions

Predictive noise modelling was used to assess the sound impact of the existing commercial buildings on sensitive receptors at the subject building, in accordance with MECP guidelines. The noise prediction model was based on a review of the site plan, aerial photos, estimates of sound emission levels for rooftop mechanical equipment on the existing buildings, assumed operational profiles, and established engineering methods for the prediction of outdoor sound propagation. These methods include the effects of distance, air absorption, and acoustical screening by barrier obstacles.

The source sound level associated with the equipment is listed in Table 4 below in terms of sound power level.

Table 4: Source Sound Power Level [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]							
	63	125	250	500	1k	2k	4k	8k
Lennox LGA060 (5 Tons)	--	67	72	77	76	73	68	61

The above outlined sound levels were used as input to a predictive computer model. The software used for this purpose (*Cadna/A version 2023 MR1 (32 bit) build: 197.5343*) is a computer implementation of ISO Standard 9613-2.2 "Acoustics - Attenuation of Sound During Propagation Outdoors."

The following information and assumptions were used in the analysis.

- The height of the existing commercial buildings is assumed to be up to 5.0 m in height.
- Lennox LGH060 models (5 Tons) were assumed for the rooftop air conditioning units on the existing buildings.
- The existing noise sources were assumed to be located as shown in Figure 3. The green crosses represent noise sources such as rooftop HVAC equipment. The rooftop equipment is assumed to be Lennox models at 1.5 m in height. Sound data was obtained from HGC project files which were originally obtained from the manufacturer.

Cadna Evaluation Parameters:

- Temperature: 10°C, Relative Humidity: 70%
- Reference Time: Day (07:00 – 23:00) and Night (23:00 – 07:00)
- Maximum Order of Reflections: 1
- Building Reflection Coefficients: 0.2
- Generally flat terrain
- Global Ground Absorption: 0.25

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

Assumed day worst-case scenario:

- All rooftop equipment operating continuously at 75% capacity;

Assumed night worst-case scenario:

- All rooftop equipment operating on a 33% duty cycle;

6.4 Assessment of Noise from the Existing Commercial Buildings on Subject Building

The unmitigated sound levels due to noise sources associated with the existing uses at the subject building are summarized in Table 5 below. Resultant sound levels at the subject building are shown graphically in Figures 4 and 5.

Table 5: Predicted Sound Levels from the Existing Commercial Development at the Subject Building [dBA]

Receptor	Criteria (Day/Night)	Day	Night
East Façade *	50/45	49	46
North Façade	50/45	41	37
West Façade	50/45	38	35
South Façade	50/45	49	45

Note:
* Windows to sensitive spaces are not indicated on the closest east façade and are therefore not considered as sensitive points of reception.

The results of the calculations indicate that the predicted daytime and nighttime sound levels due to the operation of the rooftop mechanical equipment at the existing commercial uses will be within MECP limits at the sensitive points of reception at the subject building. Physical mitigation will not be required.

6.5 Noise Control Recommendations for the Existing Commercial Uses

To inform future tenants/owners of the subject building of potential noise from the existing commercial uses, the following warning clause is recommended.

1. Warning Clause

The following noise warning clause is required to notify future residents of the presence of the

existing commercial uses is given below.

Type C:

> Purchasers are advised of the proximity of adjacent commercial facilities, the sound from which may at times be audible.

7 Summary and Recommendations

The following list and Table 6 summarize the recommendations made in this report.

1. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning system will be required for the building. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300, as applicable.

2. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the indoor spaces of the subject building.

3. Warning clauses should be used to inform future residents of the traffic noise issues and the presence of the surrounding commercial and retail facilities.

Table 6: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Acoustic Barrier	Ventilation Requirements *	Type of Warning Clause	Building Façade Constructions
North Facade	--	Forced Air	A, B, C	OBC
East Facade	--			
South Facade	--			
West Facade	--			
OLA	--	--	--	--

Notes:
-- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MOE Guideline NPC-300, as applicable
OBC – meeting the minimum requirements of the Ontario Building Code

