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1883 Stittsville Main Street, Ottawa

Noise Impact Feasibility Report

STITTSVILLE SOUTH SUBDIVISION

Block 349

1883 Stittsville Main Street

City of Ottawa

Noise Impact Feasibility Report

Prepared By:

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> Novatech File: 124097 Ref: R-2024-109

November 13, 2024



November 13, 2024

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

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

Reference: Stittsville South Subdivision – Block 349 / 1883 Stittsville Main Street Noise Impact Feasibility Report Novatech File No.: 124097

Please find enclosed the 'Noise Impact Feasibility Report' for the above-noted development located at 1883 Stittsville Main Street in the City of Ottawa. This report is being submitted in support of a site plan control application for the proposed development.

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

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

Yours truly,

NOVATECH

Be Ant

Ben Sweet, P. Eng. Project Manager I Land Development Engineering

cc: Sam Bahia, Novatech Olivia Hughes / Lina Ramirez, Mattamy Homes (Monarch) Ltd.

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1.0 INTRODUCTION

Novatech has been retained to prepare a Noise Impact Feasibility Report on behalf of Mattamy Homes (Monarch) Ltd. to assess the impact of traffic noise for the proposed site plan at Block 349 within the Stittsville South Subdivision, located at 1883 Stittsville Main Street within the City of Ottawa. The report is in support of a site plan application for the subject development. **Figure 1 - Key Plan** shows an aerial image of the site location.



Figure 1: Key Plan – 1883 Stittsville Main Street

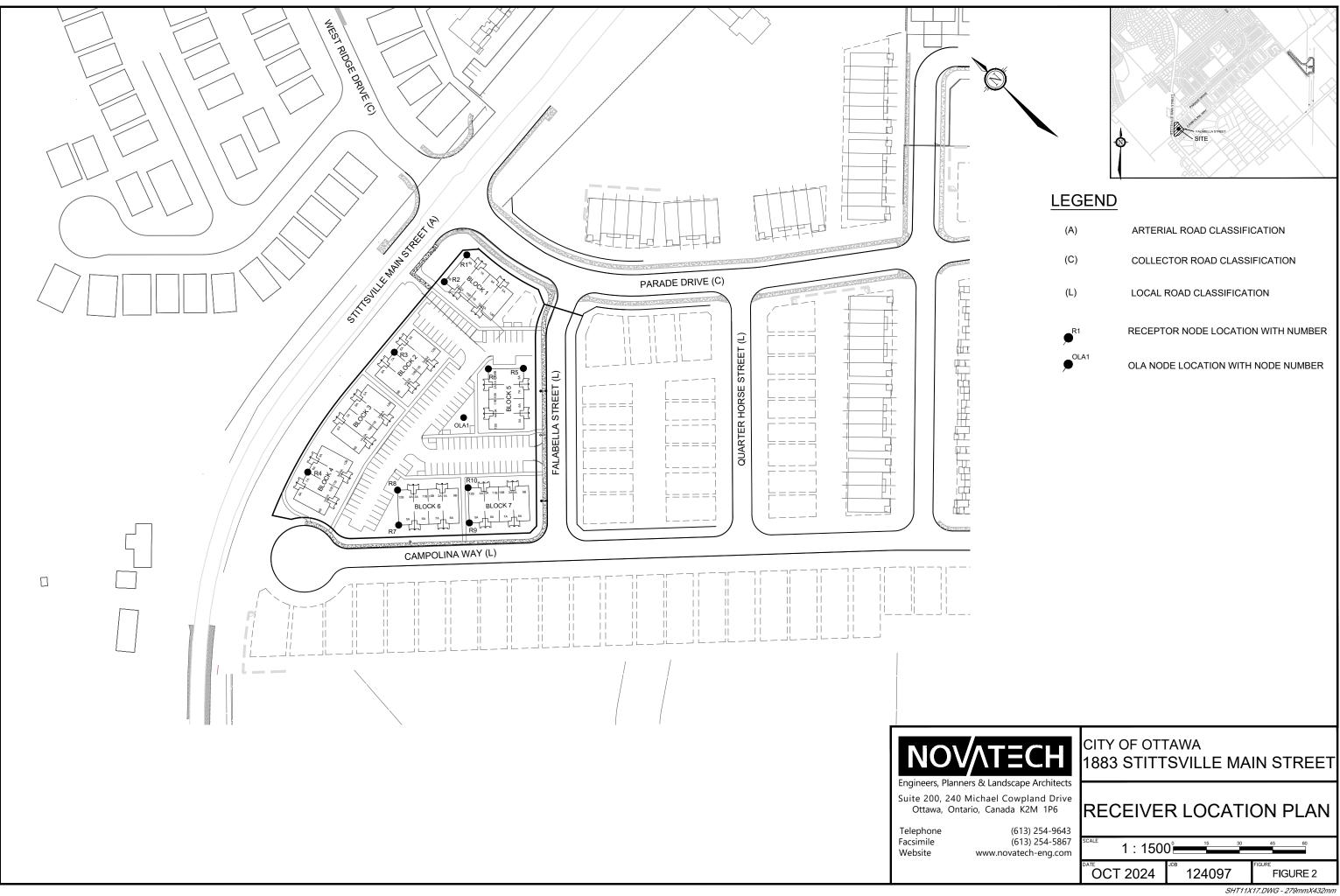
The proposed 1.05 ha development includes 7 stacked townhomes with a total of 84 units, 109 surface parking stalls, and an amenity area. The locations of all nodes used to determine the predicted noise levels are included in **Figure 2 – Receiver Location Plan**.

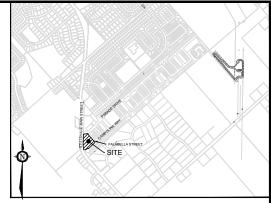
The only Outdoor Living Area (OLA) noise levels that needs to be considered is the designated amenity area, selected 1.5m above finished grade.

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

- Units 9B-12B for all Blocks, both daytime and nighttime are selected 1.5m above the first-floor grade.
- Units 1A-8A for all Blocks, daytime is selected 1.5m above the second-floor grade, which is 4.65m total, and nighttime is selected 1.5m above the third-floor grade, which is 7.80m total.

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





(A)	ARTERIAL ROAD CLASSIFICATION
(C)	COLLECTOR ROAD CLASSIFICATION
(L)	LOCAL ROAD CLASSIFICATION
● ^{R1}	RECEPTOR NODE LOCATION WITH NUMBER
	OLA NODE LOCATION WITH NODE NUMBER

2.0 NOISE CRITERIA, NOISE SOURCES AND NOISE ATTENATION METHODS

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

OLA and ILE receivers are defined as:

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

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

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

Table 1: Noise Level Criteria

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

2.1 Noise Sources

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

Stittsville Main Street is intended to be classified as 4-Lane Urban Arterial – Divided (4-UAD) roadway in the future, as a 37.5m ROW allowance has been allocated for this roadway. Parade Drive can be considered as extension of West Ridge Drive (classified as Urban Collector in City of Ottawa Official Plan) is an Urban Collector (2-UCU) for the purpose of this report. Refer to **Appendix A** for the excerpt from the Official Plan. **Table 2** outlines the road noise sources for the site.

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	Stittsville Main St.	Parade Dr. (West Ridge Dr.)		
Roadway Classification	4-Lane Arterial Undivided	2-Lane Urban Collector Undivided		
Annual Average Daily Traffic (AADT)	35,000 vehicles/day	8,000 vehicles/day		
Day/Night Split (%)	92/8	92/8		
Medium Trucks (%)	7	7		
Heavy Trucks (%)	5	5		
Posted Speed	50 km/hr	50 km/hr		

 Table 2: Traffic and Roadway Parameters

2.2 Methods for Noise Attenuation

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

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

2.3 Ventilation Requirements

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

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

2.4 Building Components

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

2.5 Warning Clauses

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

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

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

Warning Clause Type 'A'

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

Warning Clause Type 'B'

"Purchasers/ tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and transitway traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."

Warning Clause Type 'C'

"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"

Warning Clause Type 'D'

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

2.6 Summary of Attenuation Requirements

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

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

Table 3: Noise Attenuation Measure Requirements
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*Type A warning clause refers to units requiring a noise barrier that mitigates noise below 55 dBA. **Type B warning clause refers to units requiring a noise barrier but is technically or economically not feasible to reduce levels below 55 dBA and a tolerance of up to 5dBA can be granted by the City.

3.0 PREDICTED NOISE LEVELS

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

Table 4. Simulation Results – Outdoor Living Area					
Receiver	1100 20100		Outdoor Mitigation		
Location*	Un-attenuated	Attenuated	Method		
OLA 1	51.49	-	N/A		

Table 4: Simulation	Results – 0	Outdoor	Living Area
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*Locations found on Figure 2 – Receiver Location Plan

From **Table 4**, the predicted noise levels of OLA 1 are lower than 55 dBA and therefore no attenuated measures are required. Refer to **Appendix B** for noise calculations.

Receiver Location*	Predicted Noise Level 7:00-23:00 (dBa) Un-attenuated	Predicted Noise Level 23:00-7:00 (dBa) Un-attenuated	Mitigation Method
R1 (Block1 8A)	71.49	63.89	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R1 (Block1 9B)	71.49	63.89	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R2 (Block1 1A)	70.76	63.16	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R3 (Block2 6A)	70.19	62.65	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R3 (Block2 10B)	70.19	62.59	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R4 (Block4 6A)	69.96	62.40	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R4 (Block4 10B)	69.95	62.35	 Installation of Central Air Conditioning Warning Clauses Type D Building Component Assessment
R5 (Block5 8A)	61.94	55.01	 Installation of Forced Heating with provisions for Central Air Conditioning Warning Clauses Type C

Table 5: Simulation Results – Plane of Window

Receiver Location*	Predicted Noise Level 7:00-23:00 (dBa) Un-attenuated	Predicted Noise Level 23:00-7:00 (dBa) Un-attenuated	Mitigation Method
R5 (Block5 9B)	61.88	54.29	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R6 (Block5 1A)	62.17	55.12	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R7 (Block6 5A)	58.91	53.76	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R7 (Block6 12B)	58.65	51.06	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R8 (Block6 4A)	55.77	52.31	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R9 (Block7 5A)	54.86	51.03	 Installation of Forced Heating with provision for Central Air Conditioning Warning Clauses Type C
R9 (Block7 12B)	54.58	46.99	None Required
R10 (Block7 4A)	47.58	44.47	None Required

Table 5: Simulation	Results – Plane of Window
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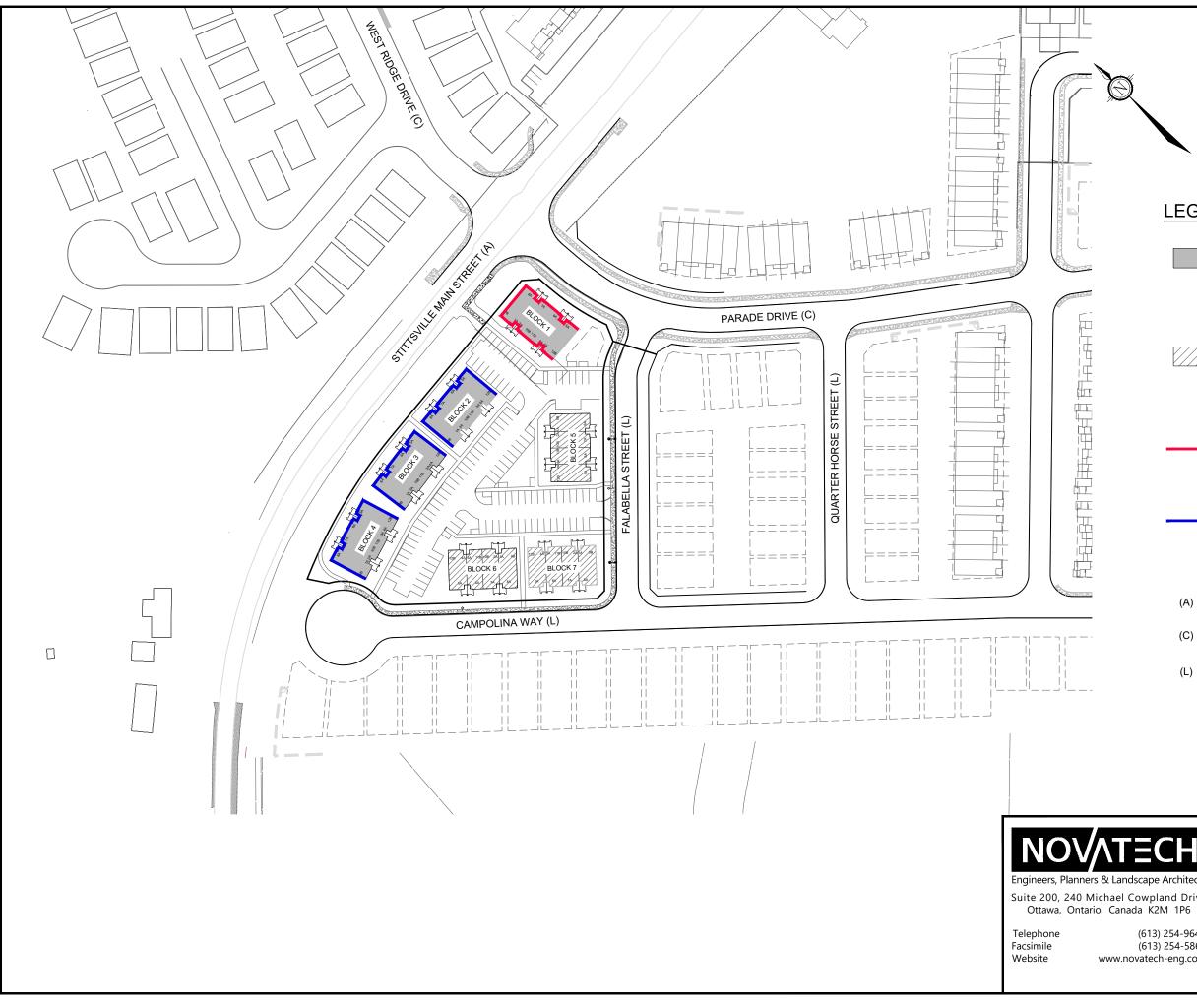
*Locations found on Figure 2 – Receiver Location Plan

From **Table 5**, the predicted noise levels at the POW's are expected to exceed the sound level criteria. As such, the following is recommended:

- Installation of Central Air Conditioning and the inclusion of warning clause Type D to be registered on title and incorporated into the development agreement and the lease/ rental/ sale agreements of all units in Blocks 1, 2, 3 and 4. Further building component assessment is required for these specific blocks.
- Installation of Forced Air Heating with provision for Central Air Conditioning and the inclusion of warning clause Type C to be registered on title and incorporated into the development agreement and the lease/ rental/ sale agreements of all units in Blocks 5, 6 and 7.

Refer to **Appendix B** for noise calculations.

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



	ND
	 MITIGATION METHODS INCLUDE: INSTALLATION OF CENTRAL AIR CONDITIONING WARNING CLAUSE TYPE D TO BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF PURCHASE AND SALES
	 MITIGATION METHODS INCLUDE: INSTALLATION OF FORCED AIR HEATING WITH PROVISION TO CENTRAL AIR CONDITIONING WARNING CLAUSE TYPE C TO BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF PURCHASE AND SALES
	 STC REQUIREMENTS: EXTERIOR WALL 38 WINDOW (LIVING ROOM) 30 WINDOW (SLEEPING QUARTER) 28
	 STC REQUIREMENTS: EXTERIOR WALL 37 WINDOW (LIVING ROOM) 29 WINDOW (SLEEPING QUARTER) 27
(A)	ARTERIAL ROAD CLASSIFICATION
(C)	COLLECTOR ROAD CLASSIFICATION
(L)	LOCAL ROAD CLASSIFICATION
TECH	CITY OF OTTAWA 1883 STITTSVILLE MAIN STREET
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NOISE ATTENUATION MEASURES PLAN					
		45 60			
OCT 2024	JOB 124097	FIGURE 3			

4.0 BUILDING COMPONENT ASSESSMENT

As outlined in section 2.4, the ENCG requires that the exterior cladding system of the building envelope be assessed when the predicted noise levels at the POW exceed the minimum requirements outlined in **Table 3**.

Based on the results in **Table 5**, additional assessment of the exterior cladding system is warranted. To comply with the ENCG policies the building envelope will require a minimum Acoustic Insulation Factor (AIF) or Sound Transmission Class (STC) rating to provide the desired indoor noise levels.

AIF Method

The required AIF is based on the outdoor mitigated noise levels (Outdoor L_{eq}), ENCG indoor noise criterion indoor (Indoor L_{eq}), and the number of building components that make up the exterior shell. In practice, the exterior shell is comprised of primarily two to four components; comprised of exterior walls, windows and patio doors, roofs and ceilings, and exterior doors. The Canada Mortgage and Housing Corporation (CMHC) Standards¹ provide guidance on the desired AIF ratings for different exterior shell components, based on research completed by the National Research Council of Canada (NRC). Tables from the document entitled "Acoustic Insulation Factor: A Rating for the Insulation of Buildings Against Outdoor Noise", produced by the Division of Building Research, NRC, June 1980 (J.D. Quirt) were used to assess the building components against the required AIF. This reference material is included in **Appendix C**.

The required AIF is calculated as follows:

Required AIF = Outdoor L_{eq} – Indoor L_{eq} + {10 log₁₀ (N)} + 2

Where, N = Number of components (walls and windows). L = Sound Level Equivalent expressed on a common decibel scale.

R1 (Worst Case Scenario) are calculated as follows:

- AIF (day) = 71.49 dBA 45 dBA + {10 log₁₀ (2)} dBA + 2dBA = 31
- AIF (night) = 63.89 dBA 40 dBA + {10 log₁₀ (2)} dBA + 2dBA = 29

Based on the above results and to comply with the ENCG policies, the building components will require a minimum AIF rating of 31 and 29 within living/ dining room and sleeping quarters, respectively, to provide the appropriate indoor noise levels.

Approximate STC Equivalent

The AIF can further be approximated to an STC equivalent, if building floor plans are available.

Architect Plans were provided for the subject site and reviewed to calculate the percentage of window to room area and exterior wall to room area for the living/ dining rooms and sleeping quarters for the various units. Architect Plans are included in **Appendix A**.

Table 11 of the referenced material was then used to determine the approximate STC equivalent based on the calculated percentages of window to room area and exterior wall to room areas for

: . .

¹ New Housing and Airport Noise, CMHC, Ottawa, Canada. Publication NHA 5185 1/78 (1978) and Road and Rail Noise: Effects on Housing, CMHC, Ottawa, Canada. Publication NHA #5156 12/77 (1977).

living/ dining room and sleeping quarters. The approximate STC equivalent for the exterior walls and windows are summarized below for the various units within the subject site (see Figure 3):

- Living/ Dining Room Windows
 - Living/ dining room windows of Block 1 (facing north, east and west) require a minimum STC of 30.
 - Living/ dining room windows of Blocks 2, 3, and 4 (facing north, east and west) require a minimum STC of 29.
 - All other living/ dining room windows are to satisfy Ontario Building Code requirements.
- Sleeping Quarter Windows
 - Sleeping quarter windows of Blocks 1 (facing north, east and west) require a minimum STC of 28.
 - Sleeping quarter windows of Blocks 2, 3, and 4 (facing north, east and west) require a minimum STC of 27.
 - All other living/ dining room windows are to satisfy Ontario Building Code requirements.
- Exterior Walls
 - Exterior wall components of Block 1 (facing north, east and west) will require a minimum STC of 38.
 - Exterior wall components of Blocks 2, 3, and 4 (facing north, east and west) require a minimum STC of 37.
 - o All other exterior walls are to satisfy Ontario Building Code Requirements.

The AIF to STC approximate equivalency tables can also be found in **Appendix C**.

5.0 CONCLUSION

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

- Blocks 1, 2, 3 and 4 •
 - The inclusion of Central Air Conditioning.
 - o For the aforementioned blocks, the inclusion of the warning clause below is recommended:

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

- Blocks 5, 6 and 7 •
 - The inclusion of Forced Air Heating with provisions for Central Air Conditioning.
 - o For the aforementioned blocks, the inclusion of the warning clause below is recommended:

"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed. thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216. Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"

Upgraded building components (exterior walls and windows) will be required where predicted noise levels exceed the sound level criteria for the indoor living environments as illustrated in Figure 3. Building components compliant with the Ontario Building Code will be sufficient for the remaining exterior walls and windows within the subject site.

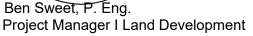
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Report By:

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

Reviewed By:





APPENDIX A:

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





ENVIRONMENTAL NOISE CONTROL GUIDELINES: Introduction and Glossary

January 2016

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3

Table 2.2a: Sound Level Limit for Outdoor Living Areas - Road and Rail		
(from NPC-300, 2013 Table C-1)		
Time Period	Required L _{eq} (16) (dBA)	

16-hour, 07:00 – 23:00

55

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

		itequite	
Type of Space	Time Period	Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 - 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00-07:00	45	40
Slooping quarters	07:00 - 23:00	45	40
Sleeping quarters	23:00 - 07:00	40	35

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

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

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

Environmental Noise Control Guidelines Part 1: Land Use Planning





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

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

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

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

Environmental Noise Control Guidelines Part 4: Technical Requirements For Environmental Noise Control Studies And Implementation

Environmental Noise Guideline

Stationary and Transportation Sources – Approval and Planning Publication NPC-300



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

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

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

C7 Noise Control Measures

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

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

C7.1 Road Noise Control Measures

C7.1.1 Outdoor Living Areas

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

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

C7.1.2 Plane of a Window – Ventilation Requirements

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

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

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

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

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

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

C7.1.3 Indoor Living Areas – Building Components

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

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

C7.2 Rail Noise Control Measures

C7.2.1 Outdoor Living Areas

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

C7.2.2 Plane of a Window – Ventilation Requirements

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

C7.2.3 Indoor Living Areas – Building Components

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

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

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

C7.3 Combination of Road and Rail Noise

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

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

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

C7.9 Verification of Noise Control Measures

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

C8 Warning Clauses

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

C8.1 Transportation Sources

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

TYPE A: (see Section C7.1.1)

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

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

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

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

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

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

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

C8.2 Stationary Sources

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

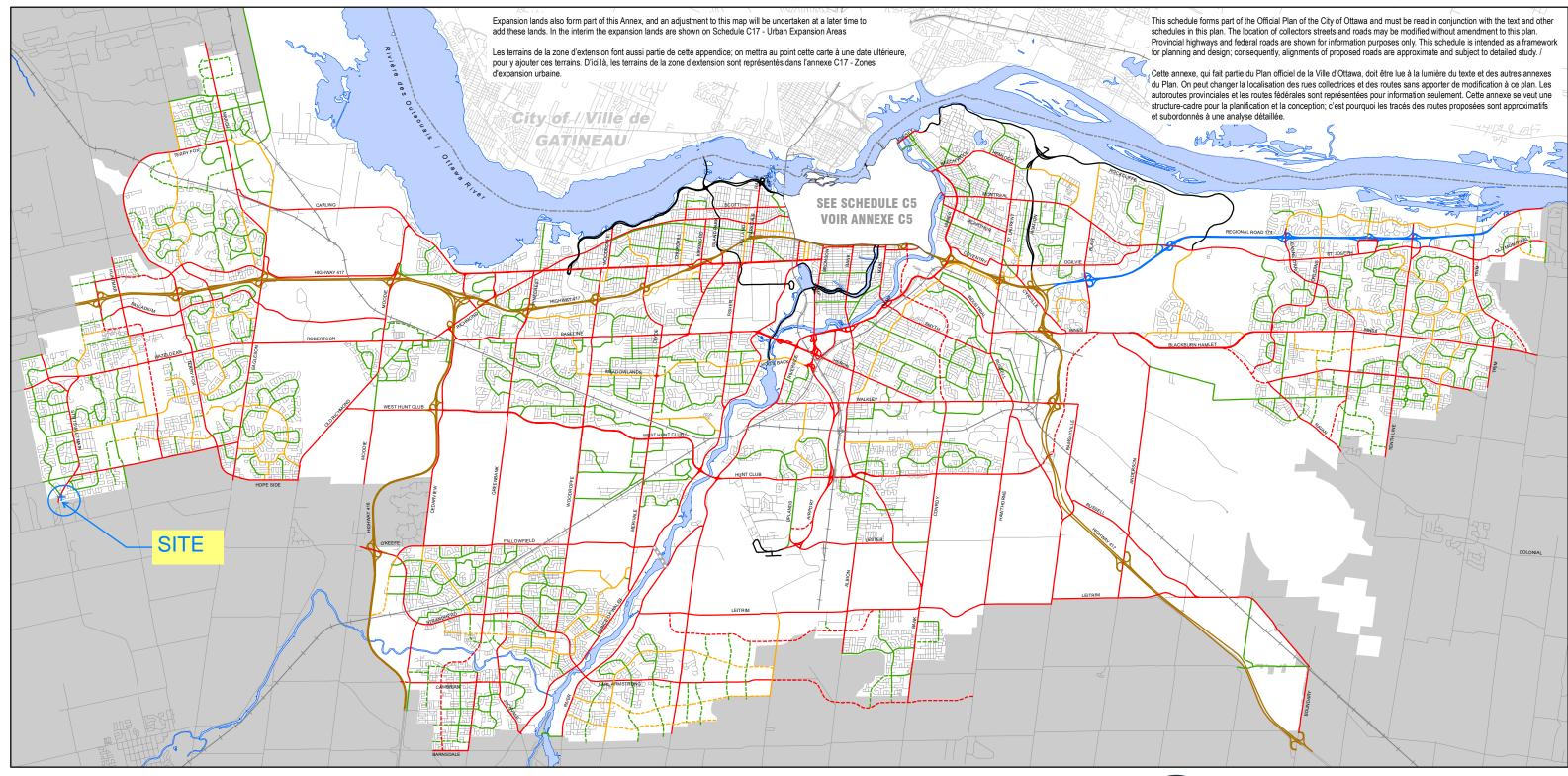
TYPE E: (see Section C7.6)

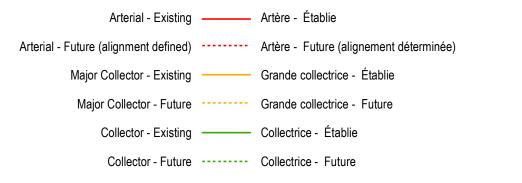
"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."