Figure 1: Key Plan

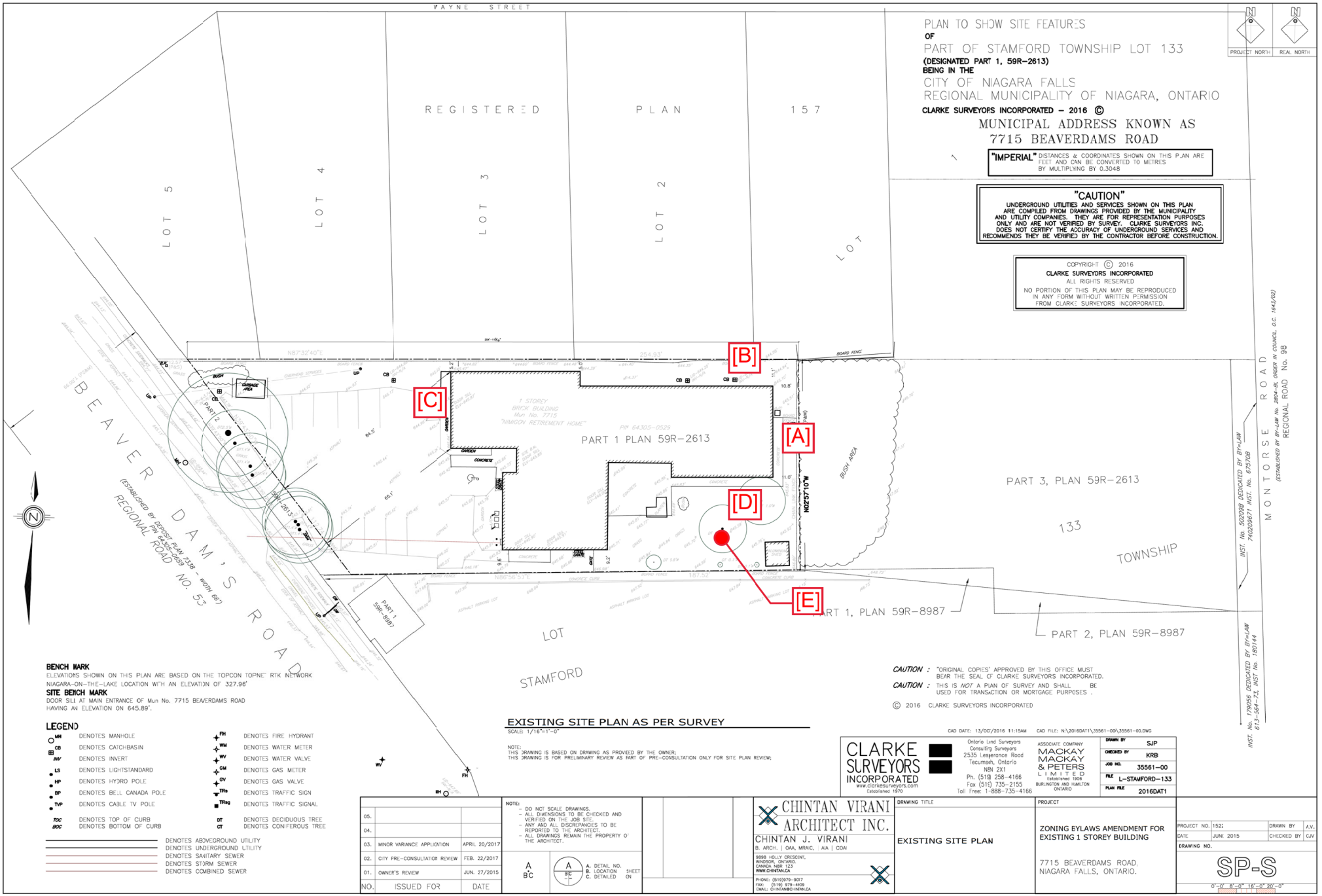


Figure 2: Site Plan Showing Prediction Locations

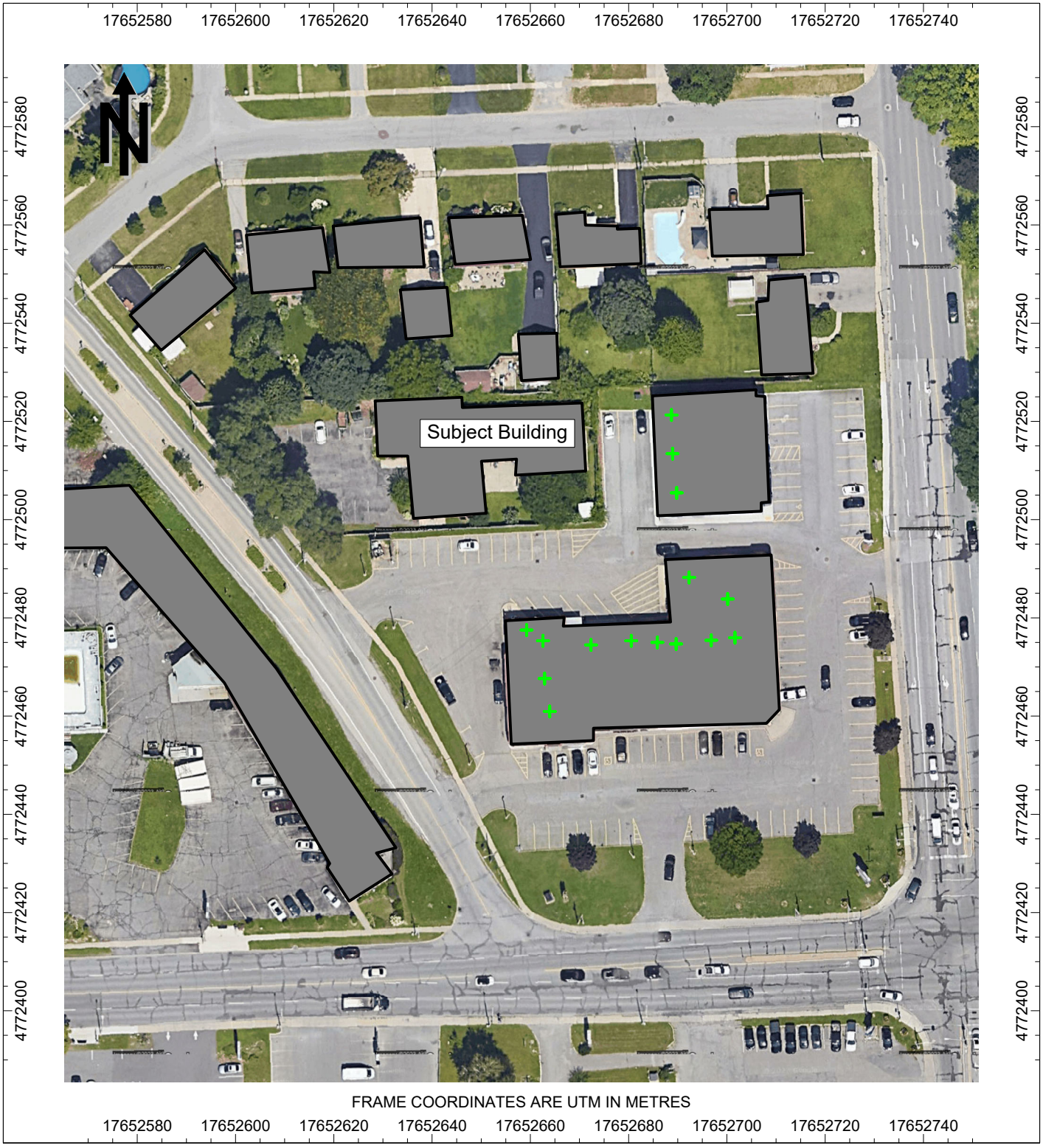


Figure 3: Existing Noise Source Locations

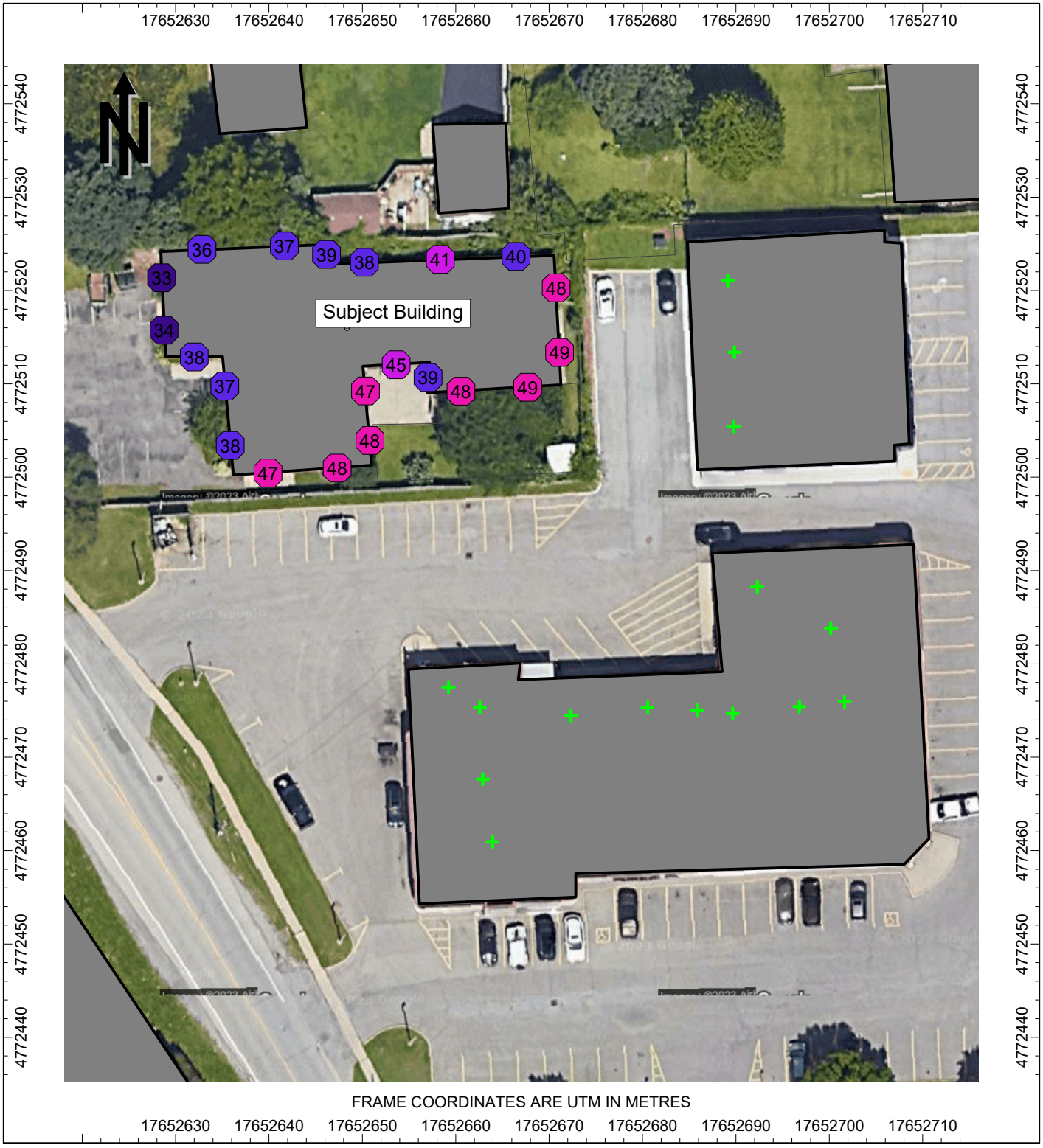


Figure 4: Predicted Daytime Sound Levels at the Subject Building, dBA
(Without Mitigation)

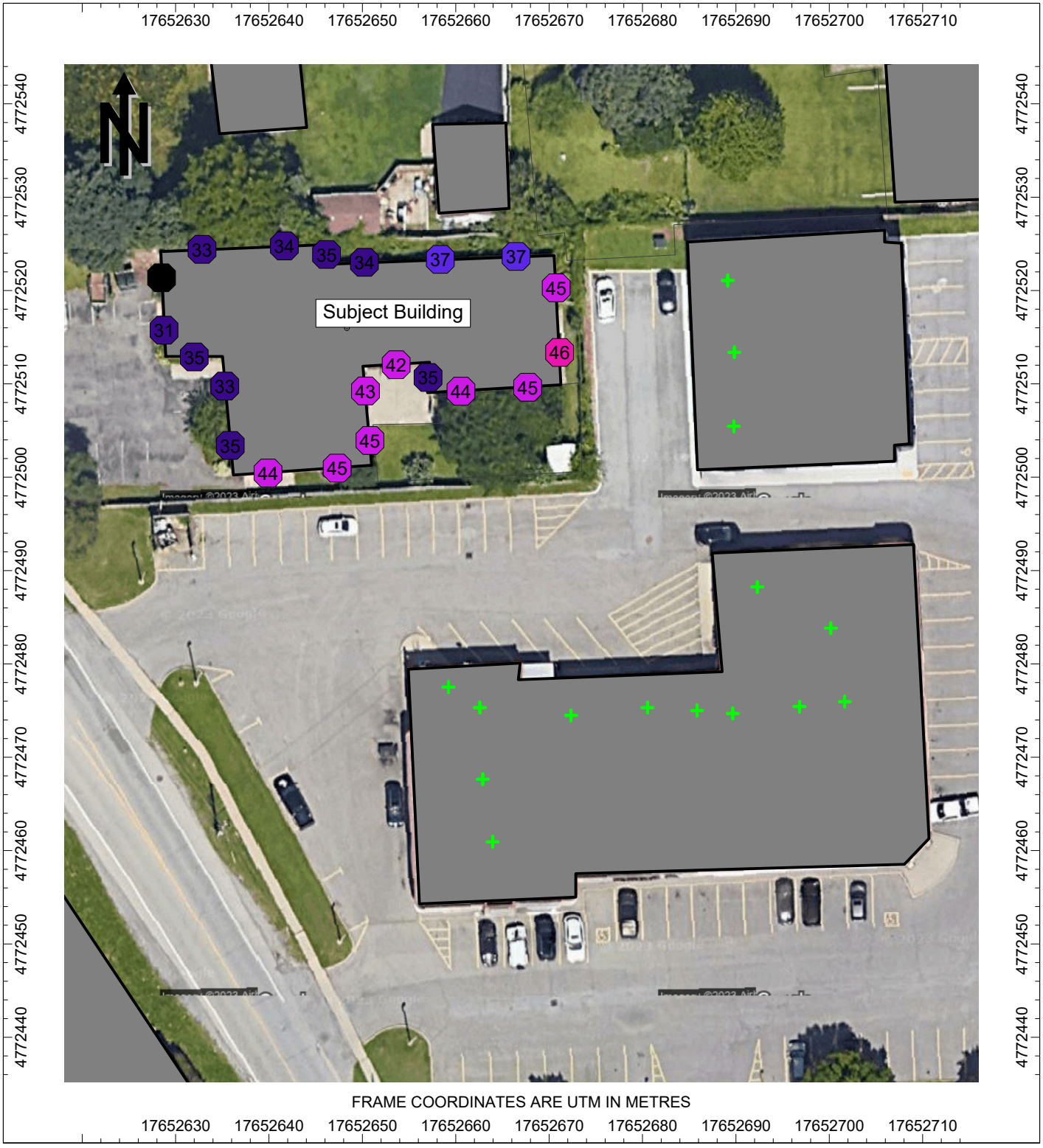
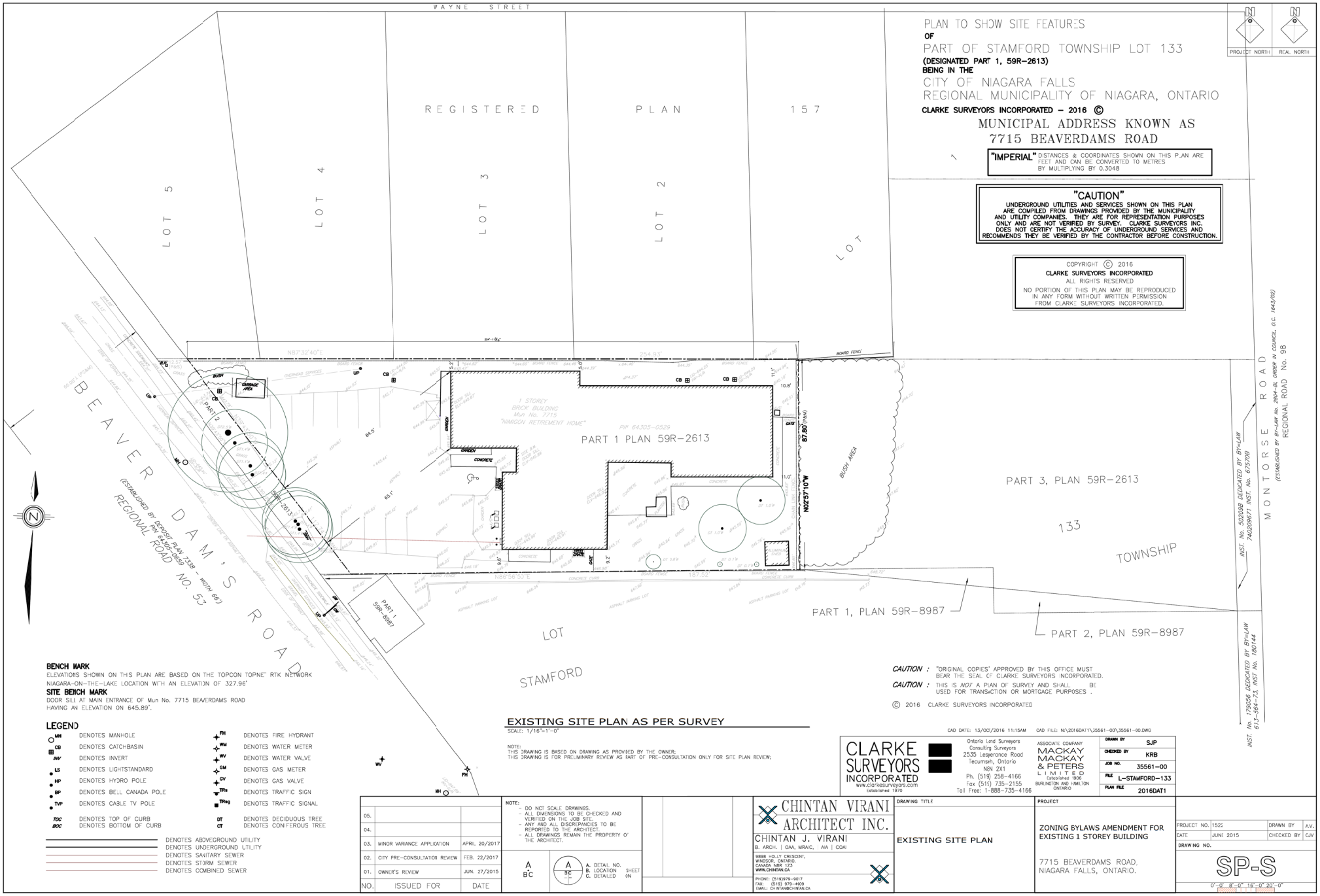


Figure 5: Predicted Nighttime Sound Levels at the Subject Building, dBA (Without Mitigation)

APPENDIX A

Supporting Drawings



PLAN TO SHOW SITE FEATURES
OF
PART OF STAMFORD TOWNSHIP LOT 133
(DESIGNATED PART 1, 59R-2613)
BEING IN THE
CITY OF NIAGARA FALLS
REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

CLARKE SURVEYORS INCORPORATED – 2016 ©

MUNICIPAL ADDRESS KNOWN AS
7715 BEAVERDAMS ROAD

"IMPERIAL" DISTANCES & COORDINATES SHOWN ON THIS PLAN ARE FEET AND CAN BE CONVERTED TO METRES BY MULTIPLYING BY 0.3048

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BENCH MARK
ELEVATIONS SHOWN ON THIS PLAN ARE BASED ON THE TOPCON TOPNET RTK NETWORK NIAGARA-ON-THE-LAKE LOCATION WITH AN ELEVATION OF 327.96'

SITE BENCH MARK
DOOR SILL AT MAIN ENTRANCE OF Mun No. 7715 BEAVERDAMS ROAD HAVING AN ELEVATION ON 645.89'.

LEGEND

MH	DENOTES MANHOLE	FH	DENOTES FIRE HYDRANT
CB	DENOTES CATCHBASIN	WM	DENOTES WATER METER
INV	DENOTES INVERT	WV	DENOTES WATER VALVE
LS	DENOTES LIGHTSTANDARD	GM	DENOTES GAS METER
HP	DENOTES HYDRO POLE	GV	DENOTES GAS VALVE
BP	DENOTES BELL CANADA POLE	TRs	DENOTES TRAFFIC SIGN
TVP	DENOTES CABLE TV POLE	TRsg	DENOTES TRAFFIC SIGNAL
TOC	DENOTES TOP OF CURB	DT	DENOTES DECIDUOUS TREE
BOC	DENOTES BOTTOM OF CURB	CT	DENOTES CONIFEROUS TREE

DENOTES ABOVEGROUND UTILITY
DENOTES UNDERGROUND UTILITY
DENOTES SANITARY SEWER
DENOTES STORM SEWER
DENOTES COMBINED SEWER

EXISTING SITE PLAN AS PER SURVEY
SCALE: 1/16"=1'-0"

NOTE:
THIS DRAWING IS BASED ON DRAWING AS PROVIDED BY THE OWNER;
THIS DRAWING IS FOR PRELIMINARY REVIEW AS PART OF PRE-CONSULTATION ONLY FOR SITE PLAN REVIEW;

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BURLINGTON AND HAMILTON ONTARIO

DRAWN BY	SJP
CHECKED BY	KRB
JOB NO.	35561-00
FILE	L-STAMFORD-133
PLAN FILE	2016DAT1

NO.	ISSUED FOR	DATE
05.		
04.		
03.	MINOR VARIANCE APPLICATION	APRIL 20/2017
02.	CITY PRE-CONSULTATION REVIEW	FEB. 22/2017
01.	OWNER'S REVIEW	JUN. 27/2015

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- ANY AND ALL DISCREPANCIES TO BE REPORTED TO THE ARCHITECT.
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A B C — A. DETAIL NO. B. LOCATION SHEET C. DETAILED (IN

CHINTAN VIRANI ARCHITECT INC.
CHINTAN J. VIRANI
B. ARCH. | OAA, MRAIC, | AIA | COAA
9898 HOLLY CRESCENT,
WINDSOR, ONTARIO,
CANADA N8R 123
WWW.CHINTAN.CA
PHONE: (519)979-9017
FAX: (519) 979-4909
EMAIL: CHINTAN@CHINTAN.CA

DRAWING TITLE: EXISTING SITE PLAN

PROJECT: ZONING BYLAWS AMENDMENT FOR EXISTING 1 STOREY BUILDING

7715 BEAVERDAMS ROAD,
NIAGARA FALLS, ONTARIO.

PROJECT NO.	1521	DRAWN BY	A.V.
DATE	JUNE 2015	CHECKED BY	CJV

DRAWING NO.
SP-S

0'-0" 8'-0" 16'-0" 20'-0"

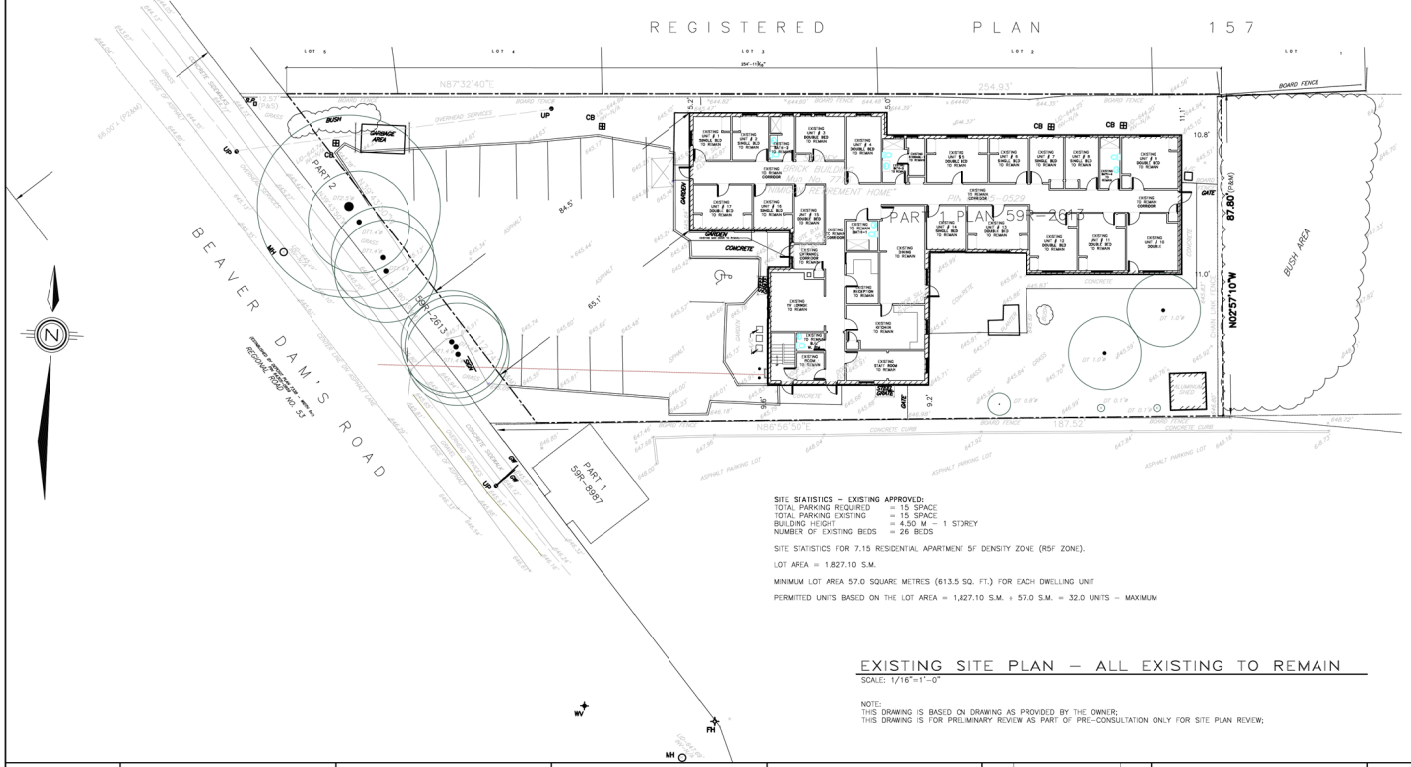
PROJECT NORTH | REAL NORTH

NEW ZONING AMENDMENT:

7.15 RESIDENTIAL APARTMENT 5F DENSITY ZONE (R5F ZONE).
7.15.1 PERMITTED USES. NO PERSON SHALL WITHIN ANY R5F ZONE USE ANY LAND OR ERECT OR USE ANY BUILDING OR STRUCTURE FOR ANY PURPOSE EXCEPT ONE OR MORE O THE FOLLOWING USES:
(a) AN APARTMENT DWELLING
(b) ACCESSORY BUILDINGS AND ACCESSORY STRUCTURES, SUBJECT TO THE PROVISIONS OF SECTIONS 4.13 AND 4.14

7.15.2 REGULATIONS: NO PERSON SHALL WITHIN ANY R5F ZONE USE ANY LAND OR ERECT OR USE ANY BUILDING OR STRUCTURE EXCEPT IN ACCORDANCE WITH THE PROVISIONS OF SECTIONS 4 ANC 5 OF THE FOLLOWING REGULATIONS:

(a)	MINIMUM LOT AREA	57 SQUARE METRES (613.5 SQ. FT.) FOR EACH DWELLING UNIT
(b)	MINIMUM LOT FRONTAGE	45 METRES (147.6 FT.)
(c)	MINIMUM FRONT YARD DEPTH	7.5 METRES (24.61 FT.) PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
(d)	MINIMUM REAR YARD DEPTH	ONE-HALF THE HEIGHT OF THE BUILDING OR 10 METRES WHICHEVER IS GREATER PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
(e)	MINIMUM INTERIOR SIDE YARD WIDTH	ONE-QUARTER THE HEIGHT OF THE BUILDING
(f)	MINIMUM EXTERIOR SIDE YARD WIDTH	7.5 METRES (24.61 FT.) PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
(g)	MAXIMUM LOT COVERAGE	30%
(h)	MAXIMUM HEIGHT OF BUILDING OR STRUCTURE	28 METRES (91.9 FT.), SUBJECT TO SECTION 4.7
(i)	NUMBER OF APARTMENT DWELLINGS ON ONE LOT	ONE ONLY
(j)	PARKING AND ACCESS REQUIREMENTS	IN ACCORDANCE WITH SECTION 4.19.1
(k)	ACCESSORY BUILDINGS AND ACCESSORY STRUCTURES	IN ACCORDANCE WITH SECTIONS 4.13 AND 4.14
(l)	MINIMUM LANDSCAPED OPEN SPACE	55% OF THE LOT AREA



EXISTING SITE PLAN – ALL EXISTING TO REMAIN

SCALE: 1/16"=1'-0"

NOTE:
THIS DRAWING IS BASED ON DRAWING AS PROVIDED BY THE OWNER;
THIS DRAWING IS FOR PRELIMINARY REVIEW AS PART OF PRE-CONSULTATION ONLY FOR SITE PLAN REVIEW;

SITE STATISTICS – EXISTING APPROVED:
TOTAL PARKING REQUIRED = 15 SPACE
TOTAL PARKING EXISTING = 15 SPACE
BUILDING HEIGHT = 4.50 M – 1 STOREY
NUMBER OF EXISTING BEDS = 26 BEDS

SITE STATISTICS FOR 7.15 RESIDENTIAL APARTMENT 5F DENSITY ZONE (R5F ZONE).

LOT AREA = 1,827.10 S.M.

MINIMUM LOT AREA 57.0 SQUARE METRES (613.5 SQ. FT.) FOR EACH DWELLING UNIT

PERMITTED UNITS BASED ON THE LOT AREA = 1,827.10 S.M. ÷ 57.0 S.M. = 32.0 UNITS – MAXIMUM

ZONING
ZONE – I – INSTITUTIONAL

2.51.1 "RETIREMENT HOME" MEANS A RESIDENCE PROVIDING ACCOMMODATION PRIMARILY FOR PERSONS OR COUPLES WITH LIMITED PHYSICAL DISABILITIES BROUGHT ON BY AGE, OR OTHER INFIRMITY FOR WHICH SOME DEGREE OF PHYSICAL ASSISTANCE IS REQUIRED AND WHERE EACH PRIVATE LIVING UNIT HAS A SEPARATE PRIVATE BATHROOM AND SEPARATE ENTRANCE FROM A COMMON HALL, BUT WHERE COMMON FACILITIES FOR THE PREPARATION AND CONSUMPTION OF FOOD ARE PROVIDED, AND COMMON LOUNGES, RECREATION ROOMS AND MEDICAL CARE FACILITIES MAY ALSO BE PROVIDED;

PARKING: RETIREMENT HOME 0.6 PARKING SPACE FOR EACH PRIVATE LIVING UNIT.

SIZE: 6 M = 19.69 FT. X 3.0 / 2.75 M

MANOEUVERING AISLE: 6.9 M = 22.64 FT.

LOADING AREA = 9.0X3.0 = 30'-0"X10'-0"

PAGE 107 & 108

SECTION 9 – INSTITUTIONAL ZONE (I ZONE)

9.1 PERMITTED USES: NO PERSON SHALL WITHIN ANY I ZONE USE ANY LAND OR ERECT OR USE ANY BUILDING OR STRUCTURE FOR ANY PURPOSE EXCEPT ONE OR MORE OF THE FOLLOWING USES:
(A)ART GALLERY OR MUSEUM
(B)COMMUNITY BUILDING
(C)EMERGENCY CARE RESIDENCE
(D)LONG TERM CARE HOME
(E)HOSPITAL
(F)NURSING HOME
(G)PLACE OF WORSHIP
(H)PRIVATE CLUB
(I)RECEIVING HOME, WITHIN THE MEANING OF THE CHILD WELFARE ACT
(J)RELIGIOUS INSTITUTION
(K)SANATORIUM
(L)RETIREMENT HOME
(M)Y.M.C.A, Y.W.C.A, YM.H.A
(N)ACCESSORY BUILDINGS AND ACCESSORY STRUCTURES WHICH ARE ACCESSORY TO ANY OF THE FOREGOING USES, INCLUDING NOT MORE THAN 1 DWELLING UNIT WHICH IS ACCESSORY TO AND ON THE SAME LOT AS THE PRINCIPAL USE.
(O)DAY NURSERY

9.2 REGULATIONS: NO PERSON SHALL WITHIN ANY I ZONE USE ANY LAND OR ERECT OR USE ANY BUILDING OR STRUCTURE EXCEPT IN ACCORDANCE WITH THE PROVISIONS OF SECTION 4 AND THE FOLLOWING REGULATIONS:
(A)MINIMUM LOT AREA
4.9 AC. – (I)FOR A HOSPITAL OR SANATORIUM = 2 HECTARES
.37 AC. – (I)FOR ANY OTHER USE DESCRIBED IN CLAUSES A TO M OF SECTION 9.1 = 0.15 HECTARE
(B)MINIMUM LOT FRONTAGE
493.0 FT. – (I) FOR A HOSPITAL OR SANATORIUM = 150 METRES
98.4 FT. – (I) FOR ANY OTHER USE DESCRIBED IN CLAUSES A TO M OF SECTION 9.1 = 30 METRES
33.0 FT. – (C) MINIMUM FRONT YARD DEPTH 10 METRES PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
16.4 FT. – (D)MINIMUM INTERIOR SIDE YARD WIDTH 5 METRES
24.6 FT. – (E)MINIMUM EXTERIOR SIDE YARD WIDTH 7.5 METRES PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
33.0 FT. – (F)MINIMUM RIAR YARD DEPTH 10 METRES PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
(G) MAXIMUM LOT COVERAGE 35%
33.0 FT. – (H)MAXIMUM HEIGHT OF BUILDING OR STRUCTURE = 10 METRES SUBJECT TO SECTION 4.7
(I)MINIMUM LANDSCAPED OPEN SPACE 5%
(J)PARKING AND ACCESS REQUIREMENTS IN ACCORDANCE WITH SECTION 4.19.1
(K)WHERE ANY OF THE PROVISIONS OF THIS SECTION CONFLICT WITH ANY OF THE PROVISIONS OF SECTIONS 4.13 OR 4.14, THE PROVISIONS OF THIS SECTION SHALL GOVERN 4.27.1
16.4 FT. (D)MINIMUM INTERIOR SIDE YARD WIDTH 5 METRES
24.6 FT.(E)MINIMUM EXTERIOR SIDE YARD WIDTH 7.5 METRES PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
33.0 FT.(F)MINIMUM REAR YARD DEPTH 10 METRES PLUS ANY APPLICABLE DISTANCE SPECIFIED IN SECTION 4.27.1
(G)MAXIMUM LOT COVERAGE 35%
33.0 FT.(H)MAXIMUM HEIGHT OF BUILDING OR STRUCTURE = 10 METRES SUBJECT TO SECTION 4.7
(I)MINIMUM LANDSCAPED OPEN SPACE 5%
(J)PARKING AND ACCESS REQUIREMENTS IN ACCORDANCE WITH SECTION 4.19.1
(K)WHERE ANY OF THE PROVISIONS OF THIS SECTION CONFLICT WITH ANY OF THE PROVISIONS OF SECTIONS 4.13 OR 4.14, THE PROVISIONS OF THIS SECTION SHALL GOVERN

NO.	ISSUED FOR	DATE
05.		
04.		
03.		
02.	CITY PRE-CONSULTATION REVIEW	NOV. 27/2017
01.	OWNER'S REVIEW	NOV. 18/2021

NOTE:
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– ANY AND ALL DISCREPANCIES TO BE REPORTED TO THE ARCHITECT.
– ALL DRAWINGS REMAIN THE PROPERTY OF THE ARCHITECT.

A B C — A. DETAIL NO. B. LOCATION C. DETAILED SHEET ON

CHINTAN VIRANI ARCHITECT INC.
CHINTAN J. VIRANI
B. ARCH. | OAA, MRAIC, | AIA | COAA
9898 HOLLY CRESCENT,
WINDSOR, ONTARIO,
CANADA, N8R 1Z3.
WWW.CHINTAN.CA
PHONE: (519)979-9077
FAX: (519) 979-4009
EMAIL: CHINTAN@CHINTAN.CA

DRAWING TITLE: EXISTING SITE PLAN

PROJECT: ZONING BYLAWS AMENDMENT FOR EXISTING 1 STOREY BUILDING

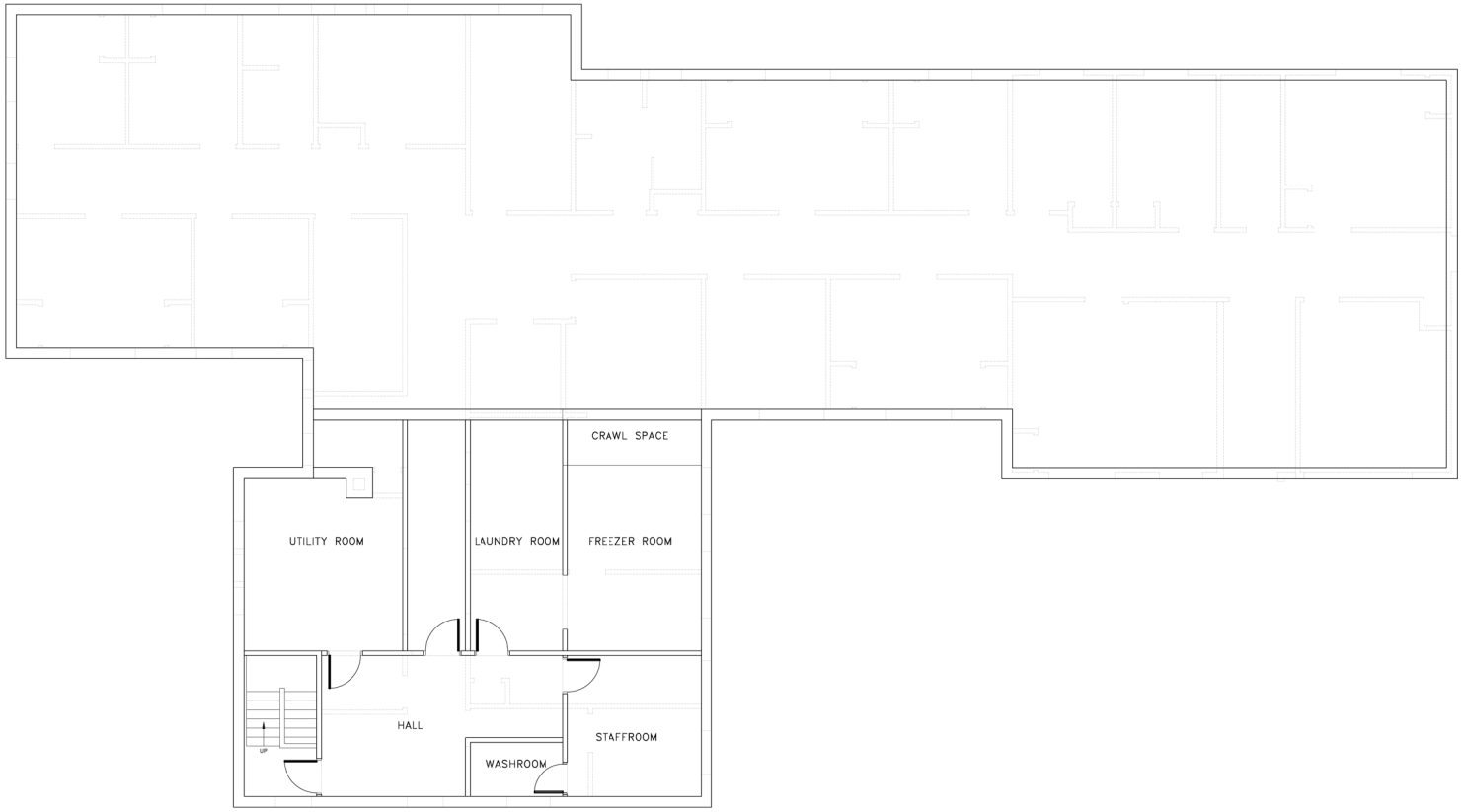
7715 BEAVERDAMS ROAD, NIAGARA FALLS, ONTARIO.