C8.3 Class 4 Area Notification

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

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





- Provincial Highway
- Federally Owned Road

City Freeway

- Route provinciale
- Chemins de propriété fédéral
- Autoroute municipale



Official Plan / Plan officiel

Schedule C4 - Urban Road Network Annexe C4 Réseau routier urbain

Ottawa

0.5

Approved on November 4, 2022 Approuvé le 4 novembre 2022

Consolidation and Amendments / Consolidation et amendements

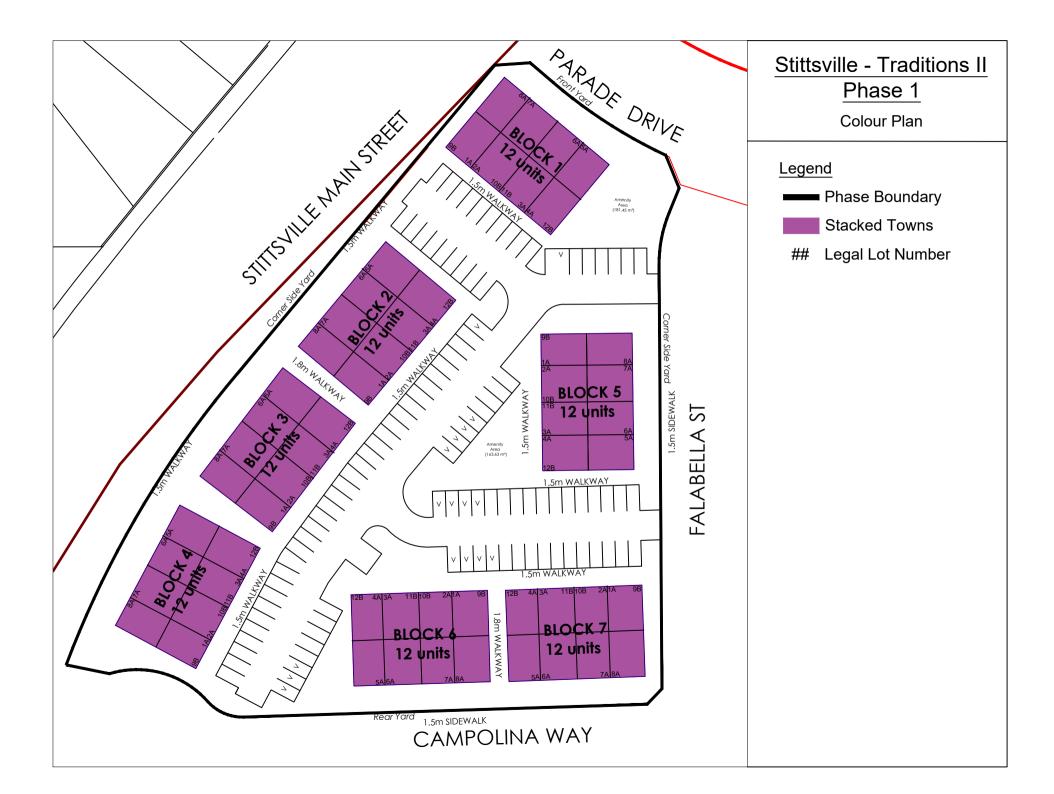
Planning, Infrastructure and Economic Development Department, Geospatial Analytics, Technology and Solutions Services de la planification, de l'infrastructure et du développement économique, Analyse géospatiale, technologie et solutions



Road	From	То	ROW to be Protected (m)	Classification	Sector
West Hunt Club	Old Richmond	Highway 416	44 Note: subject to the varying widening requirements of the Hope Side Road/Old Richmond Road Corridor (Terry Fox Drive to Highway 416) ESR	arterial	urban
West Hunt Club	Highway 416	Greenbelt boundary	G	arterial	urban
West Hunt Club	Greenbelt boundary	Cleopatra	44.5 Note: An additional 5.0 m on the Greenbelt side may be required to construct a rural cross-section.	arterial	urban
West Hunt Club	Cleopatra	Prince of Wales	44.5	arterial	urban
West Ridge	Hazeldean	Fernbank	<mark>24</mark>	collector	urban
Westcliffe	Robertson	Seyton	24	collector	urban
Whitby	Churchill	Winona	15 Note: North side	local	urban
Winston	Richmond	Dead end at Wilmont	15	local	urban
Withrow	Meadowlands	Merivale	24	collector	urban
Woodfield	Medhurst	Merivale	24	collector	urban
Woodridge	Bayshore	Bayshore	24	collector	urban



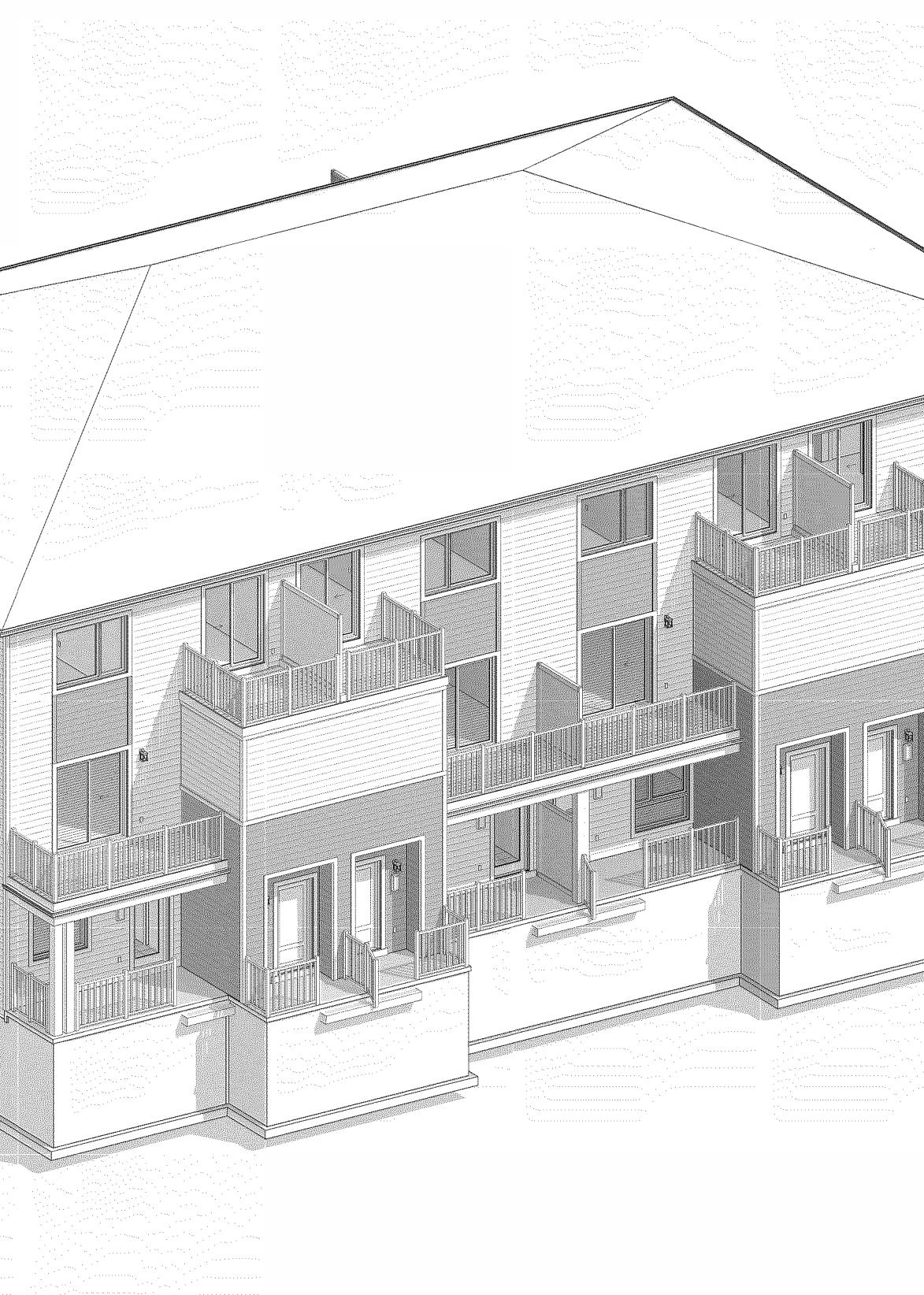




DRAWING LIST

TN - A0.00	COVER SHEET
TN - A0.01	AREA CALCULATIONS
TN - A0.02	LIMITING DISTANCE
TN - A0.03	EEDS CALCULATION
TN - A0.04	FIRE SEPERATION PLAN
TN - A1.00	BASEMENT PLAN
TN - A1.10	GROUND FLOOR PLAN
TN - A1.20	SECOND FLOOR PLAN
TN - A1.30	THIRD FLOOR PLAN
TN - A1.40	ROOF PLAN
TN - A2.00	FRONT ELEVATION
TN - A2.10	LEFT ELEVATION
TN - A2.11	LEFT ELEVATION - UPG
TN - A2.20	REAR ELEVATION
TN - A2.30	RIGHT ELEVATION
TN - A2.31	RIGHT ELEVATION - UPG
TN - A3.00	BUILDING SECTIONS
TN - A4.00	PRE-PLANNED OPTIONS
TN - A4.10	PRE-PLANNED OPTIONS

DECOEUR **TRANSITIONAL (TN)**





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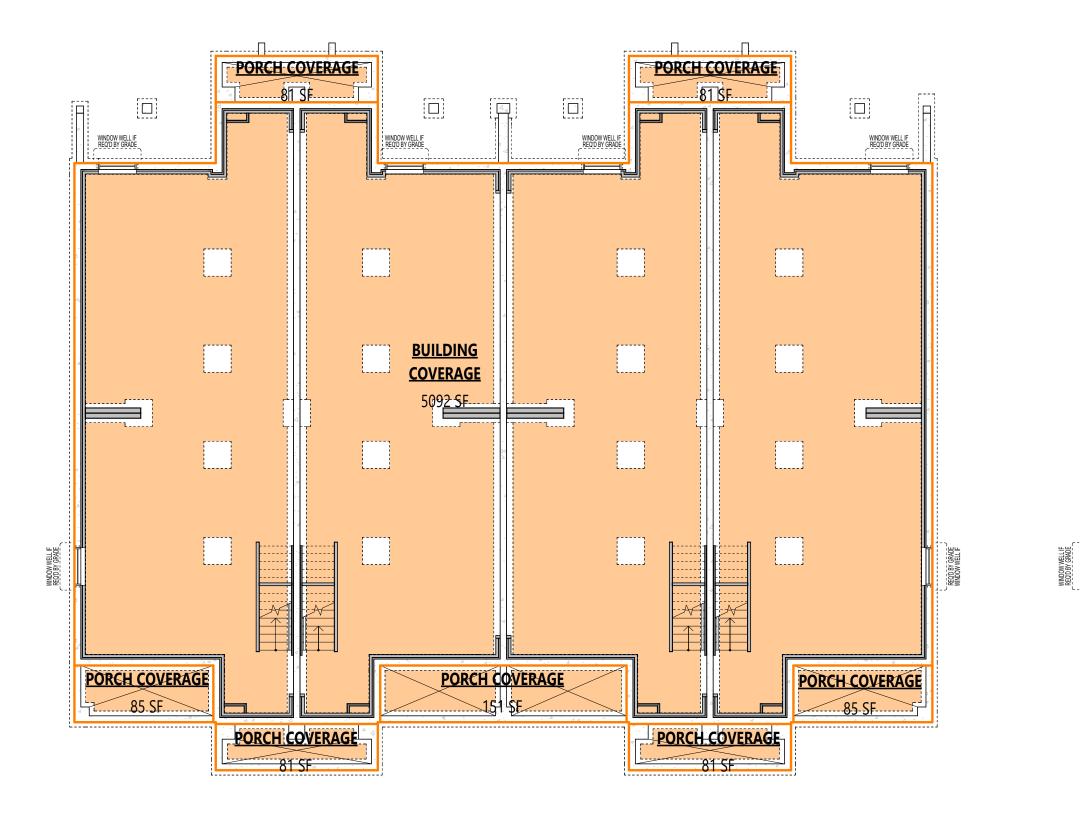
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01	ISSUED FOR PERMIT	2022-08-30	
02	ISSUED FOR PERMIT REVISION 01	2022-12-08	
03	ISSUED FOR PERMIT REVISION 02	2023-03-02	
04	ISSUED FOR PERMIT REVISION 03	2023-11-03	

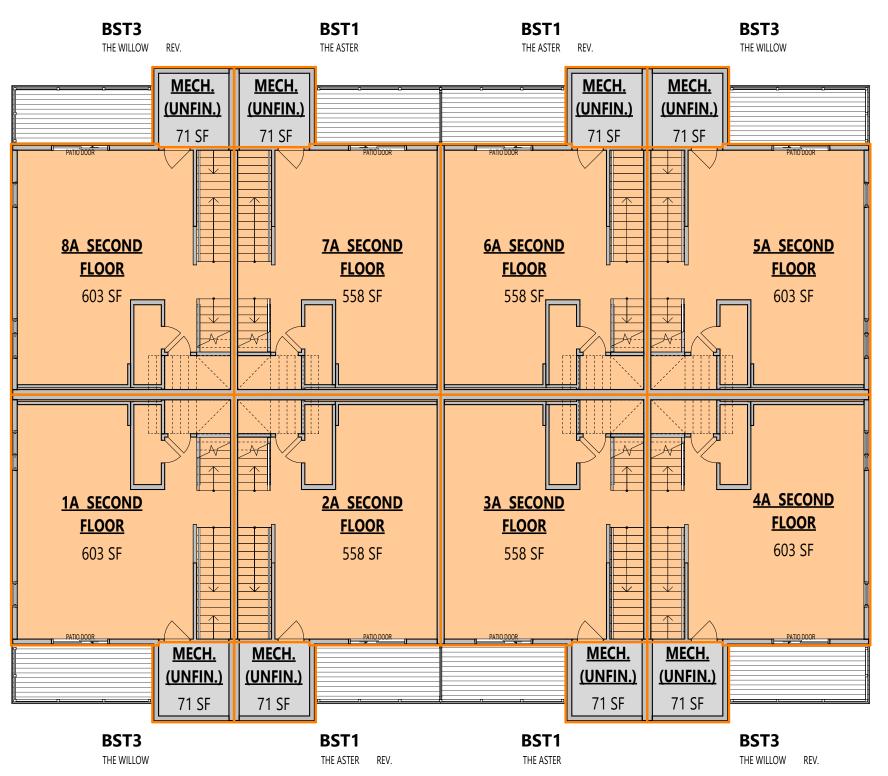
COVER SHEET

DECOEUR TRANSITIONAL (TN) Orleans 2370 TENTH LINE RD **CITY OF OTTAWA** CITY PLAN NO. 18688 CITY FILE NO. **D07-12-21-0224** SHEET SIZE 24"x36" **PAGE A0.00** SCALE ISSUE DATE DEC 05, 2023



COVERAGE

COVERAGE CALCULATIONS		
BUILDING COVERAGE	5092 SF	473.10 m ²
PORCH COVERAGE	647 SF	60.10 m ²
TOTAL	5739 SF	533.20 m ²



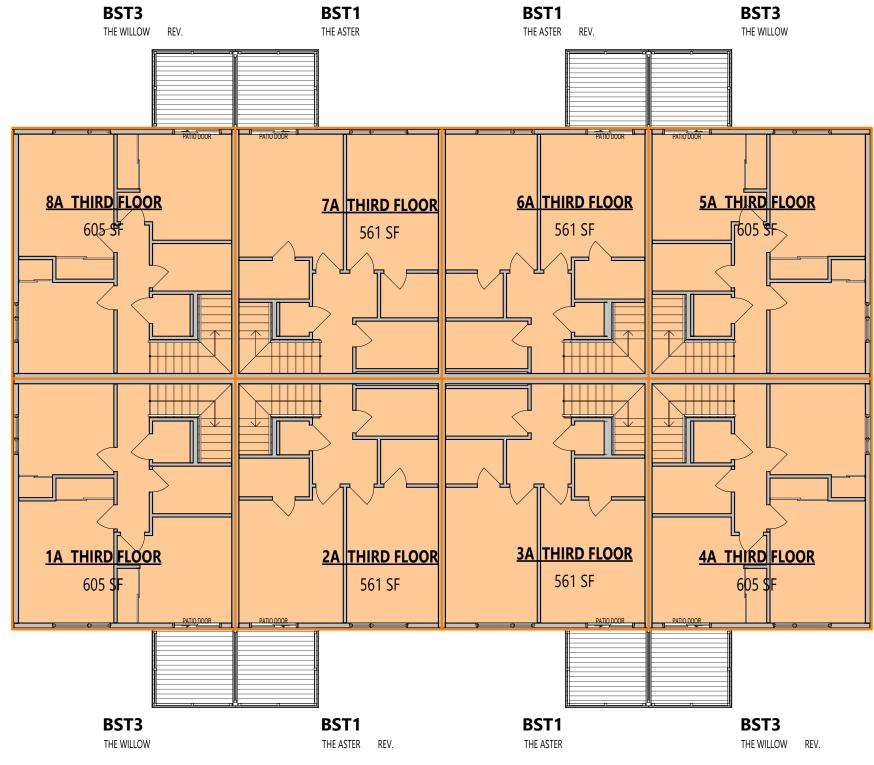
SECOND FLOOR

SECOND FLOOR GFA CALCULATIONS

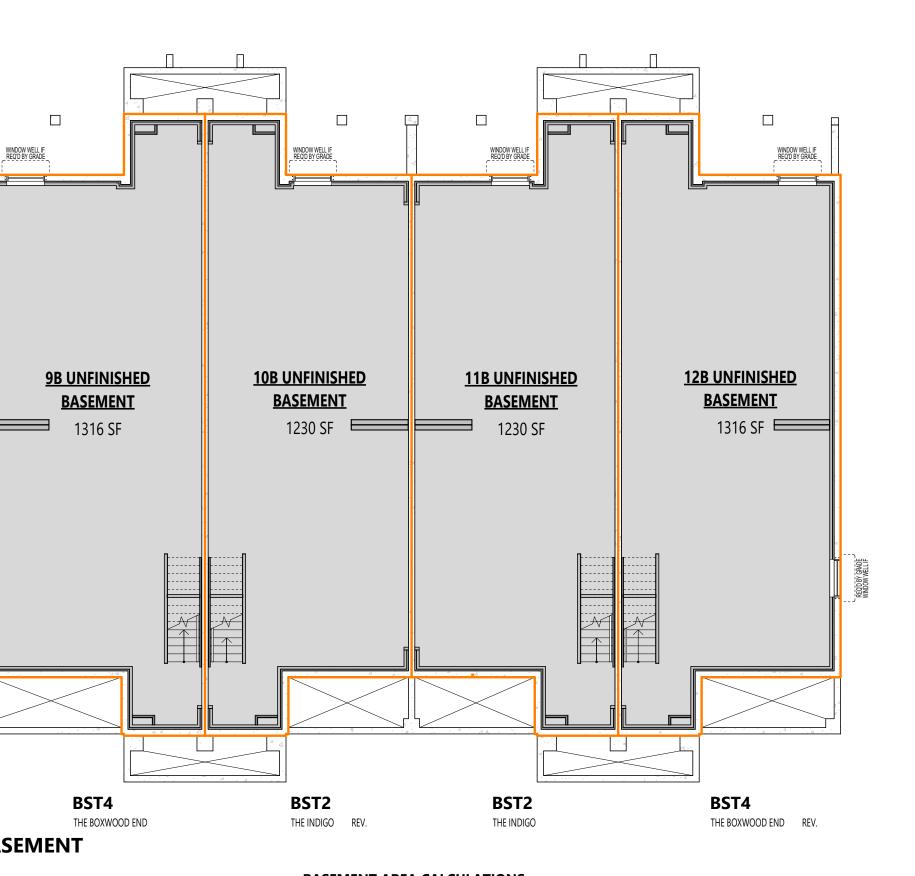
1A SECOND FLOOR	603 SF	56.00 m ²
2A SECOND FLOOR	558 SF	51.86 m ²
3A SECOND FLOOR	558 SF	51.86 m ²
4A SECOND FLOOR	603 SF	56.00 m ²
5A SECOND FLOOR	603 SF	56.00 m ²
6A SECOND FLOOR	558 SF	51.86 m ²
7A SECOND FLOOR	558 SF	51.86 m ²
8A SECOND FLOOR	603 SF	56.00 m ²
MECH. (UNFIN.)	565 SF	52.45 m ²
TOTAL	5209 SF	483.89 m ²

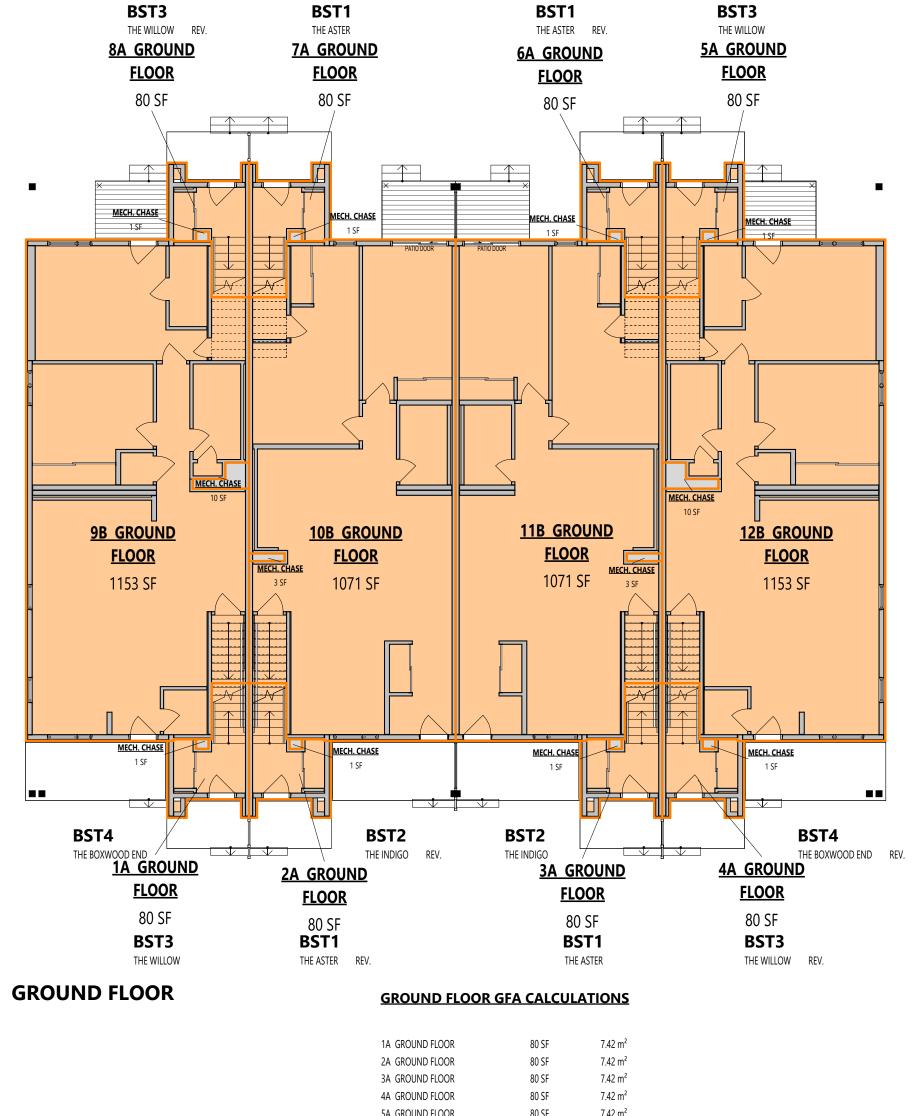
BASEMENT

WINDOW WELL IF REQ'D BY GRADE



THIRD FLOOR





BASEMENT AREA CALCULATIONS

9B UNFINISHED BASEMENT	1316 SF	122.26 m ²	
10B UNFINISHED BASEMENT	1230 SF	114.29 m ²	
11B UNFINISHED BASEMENT	1230 SF	114.29 m ²	
12B UNFINISHED BASEMENT	1316 SF	122.26 m ²	
TOTAL	5092 SF	473.10 m ²	

THIRD FLOOR GFA CALCULATIONS

1A THIRD FLOOR	605 SF	56.24 m ²
2A THIRD FLOOR	561 SF	52.10 m ²
3A THIRD FLOOR	561 SF	52.10 m ²
4A THIRD FLOOR	605 SF	56.24 m ²
5A THIRD FLOOR	605 SF	56.24 m ²
6A THIRD FLOOR	561 SF	52.10 m ²
7A THIRD FLOOR	561 SF	52.10 m ²
8A THIRD FLOOR	605 SF	56.24 m ²
TOTAL	4665 SF	433.35 m ²

GFA CALCULATION - STD

01 Ground Floor	5122 SF
02 Second Floor	5209 SF
03 Third Floor	4665 SF
TOTAL	14995 SF

AREA CALCULATIONS UNIT BST 1				
<u>(THE ASTER)</u>				
	00.55	(7.4)		
GROUND FLOOR AREA	80 SF	[7.43 m		
SECOND FLOOR AREA	558 SF	[51.84 m		
THIRD FLOOR AREA	561 SF	[52.12 m		
TOTAL NET AREA	1199 SF	[111.39 n		
COVERAGE W/OUT PORCH	629 SF	[58.44 m		
COVERAGE W/ PORCH	657 SF	[61.04 m		

AREA CALCULATIONS UNIT BST 3 (THE WILLOW)

GROUND FLOOR AREA	80 SF	[7
SECOND FLOOR AREA	603 SF	[56
THIRD FLOOR AREA	605 SF	[56
TOTAL NET AREA	1288 SF	[119
COVERAGE W/OUT PORCH	674 SF	[62
COVERAGE W/ PORCH	702 SF	[65

A GROUND FLOOR	80 SF	7.42 r
A GROUND FLOOR	80 SF	7.42 r
A GROUND FLOOR	80 SF	7.42 r
a ground floor	80 SF	7.42 r
A GROUND FLOOR	80 SF	7.42 r
A GROUND FLOOR	80 SF	7.42 r
B GROUND FLOOR	1153 SF	107.09 r
0B GROUND FLOOR	1071 SF	99.47 r
1B GROUND FLOOR	1071 SF	99.47 r
2B GROUND FLOOR	1153 SF	107.09 r
NECH. CHASE	36 SF	3.37 r
OTAL	5122 SF	475.82 r



		<u>IT BST 2</u>
GROUND FLOOR AREA	1071 SF	[99.50 m2]
SECOND FLOOR AREA	0 SF	[0.00 m2]
THIRD FLOOR AREA	0 SF	[0.00 m2]
TOTAL NET AREA	1071 SF	[99.50 m2]
COVERAGE W/OUT PORCH	1074 SF	[99.78 m2]
COVERAGE W/ PORCH	1155 SF	[107.30 m2]
	<u>(THE II</u> GROUND FLOOR AREA SECOND FLOOR AREA THIRD FLOOR AREA TOTAL NET AREA COVERAGE W/OUT PORCH	SECOND FLOOR AREA0 SFTHIRD FLOOR AREA0 SFTOTAL NET AREA1071 SFCOVERAGE W/OUT PORCH1074 SF

AREA CALCULATIONS UNIT BST 4 (THE BOXWOOD END)

m2]	GROUND FLOOR AREA	1153 SF	[107.12 m2]
2 m2]	SECOND FLOOR AREA	0 SF	[0.00 m2]
1 m2]	THIRD FLOOR AREA	0 SF	[0.00 m2]
6 m2]	TOTAL NET AREA	1153 SF	[107.12 m2]
2 m2]	COVERAGE W/OUT PORCH	1163 SF	[108.05 m2]
2 m2]	COVERAGE W/ PORCH	1255 SF	[116.59 m2]

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AREA CALCULATIONS

DECOEUR TRANSITIONAL (TN)

Orleans 2370 TENTH LINE RD CITY OF OTTAWA				
CITY PLAN NO. 18688	CITY FILE NO. D07-12-21-0224			
SHEET SIZE 24"x36" SCALE 1" = 10'-0" ISSUE DATE DEC 05, 2023	PAGE A0.01			