PROJECT NO.	2182	DRAWN BY	A.V.
DATE	NOVEMBER 2021	CHECKED BY	CJV

DRAWING NO.

SP-1.0

0'-0" 8'-0" 16'-0" 20'-0"
Scale: 1/16"=1'-0"



EXISTING BASEMENT FLOOR PLAN

SCALE: 3/16"=1'-0"

NOTE:
THIS DRAWING IS BASED ON DRAWING AS PROVIDED BY THE OWNER;
THIS DRAWING IS FOR PRELIMINARY REVIEW AS PART OF PRE-CONSULTATION ONLY FOR SITE PLAN REVIEW;

NO.	ISSUED FOR	DATE
05.	ZONING AMMENDMENT	AUG. 02/2023
04.	MINOR VARIANCE	APR. 20/2017
03.	PROPOSED LAYOUT REVIEW OPTION-1-2-3	MAR. 09/2017
02.	CITY PRE-CONSULTATION REVIEW	FEB. 22/2017
01.	OWNER'S REVIEW	JUN. 27/2015

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A
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C. DETAILED ON

CHINTAN VIRANI ARCHITECT INC.
CHINTAN J. VIRANI
B. ARCH. | OAA, MRAIC, | AIA | COAI
5898 HOLLY CRESCENT,
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PHONE: (519)979-9017
FAX: (519) 979-4909
EMAIL: CHINTAN@CHINTAN.CA

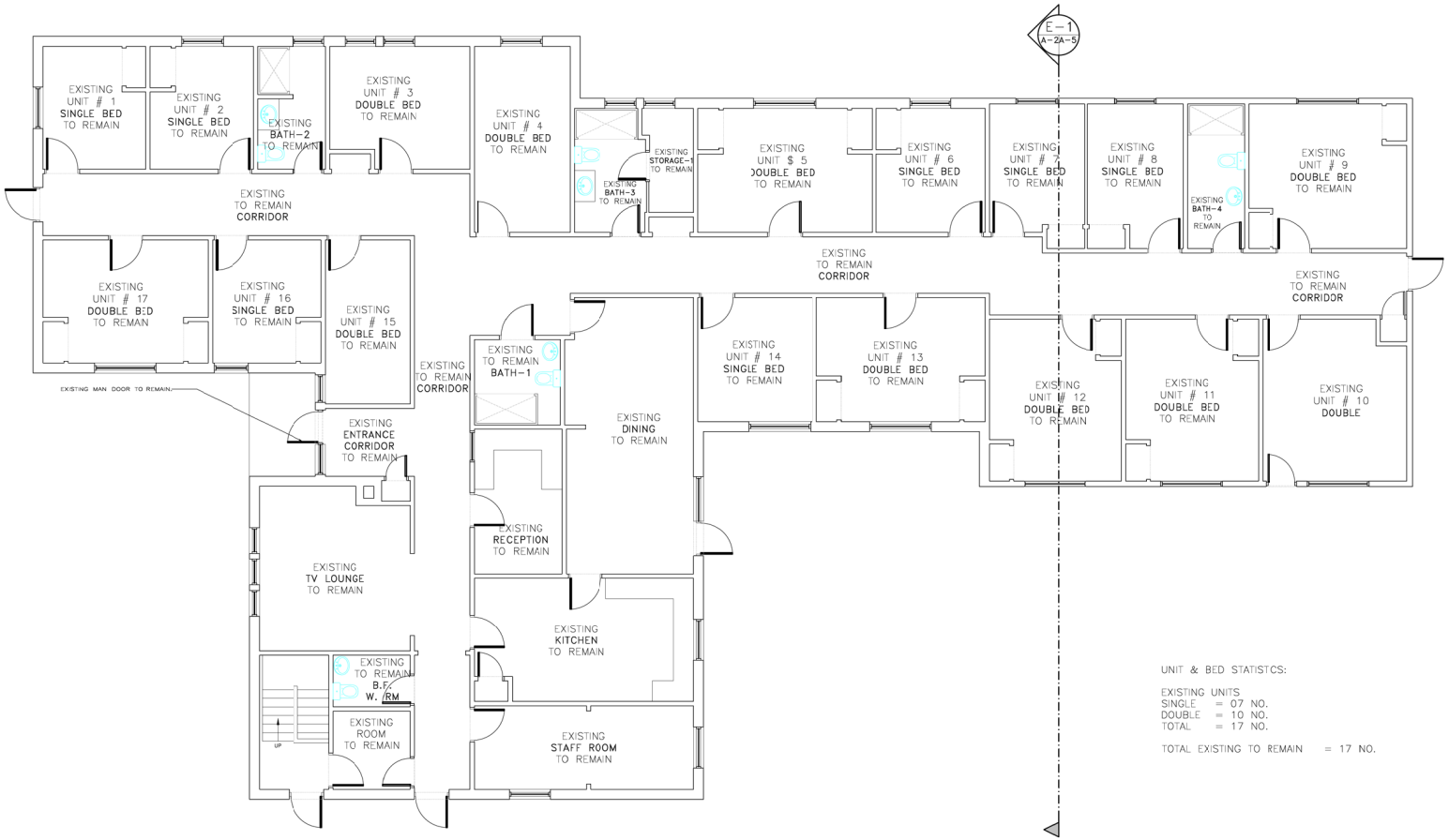
DRAWING TITLE
EXISTING BASEMENT FLOOR PLAN

PROJECT
ZONING BYLAWS AMENDMENT FOR EXISTING 1 STOREY BUILDING

7715 BEAVERDAMS ROAD
NIAGARA FALLS, ONTARIO.

PROJECT NO.	1522	DRAWN BY	A.V.
DATE	JUNE 2015	CHECKED BY	CJV

DRAWING NO.
A-1.0
24"X36"



UNIT & BED STATISTCS:

EXISTING UNITS
SINGLE = 07 NO.
DOUBLE = 10 NO.
TOTAL = 17 NO.

TOTAL EXISTING TO REMAIN = 17 NO.

EXISTING FIRST FLOOR PLAN

SCALE: 3/16"=1'–0"

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01.	OWNER'S REVIEW	JUN. 27/2015

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CHINTAN J. VIRANI
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EMAIL: CHINTAN@CHINTAN.CA

DRAWING TITLE: EXISTING FIRST FLOOR PLAN

PROJECT: ZONING BYLAWS AMENDMENT FOR EXISTING : STOREY BUILDING

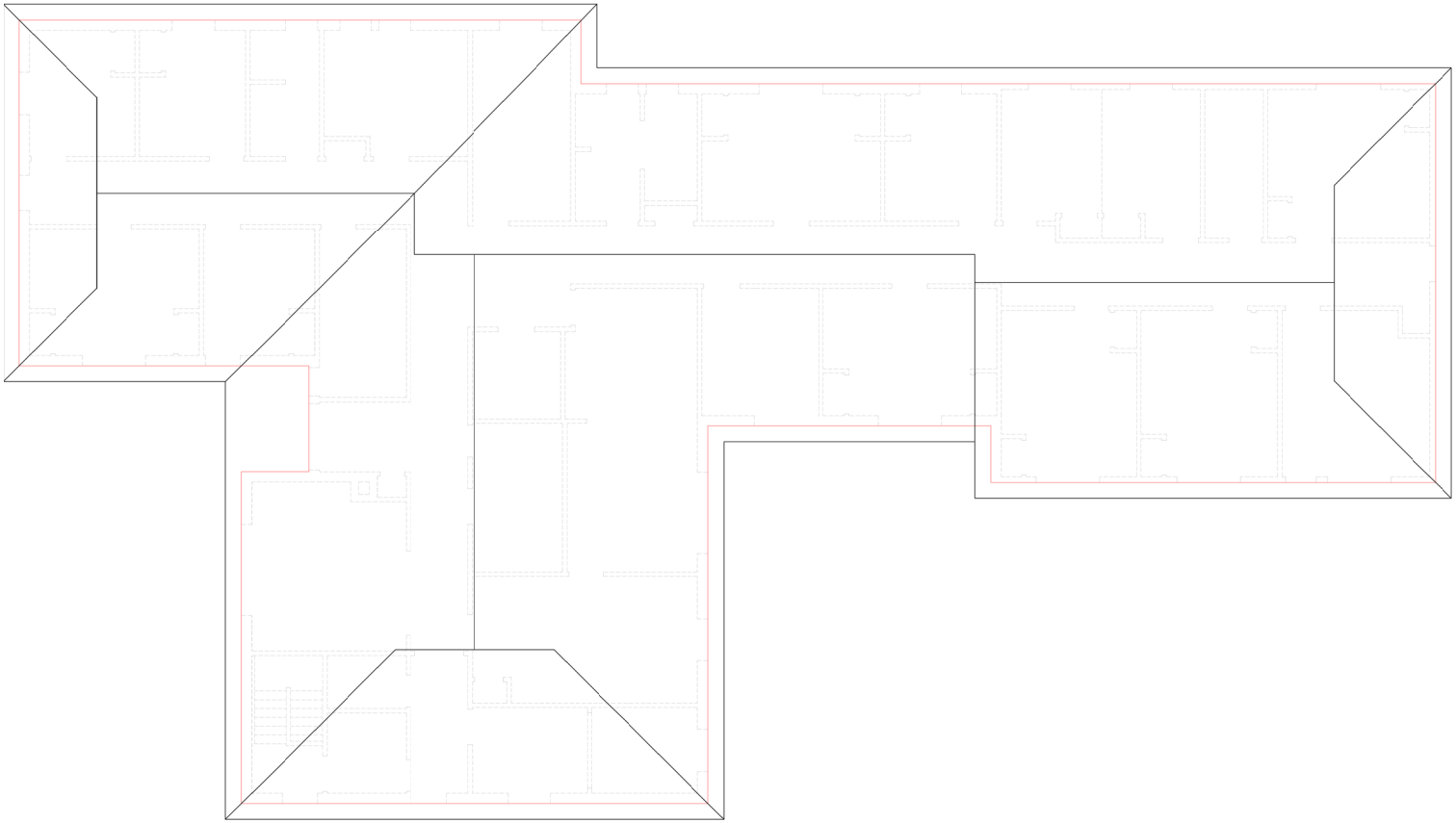
7715 BEAVERDAMS ROAD
NIAGARA FALLS, ONTARIO.

PROJECT NO.	1522	DRAWN BY	A.V.
DATE	JUNE 2015	CHECKED BY	CJV

DRAWING NO.

A-2.0

24"X36"



EXISTING ROOF PLAN

SCALE: 3/16"=1'-0"

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02.	CITY PRE-CONSULTATION REVIEW	FEB. 22/2017
01.	OWNER'S REVIEW	JUN. 27/2015

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CHINTAN J. VIRANI
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PHONE: (519)979-9017
FAX: (519) 979-4909
EMAIL: CHINTAN@CHINTAN.CA

DRAWING TITLE: EXISTING ROOF PLAN

PROJECT: ZONING BYLAWS AMENDMENT FOR EXISTING 1 STOREY BUILDING

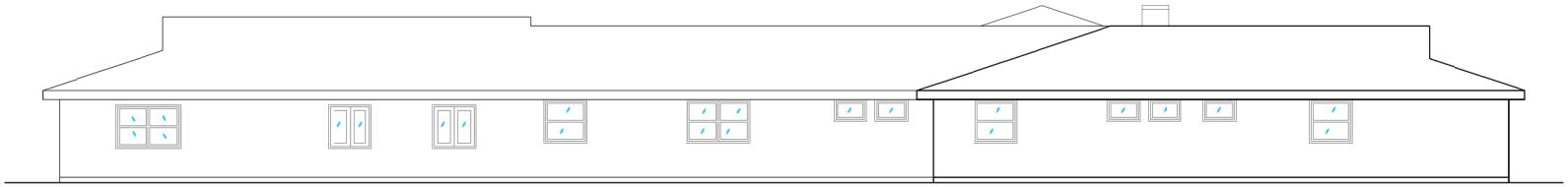
7715 BEAVERDAMS ROAD
NIAGARA FALLS, ONTARIO.

PROJECT NO.	1522	DRAWN BY	A.V.
DATE	JUNE 2015	CHECKED BY	C.V

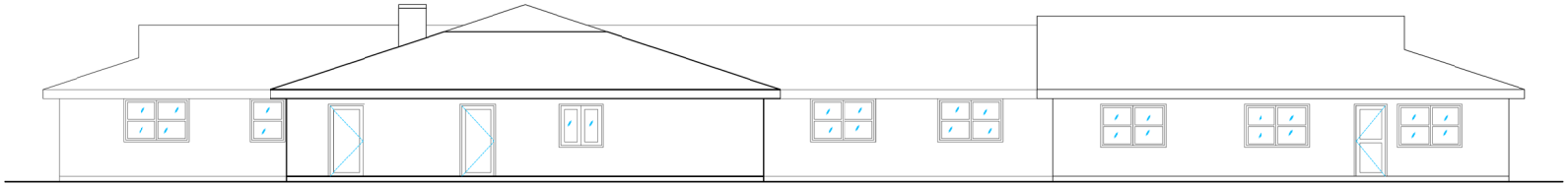
DRAWING NO.

A-3.0

24"X36"



EXISTING NORTH ELEVATION
SCALE: 3/16"=1'-0"



EXISTING SOUTH ELEVATION
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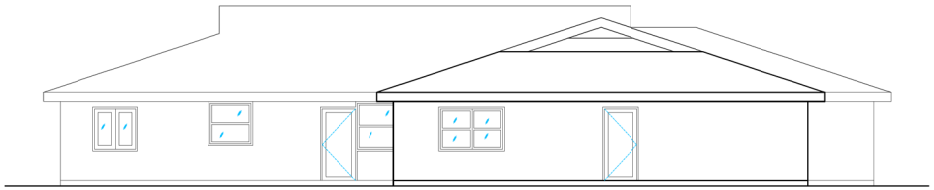

EXISTING EAST ELEVATION
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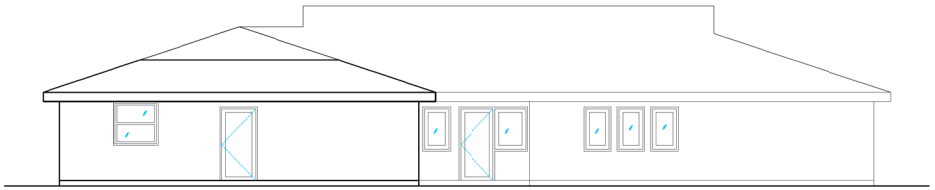

EXISTING WEST ELEVATION
SCALE: 3/16"=1'-0"

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CHINTAN VIRANI ARCHITECT INC.
CHINTAN J. VIRANI
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FAX: (519) 979-4999
EMAIL: CHINTAN@CHINTAN.CA

DRAWING TITLE
EXISTING ELEVATIONS

PROJECT
ZONING BYLAWS AMENDMENT FOR EXISTING 1 STOREY BUILDING

7715 BEAVERDAMS ROAD
NIAGARA FALLS, ONTARIO.

PROJECT NO.	1522	DRAWN BY	A.V.
DATE	JUNE 2015	CHECKED BY	C.V

DRAWING NO.
A-4.0
24"X36"