FRONT ELEVATION

	NG DISTAN JLATIONS	CE		NG DISTAN JLATIONS	CE		NG DISTAN JLATIONS	CE	4A L
LIMITING DISTANCE		4.5M	LIMITING DISTANCE		4.5M	LIMITING DISTANCE		4.5M	LIMITING DISTAN
UNPROTECTED OPENINGS	PERMITTED %	31%	UNPROTECTED OPENINGS	PERMITTED %	31%	UNPROTECTED OPENINGS	PERMITTED %	31%	UNPROTECTED O
WALL AREA	537.47 sqft	[49.93 m2]	WALL AREA	503.89 sqft	[46.81 m2]	WALL AREA	503.89 sqft	[46.81 m2]	WALL AREA
OPENINGS ALLOWED	166.62 sqft	[15.48 m2]	OPENINGS ALLOWED	156.21 sqft	[14.51 m2]	OPENINGS ALLOWED	156.21 sqft	[14.51 m2]	OPENINGS ALLO
OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	OPENINGS PROV
OPENINGS BALANCE	44.45 sqft	[4.13 m2]	OPENINGS BALANCE	34.04 sqft	[3.16 m2]	OPENINGS BALANCE	34.04 sqft	[3.16 m2]	OPENINGS BALAI
9B LIMITI	NG DISTAN	CE	10B LIMIT	ING DISTAN	ICE	11B LIMIT	ING DISTAN	ICE	12B I
CALC	JLATIONS		CALC	JLATIONS		CALC	JLATIONS		
LIMITING DISTANCE		6.9M	LIMITING DISTANCE		6.9M	LIMITING DISTANCE		6.9M	LIMITING DISTAN
UNPROTECTED OPENINGS	S PERMITTED %	66%	UNPROTECTED OPENINGS	PERMITTED %	66%	UNPROTECTED OPENINGS	S PERMITTED %	66%	UNPROTECTED O
WALL AREA	170.19 sqft	[15.81 m2]	WALL AREA	151.19 sqft	[14.05 m2]	WALL AREA	151.19 sqft	[14.05 m2]	WALL AREA
OPENINGS ALLOWED	112.33 sqft	[10.44 m2]	OPENINGS ALLOWED	99.79 sqft	[9.27 m2]	OPENINGS ALLOWED	99.79 sqft	[9.27 m2]	OPENINGS ALLO
OPENINGS PROVIDED	40.74 sqft	[3.78 m2]	OPENINGS PROVIDED	52.45 sqft	[4.87 m2]	OPENINGS PROVIDED	52.45 sqft	[4.87 m2]	OPENINGS PROV
OPENINGS BALANCE	71.59 sqft	[6.65 m2]	OPENINGS BALANCE	47.34 sqft	[4.40 m2]	OPENINGS BALANCE	47.34 sqft	[4.40 m2]	OPENINGS BALAI



5A LIMITING DISTANCE CALCULATIONS

0/120						
LIMITING DISTANCE 4.5M						
UNPROTECTED OPENINGS	PERMITTED %	31%				
WALL AREA	537.47 sqft	[49.93 m2]				
OPENINGS ALLOWED	166.62 sqft	[15.48 m2]				
OPENINGS PROVIDED	122.17 sqft	[11.35 m2]				
OPENINGS BALANCE	44.45 sqft	[4.13 m2]				

12B LIMITING DISTANCE CALCULATIONS

MITING DISTANCE		6.9M
NPROTECTED OPENINGS	PERMITTED %	66%
ALL AREA	186.15 sqft	[17.29 m2]
PENINGS ALLOWED	122.86 sqft	[11.41 m2]
PENINGS PROVIDED	43.35 sqft	[4.03 m2]
PENINGS BALANCE	79.51 sqft	[7.39 m2]

REAR ELEVATION

6A LIMITING DISTANCE CALCULATIONS

	LIMITING DISTANCE		4.5M	LIMITING DISTANCE		4.5M	LIM
	UNPROTECTED OPENINGS	PERMITTED %	31%	UNPROTECTED OPENINGS	PERMITTED %	31%	UNF
1	WALL AREA	503.89 sqft	[46.81 m2]	WALL AREA	503.89 sqft	[46.81 m2]	WA
1	OPENINGS ALLOWED	156.21 sqft	[14.51 m2]	OPENINGS ALLOWED	156.21 sqft	[14.51 m2]	OPE
1	OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	OPE
	OPENINGS BALANCE	34.04 sqft	[3.16 m2]	OPENINGS BALANCE	34.04 sqft	[3.16 m2]	OPE

11B LIMITING DISTANCE CALCULATIONS

MITING DISTANCE		6.9M	LIMITING DISTANCE	
NPROTECTED OPENINGS	PERMITTED %	66%	UNPROTECTED OPENINGS	PERMITTED %
ALL AREA	166.42 sqft	[15.46 m2]	WALL AREA	166.42 sqft
PENINGS ALLOWED	109.84 sqft	[10.20 m2]	OPENINGS ALLOWED	109.84 sqft
PENINGS PROVIDED	56.96 sqft	[5.29 m2]	OPENINGS PROVIDED	56.96 sqft
PENINGS BALANCE	52.88 sqft	[4.91 m2]	OPENINGS BALANCE	52.88 sqft

7A LIMITING DISTANCE CALCULATIONS

10B LIMITING DISTANCE

CALCULATIONS

52.88 sqft

6.9M

66%

[15.46 m2]

[10.20 m2]

[5.29 m2]

[4.91 m2]

	CALCULATIONS			
	LIMITING DISTANCE		4.5M	
	UNPROTECTED OPENINGS	S PERMITTED %	31%	
n2]	WALL AREA	537.47 sqft	[49.93 m2]	
n2]	OPENINGS ALLOWED	166.62 sqft	[15.48 m2]	
n2]	OPENINGS PROVIDED	122.17 sqft	[11.35 m2]	
2]	OPENINGS BALANCE	44.45 sqft	[4.13 m2]	

9B LIMITING DISTANCE

CALCULATIONS			
LIMITING DISTANCE		6.9M	
UNPROTECTED OPENINGS	PERMITTED %	66%	
WALL AREA	186.15 sqft	[17.29 m2]	
OPENINGS ALLOWED	122.86 sqft	[11.41 m2]	
OPENINGS PROVIDED	43.35 sqft	[4.03 m2]	
OPENINGS BALANCE	79.51 saft	[7.39 m2]	



LEFT ELEVATION

9B LIMITING DISTANCE CALCULATIONS

LIMITING DISTANCE		2.5M
UNPROTECTED OPENINGS	PERMITTED %	13%
WALL AREA	584.71 sqft	[54.32 m2]
OPENINGS ALLOWED	76.01 sqft	[7.06 m2]
OPENINGS PROVIDED	42.54 sqft	[3.95 m2]
OPENINGS BALANCE	33.47 sqft	[3.11 m2]

4A LIMITING DISTANCE CALCULATIONS

TANCE		4.5M
OPENINGS	PERMITTED %	31%
	537.47 sqft	[49.93 m2]
LOWED	166.62 sqft	[15.48 m2]
OVIDED	122.17 sqft	[11.35 m2]
LANCE	44.45 sqft	[4.13 m2]

12B LIMITING DISTANCE CALCULATIONS

TANCE		6.9M
	S PERMITTED %	66%
	170.19 sqft	[15.81 m2]
LOWED	112.33 sqft	[10.44 m2]
OVIDED	40.74 sqft	[3.78 m2]
LANCE	71.59 sqft	[6.65 m2]

8A LIMITING DISTANCE



RIGHT ELEVATION

12B LIMITING DISTANCE

CALCULATIONS

4A LIMITING DISTANCE CALCULATIONS

8A LIMITING DISTANCE

CALCULATIONS

683.15 sqft

88.81 sqft

43.40 sqft

45.41 sqft

UNPROTECTED OPENINGS PERMITTED %

2.5M

13%

[63.47 m2]

[8.25 m2]

[4.03 m2]

[4.22 m2]

LIMITING DISTANCE

OPENINGS ALLOWED

OPENINGS PROVIDED

OPENINGS BALANCE

WALL AREA

LIMITING DISTANCE		2.5M	LIMITING DISTANCE		2.5M
UNPROTECTED OPENINGS PERMITTED %		13%	UNPROTECTED OPENINGS PERMITTED %		13%
WALL AREA	676.05 sqft	[62.81 m2]	WALL AREA	584.71 sqft	[54.32 m2]
OPENINGS ALLOWED	87.89 sqft	[8.16 m2]	OPENINGS ALLOWED	76.01 sqft	[7.06 m2]
OPENINGS PROVIDED	43.40 sqft	[4.03 m2]	OPENINGS PROVIDED	42.54 sqft	[3.95 m2]
OPENINGS BALANCE	44.49 sqft	[4.13 m2]	OPENINGS BALANCE	33.47 sqft	[3.11 m2]

OBC TABLE 9.10.14.4

EXPOSING BUILDING	LIMITING DISTANCE (m)						
FACE (EBF) (m2)	2.0	2.5	4.0	4.5	6.0	6.9	8.0
50	10%	14%	28%	35%	57%	76%	100%
65	10%	13%	25%	31%	50%	66%	87%
100	9%	11%	18%	22%	34%	44%	56%

1A LIMITING DISTANCE CALCULATIONS

LIMITING DISTANCE 2.5M				
UNPROTECTED OPENINGS PERMITTED % 13%				
WALL AREA	676.05 sqft	[62.81 m2]		
OPENINGS ALLOWED	87.89 sqft	[8.16 m2]		
OPENINGS PROVIDED	43.40 sqft	[4.03 m2]		
OPENINGS BALANCE	44.49 sqft	[4.13 m2]		

5A LIMITING DISTANCE CALCULATIONS

LIMITING DISTANCE		2.5M
UNPROTECTED OPENINGS	13%	
WALL AREA	683.15 sqft	[63.47 m2]
OPENINGS ALLOWED	88.81 sqft	[8.25 m2]
OPENINGS PROVIDED	43.40 sqft	[4.03 m2]
OPENINGS BALANCE	45.41 sqft	[4.22 m2]

4.			

STUDIO 636 KING ST W, 3RD FLOOR, TORONTO, ON, M5V 1M7, bim@bimstudio.ca **organica** studio + m

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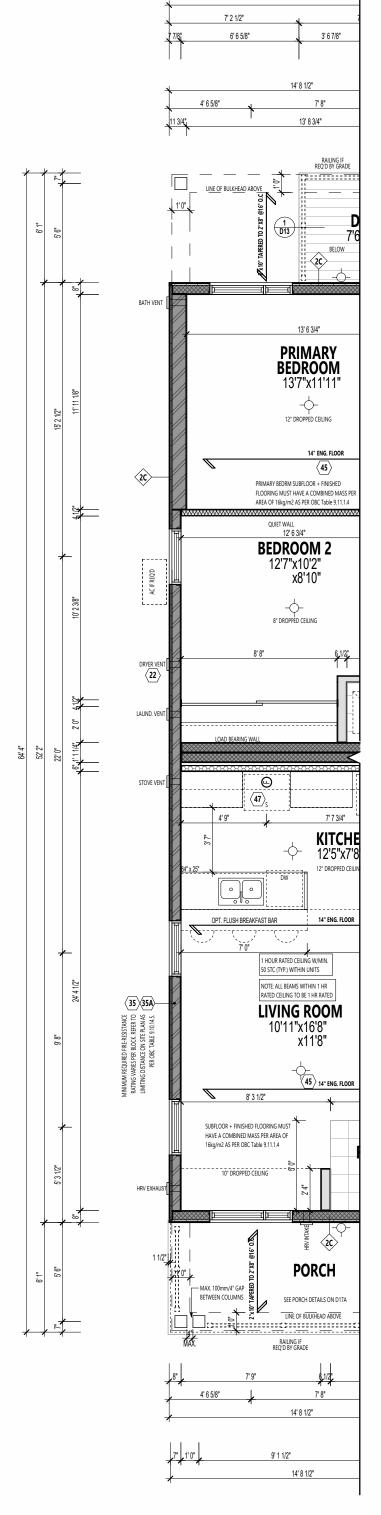
ARCHITECT STAMP

<u>ISS</u>	ISSUED / REVISION CHART				
01	ISSUED FOR PERMIT	2022-08-30			
02	ISSUED FOR PERMIT REVISION 01	2022-12-08			
03	ISSUED FOR PERMIT REVISION 02	2023-03-02			
04	ISSUED FOR PERMIT REVISION 03	2023-11-03			

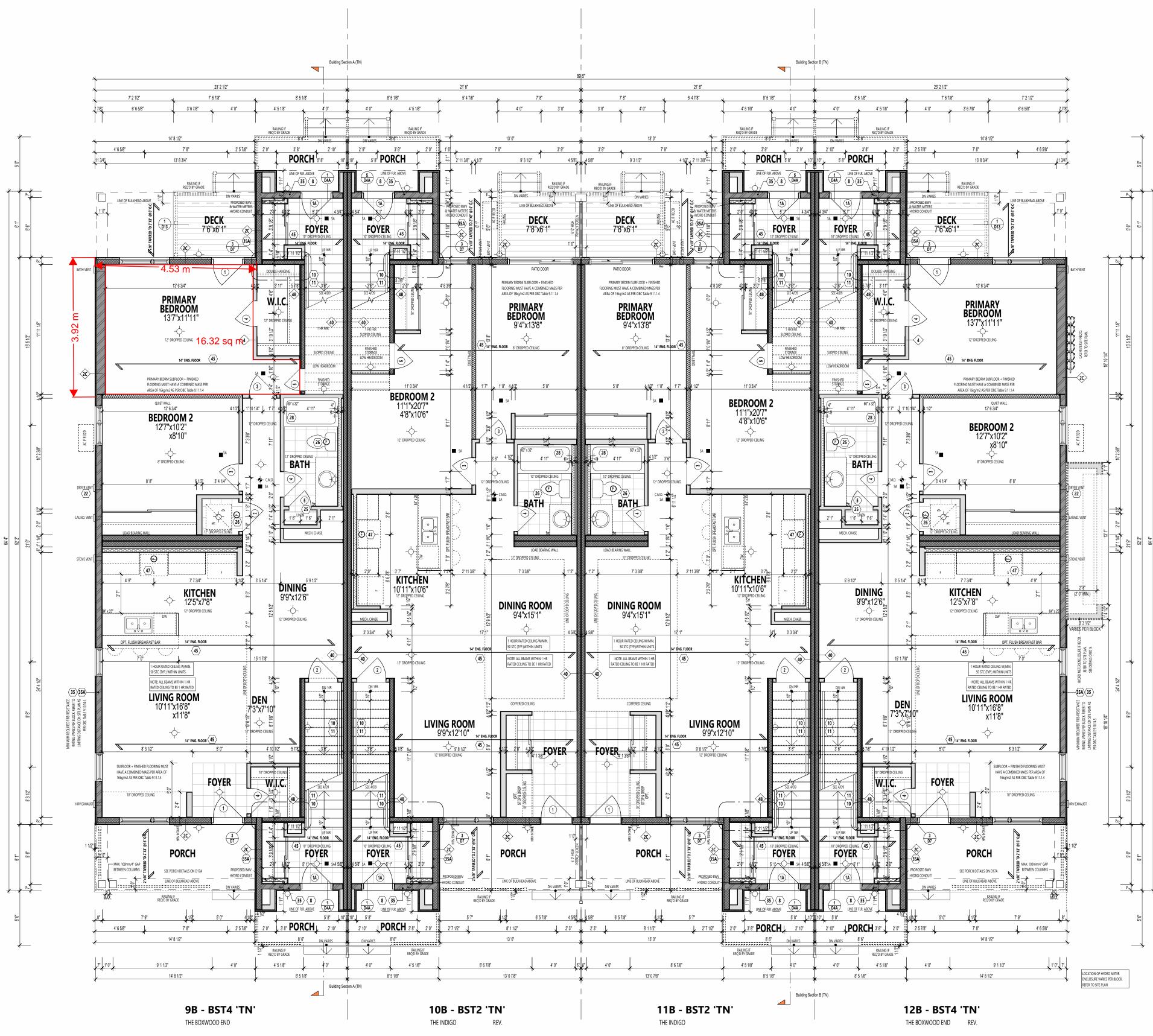
LIMITING DISTANCE

DECOEUR	
TRANSITIONAL (TN)	

Orleans 2370 TENTH LINE RD CITY OF OTTAWA				
CITY PLAN NO. 18688 CITY FILE NO. D07-12-21-0224				
SHEET SIZE 24"x36" SCALE 1/8" = 1'-0" ISSUE DATE DEC 05, 2023	PAGE A0.03			

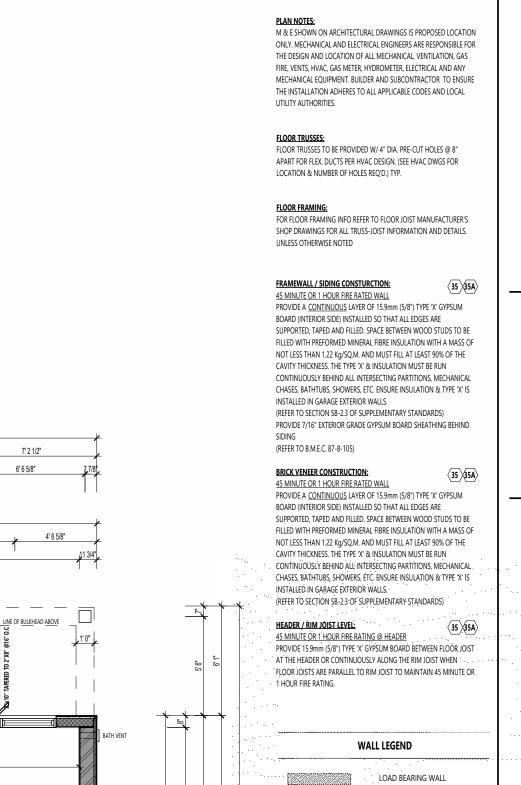


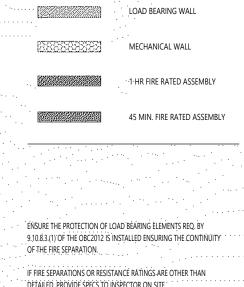
BST4 'TN' UPG. THE BOXWOOD END

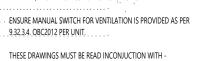


GROUND FLOOR PLAN - STANDARD

PARTIAL GROUND FLOOR PLAN (UPG OPTION)







THESE DRAWINGS MUST BE READ IN CONJUSTION WITH STRUCTURAL DRAWINGS BY ATA ENGINEERING INC. - S-01 TO S-07

RUNS AND LOCATIONS.



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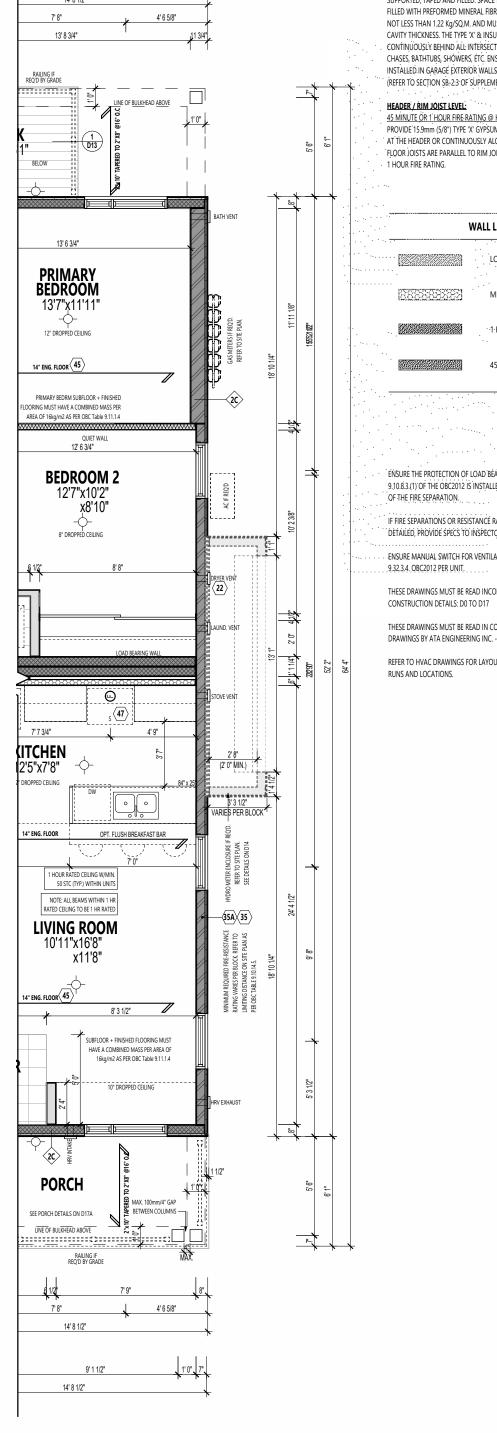
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02	ISSUED FOR PERMIT REVISION 01	2022-12-08	
03	ISSUED FOR PERMIT REVISION 02	2023-03-02	
04	ISSUED FOR PERMIT REVISION 03	2023-11-03	

GROUND FLOOR PLAN

DECOEUR **TRANSITIONAL (TN)**

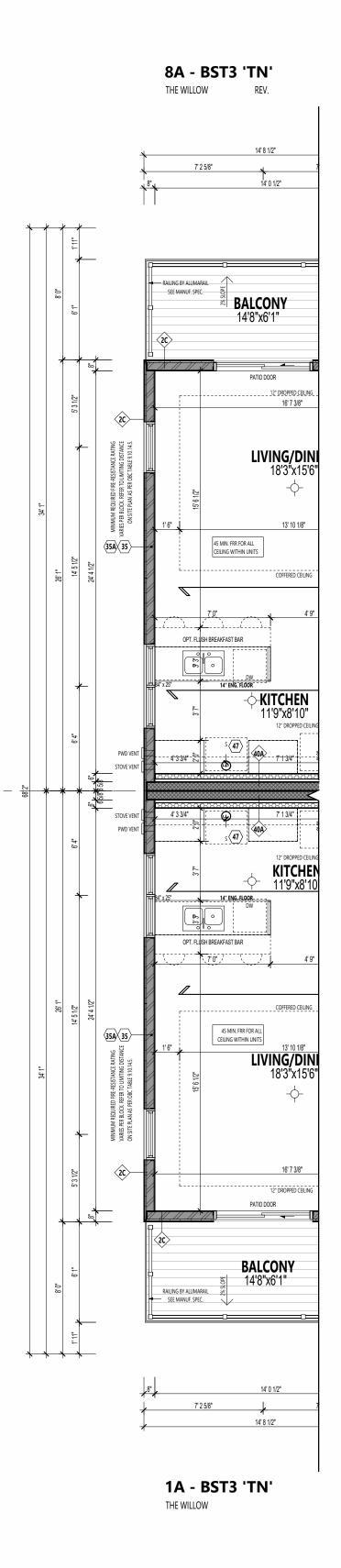
Orleans 2370 TENTH LINE RD **CITY OF OTTAWA** CITY FILE NO. **D07-12-21-0224** CITY PLAN NO. 18688 SHEET SIZE 24"x36" **PAGE A1.10** SCALE 3/16" = 1'-0" ISSUE DATE DEC 05, 2023



3' 6 7/8"

BST 4 'TN' UPG. THE BOXWOOD END REV.

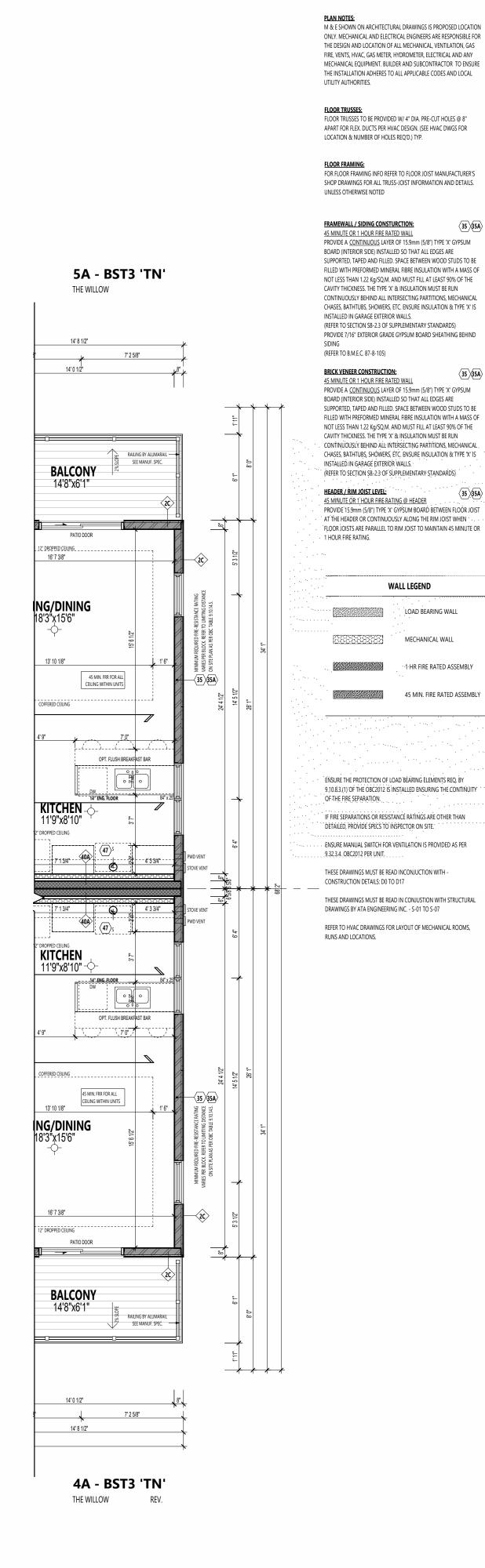
PARTIAL GROUND FLOOR PLAN (UPG OPTION)





PARTIAL SECOND FLOOR PLAN (UPG OPTION)

SECOND FLOOR PLAN - STANDARD



PARTIAL SECOND FLOOR PLAN (UPG OPTION)



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ISSUED FOR PERMIT REVISION 03	2023-11-03		
	ISSUED FOR PERMIT REVISION 01 ISSUED FOR PERMIT REVISION 02	ISSUED FOR PERMIT2022-08-30ISSUED FOR PERMIT REVISION 012022-12-08ISSUED FOR PERMIT REVISION 022023-03-02	

SECOND FLOOR PLAN

DECOEUR TRANSITIONAL (TN)