APPENDIX B

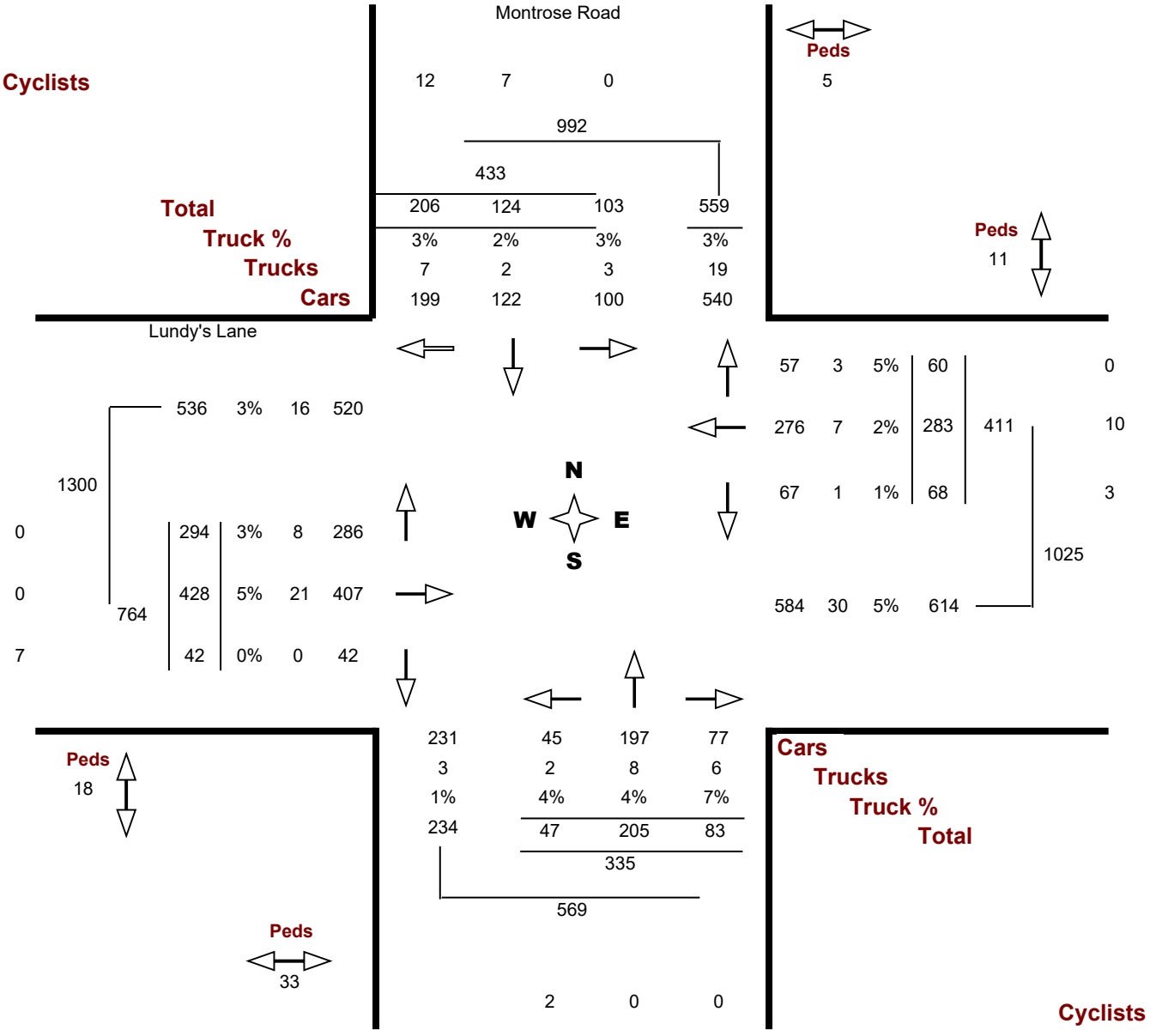
Road Traffic Data

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
QEW			2015	IC	44300	49000	48800	39300
QEW			2016	IC	45100	49900	49700	40000
QEW			2017	IC	45900	50300	50700	41700
QEW			2018	IC	46700	51400	51700	42300
QEW			2019	IC	47500	52200	52400	42900
QEW	HWY 420 IC-30	2.0	1988	CTR	40000	52000	48800	33600
QEW			1989	CTR	41500	52700	50200	35700
QEW			1990	CTR	43400	54200	51200	37800
QEW			1991	CTR	42200	53200	52800	36700
QEW			1992	CTR	42200	51900	50200	36700
QEW			1993	CTR	42600	53700	51500	36200
QEW			1994	C	41700	45700	46500	37700
QEW			1995	C	43800	47800	49100	40100
QEW			1996	C	46100	52300	52400	41600
QEW			1997	CTR	48200	61700	59300	40500
QEW			1998	CTR	51200	65000	62500	43000
QEW			1999	CTR	50200	63300	60700	42200
QEW			2000	CTR	51600	65000	62400	43300
QEW			2001	C	51300	57800	57900	46200
QEW			2002	C	54500	61000	61500	49000
QEW			2003	C	56000	62600	63000	50500
QEW			2004	C	57400	64600	64800	51700
QEW			2005	C	56200	62600	63100	50500
QEW			2006	C	57500	63900	64400	51700
QEW			2007	C	58800	65300	66200	52800
QEW			2008	C	60200	66400	65500	54000
QEW			2009	C	61500	67600	68300	55400
QEW			2010	C	62800	69200	69800	56500
QEW			2011	C	64300	70900	71500	57900
QEW			2012	C	66000	72700	71200	59400
QEW			2013	C	66800	73600	72700	60100
QEW			2014	UC	68100	68300	65500	64600
QEW			2015	UC	69200	69400	66600	65700
QEW			2016	UC	70400	70600	67700	66800
QEW			2017	UC	71600	71100	71800	68600
QEW			2018	UC	72800	72200	73400	69900
QEW			2019	UC	74000	72900	74000	71300
QEW	THOROLD STONE RD IC-32	2.5	1988	CTR	39200	51000	47800	32900
QEW			1989	CTR	41100	52200	49700	35300
QEW			1990	CTR	43000	53800	50700	37400
QEW			1991	CTR	40400	50900	50500	35100
QEW			1992	CTR	40300	49600	48000	35100
QEW			1993	CTR	40800	51400	49400	34700
QEW			1994	CTR	40500	51800	49400	34000
QEW			1995	CTR	44500	57100	54700	37300

Turning Movements Report - AM Period

Location..... Lundy's Lane @ Montrose Road
Municipality. NIAGARA FALLS
Traffic Cont.
Major Dir..... East west

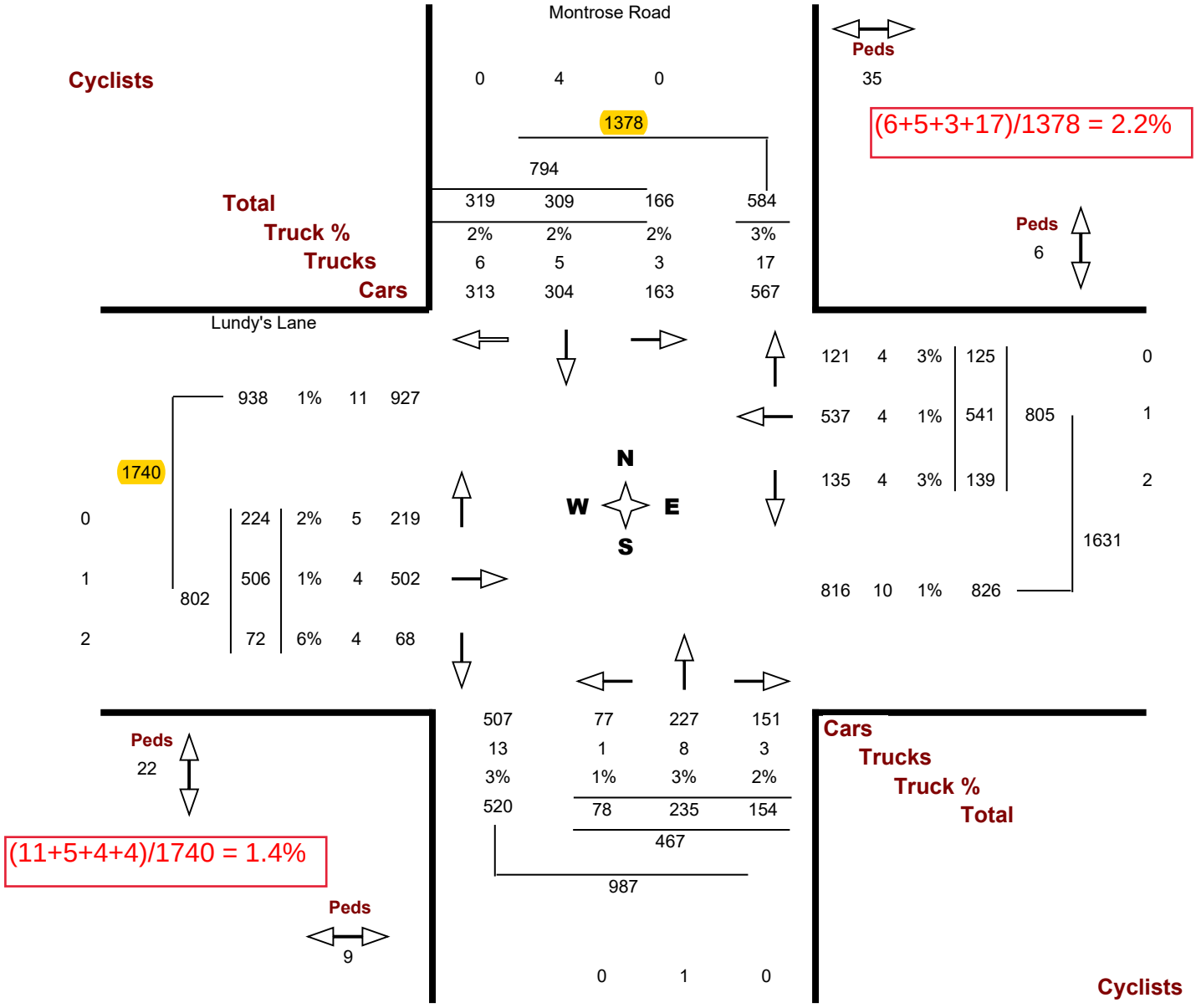
GeoID..... 01594
Count Date. Wednesday, 18 January, 2023
Count Time. 07:00 AM — 09:00 AM
Peak Hour.. 08:00 AM — 09:00 AM



Turning Movements Report - PM Period

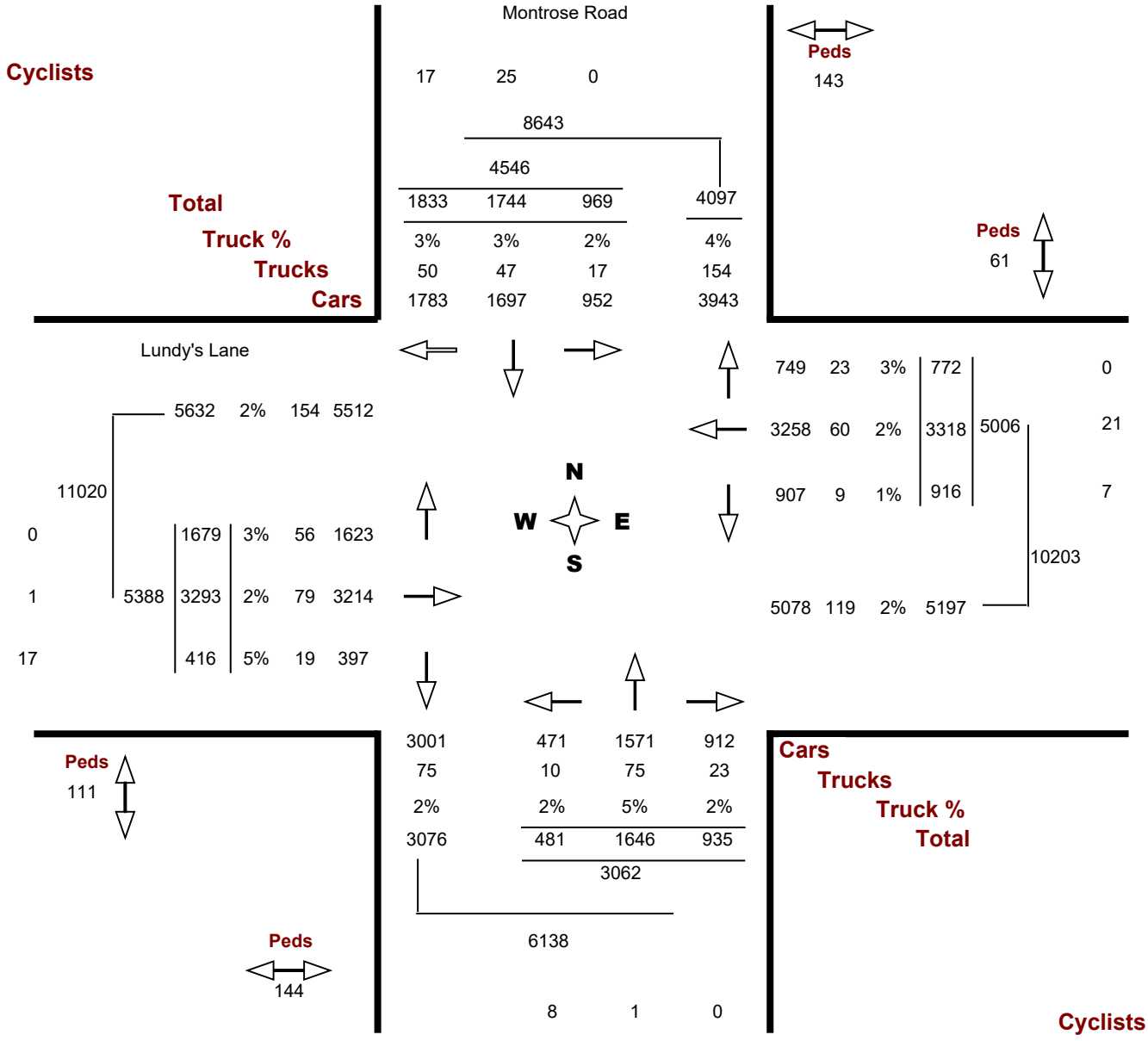
Location..... Lundy's Lane @ Montrose Road
Municipality. NIAGARA FALLS
Traffic Cont.
Major Dir..... East west

GeoID..... 01594
Count Date. Wednesday, 18 January, 2023
Count Time. 03:00 PM — 06:00 PM
Peak Hour.. 03:45 PM — 04:45 PM



Turning Movement Count Report
Full Study

Location..... Lundy's Lane @ Montrose Road
Municipality..... NIAGARA FALLS
GeoID..... 01594
Count Date..... Wednesday, 18 January, 2023



Turning Movement Count - Details Report (15 min)