 Orleans

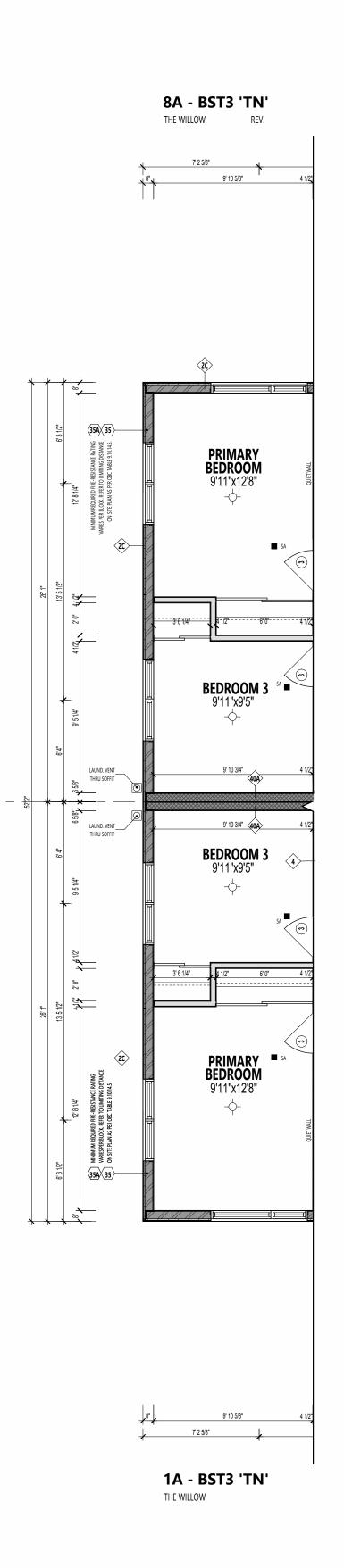
 2370 TENTH LINE RD

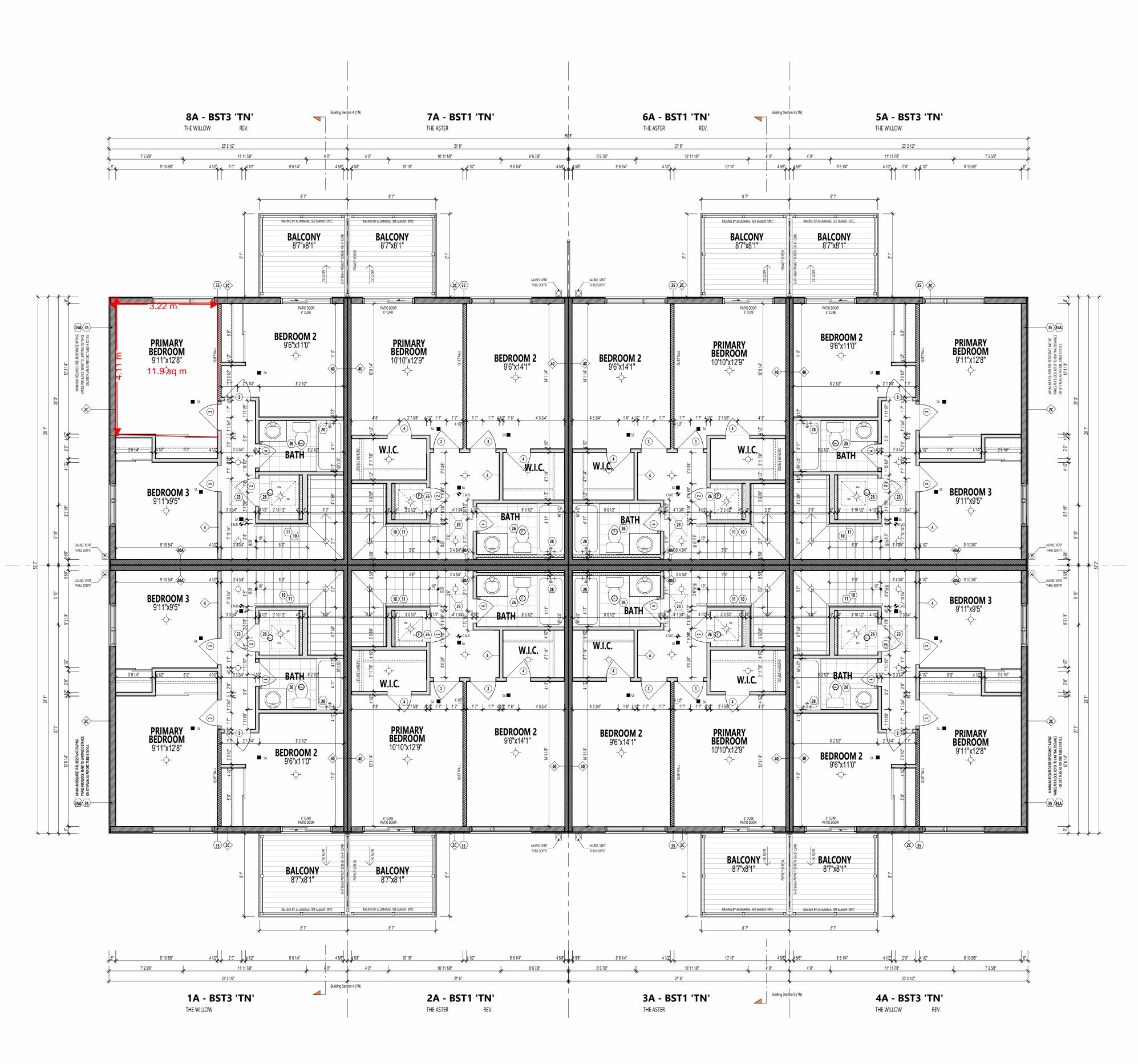
 CITY PLAN NO. 18688
 CITY FILE NO. D07-12-21-0224

 SHEET SIZE
 24"x36"

 SCALE
 3/16" = 1'-0"

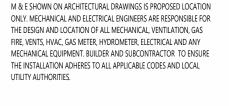
 ISSUE DATE
 DEC 05, 2023





THIRD FLOOR PLAN - STANDARD

PARTIAL THIRD FLOOR PLAN (UPG OPTION)



PLAN NOTES:

FLOOR TRUSSES: FLOOR TRUSSES TO BE PROVIDED W/ 4" DIA. PRE-CUT HOLES @ 8" APART FOR FLEX. DUCTS PER HVAC DESIGN. (SEE HVAC DWGS FOR LOCATION & NUMBER OF HOLES REQ'D.) TYP.

FLOOR FRAMING: FOR FLOOR FRAMING INFO REFER TO FLOOR JOIST MANUFACTURER'S SHOP DRAWINGS FOR ALL TRUSS-JOIST INFORMATION AND DETAILS. UNLESS OTHERWISE NOTED

ROOF FRAMING : ALL LAMINATED VENEER LUMBER (LVL) BEAMS, BUILT-UP BEAMS, GIRDER TRUSSES AND METAL HANGER CONNECTIONS SUPPORTING ROOF FRAMING TO BE DESIGNED AND CERTIFIED BY ROOF TRUSS MANUFACTURER, REFER TO ROOF TRUSS SHOP DRAWINGS FOR ALL ROOF FRAMING INFORMATION UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.

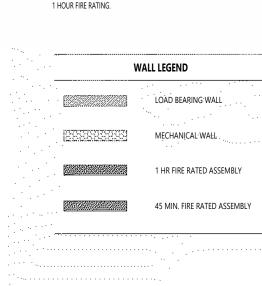
FRAMEWALL / SIDING CONSTURCTION: 35 35A 45 MINUTE OR 1 HOUR FIRE RATED WALL PROVIDE A CONTINUOUS LAYER OF 15.9mm (5/8") TYPE 'X' GYPSUM

BOARD (INTERIOR SIDE) INSTALLED SO THAT ALL EDGES ARE SUPPORTED, TAPED AND FILLED. SPACE BETWEEN WOOD STUDS TO BE FILLED WITH PREFORMED MINERAL FIBRE INSULATION WITH A MASS OF NOT LESS THAN 1.22 Kg/SQ.M. AND MUST FILL AT LEAST 90% OF THE CAVITY THICKNESS. THE TYPE 'X' & INSULATION MUST BE RUN CONTINUOUSLY BEHIND ALL INTERSECTING PARTITIONS, MECHANICAL CHASES, BATHTUBS, SHOWERS, ETC. ENSURE INSULATION & TYPE 'X' IS INSTALLED IN GARAGE EXTERIOR WALLS. (REFER TO SECTION SB-2.3 OF SUPPLEMENTARY STANDARDS)

PROVIDE 7/16" EXTERIOR GRADE GYPSUM BOARD SHEATHING BEHIND SIDING (REFER TO B.M.E.C. 87-8-105)

BRICK VENEER CONSTRUCTION: 35 45 MINUTE OR 1 HOUR FIRE RATED WALL PROVIDE A CONTINUOUS LAYER OF 15.9mm (5/8") TYPE 'X' GYPSUM BOARD (INTERIOR SIDE) INSTALLED SO THAT ALL EDGES ARE SUPPORTED, TAPED AND FILLED. SPACE BETWEEN WOOD STUDS TO BE FILLED WITH PREFORMED MINERAL FIBRE INSULATION WITH A MASS OF NOT LESS THAN 1.22 Kg/SQ.M. AND MUST FILL AT LEAST 90% OF THE CAVITY THICKNESS. THE TYPE 'X' & INSULATION MUST BE RUN CONTINUOUSLY BEHIND ALL INTERSECTING PARTITIONS, MECHANICAL CHASES, BATHTUBS, SHOWERS, ETC. ENSURE INSULATION & TYPE 'X' IS INSTALLED IN GARAGE EXTERIOR WALLS. (REFER TO SECTION SB-2.3 OF SUPPLEMENTARY STANDARDS)

HEADER / RIM JOIST LEVEL: 35 45 MINUTE OR 1 HOUR FIRE RATING @ HEADER PROVIDE 15.9mm (5/8") TYPE 'X' GYPSUM BOARD BETWEEN FLOOR JOIST AT THE HEADER OR CONTINUOUSLY ALONG THE RIM JOIST WHEN FLOOR JOISTS ARE PARALLEL TO RIM JOIST TO MAINTAIN 45 MINUTE OR



ENSURE THE PROTECTION OF LOAD BEARING ELEMENTS REQ. BY 9.10.8.3.(1) OF THE OBC2012 IS INSTALLED ENSURING THE CONTINUITY OF THE FIRE SEPARATION.

IF FIRE SEPARATIONS OR RESISTANCE RATINGS ARE OTHER THAN DETAILED, PROVIDE SPECS TO INSPECTOR ON SITE. ENSURE MANUAL SWITCH FOR VENTILATION IS PROVIDED AS PER 9.32.3.4. OBC2012 PER UNIT.

THESE DRAWINGS MUST BE READ INCONJUCTION WITH -CONSTRUCTION DETAILS: D0 TO D17

THESE DRAWINGS MUST BE READ IN CONJUSTION WITH STRUCTURAL DRAWINGS BY ATA ENGINEERING INC. - S-01 TO S-07 REFER TO HVAC DRAWINGS FOR LAYOUT OF MECHANICAL ROOMS,

RUNS AND LOCATIONS.

STUDIO 636 KING ST W, 3RD FLOOR, TORONTO, ON,

M5V 1M7, bim@bimstudio.ca



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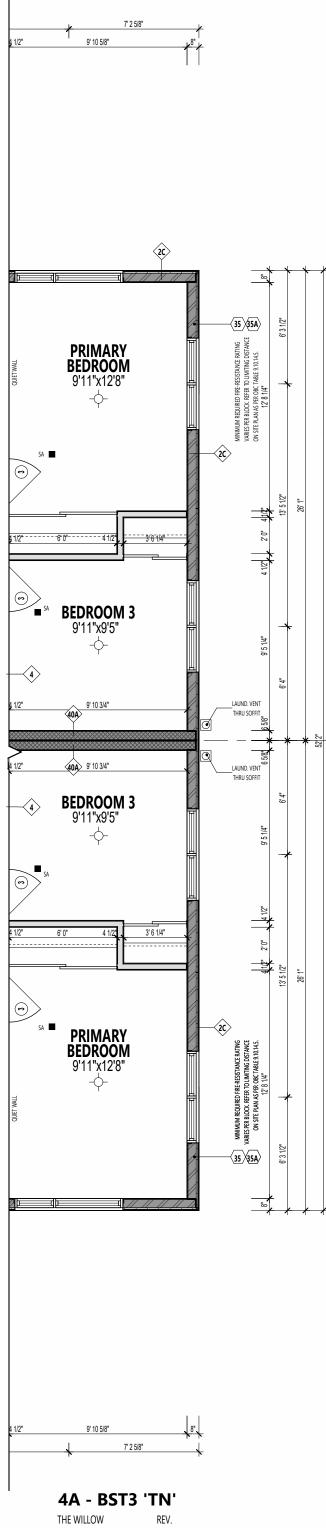
ISSUED / REVISION CHART 01 ISSUED FOR PERMIT 2022-08-30 2 ISSUED FOR PERMIT REVISION 01 2022-12-08 ISSUED FOR PERMIT REVISION 02 2022-12-00 13 ISSUED FOR PERMIT REVISION 02 2023-03-02 14 ISSUED FOR PERMIT REVISION 03 2023-11-03

THIRD FLOOR PLAN

DECOEUR **TRANSITIONAL (TN)**

Orleans					
2370 TENTH LINE RD CITY OF OTTAWA					
CITY PLAN NO. 18688 CITY FILE NO. D07-12-21-0224					
SHEET SIZE 24"x36" SCALE 3/16" = 1'-0" ISSUE DATE DEC 05, 2023	PAGE A1.30				

5A - BST3 'TN' THE WILLOW



PARTIAL THIRD FLOOR PLAN (UPG OPTION)

APPENDIX B

Sound Level Calculations

SUMMARY REPORT Date: 28-08-2024 10:08:11 STAMSON 5.0 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: OLA1.te Time Period: Day/Night 16/8 hours Description: Ourdoor Amenity Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h 1 % Road gradient : : Road pavement 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume:7.00Heavy Truck % of Total Volume:5.00Day (16 hrs) % of Total Volume:92.00 Data for Segment # 1: Stittsvile (day/night) -----Angle1 Angle2 : -90.00 deg -86.00 deg : 0 Wood depth (No woods.) No of house rows : 1 / House density : 20 % Surface : 1 1 / 1 (Absorptive ground surface) Receiver source distance : 68.00 / 68.00 m Receiver height : 1.50 / 1.50 m : Topography 2 (Flat/gentle slope; with barrier) Barrier angle1: -90.00 degAngle2 : -86.00 degBarrier height: 10.57 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 122.40 m Barrier elevation : 123.60 m Reference angle : 0.00 Road data, segment # 2: Stittsville (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h

Road gradient : Road pavement : 1 % 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume7.00Heavy Truck % of Total Volume5.00Day (16 hrs) % of Total Volume92.00 Data for Segment # 2: Stittsville (day/night) _____ Angle1 Angle2 : -86.00 deg -74.00 deg Wood depth 0 : (No woods.) No of house rows : 0 / 0 Surface (Absorptive ground surface) 1 • Receiver source distance : 68.00 / 68.00 m Receiver height : 1.50 / 1.50 m Topography : 2 (Flat/gentle slope; with barrier) : -86.00 deg Angle2 : -82.00 deg : 7.00 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 122.40 mBarrier elevation: 123.60 m : 0.00 Reference angle ٨ Road data, segment # 3: Stittsvile (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 3: Stittsvile (day/night) -----

Angle1Angle2: -74.00deg44.00degWood depth:0(No woods.)No of house rows:0 / 0Surface:1(Absorptive ground surface)Receiver source distance:68.00 / 68.00 mReceiver height:1.50 / 1.50 mTopography:2(Flat/gentle slope; with barrier)Barrier angle1:-74.00 degAngle2 : 35.00 degBarrier height:10.57 mBarrier receiver distance:27.00 / 27.00 mSource elevation:122.40 mBarrier elevation:124.80 mReference angle:0.00
★ Road data, segment # 4: Stittsville (day/night)
Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 4: Stittsville (day/night)
Angle1Angle2:44.00 deg74.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:1(Absorptive ground surface)Receiver source distance:68.00 / 68.00 mReceiver height:1.50 / 1.50 mTopography:2(Flat/gentle slope; with barrier)Barrier angle1:44.00 degAngle2 : 74.00 degBarrier height:10.57 mBarrier receiver distance:20.00 / 20.00 mSource elevation:124.30 mReceiver elevation:124.80 mReference angle:0.00

Road data, segment # 5: Stittsville (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h : 1 % Road gradient Road pavement 1 (Typical asphalt or concrete) : * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 5: Stittsville (day/night) ------: 74.00 deg Angle1 Angle2 90.00 deg Wood depth : 0 (No woods.) No of house rows : 0 / 0 Surface 1 (Absorptive ground surface) : Receiver source distance : 68.00 / 68.00 m Receiver height : 1.50 / 1.50 m Topography : 2 (Flat/gentle slope; with barrier) : 74.00 deg Barrier angle1 Angle2 : 90.00 deg : 10.57 m Barrier height Barrier receiver distance : 3.00 / 3.00 m : 124.30 m Source elevation Receiver elevation : 122.40 m Barrier elevation : 123.30 m Reference angle : 0.00 ٨ Road data, segment # 6: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * 515/45 368/32 Medium truck volume : veh/TimePeriod * veh/TimePeriod Heavy truck volume : * Posted speed limit : 50 km/h 1 % Road gradient : Road pavement 1 (Typical asphalt or concrete) : * Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 8000

Percentage of Annual Growth:0.00Number of Years of Growth:0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 6: Parade Dr. (day/night) _____ Angle1Angle2: -90.00 deg-34.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 1(Absorptive) (No woods.) (Absorptive ground surface) Receiver source distance : 78.00 / 78.00 m Receiver height:1.50 / 1.50 mTopography:2 (Flat/gentle slope;Barrier angle1:-90.00 deg Angle2 : -43.00 degBarrier height:10.57 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 123.40 mBarrier elevation: 124.80 mReference angle: 0.00 Road data, segment # 7: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth:0.00Medium Truck % of Total Volume:7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 7: Parade Dr. (day/night) -----Angle1Angle2: -34.00 deg0.00 degWood depth: 0(No woodsNo of house rows: 0 / 0Surface: 1(Absorpt: (No woods.) (Absorptive ground surface) Receiver source distance : 78.00 / 78.00 m Receiver height : 1.50 / 1.50 m

Topography (Flat/gentle slope; with barrier) : 2 : -34.00 deg Angle2 : $-4.00 \deg$ Barrier angle1 Barrier height : 10.57 m Barrier receiver distance : 20.00 / 20.00 m Source elevation : 124.30 m Receiver elevation : 123.40 m Barrier elevation : 124.80 m : Reference angle 0.00 ♠ Road data, segment # 8: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 8: Parade Dr. (day/night) -----: Angle1 Angle2 0.00 deg 66.00 deg Wood depth (No woods.) : 0 No of house rows : 0 / 0 Surface 1 (Absorptive ground surface) : Receiver source distance : 78.00 / 78.00 m Receiver height:1.50 / 1.50Topography:2 m (Flat/gentle slope; with barrier) . : 0.00 deg : 10.57 m Barrier angle1 Angle2 : 66.00 deg Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 123.40 mBarrier elevation: 123.30 mReference angle: 0.00 ♠ Result summary (day)

! source ! Road ! Total

	! !	height (m)	! !	Leq (dBA)	!	Leq (dBA)
1.Stittsvile	!	1.50	!	34.00	!	34.00
2.Stittsville	!	1.50	!	43.47	!	43.47
3.Stittsvile	!	1.50	!	48.93	!	48.93
4.Stittsville	!	1.50	!	37.89	!	37.89
5.Stittsville	!	1.50	!	39.78	!	39.78
6.Parade Dr.	!	1.50	!	41.25	!	41.25
7.Parade Dr.	!	1.50	!	38.17	!	38.17
8.Parade Dr.	!	1.50	!	34.02	!	34.02
	+-		-+-		+-	
		Total				51.49 dBA

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Result summary (night)

	! ! !	source height (m)	! ! !	Road Leq (dBA)	! ! !	Total Leq (dBA)
1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Stittsville 5.Stittsville 6.Parade Dr. 7.Parade Dr. 8.Parade Dr.	+- ! ! ! ! !	1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	-+- ! ! ! !	35.87	-+- ! ! ! !	26.40 35.87 41.34 30.30 32.18 33.66 30.58 26.42
	+-	Total	-+-		•+-	43.90 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 51.49 (NIGHT): 43.90

STAMSON 5.0 SUMMARY REPORT Date: 27-09-2024 11:30:26 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: R1.te Time Period: Day/Night 16/8 hours Description: R1 - Block 1-8A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ : -90.00 deg Angle1 Angle2 90.00 deg Wood depth : 0 (No woods.) 0 / 0 No of house rows : Surface 2 (Reflective ground surface) : Receiver source distance : 22.00 / 22.00 m Receiver height : 4.65 / 7.80 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

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

Data for Segment # 2: Parade Dr. (day/night)

-			
Angle1 Angle2	:	-90.00	deg 66.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0	/ 0
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	17.00	/ 17.00 m
Receiver height	:	4.65	/ 7.80 m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

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Result summary (day) -----

	! ! !	height (m)	!	Road Leq (dBA)	! !	Total Leq (dBA)
1.Stittsvile 2.Parade Dr.	· - + - ! !	1.50 1.50	•	70.50 64.58	! !	70.50 64.58
	T -	Total				71.49 dBA

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Result summary (night)

	! ! !	source height (m)	!	Leq	! ! !	Total Leq (dBA)
1.Stittsvile 2.Parade Dr.	!	1.50 1.50	!		!	62.90 56.99
Total						63.89 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 71.49 (NIGHT): 63.89

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STAMSON 5.0 SUMMARY REPORT Date: 27-09-2024 11:39:47 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r1.te Time Period: Day/Night 16/8 hours Description: R1 - Block 1-9B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ Angle1 Angle2 : -90.00 deg 90.00 deg Wood depth : 0 (No woods.) 0 / 0 No of house rows : Surface 2 (Reflective ground surface) : Receiver source distance : 22.00 / 22.00 m Receiver height : 1.50 / 1.50 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

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

Data for Segment # 2: Parade Dr. (day/night)

-			
Angle1 Angle2	:	-90.00	deg 66.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0	/ 0
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	17.00	/ 17.00 m
Receiver height	:	1.50	/ 1.50 m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

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Result summary (day) -----

	!	source	!	Road	!	Total
	!	height	!	Leq	!	Leq
	!	(m)	!	(dBA)	!	(dBA)
	-+-		-+-		-+-	
1.Stittsvile	!	1.50	!	70.50	!	70.50
2.Parade Dr.	!	1.50	!	64.58	!	64.58
	-+-		-+-		-+-	
		Total				71.49 dBA

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Result summary (night)

	! ! !	source height (m)		•	! ! !	Total Leq (dBA)
1.Stittsvile 2.Parade Dr.	!	1.50 1.50	•	62.90 56.99	•	62.90 56.99
	• - + -	Total	+-		-+-	63.89 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 71.49 (NIGHT): 63.89

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STAMSON 5.0 SUMMARY REPORT Date: 27-09-2024 12:50:24 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r2.te Time Period: Day/Night 16/8 hours Description: R2 - Block 1-1A Road data, segment # 1: Stittsville (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsville (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 : 22.00 / 22.00 m Receiver height : 4.65 / 7.80 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

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

Data for Segment # 2: Parade Dr. (day/night)

-			
Angle1 Angle2	:	-73.00 deg	0.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0/0	
Surface	:	2	(Reflective ground surface)
Receiver source distance	:	33.00 / 33	.00 m
Receiver height	:	4.65 / 7.8	80 m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

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Result summary (day) -----

	!	source	!	Road	!	Total
	!	height	!	Leq	!	Leq
	!	(m)	!	(dBA)	!	(dBA)
	· - + -		-+-		-+-	
1.Stittsville	!	1.50	!	70.50	!	70.50
2.Parade Dr.	!	1.50	!	58.41	!	58.41
	· - + -		-+-		-+-	
Total						70.76 dBA

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Result summary (night)

	! ! !	source height (m)	!	Leq	!	Total Leq (dBA)
1.Stittsville 2.Parade Dr.	- + - ! !	1.50 1.50		62.90	•	62.90 50.81
Total						63.16 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 70.76 (NIGHT): 63.16

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STAMSON 5.0 SUMMARY REPORT Date: 17-09-2024 15:34:01 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: R3 .te Time Period: Day/Night 16/8 hours Description: R3 - Block 2 - 6A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ Angle1 Angle2 : -90.00 deg 90.00 deg Wood depth : 0 (No woods.) 0 / 0 No of house rows : Surface 2 (Reflective ground surface) : Receiver source distance : 24.00 / 24.00 m Receiver height : 4.65 / 7.80 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

Number of Years of Growth: 0.00Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Parade Dr. (day/night) -----Angle1Angle2: -90.00 deg-1.00 degWood depth:0(No woodsNo of house rows:1 / 1House density:20 %Surface:2 (No woods.) (Reflective ground surface) Receiver source distance : 71.00 / 71.00 m Receiver height:4.65 / 7.80 mTopography:2 (Flat/gentle slope; with barrier)Barrier angle1:-90.00 deg Angle2 : -46.00 degBarrier height:7.00 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 124.00 mBarrier elevation: 124.00 mReference angle: 0.00 ♠ Result summary (day) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !70.12 !70.122.Parade Dr.!1.50 !52.38 !52.38 70.19 dBA Total ♠ Result summary (night) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !62.52 !62.522.Parade Dr.!1.50 !47.45 !47.45 * Total 62.65 dBA

* Bright Zone !

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TOTAL Leq FROM ALL SOURCES (DAY): 70.19 (NIGHT): 62.65

STAMSON 5.0 SUMMARY REPORT Date: 18-09-2024 09:03:24 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: R3 .te Time Period: Day/Night 16/8 hours Description: R3 - Block 2 10B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (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 : 24.00 / 24.00 m Receiver height : 1.50 / 1.50 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

Number of Years of Growth: 0.00Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Parade Dr. (day/night) -----Angle1Angle2: -90.00 deg-1.00 degWood depth:0(No woodsNo of house rows:1 / 1House density:20 %Surface:2 (No woods.) (Reflective ground surface) Receiver source distance : 71.00 / 71.00 m Receiver height:1.50 / 1.50 mTopography:2 (Flat/gentle slope;Barrier angle1:-90.00 deg Angle2 : -46.00 degBarrier height:7.00 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 124.00 mBarrier elevation: 124.00 mReference angle: 0.00 ♠ Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !70.12 !70.122.Parade Dr.!1.50 !52.22 !52.22 70.19 dBA Total ♠ Result summary (night) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !62.52 !62.522.Parade Dr.!1.50 !44.62 !44.62 Total 62.59 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.19 (NIGHT): 62.59

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STAMSON 5.0 SUMMARY REPORT Date: 17-09-2024 14:53:00 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: R4 .te Time Period: Day/Night 16/8 hours Description: R4 - Block 4 - 6A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (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 : 25.00 / 25.00 m Receiver height : 4.65 / 7.80 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

Number of Years of Growth: 0.00Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Parade Dr. (day/night) -----Angle1Angle2: -90.00 deg-13.00 degWood depth: 0(No woods.)No of house rows: 1 / 1House density: 20 %Surface: 2 (Reflective ground surface) Receiver source distance : 138.00 / 138.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:-90.00 degAngle2 :-27.00 degBarrier height::7.00 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 124.50 mBarrier elevation: 124.50 mReference angle: 0.00 ♠ Result summary (day) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !69.94 !69.942.Parade Dr.!1.50 !45.39 !45.39 69.96 dBA Total ♠ Result summary (night) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !62.34 !62.342.Parade Dr.!1.50 !43.95 !43.95 * Total 62.40 dBA

* Bright Zone !

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TOTAL Leq FROM ALL SOURCES (DAY): 69.96 (NIGHT): 62.40

STAMSON 5.0 SUMMARY REPORT Date: 17-09-2024 15:18:13 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: R4 .te Time Period: Day/Night 16/8 hours Description: R4-Block 4 10B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ Angle1 Angle2 : -90.00 deg 90.00 deg Wood depth : 0 (No woods.) 0 / 0 No of house rows : Surface 2 (Reflective ground surface) : Receiver source distance : 25.00 / 25.00 m Receiver height : 1.50 / 1.50 m Topography : 1 (Flat/gentle slope; no barrier) : Reference angle 0.00 Road data, segment # 2: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * 50 km/h Posted speed limit : Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

Number of Years of Growth: 0.00Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Parade Dr. (day/night) -----Angle1Angle2: -90.00 deg-13.00 degWood depth: 0(No woods.)No of house rows: 1 / 1House density: 20 %Surface: 2 (Reflective ground surface) Receiver source distance : 138.00 / 138.00 m Receiver height:1.50 / 1.50 mTopography:2Barrier angle1:-90.00 deg Angle2 : -27.00 degBarrier height:7.00 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation: 124.50 mBarrier elevation: 124.50 mReference angle: 0.00 ♠ Result summary (day) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !69.94 !69.942.Parade Dr.!1.50 !44.66 !44.66 69.95 dBA Total ♠ Result summary (night) ! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !62.34 !62.342.Parade Dr.!1.50 !37.07 !37.07 Total 62.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.95 (NIGHT): 62.35

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STAMSON 5.0 SUMMARY REPORT Date: 27-09-2024 13:56:42 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r5.te Time Period: Day/Night 16/8 hours Description: R5 - Block 5-8A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----Angle1 Angle2 : -40.00 deg 8.00 deg Wood depth : 0 (No woods.) No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 74.00 / 74.00 m Receiver height : 4.65 / 7.80 m : Topography 2 (Flat/gentle slope; with barrier) : -40.00 deg Angle2 : -20.00 deg : 10.57 m Barrier angle1 Barrier height Barrier receiver distance : 47.00 / 47.00 m Source elevation : 124.30 m : 123.60 m Receiver elevation Barrier elevation : 124.40 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsville (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsville (day/night) _____ Angle1Angle2:8.00 deg71.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:2(Reflective) (No woods.) : (Reflective ground surface) Receiver source distance : 74.00 / 74.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:8.00 degBarrier height:10.57 m Barrier receiver distance : 40.00 / 40.00 m Source elevation: 124.30 mReceiver elevation: 123.60 mBarrier elevation: 124.87 mReference angle: 0.00 Road data, segment # 3: Stittsville (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume7.00Heavy Truck % of Total Volume5.00Day (16 hrs) % of Total Volume92.00 Data for Segment # 3: Stittsville (day/night) -----: 71.00 deg 90.00 deg Angle1 Angle2

Wood depth : No of house rows : (No woods.) 0 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 74.00 / 74.00 m Receiver height : 4.65 / 7.80 m Topography : 2 (Flat/gentle slope; with barrier) : 71.00 deg Angle2 : 90.00 deg Barrier angle1 Barrier height : 7.00 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m : 124.20 m Barrier elevation Reference angle : 0.00 ۸ Road data, segment # 4: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume :515/45veh/TimePeriodHeavy truck volume :368/32veh/TimePeriod Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 4: Parade Dr. (day/night) -----: -64.00 deg Angle1 Angle2 31.00 deg Wood depth 0 (No woods.) : No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 47.00 / 47.00 m Receiver height : 4.65 / 7.80 m (Flat/gentle slope; with barrier) Topography : 2 Barrier angle1 : -64.00 deg Barrier height : 10.57 m Angle2 : -32.00 deg Barrier height : 10.57 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m : 123.60 m Receiver elevation Barrier elevation : 124.87 m Reference angle : 0.00

Road data, segment # 5: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 Heavy truck volume : 368/32 veh/TimePeriod * veh/TimePeriod * Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 5: Parade Dr. (day/night) _____ : 31.00 deg 65.00 deg Angle1 Angle2 : 0 : 1 / 1 Wood depth (No woods.) No of house rows House density 20 % : Surface : 2 (Reflective ground surface) Receiver source distance : 47.00 / 47.00 m Receiver height : 4.65 / 7.80 m : 2 (Flat/gentle slope; : 31.00 deg Angle2 : 65.00 deg : 7.00 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m Barrier elevation : 124.03 m : 0.00 Reference angle ٨ Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Lea ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !57.18 !57.182.Stittsville!1.50 !57.64 !57.643.Stittsville!1.50 !45.32 !45.324.Parade Dr.!1.50 !56.25 !56.255.Parade Dr.!1.50 !36.64 !36.64

+- Total				 61.94 dB	BA		
♠ Result summary (night)							
	!	source height (m)	! ! !	Road Leq (dBA)	! ! !	Total Leq (dBA)	
1.Stittsvile 2.Stittsville 3.Stittsville 4.Parade Dr. 5.Parade Dr.	+- ! ! ! !	1.50 1.50 1.50 1.50 1.50	! ! !	49.59 50.06 42.87 48.66 45.06	! !	49.59 50.06 42.87 48.66 45.06 *	
* Bright Zone !	+-	Total	-+-		- # -	55.01 dB	BA

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TOTAL Leq FROM ALL SOURCES (DAY): 61.94 (NIGHT): 55.01

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STAMSON 5.0 SUMMARY REPORT Date: 27-09-2024 14:12:25 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r5b.te Time Period: Day/Night 16/8 hours Description: R5 - Block 5-9B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----Angle1 Angle2 : -40.00 deg 8.00 deg Wood depth : 0 (No woods.) No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 74.00 / 74.00 m Receiver height : 1.50 / 1.50 m : Topography 2 (Flat/gentle slope; with barrier) : -40.00 deg Angle2 : -20.00 deg : 10.57 m Barrier angle1 Barrier height Barrier receiver distance : 47.00 / 47.00 m Source elevation : 124.30 m : 123.60 m Receiver elevation Barrier elevation : 124.40 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsville (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsville (day/night) _____ Angle1Angle2:8.00 deg71.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:2(Reflective) (No woods.) : (Reflective ground surface) Receiver source distance : 74.00 / 74.00 m Receiver height:1.50 / 1.50 mTopography:2 (Flat/gentle slope)Barrier angle1:8.00 deg Angle2 : 40.00 degBarrier height:10.57 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 40.00 / 40.00 m Source elevation: 124.30 mReceiver elevation: 123.60 mBarrier elevation: 124.87 mReference angle: 0.00 ۸ Road data, segment # 3: Stittsville (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume7.00Heavy Truck % of Total Volume5.00Day (16 hrs) % of Total Volume92.00 Data for Segment # 3: Stittsville (day/night) -----: 71.00 deg 90.00 deg Angle1 Angle2

Wood depth : No of house rows : (No woods.) 0 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 74.00 / 74.00 m Receiver height : 1.50 / 1.50 m Topography : 2 (Flat/gentle slope; with barrier) : 71.00 deg Angle2 : 90.00 deg Barrier angle1 Barrier height : 7.00 m Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m : 124.20 m Barrier elevation Reference angle : 0.00 ۸ Road data, segment # 4: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume :515/45veh/TimePeriodHeavy truck volume :368/32veh/TimePeriod Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 4: Parade Dr. (day/night) -----Angle1 Angle2 : -64.00 deg 31.00 deg Wood depth 0 (No woods.) : No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 47.00 / 47.00 m Receiver height : 1.50 / 1.50 m (Flat/gentle slope; with barrier) Topography : 2 Barrier angle1: -64.00 degBarrier height: 10.57 m Angle2 : -32.00 deg Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m : 123.60 m Receiver elevation Barrier elevation : 124.87 m Reference angle : 0.00

Road data, segment # 5: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 Heavy truck volume : 368/32 veh/TimePeriod * veh/TimePeriod * Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 5: Parade Dr. (day/night) _____ : 31.00 deg 65.00 deg Angle1 Angle2 : 0 : 1 / 1 Wood depth (No woods.) No of house rows House density 20 % : Surface : 2 (Reflective ground surface) Receiver source distance : 47.00 / 47.00 m Receiver height : 1.50 / 1.50 m : 2 (Flat/gentle slope; : 31.00 deg Angle2 : 65.00 deg : 7.00 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m Barrier elevation : 124.03 m : 0.00 Reference angle ٨ Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Lea ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !57.18 !57.182.Stittsville!1.50 !57.63 !57.633.Stittsville!1.50 !42.19 !42.194.Parade Dr.!1.50 !56.25 !56.255.Parade Dr.!1.50 !33.55 !33.55

	Total					
▲ Result summary (night)						
	! source ! Road ! ! height ! Leq ! ! (m) ! (dBA) !	Total Leq (dBA)				
1.Stittsvile 2.Stittsville 3.Stittsville 4.Parade Dr. 5.Parade Dr.	! 1.50 ! 49.58 ! ! 1.50 ! 50.04 ! ! 1.50 ! 34.60 ! ! 1.50 ! 48.66 ! ! 1.50 ! 48.66 ! ! 1.50 ! 25.96 !	50.04 34.60 48.66				
	54.29 dBA					

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TOTAL Leq FROM ALL SOURCES (DAY): 61.88 (NIGHT): 54.29

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 09:03:13 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r6.te Time Period: Day/Night 16/8 hours Description: R6 - Block 5 1A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----: -90.00 deg Angle1 Angle2 -82.00 deg Wood depth : 0 (No woods.) No of house rows 0 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 62.00 / 62.00 m Receiver height:4.65 / 7.80Topography:2 m (Flat/gentle slope; with barrier) : -90.00 deg Angle2 : -85.00 deg : 7.00 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsville (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsville (day/night) -----Angle1Angle2: -82.00 deg23.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective) (No woods.) : (Reflective ground surface) Receiver source distance : 62.00 / 62.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:-82.00 degBarrier height:10.57 m Barrier receiver distance : 20.00 / 20.00 m Source elevation: 124.30 mReceiver elevation: 123.60 mBarrier elevation: 124.60 mReference angle: 0.00 Road data, segment # 3: Stittsville (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume7.00Heavy Truck % of Total Volume5.00Day (16 hrs) % of Total Volume92.00 Data for Segment # 3: Stittsville (day/night) -----: 23.00 deg 90.00 deg Angle1 Angle2

Wood depth : No of house rows : (No woods.) 0 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 62.00 / 62.00 m Receiver height : 4.65 / 7.80 m Topography : 2 (Flat/gentle slope; with barrier) : 23.00 deg Angle2 : 67.00 deg Barrier angle1 : 10.57 m Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m : 124.87 m Barrier elevation Reference angle : 0.00 ۸ Road data, segment # 4: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume :515/45veh/TimePeriodHeavy truck volume :368/32veh/TimePeriod Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 : 92.00 Day (16 hrs) % of Total Volume Data for Segment # 4: Parade Dr. (day/night) -----Angle1 Angle2 : -60.00 deg 36.00 deg Wood depth 0 (No woods.) : No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 54.00 / 54.00 m Receiver height : 4.65 / 7.80 m (Flat/gentle slope; with barrier) Topography : 2 Barrier angle1 : -60.00 deg Barrier height : 10.57 m Angle2 : -9.00 deg Barrier height : 10.57 m Barrier receiver distance : 20.00 / 20.00 m Source elevation : 124.30 m : 123.60 m Receiver elevation : 124.87 m Barrier elevation Reference angle : 0.00

Road data, segment # 5: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 Heavy truck volume : 368/32 veh/TimePeriod * veh/TimePeriod * Posted speed limit : 50 km/h Road gradient:1 %Road pavement:1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 5: Parade Dr. (day/night) _____ : 36.00 deg 59.00 deg Angle1 Angle2 : 0 : 1 / 1 Wood depth (No woods.) No of house rows House density 20 % : Surface : 2 (Reflective ground surface) Receiver source distance : 54.00 / 54.00 m Receiver height : 4.65 / 7.80 m : 2 (Flat/gentle slope; : 36.00 deg Angle2 : 59.00 deg : 7.00 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.60 m Barrier elevation : 124.03 m : 0.00 Reference angle ٨ Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Lea ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !49.44 !49.442.Stittsville!1.50 !58.90 !58.903.Stittsville!1.50 !57.14 !57.144.Parade Dr.!1.50 !54.22 !54.225.Parade Dr.!1.50 !34.27 !34.27

Total						62.17	dBA
∧ Result summary (ni	ght) 						
	! ! !	source height (m)	!	Road Leq (dBA)	!	Total Leq (dBA)	
1.Stittsvile 2.Stittsville 3.Stittsville 4.Parade Dr. 5.Parade Dr.	+- ! ! ! !	1.50 1.50 1.50 1.50 1.50 1.50	! ! !	44.88 51.42 49.56 46.65 42.76	! ! !	44.88 51.42 49.56 46.65 42.76	
	+-	Total	-+-		-+-	55.12	dBA

* Bright Zone !

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TOTAL Leq FROM ALL SOURCES (DAY): 62.17 (NIGHT): 55.12

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 09:44:08 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r7.te Time Period: Day/Night 16/8 hours Description: R7 - Block 6 5A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----: -90.00 deg Angle1 Angle2 -19.00 deg Wood depth : 0 (No woods.) No of house rows 0 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 73.00 / 73.00 m Receiver height:4.65 / 7.80Topography:2 m (Flat/gentle slope; with barrier) : -90.00 deg Angle2 : -56.00 deg : 7.00 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 124.37 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) _____ Angle1Angle2: -19.00 deg62.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective ground surface) Receiver source distance : 73.00 / 73.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:-19.00 degBarrier height:10.57 m Barrier receiver distance : 31.00 / 31.00 m Source elevation: 124.30 mReceiver elevation: 124.37 mBarrier elevation: 124.70 mReference angle: 0.00 Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !58.80 !58.802.Stittsvile!1.50 !43.00 !43.00 58.91 dBA Total Result summary (night) -----! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile ! 1.50 ! 53.65 ! 53.65 *

2.Stittsvile		37.75 !	
	Total	+	53.76 dBA
*			
TOTAL Leq FROM ALL	SOURCES (DAY): (NIGHT):		

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 10:07:17 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r7b.te Time Period: Day/Night 16/8 hours Description: R7 - Block 6 12B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ : -90.00 deg Angle1 Angle2 -19.00 deg Wood depth : 0 (No woods.) No of house rows 0 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 73.00 / 73.00 m Receiver height : 1.50 / 1.50 m : Topography 2 (Flat/gentle slope; with barrier) : -90.00 deg Angle2 : -56.00 deg : 7.00 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 124.37 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) _____ Angle1Angle2: -19.00 deg62.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective ground surface) Receiver source distance : 73.00 / 73.00 m Receiver height:1.50 / 1.50 mTopography:2Barrier angle1:-19.00 degBarrier height:10.57 m Barrier receiver distance : 31.00 / 31.00 m Source elevation: 124.30 mReceiver elevation: 124.37 mBarrier elevation: 124.70 mReference angle: 0.00 Result summary (day) -----! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile!1.50 !58.56 !58.562.Stittsvile!1.50 !42.00 !42.00 58.65 dBA Total Result summary (night) -----! source ! Road ! Total ! height ! Leq ! Leq ! (m) ! (dBA) ! (dBA) 1.Stittsvile ! 1.50 ! 50.96 ! 50.96

2.Stittsvile		34.41 !	
	Total	+	51.06 dBA
*			
TOTAL Leq FROM ALL	SOURCES (DAY): (NIGHT):		

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 10:54:11 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r8.te Time Period: Day/Night 16/8 hours Description: R8 - Block 6 4A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) _____ : -90.00 deg Angle1 Angle2 -52.00 deg Wood depth : 0 (No woods.) No of house rows 2 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 64.00 / 64.00 m Receiver height : 4.65 / 7.80 m : Topography 2 (Flat/gentle slope; with barrier) : -90.00 deg Angle2 : -72.00 deg : 7.00 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 124.37 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) -----Angle1 Angle2 : -52.00 deg 90.00 deg Wood depth : 0 (No woods.) Wood depth . No of house rows : House density : Surface : 2 / 2 20% (Reflective ground surface) 2 Receiver source distance : 64.00 / 64.00 m Receiver height : 4.65 / 7.80 m : 2 (Flat/gentle slope; : -52.00 deg Angle2 : 90.00 deg : 10.57 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 14.00 / 14.00 m Source elevation: 124.30 mReceiver elevation: 124.37 mBarrier elevation: 124.73 mReference angle: 0.00 Road data, segment # 3: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : 368/32 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume7.00Heavy Truck % of Total Volume5.00Day (16 hrs) % of Total Volume92.00 Data for Segment # 3: Parade Dr. (day/night) -----

Wood depth	0 1 20 2 121.00 4.65 2 -60.00 10.57 3.00 124.30 124.37	/ 1 % / 121. / 7.80 deg m / 3.00 m m	0 m (Flat/gentle slope; with barrier) Angle2 : 0.00 deg
▲ Road data, segment # 4: Par	ade Dr.	(day/r	night)
Car traffic volume : 6477 Medium truck volume : 519 Heavy truck volume : 368 Posted speed limit : 56 Road gradient : 2 Road pavement : 2 * Refers to calculated road 24 hr Traffic Volume (A Percentage of Annual Gr Number of Years of Grow Medium Truck % of Tota Heavy Truck % of Tota Day (16 hrs) % of Tota	5/45 3/32 3/32 3/32 3/32 3/32 5/45 1/45	veh/Tir veh/Tir al aspł s basec SADT): : : :	nePeriod * nePeriod * nalt or concrete) d on the following input: 8000 0.00 0.00 7.00 5.00
Data for Segment # 4: Parad	le Dr. (d	day/ni	ght)
Topography	0 1 20 2 121.00 4.65 2 6.00 10.57 30.00 124.30	/ 1 % / 121. / 7.80 deg m / 30.0 m	<pre>(No woods.) (Reflective ground surface) .00 m m (Flat/gentle slope; with barrier) Angle2 : 34.00 deg</pre>

Barrier elevation	:	123.60 m
Reference angle	:	0.00

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Road data, segment # 5: Parade Dr. (day/night)

:	6477/563	veh/TimePeriod	*
:	515/45	veh/TimePeriod	*
:	368/32	veh/TimePeriod	*
:	50 km/h		
:	1 %		
:	1 (Турі	cal asphalt or c	oncrete)
	: : :	: 368/32 : 50 km/h : 1 %	: 515/45 veh/TimePeriod : 368/32 veh/TimePeriod : 50 km/h

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

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

Data for Segment # 5: Parade Dr. (day/night)

Angle1 Angle2	:	34.00	de	eg 5	54.00 deg
Wood depth	:	0		((No woods.)
No of house rows	:	2	/	2	
House density	:	20	%		
Surface	:	2		((Reflective ground surface)
Receiver source distance	:	121.00	/	121.0	00 m
Receiver height	:	4.65	/	7.80	m
Topography	:	2		((Flat/gentle slope; with barrier)
Barrier angle1	:	34.00	de	eg A	Angle2 : 54.00 deg
Barrier height	:	7.00	m		
Barrier receiver distance	:	3.00	/	3.00	m
Source elevation	:	124.30	m		
Receiver elevation	:	124.37	m		
Barrier elevation	:	124.03	m		
Reference angle	:	0.00			

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Result summary (day)

	! !	source height (m)	! !	Leq (dBA)	! !	· · ·
1.Stittsvile 2.Stittsvile	! !	1.50 1.50	!	54.78 47.75	!	54.78 47.75

3.Parade Dr. 4.Parade Dr.	!	1.50 ! 1.50 !	41.52 ! 32.36 !	41.52 32.36
5.Parade Dr.	!	1.50 !	32.61 !	32.61
	•		+	
	TC	otal		55.77 dBA

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Result summary (night)

	! ! !	source height (m)	! ! !	Road Leq (dBA)	! ! !	Total Leq (dBA)
1.Stittsvile 2.Stittsvile 3.Parade Dr. 4.Parade Dr. 5.Parade Dr.	! ! ! !	1.50 1.50 1.50 1.50 1.50		52152	! ! !	51.51 * 42.98 34.19 28.97 37.15 *
Total						52.31 dBA

* Bright Zone !

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TOTAL Leq FROM ALL SOURCES (DAY): 55.77 (NIGHT): 52.31

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 12:55:04 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r9.te Time Period: Day/Night 16/8 hours Description: R9 - Block 7 - 5A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----: -90.00 deg Angle1 Angle2 -38.00 deg Wood depth : 0 (No woods.) No of house rows 0 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 100.00 / 100.00 m Receiver height : 4.65 / 7.80 m : 2 (Flat/gentle slope; : -90.00 deg Angle2 : -57.00 deg : 7.00 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.45 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) -----Angle1Angle2: -38.00 deg35.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective) (No woods.) : (Reflective ground surface) 2 Receiver source distance : 100.00 / 100.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:-38.00 degBarrier height:10.57 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 3.00 / 3.00 m Source elevation: 124.30 mReceiver elevation: 123.45 mBarrier elevation: 124.37 mReference angle: 0.00 Road data, segment # 3: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 3: Stittsvile (day/night) -----: 35.00 deg 51.00 deg Angle1 Angle2

Topography Barrier angle1	ance : 100. : 4. : 35. : 10. tance : 40. : 124. : 123. : 124.	.00 / 100.00 .65 / 7.80 2 (.00 deg A .57 m .00 / 40.00 .30 m .45 m .70 m	Reflective ground surfa 0 m m Flat/gentle slope; with ngle2 : 51.00 deg	
	! source ! ! height ! ! (m) !	! Leq ! (dBA)	! Leq ! (dBA)	
1.Stittsvile 2.Stittsvile 3.Stittsvile	! 1.50 ! 1.50 ! 1.50	! 54.66 ! 40.00 ! 35.86	54.66 40.00 35.86	
	Total		54.86 dBA	
♠ Result summary (nigh 	t) 			
	! height ! ! (m) !	! (dBA)	! Leq ! (dBA)	
1.Stittsvile 2.Stittsvile 3.Stittsvile	! 1.50 ! ! 1.50 ! ! 1.50 !	! 50.93 ! 32.42 ! 30.54	50.93 * 32.42 30.54	
	Total	r - 	51.03 dBA	
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TOTAL Leq FROM ALL SOURCES (DAY): 54.86 (NIGHT): 51.03

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 13:00:00 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r9b.te Time Period: Day/Night 16/8 hours Description: R9 - Block 7 - 12B Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----: -90.00 deg Angle1 Angle2 -38.00 deg Wood depth : 0 (No woods.) No of house rows : 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 100.00 / 100.00 m Receiver height : 1.50 / 1.50 m : 2 (Flat/gentle slope; : -90.00 deg Angle2 : -57.00 deg : 7.00 m Topography (Flat/gentle slope; with barrier) Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.45 m Barrier elevation : 124.00 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) -----Angle1Angle2: -38.00 deg35.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective) (No woods.) : (Reflective ground surface) 2 Receiver source distance : 100.00 / 100.00 m Receiver height:1.50 / 1.50 mTopography:2Barrier angle1:-38.00 degBarrier height:10.57 m 2 (Flat/gentle slope; with barrier) Barrier receiver distance : 3.00 / 3.00 m Source elevation: 124.30 mReceiver elevation: 123.45 mBarrier elevation: 124.37 mReference angle: 0.00 Road data, segment # 3: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 3: Stittsvile (day/night) -----: 35.00 deg 51.00 deg Angle1 Angle2

Topography Barrier angle1 Barrier height Barrier receiver dist	ance : 100 : 10 : 1 : 35 : 35 : 10 : 124 : 124 : 124	.00 / 100.0 .50 / 1.50 2 (.00 deg A .57 m .00 / 40.00 .30 m .45 m .70 m	Reflective 0 m m Flat/gentle ngle2 : 51.	ground surface) e slope; with barrier) 00 deg			
	source ! Road ! height ! Leq ! (m) ! (dBA) !		! Leq ! (dBA)				
1.Stittsvile 2.Stittsvile 3.Stittsvile	1.50	! 34.06	! 34.06				
	Total		54.58				
★ Result summary (night)							
	height (m)	! (dBA)	! Leq ! (dBA)				
1.Stittsvile 2.Stittsvile 3.Stittsvile	1.50 1.50 1.50	! 46.80 ! 32.40 ! 26.46	! 46.80 ! 32.40 ! 26.46				
	Total	r	46.99				
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TOTAL Leq FROM ALL SOURCES (DAY): 54.58 (NIGHT): 46.99

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STAMSON 5.0 SUMMARY REPORT Date: 30-09-2024 13:42:29 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: r10.te Time Period: Day/Night 16/8 hours Description: R10 - Block 7 - 4A Road data, segment # 1: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth 0.00 : Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Stittsvile (day/night) -----Angle1 Angle2 : -90.00 deg -38.00 deg Wood depth : 0 (No woods.) No of house rows 2 / 0 : Surface 2 (Reflective ground surface) : Receiver source distance : 90.00 / 90.00 m Receiver height : 4.65 / 7.80 m : Topography 2 (Flat/gentle slope; with barrier) : -90.00 deg Angle2 : -38.00 deg : 10.57 m Barrier angle1 Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.45 m Barrier elevation : 124.37 m Reference angle : 0.00 ♠ Road data, segment # 2: Stittsvile (day/night) -----Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit : 50 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume: 7.00Heavy Truck % of Total Volume: 5.00Day (16 hrs) % of Total Volume: 92.00 Data for Segment # 2: Stittsvile (day/night) -----Angle1Angle2: -38.00 deg63.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 2(Reflective) (Reflective ground surface) : Receiver source distance : 90.00 / 90.00 m Receiver height:4.65 / 7.80 mTopography:2Barrier angle1:-38.00 degBarrier height:10.57 m Barrier receiver distance : 40.00 / 40.00 m Source elevation: 124.30 mReceiver elevation: 123.45 mBarrier elevation: 124.73 mReference angle: 0.00 Road data, segment # 3: Stittsvile (day/night) _____ Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod * Heavy truck volume : 1610/140 veh/TimePeriod * Posted speed limit :50 km/hRoad gradient :1 %Road pavement :1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth:0.00Number of Years of Growth:0.00 : 0.00 Medium Truck % of Total Volume:0.00Heavy Truck % of Total Volume:5.00Day (16 hrs) % of Total Volume:92.00 Data for Segment # 3: Stittsvile (day/night) -----: 63.00 deg 90.00 deg Angle1 Angle2

Wood depth : No of house rows : (No woods.) 0 0 / 0 Surface 2 (Reflective ground surface) : Receiver source distance : 90.00 / 90.00 m Receiver height : 4.65 / 7.80 m Topography : 2 (Flat/gentle slope; with barrier) : 63.00 deg Barrier angle1 Angle2 : 90.00 deg : 10.57 m Barrier height Barrier receiver distance : 3.00 / 3.00 m Source elevation : 124.30 m Receiver elevation : 123.45 m : 123.60 m Barrier elevation Reference angle : 0.00 ۸ Road data, segment # 4: Parade Dr. (day/night) -----Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 Heavy truck volume : 368/32 veh/TimePeriod veh/TimePeriod Posted speed limit : 50 km/h 1 % Road gradient : : 1 (Typical asphalt or concrete) Road pavement * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 4: Parade Dr. (day/night) -----: -50.00 deg -12.00 deg Angle1 Angle2 Wood depth : 0 (No woods.) No of house rows 1 / 1 : House density : 20 % Surface : (Reflective ground surface) 2 Receiver source distance : 106.00 / 106.00 m Receiver height : 4.65 / 7.80 m : (Flat/gentle slope; with barrier) Topography 2 : -50.00 deg Angle2 : -12.00 deg Barrier angle1 : 10.57 m Barrier height Barrier receiver distance : 3.00 / 3.00 m : 124.30 m Source elevation : 123.45 m Receiver elevation Barrier elevation : 124.60 m : Reference angle 0.00