Location..... Lundy's Lane @ Montrose Road

Municipality..... NIAGARA FALLS

Count Date..... Wednesday, January 18, 2023

		Montrose Road										Lundy's Lane									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	7	5	13	0	25	6	22	11	0	39	5	48	5	0	58	30	49	4	0	83
07:15	07:30	8	20	31	0	59	10	47	14	0	71	6	62	3	0	71	31	48	9	0	88
07:30	07:45	9	26	33	0	68	14	44	10	0	68	13	50	8	0	71	60	56	4	0	120
07:45	08:00	14	31	41	0	86	11	58	15	0	84	10	67	9	0	86	60	66	7	0	133
Hourly Total		38	82	118	0	238	41	171	50	0	262	34	227	25	0	286	181	219	24	0	424
08:00	08:15	30	28	50	0	108	11	49	16	0	76	13	67	19	0	99	72	87	5	0	164
08:15	08:30	16	38	65	0	119	8	64	18	0	90	18	72	9	0	99	89	109	15	0	213
08:30	08:45	19	27	48	0	94	15	43	26	0	84	20	75	16	0	111	70	115	9	0	194
08:45	09:00	38	31	43	0	112	13	49	23	0	85	17	69	16	0	102	63	117	13	0	193
Hourly Total		103	124	206	0	433	47	205	83	0	335	68	283	60	0	411	294	428	42	0	764
11:00	11:15	27	59	39	0	125	14	40	23	0	77	25	99	19	0	143	43	96	12	0	151
11:15	11:30	20	60	47	0	127	20	49	27	0	96	23	83	36	0	142	37	82	14	0	133
11:30	11:45	21	45	44	0	110	9	52	22	0	83	24	125	24	0	173	49	108	13	0	170
11:45	12:00	34	52	56	0	142	15	49	31	0	95	23	94	25	0	142	43	91	15	0	149
Hourly Total		102	216	186	0	504	58	190	103	0	351	95	401	104	0	600	172	377	54	0	603
12:00	12:15	29	44	56	0	129	15	68	48	0	131	20	125	27	0	172	53	109	11	0	173
12:15	12:30	29	60	72	0	161	15	64	36	0	115	38	106	26	0	170	45	83	11	0	139
12:30	12:45	22	50	41	0	113	19	51	21	0	91	44	119	25	0	188	50	113	8	0	171
12:45	13:00	38	73	50	0	161	19	42	27	0	88	39	109	34	0	182	52	106	20	0	178
Hourly Total		118	227	219	0	564	68	225	132	0	425	141	459	112	0	712	200	411	50	0	661
13:00	13:15	37	54	48	0	139	16	52	24	0	92	35	115	31	0	181	47	97	19	0	163
13:15	13:30	25	65	47	0	137	17	50	33	0	100	24	105	27	0	156	42	111	15	0	168
13:30	13:45	38	70	58	0	166	15	46	37	0	98	37	93	29	0	159	45	103	15	0	163
13:45	14:00	28	61	65	0	154	16	52	35	0	103	26	99	34	0	159	52	109	8	0	169
Hourly Total		128	250	218	0	596	64	200	129	0	393	122	412	121	0	655	186	420	57	0	663
15:00	15:15	37	59	85	0	181	16	48	35	0	99	35	130	23	0	188	58	141	24	0	223
15:15	15:30	46	51	72	0	169	21	62	32	0	115	48	106	30	0	184	56	111	16	0	183
15:30	15:45	37	76	69	0	182	9	52	43	0	104	38	146	33	0	217	57	130	14	0	201
15:45	16:00	47	93	65	0	205	17	50	39	0	106	41	134	30	0	205	57	127	14	0	198
Hourly Total		167	279	291	0	737	63	212	149	0	424	162	516	116	0	794	228	509	68	0	805
16:00	16:15	41	69	94	0	204	23	62	43	0	128	37	154	37	0	228	46	107	12	0	165

		Montrose Road										Lundy's Lane									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
16:15	16:30	34	77	77	0	188	15	55	36	0	106	42	144	34	0	220	58	128	16	0	202
16:30	16:45	44	70	83	0	197	23	68	36	0	127	19	109	24	0	152	63	144	30	0	237
16:45	17:00	43	79	66	0	188	18	50	28	0	96	48	125	20	0	193	48	137	20	0	205
Hourly Total		162	295	320	0	777	79	235	143	0	457	146	532	115	0	793	215	516	78	0	809
17:00	17:15	41	61	81	0	183	15	62	33	0	110	42	121	35	0	198	63	99	10	0	172
17:15	17:30	55	75	74	0	204	11	65	32	0	108	31	148	29	0	208	46	104	7	0	157
17:30	17:45	23	70	67	0	160	18	44	39	0	101	46	112	30	0	188	46	99	10	0	155
17:45	18:00	32	65	53	0	150	17	37	42	0	96	29	107	25	0	161	48	111	16	0	175
Hourly Total		151	271	275	0	697	61	208	146	0	415	148	488	119	0	755	203	413	43	0	659
Grand Total		969	1744	1833	0	4546	481	1646	935	0	3062	916	3318	772	0	5006	1679	3293	416	0	5388
Truck %		2%	3%	3%	0%	3%	2%	5%	2%	0%	4%	1%	2%	3%	0%	2%	3%	2%	5%	0%	3%

Prepared For: City of Niagara Falls
Prepared By: *PYRAMID* Traffic Inc.
Location: Beaverdams Rd, btwn Hodgson Ave & Lundy's Lane
Start Date: Thursday Oct 18, 2018

Site ID: 2669
Interval: 15 min.

Period Ending	Channel 1 EB	Channel 2 WB	Hourly Summary
0:15	3	0	
0:30	3	1	
0:45	4	4	
1:00	4	0	19
1:15	6	1	23
1:30	0	1	20
1:45	4	2	18
2:00	1	0	15
2:15	1	1	10
2:30	0	0	9
2:45	2	0	5
3:00	2	0	6
3:15	1	0	5
3:30	0	0	5
3:45	0	1	4
4:00	3	0	5
4:15	1	1	6
4:30	4	1	11
4:45	2	2	14
5:00	2	2	15
5:15	2	5	20
5:30	5	1	21
5:45	1	3	21
6:00	4	1	22
6:15	2	4	21
6:30	3	2	20
6:45	5	4	25
7:00	5	8	33
7:15	13	7	47
7:30	9	11	62
7:45	12	8	73
8:00	18	9	87
8:15	17	11	95
8:30	30	15	120
8:45	25	13	138
9:00	22	13	146
9:15	18	12	148
9:30	12	6	121
9:45	8	10	101
10:00	11	12	89
10:15	20	5	84
10:30	13	6	85
10:45	8	9	84
11:00	9	5	75
11:15	15	12	77
11:30	21	12	91
11:45	23	5	102
12:00	21	13	122
12:15	30	13	138
12:30	15	13	133
12:45	25	12	142
13:00	13	12	133
13:15	9	8	107
13:30	21	11	111
13:45	13	14	101
14:00	21	11	108
14:15	18	6	115
14:30	16	14	113
14:45	23	11	120
15:00	28	10	126
15:15	22	13	137
15:30	37	18	162
15:45	21	12	161
16:00	18	16	157
16:15	21	11	154
16:30	35	14	148
16:45	29	6	150
17:00	30	12	158
17:15	23	19	168
17:30	32	11	162
17:45	22	18	167
18:00	29	12	166
18:15	23	12	159
18:30	25	12	153
18:45	18	11	142
19:00	18	12	131
19:15	23	7	126
19:30	19	7	115
19:45	15	10	111
20:00	14	7	102
20:15	18	4	94
20:30	21	4	93
20:45	20	12	100
21:00	10	6	95
21:15	11	8	92
21:30	14	5	86
21:45	9	5	68
22:00	20	7	79
22:15	11	2	73
22:30	6	5	65
22:45	6	2	59
23:00	3	3	38
23:15	7	3	35
23:30	13	4	41
23:45	6	3	42
0:00	5	5	46

AM Peak: 148 PM Peak: 168 24 HR VOLUME: 1973

APPENDIX C

Sample STAMSON 5.04 Output

STAMSON 5.0 NORMAL REPORT Date: 20-10-2023 09:49:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 19875/2208 veh/TimePeriod *
Medium truck volume : 163/18 veh/TimePeriod *
Heavy truck volume : 285/32 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): 13780
Percentage of Annual Growth : 2.50
Number of Years of Growth : 20.00
Medium Truck % of Total Volume : 0.80
Heavy Truck % of Total Volume : 1.40
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 90 %
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25301/2811 veh/TimePeriod *
Medium truck volume : 128/14 veh/TimePeriod *
Heavy truck volume : 231/26 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): 17400
Percentage of Annual Growth : 2.50
Number of Years of Growth : 20.00
Medium Truck % of Total Volume : 0.50
Heavy Truck % of Total Volume : 0.90

```
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: Lundy (day/night)
---------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     50 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: QEW (day/night)
---------------------------------------
Car traffic volume  : 55768/27880 veh/TimePeriod  *
Medium truck volume :  3486/1742  veh/TimePeriod  *
Heavy truck volume  : 10457/5227  veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  74000
    Percentage of Annual Growth        :   2.50
    Number of Years of Growth          :  14.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  15.00
    Day (16 hrs) % of Total Volume     :  66.67

Data for Segment # 3: QEW (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      3 / 3
House density             :     90 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 425.00 / 425.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.09 m

ROAD (0.00 + 51.59 + 0.00) = 51.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
---
```

```
   -90     90   0.00  66.09   0.00  -6.69   0.00   0.00  -7.82   0.00
51.59
-------------------------------------------------------------------------
---

Segment Leq : 51.59 dBA

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

Source height = 0.97 m

ROAD (0.00 + 52.72 + 0.00) = 52.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  66.26   0.00  -7.88  -3.01   0.00  -2.65   0.00
52.72
-------------------------------------------------------------------------
---

Segment Leq : 52.72 dBA

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

Source height = 1.97 m

ROAD (0.00 + 49.37 + 0.00) = 49.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.65  83.97   0.00 -23.90  -1.43   0.00  -9.26   0.00
49.37
-------------------------------------------------------------------------
---

Segment Leq : 49.37 dBA

Total Leq All Segments: 56.21 dBA

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

Source height = 1.09 m

ROAD (0.00 + 45.07 + 0.00) = 45.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
```

```
   -90     90   0.00  59.58   0.00  -6.69   0.00   0.00  -7.82   0.00
45.07
-------------------------------------------------------------------------
---

Segment Leq : 45.07 dBA

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

Source height = 0.98 m

ROAD (0.00 + 46.21 + 0.00) = 46.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  59.74   0.00  -7.88  -3.01   0.00  -2.65   0.00
46.21
-------------------------------------------------------------------------
---

Segment Leq : 46.21 dBA

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

Source height = 1.97 m

ROAD (0.00 + 49.37 + 0.00) = 49.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.65  83.97   0.00 -23.90  -1.43   0.00  -9.26   0.00
49.37
-------------------------------------------------------------------------
---

Segment Leq : 49.37 dBA

Total Leq All Segments: 52.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.21
                           (NIGHT): 52.05
```