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Road data, segment # 5: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod * Heavy truck volume : veh/TimePeriod * 368/32 Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 5: Parade Dr. (day/night) -----Angle2 : -12.00 deg Angle1 21.00 deg Wood depth : 0 (No woods.) No of house rows 1 / 1 : House density : 20 % Surface : 2 (Reflective ground surface) Receiver source distance : 106.00 / 106.00 m Receiver height : 4.65 / 7.80 m : Topography 2 (Flat/gentle slope; with barrier) Barrier angle1 : -12.00 deg Angle2 : 21.00 deg Barrier height : 10.57 m Barrier receiver distance : 28.00 / 28.00 m : 124.30 m Source elevation : 123.45 m Receiver elevation : 123.60 m Barrier elevation Reference angle : 0.00 Road data, segment # 6: Parade Dr. (day/night) _____ Car traffic volume : 6477/563 veh/TimePeriod * Medium truck volume : 515/45 veh/TimePeriod veh/TimePeriod * Heavy truck volume : 368/32 Posted speed limit : 50 km/h Road gradient : 1 % Road pavement : 1 (Typical asphalt or concrete) * Refers to calculated road volumes based on the following input:

Percentage of A Number of Years Medium Truck % Heavy Truck % Day (16 hrs) %	olume (AADT or S nnual Growth of Growth of Total Volume of Total Volume of Total Volume	: 0 : 0 : 7 : 5 : 92	0.00 0.00 7.00 5.00 2.00	
Data for Segment #	6: Parade Dr. (d	ay/nignt)		
Receiver source dis	: 0 : 2 : 20 : 2 tance : 106.00 : 4.65 : 2 : 21.00 : 7.00 stance : 3.00 : 124.30 : 123.45 : 124.03 : 0.00	(No / 2 % (Re / 106.00 r / 7.80 r (F1 deg Ang m / 3.00 r m m	o woods.) eflective ground surface m m .at/gentle slope; with b gle2 : 57.00 deg	
	! source ! ! height ! ! (m) ! (Leq !	Leq	
	! height ! ! (m) ! (-+	Leq ! dBA) !	Leq (dBA)	
1.Stittsvile 2.Stittsvile	! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 !	Leq ! dBA) ! 42.24 ! 43.30 !	Leq (dBA) 42.24 43.30	
1.Stittsvile 2.Stittsvile 3.Stittsvile	! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 ! ! 1.50 !	Leq ! dBA) ! 42.24 ! 43.30 ! 41.64 !	Leq (dBA) 42.24 43.30 41.64	
1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Parade Dr.	! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 !	Leq ! dBA) ! +- 42.24 ! 43.30 ! 41.64 ! 30.50 !	Leq (dBA) 42.24 43.30 41.64 30.50	
1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Parade Dr.	! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 !	Leq ! dBA) ! 42.24 ! 43.30 ! 41.64 ! 30.50 ! 32.03 !	Leq (dBA) 42.24 43.30 41.64 30.50 32.03	
1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Parade Dr. 5.Parade Dr.	<pre>! height ! ! (m) ! (-+</pre>	Leq ! dBA) ! 42.24 ! 43.30 ! 41.64 ! 30.50 ! 32.03 ! 32.76 !	Leq (dBA) 42.24 43.30 41.64 30.50 32.03 32.76	
1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Parade Dr. 5.Parade Dr. 6.Parade Dr.	<pre>! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! -+</pre>	Leq ! dBA) ! 42.24 ! 43.30 ! 41.64 ! 30.50 ! 32.03 ! 32.76 ! +-	Leq (dBA) 42.24 43.30 41.64 30.50 32.03 32.76 47.58 dBA	
<pre>1.Stittsvile 2.Stittsvile 3.Stittsvile 4.Parade Dr. 5.Parade Dr. 6.Parade Dr.</pre>	<pre>! height ! ! (m) ! (-+ ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! ! 1.50 ! -+</pre>	Leq ! dBA) ! 42.24 ! 43.30 ! 41.64 ! 30.50 ! 32.03 ! 32.76 ! +-	Leq (dBA) 42.24 43.30 41.64 30.50 32.03 32.76 47.58 dBA	

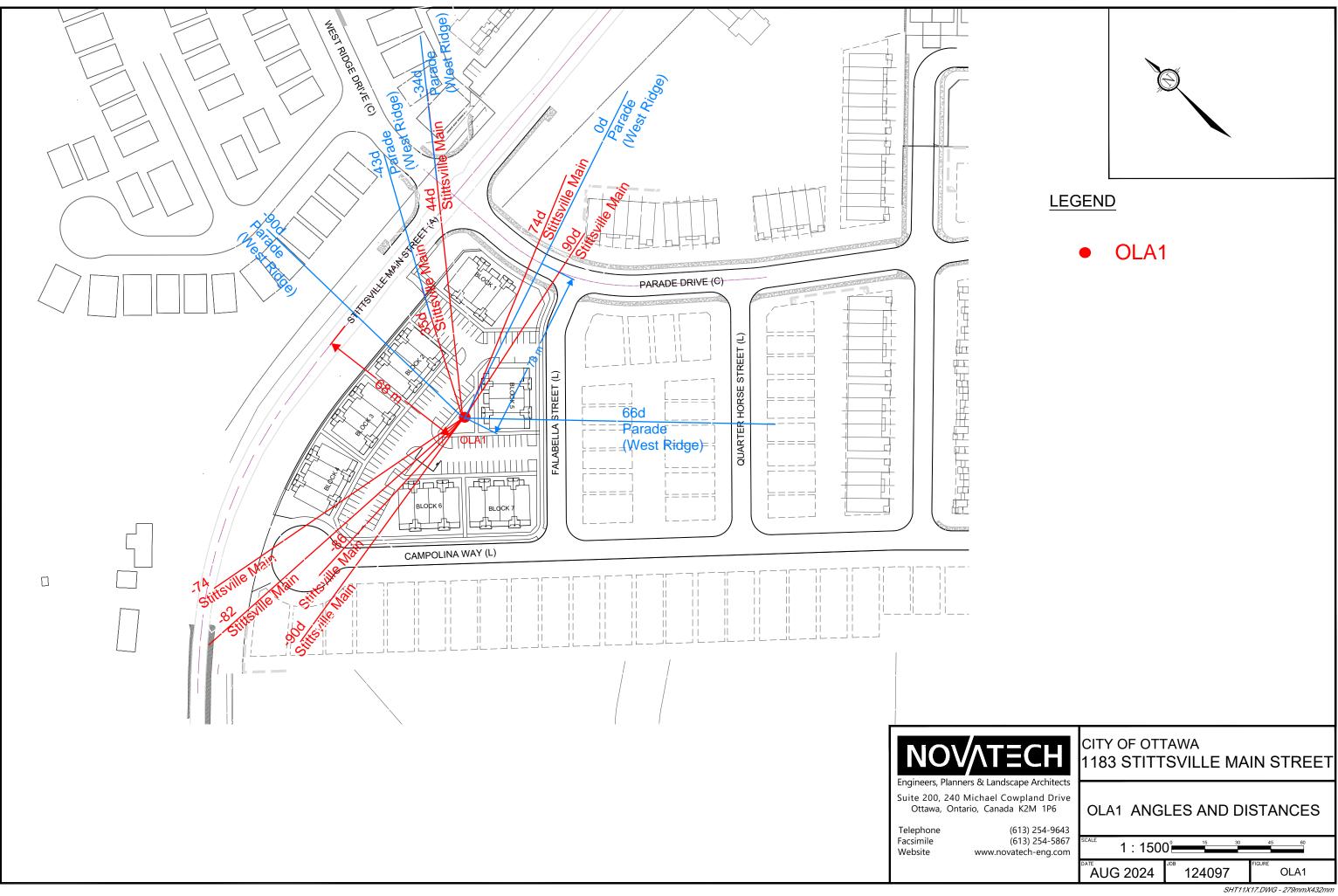
1.Stittsvile	!	1.50 !	37.07 !	37.07
2.Stittsvile	!	1.50 !	37.77 !	37.77
<pre>3.Stittsvile</pre>	!	1.50 !	37.34 !	37.34
4.Parade Dr.	!	1.50 !	23.03 !	23.03
5.Parade Dr.	!	1.50 !	28.06 !	28.06
6.Parade Dr.	!	1.50 !	40.28 !	40.28 *
	· + ·	+	+	
	44.47 dBA			

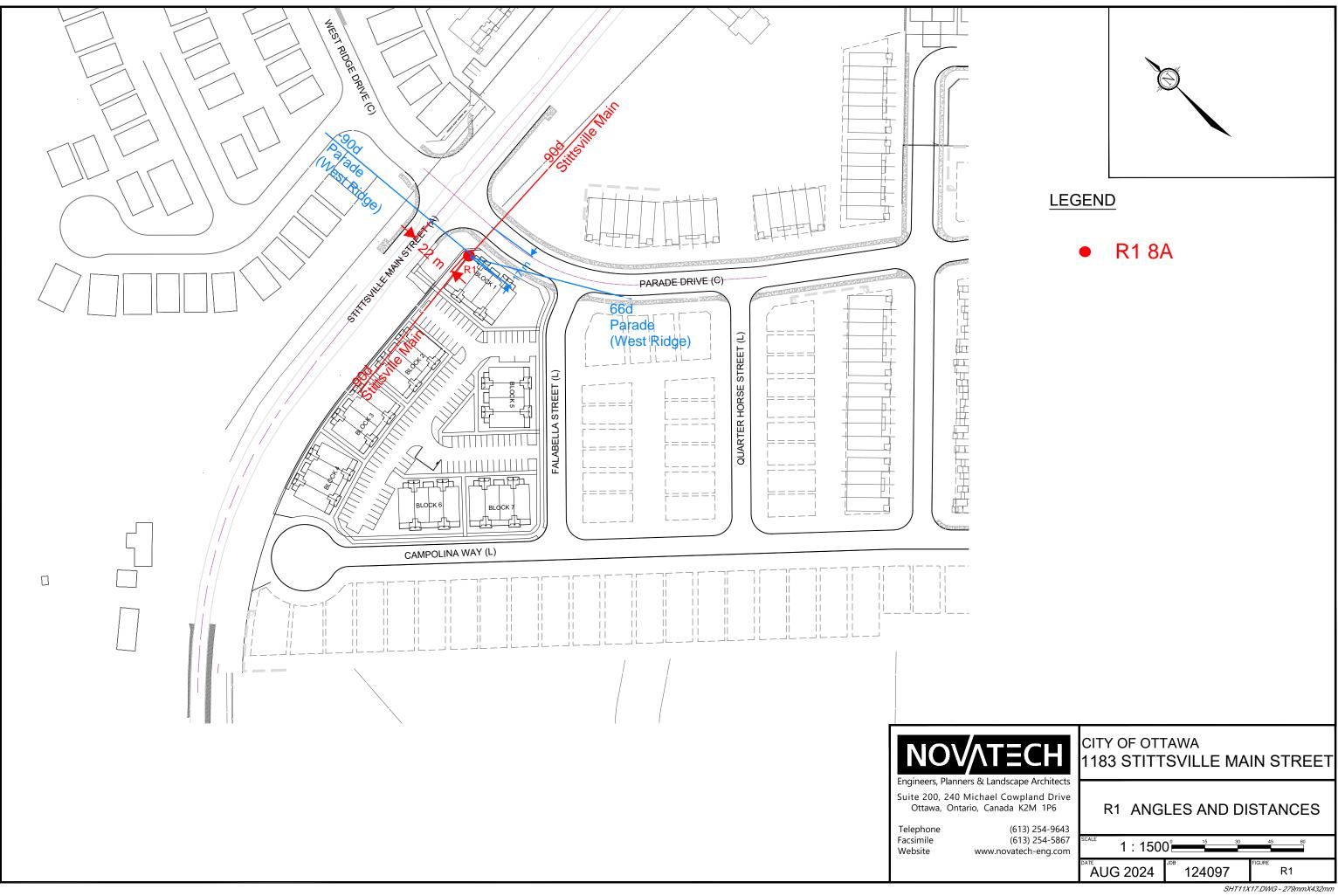
* Bright Zone !

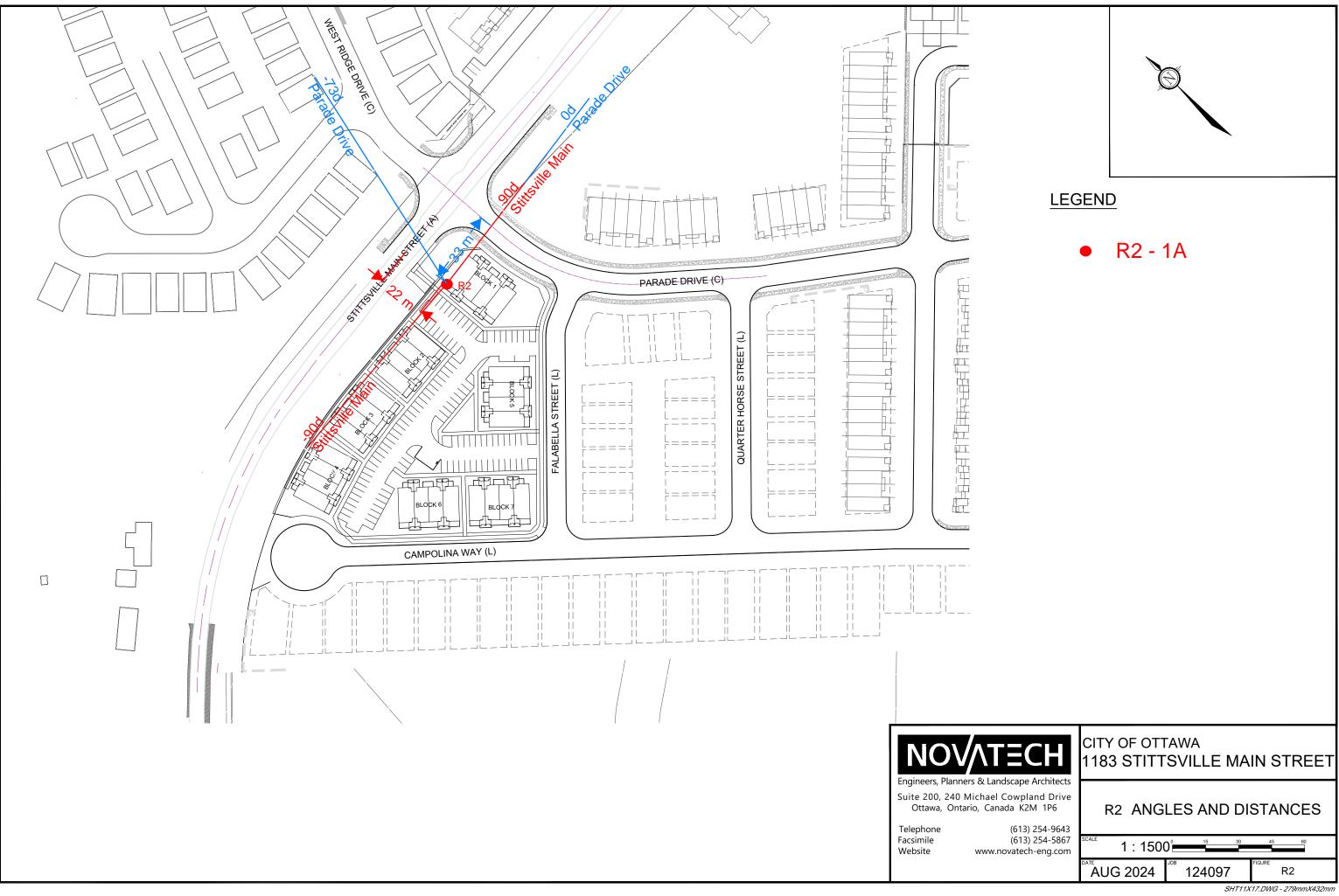
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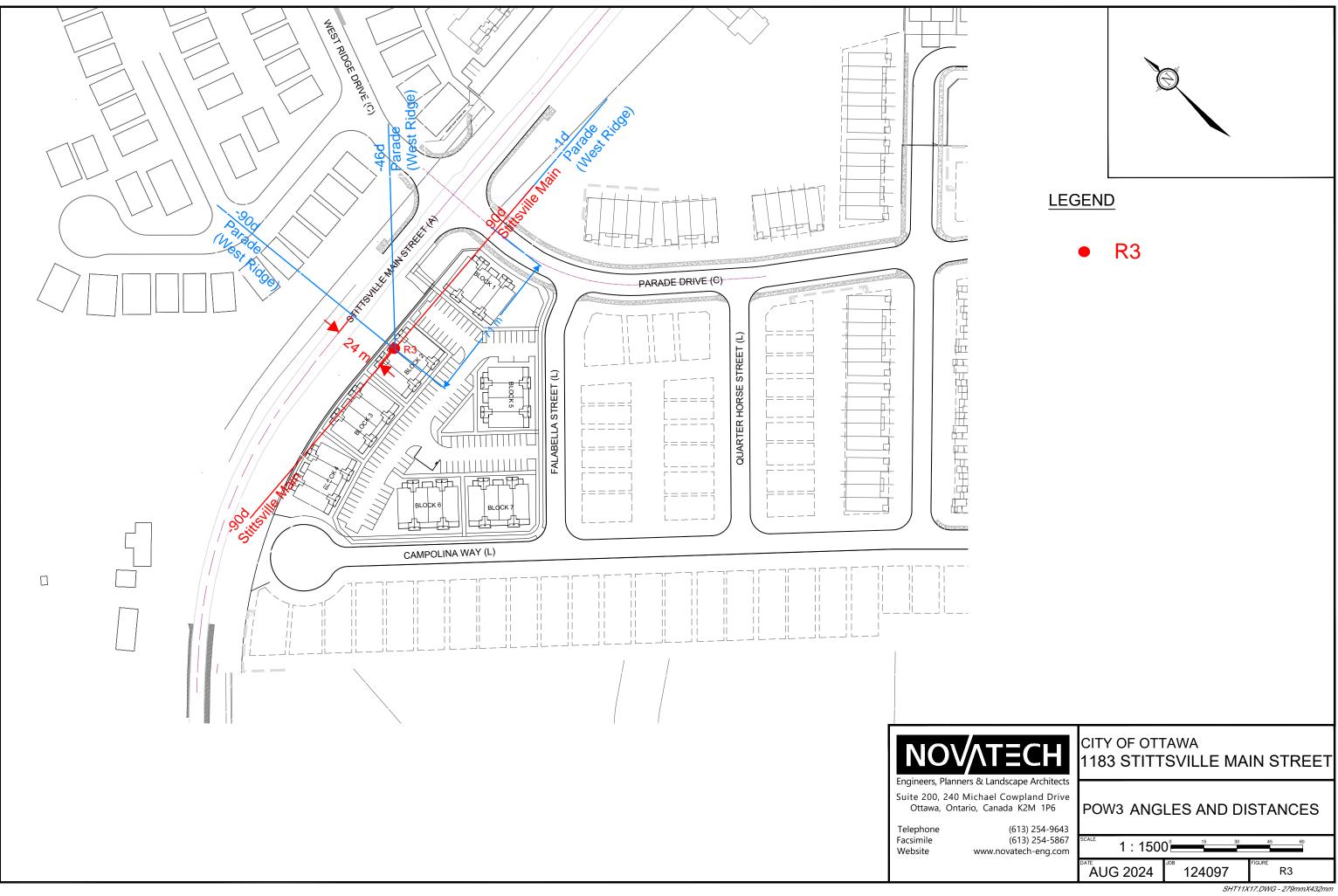
TOTAL	Leq	FROM	ALL	SOURCES	(DAY):	47.58
				()	NIGHT):	44.47

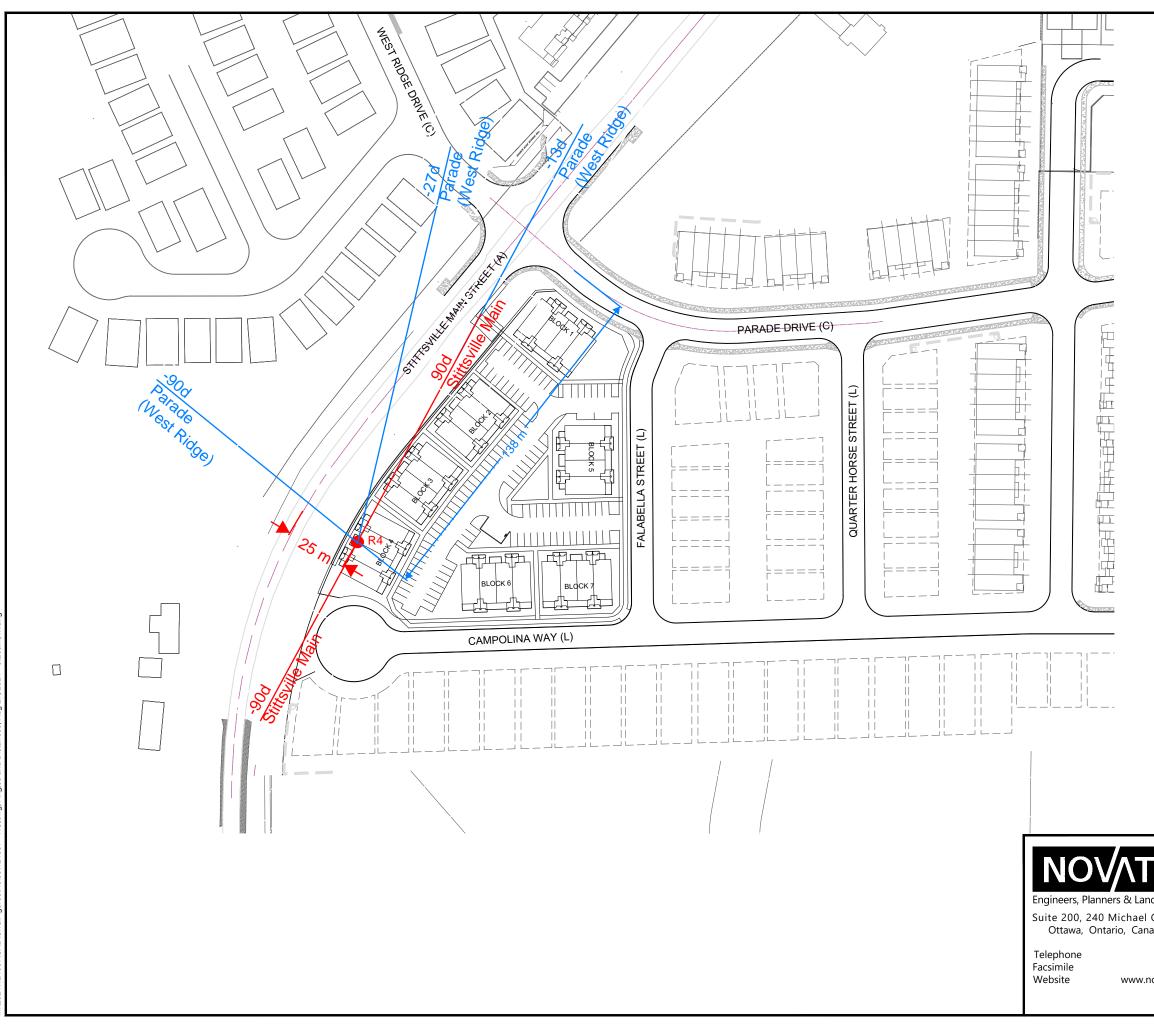
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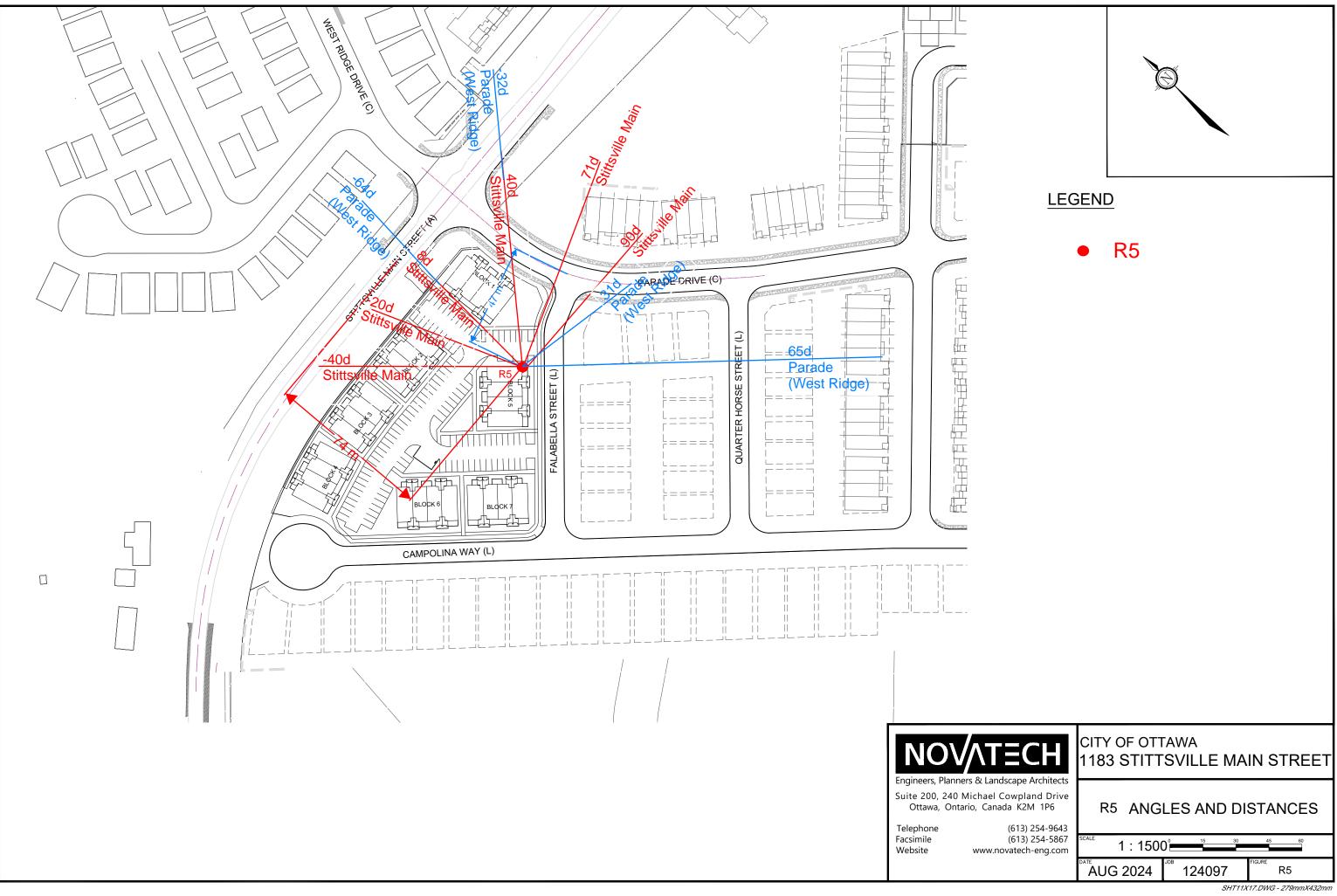


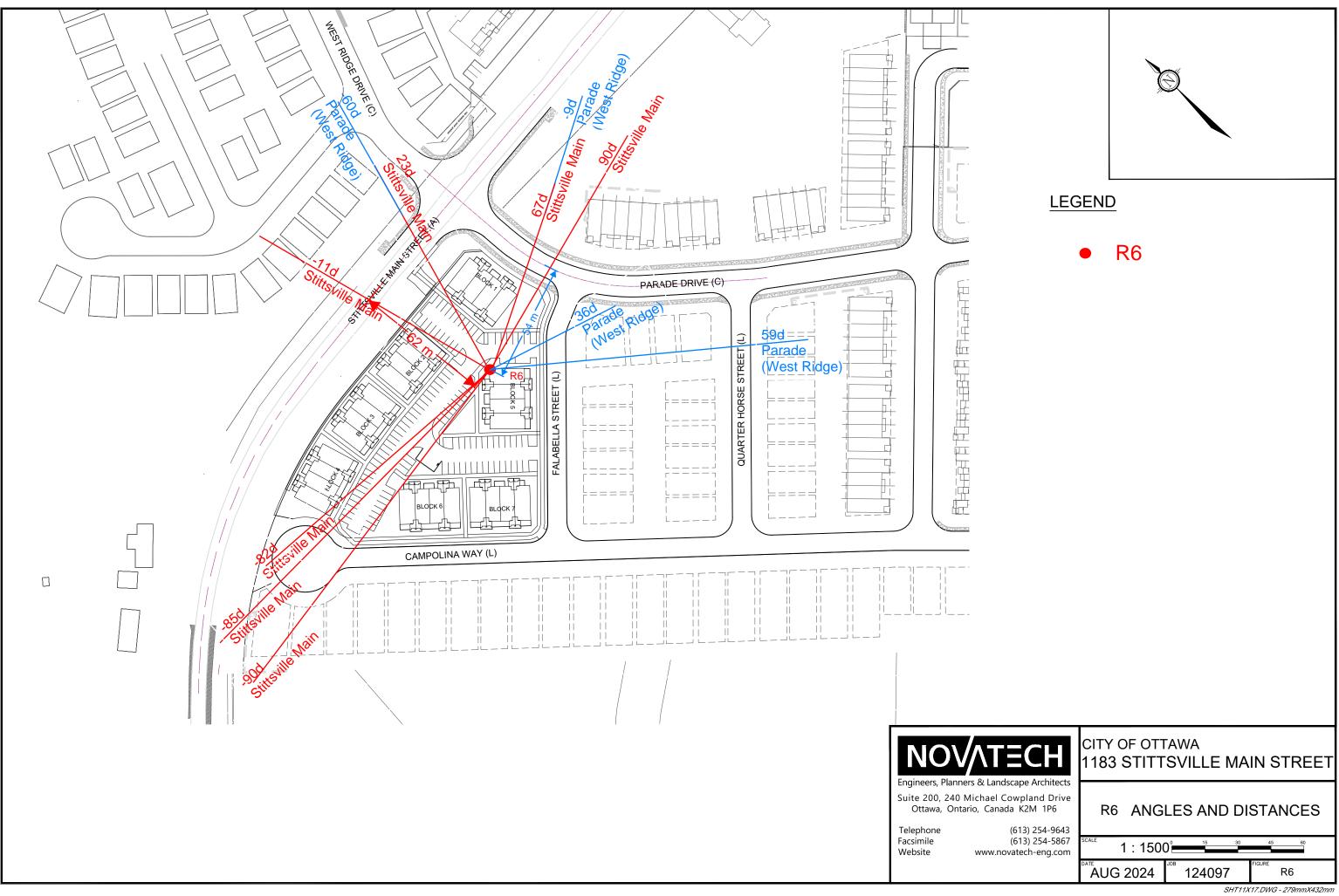


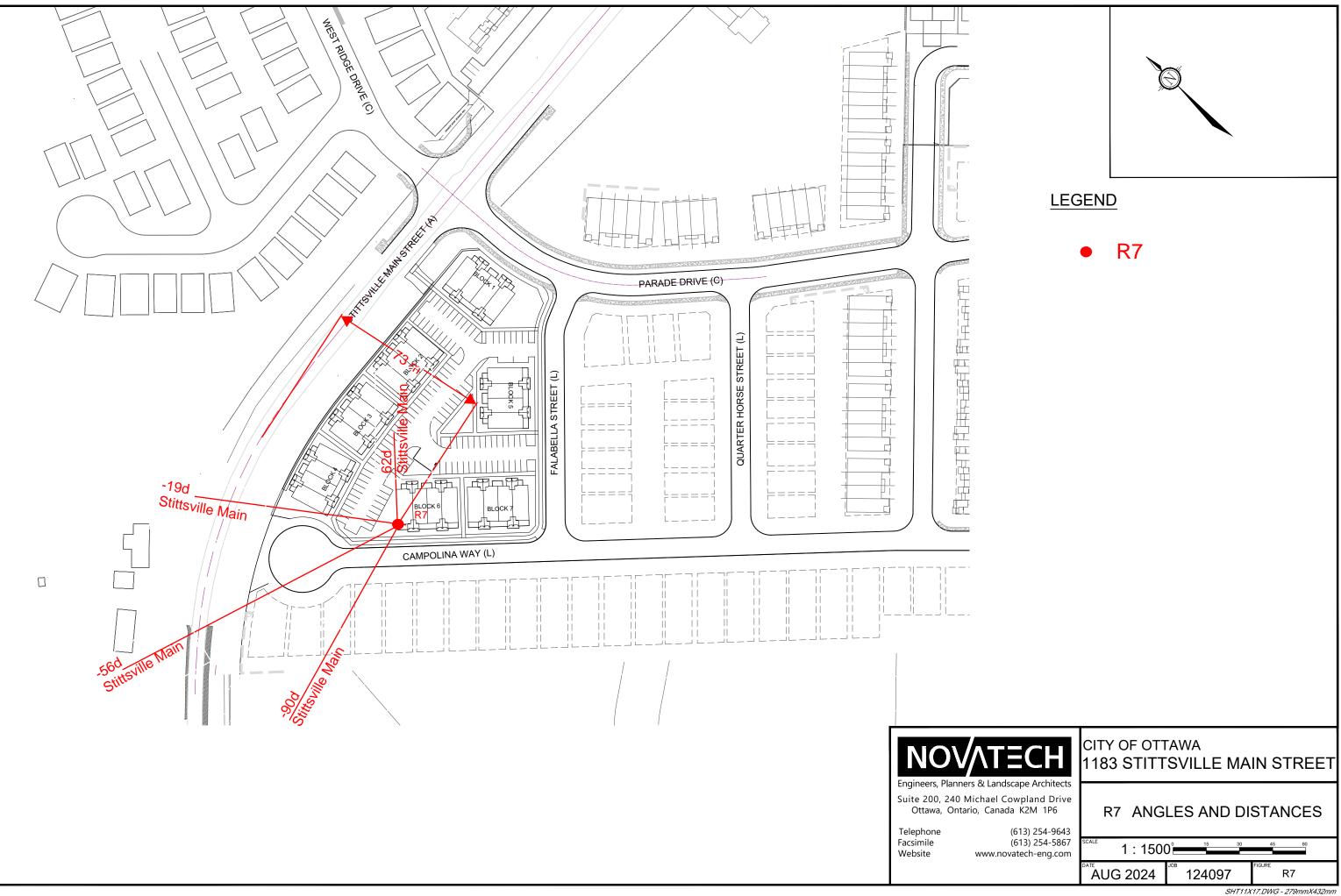


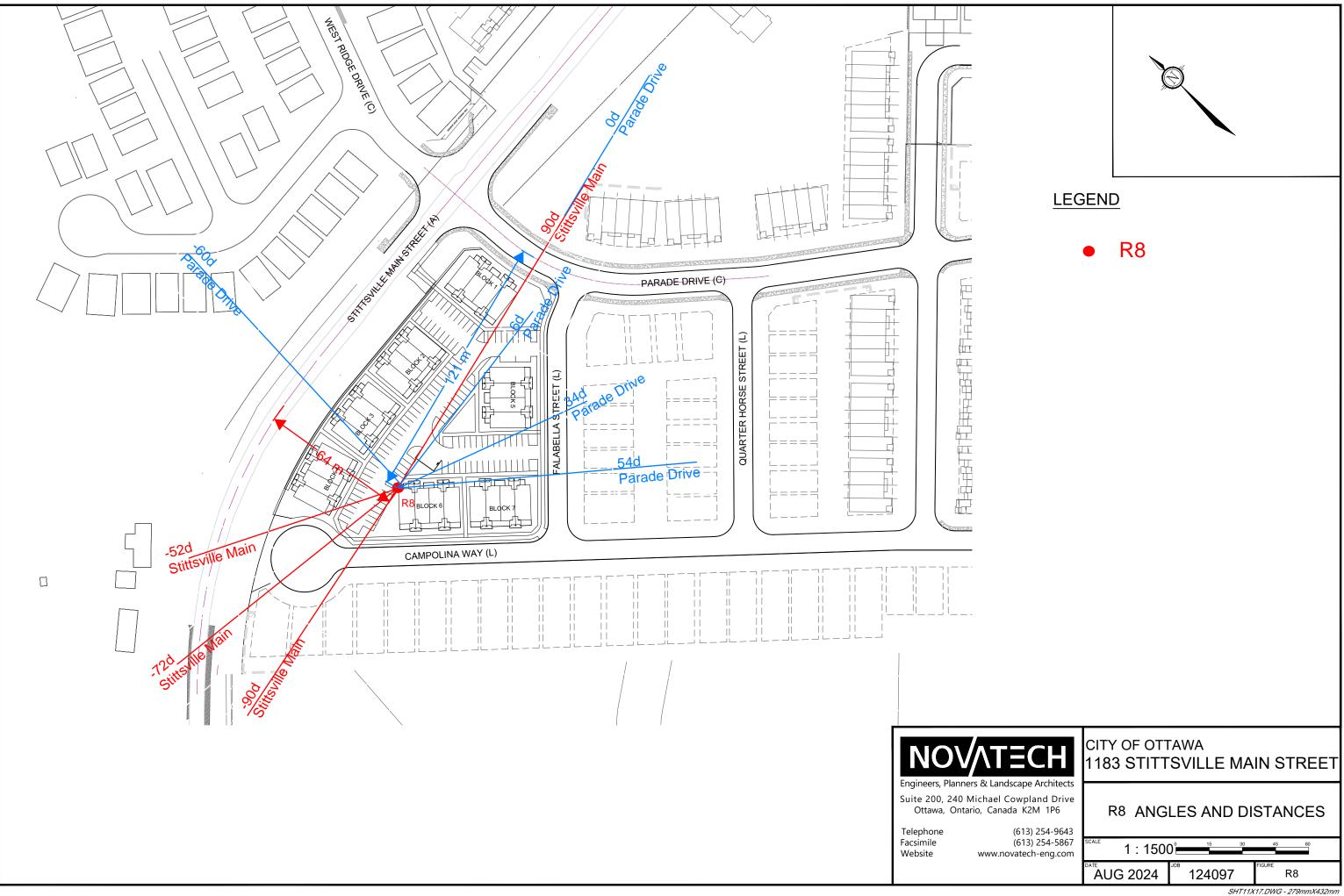


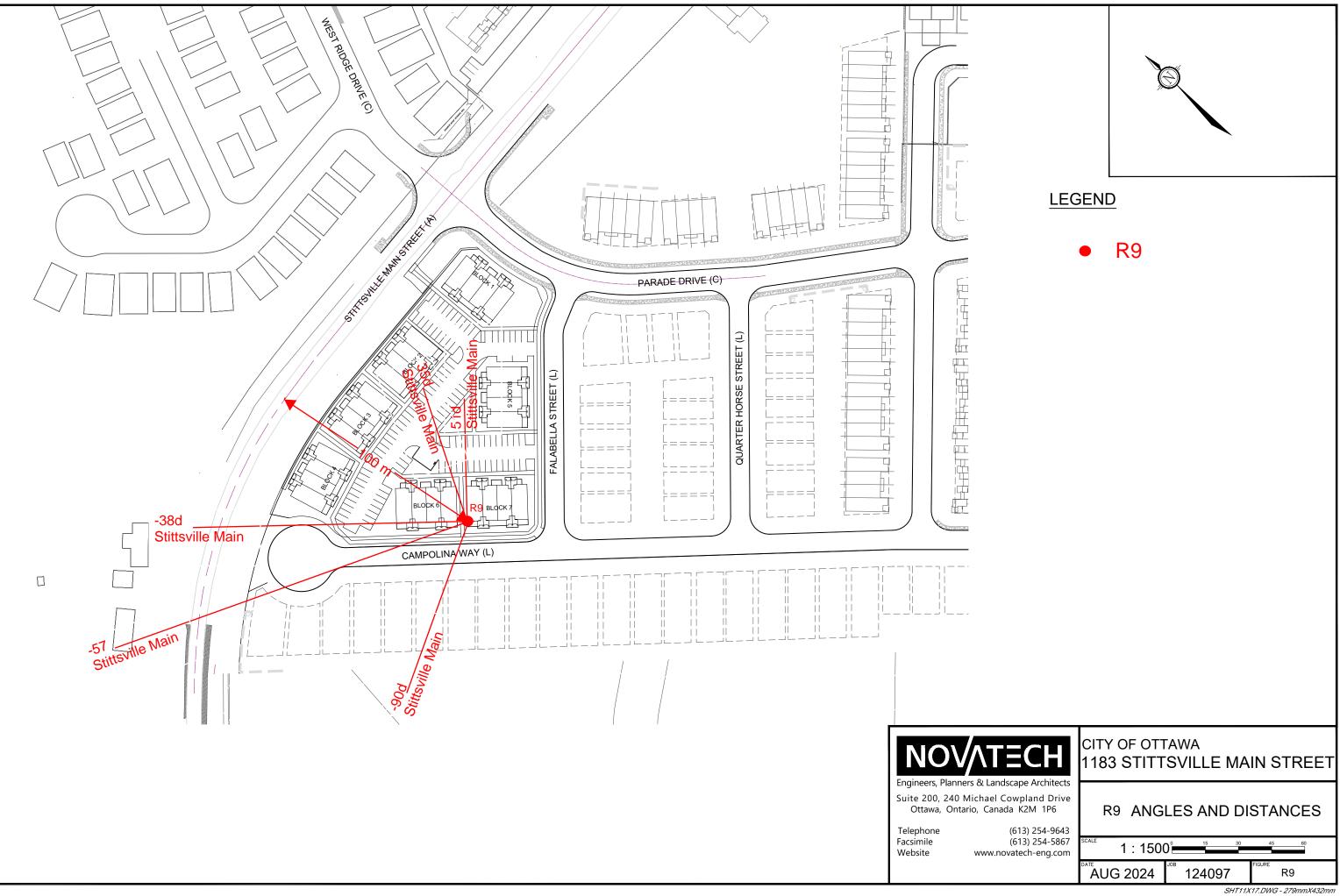
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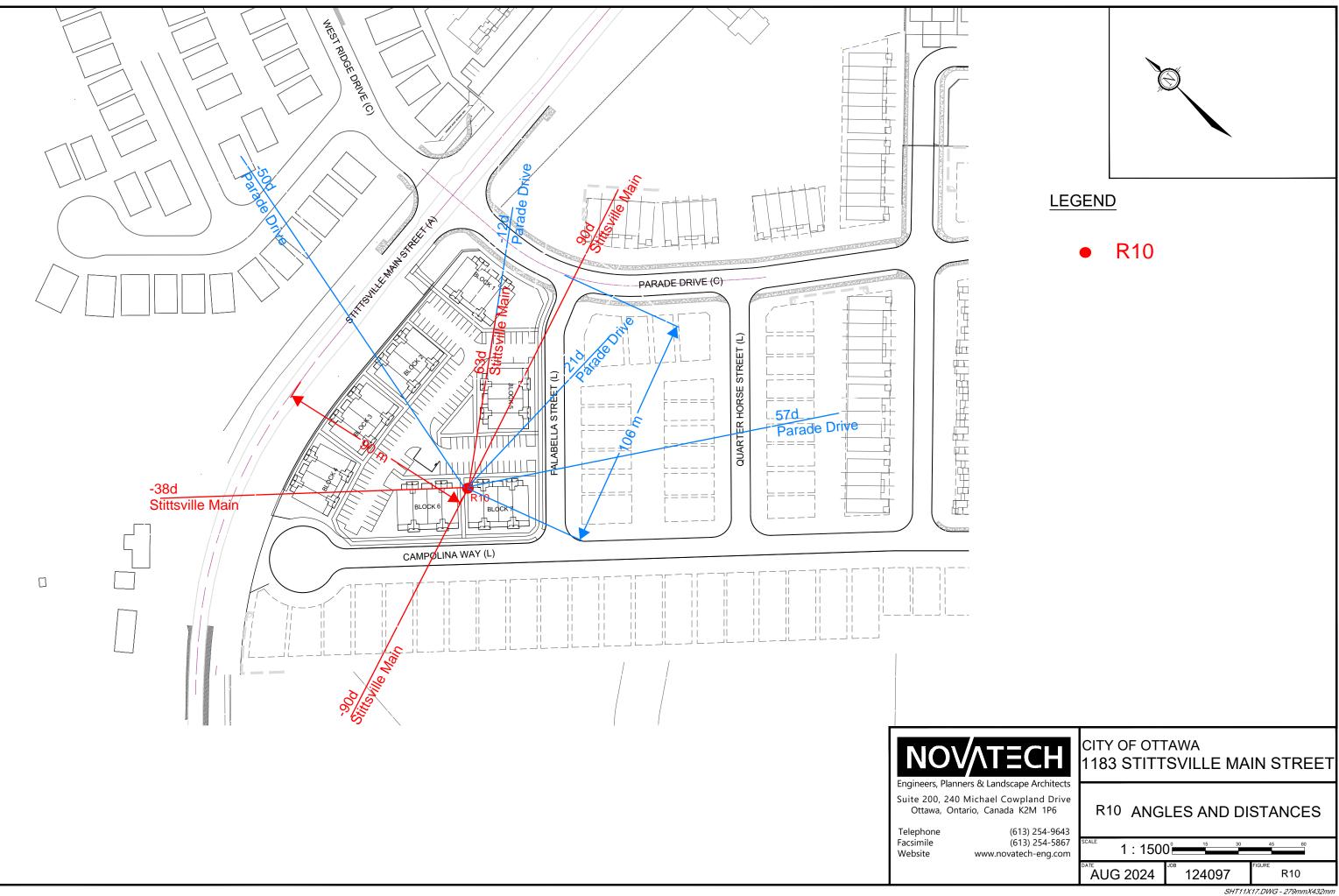












APPENDIX C

Acoustic Insulation Factor Tables

RI (SA-8A) Bedroom

Percentage	≥ of 16	exte 20	rior 25	wa11 32					100r 100	area 125		Type of Exterior Wall
Acoustic	39	38	37	36	35	34	33	32	31	30	29	EW1
Insulation	41	40	39	38	37	36	35	34	33	32	31	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37	EW4
	48	47	46	45	44	43	42	41	40	39	38	EWIR
	49	48	47	46	45	44	43	42	41	40	39	EW2R
	50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	53	50	49	48	EW6
	59	58	57	56	55	54	53	52	51	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

Source : National Research Gouncil, Division of Building Research, December 1980.

- Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
 3) EW1 denotes exterior wall as in Note 2) show shotthing show and siding
- EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior well composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete. 4) R signifies the mounting of the interior gypsum board on resilient clips.
- 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
- 6) An exterior wall described in EWl with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

RILSA-8A) Bedroom

TABLE	12:	Appi	roxiı	late	CORV	ersio	n f	rom	STC	tο
		AIF	for	exte	rior	wall	s :			

Exterior wall	Acoustic
area expressed as	Insulation
percentage of	Factor
room floor area	(AIF)
200	STC-10
160	STC-9
125	STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40 .	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
8	
	STC+3

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

STC = AIF + 9 = 29 + 9 = 38. dBA

Triple Glasing	and 3me, 3mm and Bis 6mm class	BDAC			¢.			9					64,2					2 2 2
	3mm closes	Interpo					6,6	6.10	9	6,20	6,30	6,40	6,50	6,65	6 ,80	6.100		
Cknesc	önnı and Stim glass						9	13	16	20	24	30	37	50	70	06	100	. 125
glase Kutckness	3ma and 6mm glass	(S)					9	13	16	20	25	32	40	22	75	95	310	135
f å ndleat od	4um and 4mm glaus	Intervane spacing in		*	1	49	13	16	20	25	32	0*	50	89 19	08	100	125	150
Double glazing of indicatod	Jhim end Jhin gless	Interpan			vo	13	36	20	25	32	0%	30	63	ង	100	125	150	
Doubl	Zhan and Zhin gleas		ųs	EI	72	1.6	22	28	រវា កា	42	50	63	08	100	125	150		
Single	glazidg	'Thickness	Zman		3mm	êman e Cinn		9420 (4)		1 Zilun (4)								
room (1.)	80		33	23	24	25	36	27	26	29	30	31	32	33	34	32	36	37
10	63		23	2.¥	25	26	27	9 28	29	30	31	32	33	5 34	5	1 36	3 37	38
1010	50	(2)	5 24	6 25	7 26	27	9 28	0 29	0E 1	2 31	8 8 8	33	*7 77 10	35	7 36	3 37	39 38	40 39
floor aten	32 40	AIN!	26 25	27-26	28 27	29 26	30 29	31 30	32 31	33 32	36 33	35 34	36 35	37 36	38 37	39 33	÷0 3	41 4
total f	25_3		27 2	28	29 2	30 2	31 3	32 3	33 3	34 3	10 10 10	36 3	37 3	98 98	8 6 E	40 3	41.6	42.4
of tot	R	Insulation Factor	32	62	30.	31	32	33	- E	50 10 10	36	37	38	66	9	4	63 10 10	43
19.2	16	atto	29	30	te	33	33	÷	5	36	31	20	39	00	4	23	2	\$4
percentago	1	Insul	OE	ň	32	33	а Б	5	9g	37	38	39	40	1	÷2.	43	*	45
	01	tic	16	32	33	36	57 17	36	37	38	99	07	4	42	43	4	45 AP	46
昭 武 町	8	Agoustic	32	93	34	38	36	37	38	39	40	41	24	E V	44	4	46	47
2163	8	~1	33	34	40 M	36	37	36	39	40	* 9	42	43	44	45	46	47	78
Window (2		36	eg eg	5 S S S S S S S S S S S S S S S S S S S	33	38	39	0		42	6 7	44	45	46	47	648	6 4 0
WLn	×°		ŝ	36	37	38	39	40	ţ	42	643	\$ \$	45	46	47	48	49	20

RI (SA-8A) BEDroom

Source: National Research Council, Division of Building Rusearch, June 1960.

Explanatory Notas:

1) Where the calculated percenters window area is not presented as a column heading, the nearcat percentage column in the table values

- 2) AIF data listud in the table are for well-fitted weatherstripped units that can be opened. The AIF values apply only when the
 - ê
 - windows are closed. For windows fixed and sealed to the frame, add three (3) to the AIF given in the table. If the interpune specing or glass thinkness for a specific Couble glazed window is not listed in the table, the nearest listed ç
- The AIF ratings for 9mm and 12mm glaus are for luminated glass unly! for solid glaus subtract two (2) from the AIF values listed ŝ
 - If the interpane spacings for a specific triple-glazed window are not listed in the table, use the listed case whose combined (9
- spocings are nearest the sound combined specing. The AIF data listed in the table are for typical windows, but details of glaus mounting, window seals, etc. may result in slightly different performance for some manufacturers' products. If laboratory sound transmission loss date (conforming to ASTM test method E-90), are available, these should by used to calculate the AIF.

RILSA-8A) Bedroom

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

I ^{nternet}	
Window (or door)	Acoustic
area expressed as	Insulation
percentage of room	· Factor
floor area	(AIF)
80	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
25	STC
20	STC+1
16	STC+2
12.5	STC+3
10	STC+4
8	STC+5
6.3	STC+6
5	SIC+7
4	STC+8
-Q	31070
	-

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a window whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF -1 = 29-1 = 28 dBA

RI (5A-8A) Livingroom

Percentage		exte 20				ea to 50				area 125	of room 160	Type of Exterior Wall
ringe of 300 + 300 - weighting god C - weightin	6- 1483 ar 17	alar ar shu i saug	e Medadadinaf.	n d <u>ata ngan</u> ar sar <u>h</u> an	in' compasi,	rondensen der	1999)95 1999(;)		De Paris allebras	541 - 54-J ^a		
Acoustic	39	38	37	36	35	34	33	32	31	30	29	EW1
Insulation	41	40	39	38	37	36	35	34	33	32	31	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37	EW4
	48	47	46	45	44	43	42	41	40	39	38	EWIR
	49	48	47	46	45	4 4	43	42	41	40	39	EW2R
	50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	59	58	57	56	55	54	53	52	52	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

Source : National Research Gouncil, Division of Building Research, December 1980.

- 1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EWl to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
- 3) EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete. 4) R signifies the mounting of the interior gypsum board on resilient clips.
- 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
- 6) An exterior wall described in EWl with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

Ri (5A-8A) Livingroom

Exterior wall area expressed as percentage of room floor area	Acoustic Insulation Factor (AIF)
200	STC-10
160 125	STC-9 STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40 *	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
8	
1	5

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

STC = AIF +7 = 31+7 = 38 dBA

Triple Glazing	3000 . 3114a and 300. 300 and 3000 glass	Interpone specings in mm ⁽⁵⁾	-				6,6	6.10 6.6					6,50 5,40					
1480	ชัณน อ กย่ 6๗ฑ g1ase 3						9	13	16	20	24	30	37	50	70	06	100	125
Double glazing of indicated glass thickness	3ma and 6mm glass	n mm (3)					9	et.	16	20	25	32	40	22	75	95	310	135
f indicated	fun and fun glaus	Interpune specing in mu		(4))		чo	13	16	20	25	32	40	50	63 9	08	100	125	150
e glazing o	Jum and Just glass	Interpun			ND	I3	36	20	25	32	40	50	63	80	100	1.25	150	
	Zum and Zme glads		5	13	15	1,6	22	28	ŧ۵ ۳	42	50	63	80	100	125	150		
8ingle	glazing	Thickness	Zina			êma, 6ma		9450 (4)		1 Zilum (4)								
room (1.)	08		22	53	24	25	26	27	28	29	30	31	32	33	34	5 M	36	37
54 0	63		23	έ¢ζ	25	26	27	28	29	30	ΤĘ	33	33	34	35	å	37	36
10 11 11	ŝ	(Z)	24	25	26	27	38	29	30	33	32	33	ň	80 80	36	3.1	9E	39
flogr aten	9	(Z) (XIV)	25	. 26	27	36	29	30	TE ?	32	61 61	19 19 19	10 27	36	37	33	62 0	1 40
21 E		10	7 26	8 27	9 28	0 29	1 30	2 31	32	4 33	5 36	5	7 36	9 2 2	9 38	0 39	1 40	42 41
total	20 25	Fac	26 27	29 28	30 29	31 30	32 31	33 32	3i 33	35 34	36 35	37 36	38 37	39 38	40 39	41 40	42 41	43 &
e G	16 2	t.ton	29 2	30	e Te	32	33	35.3	35 3	36 3	37 3	38	39 3	50 G	41 4	52 4	50	**
2 nta g	1	nsula	30 2	51 10 10	32 3	33 3	97 17 17	9 10 10	36 3	37 3	38 3	39 9	40 3	4	42. 4	43	4 4	54
percentaça of	0	1 3	31	32	Ē	187	5 10 10	36	37	38	68	02	4	42	643	4	45	46
15	æ	Acoustic Insulation Factor	33	5	35	36	36	33	8	39	40	41	1 N +#	43	44	10 17	46	47
6 6	9	외	33	34	411 100	36	37	36	39	40	12	42	43	44	45	46	47	80
Window er ca as	15		36	ы М	ы Ш	33	38	39	0	Ţţ	42	53	44	42	46	47	48	49
Wind	*C'		35	36	11	86	99	40	-	42	64	<i>छ</i> ¶	45	46	47	48	49	20

RI (SA-84) Livingroom

Source: National Research Council, Division of Building Research, June 1990.

Explanatory Notad:

1) Where the calculated percentege window area is not presented as a column heading, the nearcat percentage column in the table values

windows are closed. For windows fixed and sealed to the frame, add three (3) to the AIF given in the table. 3) If the interpune spacing or glass thistness for a specific Couble glazed window is not listed in the table, the nearest listed Alf data listed in the table are for well-fitied meatherstripped units that can be opened. The Alf values apply only when the

The AIF ratings for 9mm and 12mm glass are for laminated glass unly; for solid glass subtract two (2) from the AIF values listed ÷

If the interpane spacings for a specific triple-glazed window are not listed in the table, use the listed case whose combined ŝ

ophoings are nearest the dotuel combined specing. The AIF data listed in the table are for typical windows, but details of glaus mounting, window scale, eas, may regult in slightly different performence for some manufacturers' products. If laboratory sound transmission loss date (conforming to ASTM test method E-90): are available, these should by used to calculate the ATF. (9

RI (5A-8A) Lovingroom

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

Vindow (or door)	Acoustic
area expressed as	Insulation
percentage of room	·Factor
floor area	(AIF)
80	STC-5
63	STC-4
50	STC-3
40	STC-2
50	600 J
32	STC-1
25	STC
20	STC+1
16	STC+2
12.5	STC+3
10	STROL 6
	STC+4
8	STC+5
6.3	STC+6
5	STC+7
4	STC+8

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a vindow whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

> For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF-1 = 31-1 = 30 dBA

RI (9B-12B) Bedroom

Percentage		exte: 20	rior 25		ar 40		b to 63	tal : 80	floor 100	area 125	of room	Type of Exterior Wall
anan a 1991 - 197 - vangening gal C - vangen		alation the seas	e Mudadaad:	t talandar virilanda	1° somethyligity?	-745 A.M. 47 4	1000 S 1000 . I	SAMA- , - 244	te op salektere	50° 50 (1971)		
Acoustic	39	38	37	36	35	34	33	32	31	30	29	EWI
Insulation	41	40	39	38	37	36	35	34	33	32	31	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37	EW4
	48	47	46	45	44	43	42	41	40	39	38	EWIR
	49	48	47	46	45	4 4	43	42	41	40	39	EW2R
	.50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	59	58	57	56	55	54	53	52	51	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

Source : National Research Council, Division of Building Research, December 1980.

- 1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EWl to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
- 3) EW1 denotes exterior wall as in Note 2), plus sheathing, plue wood siding or metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete. 4) R signifies the mounting of the interior gypsum board on resilient clips.
- 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm),
- 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
 6) An exterior wall described in EW1 with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

RI. (9B-12B) Bedroom

Exterior wall	Acoustic
area expressed as	Insulation
percentage of	Factor
room floor area	(AIF)
200	STC-10
160	STC-9
125	STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40 .	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
8	
1	e e e e e e e e e e e e e e e e e e e

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

 $STC = AIF + 9 = 29 + 9 = 38^{\circ} dBA$

Triple Glating	3mu, 3mm and 6mm qlass	acinds in mm (5)		d				ę ,6	6.10	int Pri Q	6,20	6,30	5 ,40	6,50	6,65	6 .80	6.100	
Triple	3 mm , 3 mua and 3 mm glouis	Interpane spacings	•				6,6	6,10	6,15	6,20	6,30	6,40	6,50	6,65	6,80	6.100		
cknesc	énni and Gem glass						9	13	16	20	24	30	37	50	70	06	100	125
1 slane chie	3ma and 6mm glass	(3)					9	ጠ #1	16	20	25	32	40	រព រព	75	92	OIT	135
Double glazing of indicated glase thickness	fum and fma glaus	Interpune specing in mu		*		40	13	16	20	25	32	0 *	20	63	80	100	125	150
le glazing e	3rd and 3rd glass	Incarput			45	13	76	20	25	32	0¥	30	63	ង	100	1.25	150	
[qnot]	Zhath and Zhim glaas		ND.	EI	15	1.6	22	82	th ۳	42	50	e 9	80	100	125	150		
single	glazing	Thickness	Zman		E C	ិតារធ, ចំពាក		94270 (4)		1 Zinm (4)								
room (1.)	08		22	23	24	25	26	22	28	29	30	16	32	33	34	30	36	33
0	63		23	1	25	26	27	28	29	30	11	32	33	34	5	36	37	38
8010 10	50	[3]	5 24	25	7 26	27	58	29	30	31	32	33	5	35	7 36	3 37	9E 6	0 39
floor	32 40	Acoustic Insulation Factor (AIF)	26 25	7 26	28 27	29' 26	30 29	1 30	32 31	33 32	36 33	35 34	36 35	37 36	38 37	39 33	÷0 39	41 40
	25.3	18	27 23	28 27	29 2	30 2	31 3	32 31	33 3	34 3	35 3	36 3	37 3	38	6 6 7	40 3	47 47	å2 4
f total	20	1 100	26	29 2	30.	31 3	32_3	33	35	50 50	36 3	37 3	38	39 3	04	4	20 40 40	43
0 85	16	atio	61	30	rt E	32	33	10 10	40 M	36	37	52	66	D	4	21	20	ş4
percentago of		Insul	30	15	32	33	e E	6) M	ŝ	33	38	6£	40	4	÷2,	£ 43	4	45
	2	tic .	31	32	33	34	35	36	37	38	39	00	5	42	43	44	4 G	46
88 88 9	8	0012	32	33	34	35	36	37	38	39	40	41	42 17	64	44	4	46	47
40 3.4 8.1	9	1	33	34	4R 87	36	37	36	39	40	19	42	43	44	45	46	47	87
Window area as	5		34	e) M	40 M	33	38	39	09	14	42	53	44	42	46	47	9 48	0 49
Win	·ζ,		35	36	Ē	38	39	40		42	69	\$ \$	47 55	4	47	48	49	20

KI (g3-123) Bedroom

Source: National Research Council, Division of Building Research, June 1990.

Explanatory Notas:

1) Where the calculated percentings window area is not presented as a column heading, the nearcat percentage column in the table values

- Aif data listed in the table are for well-fitied meatherstripped units that can be opened. The AIF values apply only when the
 - windows are closed. For windows fixed and sealed to the frame, add three (3) to the AIF given in the table. If the interpene specing or glass Enlatness for a specific Gouble glased window is not listed in the table, the nearest listed Ê
 - Ŧ
- The AIF ratings for 9mm and 12mm glaus are for luminated glass unly; for solid glaus subtract two (2) from the AIF values listed ŝ
 - If the interpane spacings for a specific triple-glazed window are not limted in the table, use the listed case whose combined (9
- Spheings are nearest the actual combined specing. The AIF data listed in the table are for typical window, but details of glaus mounting, window scals, etc. may regult in slightly different performence for some manufacturers' products. If laboratory sound transmission loss date (conforming to ASTM test method E-90) are available, these should be used to calculate the ATF.

RI (9B-12B) Bedroom

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

Window (or door)	Acoustic
area expressed as	Insulation
percentage of room	Factor
floor area	(AIF)
80.	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
25	STC
	/
20	STC+1
16	STC+2
12.5	STC+3
10	STC+4
8	STC+5
6.3	STC+6
5	STC+7
4	STC+8
~v	

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a window whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

> For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF - 3 = 29 - 3 = 26 0 BA

K3 (SA-8A) Bedroom

Percentage				wall	ar				•				Type of
	10	20	20	32	40	50	63	80	100	125	160	/	Exterior Wall
anny a' 1994 - 1995 - Annikan si gini C. J. Annyar	s-siloar s	de antes ser	a ^a ttedartioni.	i tulundar virlare	lli" somilijsky)"	-mediater de la	/*****. · ***t .	and the state	de versaalektive	an solen			
Acoustic	39	38	37	36	35	34	33	32	31	30	29	28	EWI
Insulation	41	40	39	38	37	36	35	34	33	32	31	00	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34		EW 3
	47	46	45	44	43	42	41	40	39	38	37		EW4
	48	47	46	45	44	43	42	41	40	39	38		EWIR
	49	48	47	46	45	44	43	42	41	40	39		EW2R
	50	49	48	47	46	45	44	43	42	41	40		EW3R
	55	54	53	52	51	50	49	48	47	46	4.5	1	EW5
	56	55	54	53	52	51	50	49	48	47	46	1	EW4R
	58	57	56	55	54	53	52	51	50	49	48	l	EW6
	59	58	57	56	55	54	53	52	5)	50	49		EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	1	EW8

Source : National Research Gouncil, Division of Building Research, December 1980.

- 1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
- 3) EW1 denotes exterior wall as in Note 2), plus sheathing, plue wood siding or metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete. 4)
- 4) R signifies the mounting of the interior gypsum board on resilient clips.
 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm),
- 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
 6) An exterior wall described in EW1 with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

R3. (SA-8A) Bedroom

Exterior wall	Acoustic
area expressed as	Insulation
percentage of	Factor
room floor area	(AIF)
200	STC-10
160	STC-9
125	STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40 .	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
8	

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

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Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

STC = AIF + 9 = 28 + 9 = .37 dBA

(indow atten an a percentation of teta) item Triple Classing 1 2 6 10 11 16 20 25 24 6 3mm and 3			F																
a percentace of total floor state of conditionation strugt Double glasting of indicated glast kinterner a lot 11 16 20 25 32 31 30 20 63 300	Glazing	3mu, 3mm and 6mm qlass	cime in me ⁽⁵			n.			6.6	6.10	6 - 12 6 -	6,20	6,30	5 ,40	6,50	6,65	6.80	6.100	
Image: indicating and	üråple	្លីដ	Interpane spa					6 ,6	6.10	6,15	6,20	6,30	6,40	6,50	6,65	6,80	6.100		
a percentage of total floor area of foom (1) Single Single Same Single Same <	knesc							40	13	16	20	24	30	37	50	70	06	100	125
a percentage of total floor area of foom (1) Single Single Same Single Same <	glass the		n mu ⁽³⁾					9,	13	16	20	25	32	40	55	75	95	110	135
a percentage of total floor area of foom (1) Single Single Same Single Same <	f indicatod	Auta and Anua glaus	c spacing ?		*:		49	13	16	20	25	32	40	50	63	08	100	125	150
a percentage of total floor area of com (1) Single Single B 10 13 16 20 25 32 40 50 63 B0 glazing Zam g 2 31 30 29 25 32 40 50 63 B0 glazing Zam g 2 31 30 29 25 37 26 25 23 23 31 30 29 28 27 26 25 24 3m 3m 3 3 32 31 30 29 28 27 26 25 24 3m 3 3m 3 5 31 30 29 28 27 26 25 24 3m 1 3	e glazing o	3430 Gud	Interoun			40	13	16	20	25	32	0¥	30	63	80	100	125	150	
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a percentage of total floar area of total floar area of total floar area of total floar area of total 2 10 13 16 20 25 32 40 50 53 30 2 31 30 29 25 27 26 23 23 23 3 32 31 30 29 28 27 26 25 24 23 23 5 31 30 29 28 27 26 25 26 25 26 25 2	Single	glazing	<u>'Inickness</u>	Zha		H EC:	êmar 6ma		9 ₄₂₀ (4)		1 Zinm (4)								
a percentage of total floor area of a lo la le (20) 25 a lo so so sa a lo la le (10) 13 le (20) 25 a lo so so sa a lo la le (10) 13 le (20) 25 a lo so so sa a lo la le (10) 13 le (20) 25 a lo so so sa a la data (10) 13 le (20) 25 a lo so so sa a lo so sa a la data (10) 13 a la data (10) 13 a la data (10) 13 a la data (10) 13 a la data (10) 13 a la data (10) 13 a la data (10) 13 <tha (10)="" 13<="" data="" la="" th=""> a la data (10)</tha>	00m (1.)	80			N	24	25	26	27	28	29	30	31	32	33	34	35	36	37
a Percentage of total floor area B 10 13 16 20 25 32 40 50 BHLIG_Insulation_rédor 20 25 32 40 50 2 31 30 29 25 27 26 25 27 2 31 30 29 28 27 26 27		63		23	23	25	26	27	28	29	30	Τť	32	33	3.8	5	8	37	38
a percentage of total B 10 13 16 20 25 BBHIC Insulation rector 20 25 27 2 31 30 29 28 27 3 31 30 29 28 27 3 31 30 29 28 27 6 33 32 31 30 29 6 35 34 33 31 30 6 35 34 33 31 30 7 36 35 34 33 31 7 36 35 34 35 34 8 37 36 35 36 37 36 1 30 33 31 30 35 34 9 37 36 35 36 37 36 1 40 39 37 41 40		ŝ	3)	23	25	26	27	38	29	OE	31	32	33	ŝ	រ វា ២	36	37	9 B	39
a percentage of total 8 10 13 16 20 25 23 31 30 29 28 27 2 31 30 29 28 27 3 32 31 30 29 28 27 3 32 31 30 29 28 27 5 33 32 31 30 29 28 6 35 34 33 32 31 30 6 35 34 33 32 31 30 7 36 35 34 33 32 31 7 36 35 34 33 32 31 8 37 36 35 34 35 36 1 40 39 37 36 35 36 1 40 39 37 36 37 36 2 41 40 39 37 36 37 41 40	N N N	9	2	25	26	27	30	29	30	31	32	89 61	ም የጉ	ህ ን ፤ግ	36	37			40
			27	26	27			30											
	tota		4082																10
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A C R P M N M S R P M A C R P M N M S M S M S M S M S M S M S M S M S	ercer	ľ																	4
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	'Indo	÷		ŝ	36	11	80	6	40	14	42	- 	₩ ₩	5	46				

K3 (58-8A) Bedroom

Source: Wational Research Council, Division of Building Research, June 1980.

Explanatory Notes:

1) Where the calculated percenters window area is not presented as a column heading, the nearcat percentage column in the table velues

- 2) AIP dAta listed in the table are for well-fitted matherstripped units that can be opened. The AIP values apply only when
 - vindous sre closed. For windows fixed and swaled to the frame, add three (3) to the AIF given in the table. 3) If the interpane spacing or glass fuldtness for a specific Gouble glazed window is not listed in the table, the nearest listed
 - values should be used. ç
- The AIF ratings for 9mm and 12mm glass are for laminated glass unly; for solid glass subtract two (2) from the AIF values listed ŝ
 - (9
 - If the interpane spacings for a specific triple-glared window are not listed in the table, use the listed case whose combined apacings are nearest the actual combined specing. The AIF data listed in the table actual combined specing. The AIF data listed in the table are for typical windows, but details of glass mounting, window seals, etc. may recult in slightly different performance for some munufacturers' products. If laboratory sound transmission loss date (conforming to ASTM test method 2-90) are available, these should be used to calculate the AIF.

R3 (JA-8A) Bedroom

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

Vindow (or door)	Acoustic
area expressed as	Insulation
percentage of room	· Factor
floor area	(AIF)
6.6	ana È
80	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
25	STC
20	STC+1
16	STC+2
12.5	STC+3
10	STC+4
8	STC+5
6.3	STC+6
5	STC+7
4	STC+8

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a vindow whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF-1 = 28-1 = 27 dBA

R3 (5A-8A) Livingroom

Table 6.3 - Acoustic Insulation Factor for Various Types of Exterior Wall

Percentage	of 16	exte 20	rior 25	wali 32	ar 40	ea to 50	o to 63	tal 80			of room 160	Type of Exterior Wall
ange of 1994 - 1900 - vanificanse good C., aanvaar va	- 1400air 1y	alitative say	a Mankadahibi .	t <u>anti-anala</u> te varitand	ه، دستانمان	2948APT 47	- 1995 - 1995 -			an canancial		DALLET WAIT
Acoustic	39	38	37	36	35	34	33	32	31	30	29	EW1
Insulation	41	40	39	38	37	36	35	34	33	32	31	EW2
Factor	44	43	42	41	40	39	38	37	36	35	34	EW3
	47	46	45	44	43	42	41	40	39	38	37.	EW4
	48	47	46	45	44	43	42	41	40	39	38	EWIR
	49	48	47	46	45	4 4	43	42	41	40	39	EW2R
	50	49	48	47	46	45	44	43	42	41	40	EW3R
	55	54	53	52	51	50	49	48	47	46	45	EW5
	56	55	54	53	52	51	50	49	48	47	46	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	5 9	58	57	56	55	54	53	52	51	50	49	EW7 or EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8

Source : National Research Council, Division of Building Research, December 1980.

- Where the calculated percentage wall area is not presented as a column heading,)) the nearest percentage column in the table should be used.
- The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, 2)vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
- 3) EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete.
- 4) R signifies the mounting of the interior gypsum board on resilient clips. 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
- 6) An exterior wall described in EWl with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

R3 (5A-8A) Living room

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

Exterior wall area expressed as percentage of room floor area	Acoustic Insulation Factor (AIF) STC-10
	STC-10
200 160 125 100 80 63 50 40 32 25 20 16 12.5 10 8	STC-9 STC-8 STC-7 STC-6 STC-5 STC-4 STC-3 STC-2 STC-1 STC-1 STC-1 STC+1 STC+2 STC+3

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 - 8 = 40.

STC = AIF + 7 = 30 + 7 = .37 dBA

Triple Glazing	3 ma, 3 mm and 6 mm alass	Interoche spacings in mm ⁽⁵⁾			*			6 .6	6 .10	6 el 15	6,20	6 • 30	5 ,40	6,50	6,65	6 .80	6.100	
∰r≜D1e	3000 , 3000 and 3000 closus	Interpane s					6,6	6,10	6,15	6,20	6,30	6,40	6,50	6,65	6 ,80	6.100		
	ອີສາດ ລ ກດ ອີຄາສ ຊ 1ຊຣຍ						ę	13	16	20	24	30	37	50	70	06	100	125
d glass chi	Jup and 6mm glass	(3)					.e	61	16	20	25	32	40	ŝ	75	95	110	135
Double glazing of indicatod gluse thickness	fum and fime glous	Interpune spacing in mm (3)		2.		6	13	16	20	25	32	40	50	6) 19	08	100	125	150
le glazing .	3him and 3ma glass	Interpu			ų	EI	16	20	25	32	0%	50	63	80	100	125	150	
qnoq	Zham and Zhime glads		40	13	15	7.0	22	28	ŝ	42	20	63	80	100	125	150		
Single	glazing	'Ind kness	Series		Jim	anuar 6mm		9420 (4)		1 Zinn (4)								
room (1)	08		22	23	24	25	26	72	28	29	30	31	32	33	34	32	36	37
	63		23	2.8	25	26	27	28	29	30	IC	32	33	34	30	36	37	38
80 1 6	50	(2)	33	25	- 26	27	58	1 29	0E 1	33	3.2	1 33	a de	35	7 36	3.37	9E 6	0 39
floor atea of	32 40	(AIP)	26 25	27 26	28 27	29. 26	30 29	31 30	32 3 1	33 32	36 33	35 34	36 35	37 36	38 37	39 33	÷0 39	41 40
total f	25 3		27 2	28 2	29 2	30 2	31 3	32 3	33 3	34 3	35 13	36 3	37 3	38	99 19	40 3	41.4	§2
	R	n Fàc	38	50	()	31	32	33	÷	in m	30	31	38	99	40	4	ec ec	64
0 05	16	a t l o	29	8	31	32	33	÷.	ж Э	36	37	30	39	0 9	4	21	ስ ማ	ş4
percentage of	3	Insul	30	nt M	32	33	9	ы М	ĐĒ	37	38	5	40	41	2	64		45
	2	Acoustic Insulation Factor	31	32	33	18 87	5	36	37	38	39	00	19	42	43	44	45	46
19 18 19	8	cuob	32	33	-01	35	36	37	80 M	39	40	41	IN 47	10 17	44	45	9 †	47
2 L 6 B	10	~1	m m	34	4 1 10	36	37	36	39	40	5	42	43	44	45	46	47	48
Window erea	2		3 34	ia M N	3 S S	33	38	39	40	2 41	3 42	53	5 44	5 45	7 46	8 47	9 48	0 49
Win	*C'		35	36	37	38	39	40	-	42	64	B) ♥	42	46	47	48	49	50

R3 LSA-BA) Livingroom

Source: National Research Council, Division of Building Research, June 1960.

Explanatory Notes:

1) Where the calculated percentege window area is not presented as a column heading, the nearcet percentage column in the table velues

- 2) AIF data listed in the table are for well-fitted meatherstripped units that can be opened. The AIF values apply only when
 - windows are closed. For windows fixed and swaled to the frame, add three (3) to the AIF given in the table. 3) If the interpune specing or glass fuldtness for a specific couble glazed window is not listed in the table, the nearest listed
 - Ŧ
- The AIF ratings for 9mm and 12mm glass are for luminated glass unly; for solid glass subtract two (2) from the AIF values listed in the table.

 - 5) If the interpane spacings for a specific triple-glazed window are not listed in the table, use the listed case whose combined specings are nearest the setual combined specing.
 6) The AIF data listed in the table are for typical windows, but details of glaus mounting, window seels, etc. may result in alightly different performance for some munufacturers, products. If laboratory sound transmission loss date (conforming to ASTM test method 2-90): are available, these should by used to calculate the ATF.

R3 (5A-8A) Livingroom

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

from the second s	1
Vindow (or door)	Acoustic
area expressed as	Insulation
percentage of room	·Factor
floor area	(AIF)
80	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
	1
25	STC
20	STC+1
16	STC+2
12.5	SIC+3
10	STC+4
8	STC+5
6.3	STC+6
5	SIC+0
4	
4	STC+8
	l.

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a window whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF -1 = 30 -1 = 29 dBA

R3 (9B-12B) Bedroom

Percentage		exte: 20				ea to 50			•			oom		e of
nanga na 1969 - 1970 - nanagkan ta gada C - nanag ta ta			ل بیک :	ع ل مدين محمد م	-+U			00	100	125	160	or at the Parameter	Exteri	or Wall
Acoustic	39	38	37	36	35	34	33	2.2	0.7	20	20		-	
Insulation	41	40	39	38	37	36	35		31	30	29	-28-	EW1	-
Factor	. –							34	33	32	31		EW2	
PACLUL	44	43	42	41	40	39	38	37	36	35	34		EW3	
	47	46	45	44	43	42	41	40	39	38	37		EW4	
	48	47	46	45	44	43	42	41	40	39	38		EWIR	
	49	48	47	46	45	4 4	43	42	41	40	39		EW2R	
	50	49	48	47	46	45	44	43	42	41	40		EW3R	
	55	54	53	52	51	50	49	48	47	46	45		EW5	
	56	55	54	53	52	51	50	49	48	47	46		EW4R	
	58	57	56	55	54	53	52	51	50	49	48	i	EW6	
	59	58	57	56	55	54	53	52	51	50	49		EW7 or	EW5R
	63	62	61	60	59	58	57	56	55	54	53	1	EW8	

Source : National Research Gouncil, Division of Building Research, December 1980.

- 1) Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.
- 2) The common structure of walls EWl to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38 x 89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
- EW1 denotes exterior wall as in Note 2), plus sheathing, plus wood siding or 3) metal siding and fibre backer board. EW2 denotes exterior wall as in Note 2), plus rigid insulation (25-30 mm), and wood siding or metal siding and fibre backer board. EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 28 x 89 mm framing, sheathing, and asphalt roofing material. EW4 denotes exterior wall as in Note 2), plus sheathing and 20 mm stucco. EW5 denotes exterior wall as in Note 2), plus sheathing, 25 mm air space, 100 mm brick veneer. EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 100 mm back-up block, 100 mm face brick. EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 140 mm back-up block, 100 mm face brick. EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50 mm), 200 mm concrete. 4) R signifies the mounting of the interior gypsum board on resilient clips.
- 5) An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25-50 mm), 25 mm air space, and 100 mm brick veneer has the same AIF as EW6.
- 6) An exterior wall described in EWl with the addition of rigid insulation (25-50 mm) between the sheathing and the external finish has the same AIF as EW2.

R3 (93-1213) Bedroom

TABLE 12: Approximate conversion from STC to AIF for exterior walls:

	And the second se
Exterior wall area expressed as percentage of	Acoustic Insulation Factor
room floor area	(AIF)
200	STC-10 STC-9
160	
125	STC-8
100	STC-7
80	STC-6
63	STC-5
50	STC-4
40	STC-3
32	STC-2
25	STC-1
20	STC
16	STC+1
12.5	STC+2
10	STC+3
	32073
8	

Note: For area percentages not listed in the table use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48 the AIF is 48 = 8 = 40.

STC = AIF+9 = 28+9 = 37 dBA

Window Table of and and any parteneties of total floar and total glasting of indicated glass wind and any any and any any and any any any and any any any and any any any and any any any any and any	Glazing	3ma, 3mm and 6mm class	cinds in mm (5)						6.6	6.10	υ: H ⁱ le Q	6,20	6,30	0 7 40	6,50	6,65	6 .80	6.100	
etc as a percentrary of total floor area of com Bingle Double glaring of indicated glare vitoner diagonal function 6 8 10 13 16 20 5 32 40 50 53 30 50 51 30 50 51 30 3	Traple		Interoshe spa					6,6	6,10	6,15	6,20	6,30	6,40	6,50	6,65	6,80	6,100		
Effect as a percentage of total floor area of gingle Zian a i 6 8 10 13 16 20 25 32 40 50 63 80 glazking Zian a i 33 32 31 30 29 26 27 26 25 23 23 23 31 30 29 28 27 26 25 23 31 31 31 31 32 31 30 29 28 27 26 25 23 23 31 31 31 31 31 32 31 30 29 28 27 26 25 23 31 <t< td=""><td>knesc</td><td>ចំណារ ១ភា៨ ចំពោត ទ្រឹងនួន</td><td></td><td></td><td></td><td></td><td></td><td>ę</td><td>13</td><td>16</td><td>20</td><td>24</td><td>30</td><td>37</td><td>50</td><td>70</td><td>96</td><td>100</td><td>125</td></t<>	knesc	ចំណារ ១ ភា ៨ ចំពោត ទ្ រឹងនួន						ę	13	16	20	24	30	37	50	70	96	100	125
Effect as a percentage of total floor area of gingle Zian a i 6 8 10 13 16 20 25 32 40 50 63 80 glazking Zian a i 33 32 31 30 29 26 27 26 25 23 23 23 31 30 29 28 27 26 25 23 31 31 31 31 32 31 30 29 28 27 26 25 23 23 31 31 31 31 31 32 31 30 29 28 27 26 25 23 31 <t< td=""><td>glase bite</td><td>3ma and 6mm glass</td><td>(3)</td><td></td><td></td><td></td><td></td><td>9</td><td>6 et</td><td>16</td><td>20</td><td>25</td><td>32</td><td>40</td><td>រព រព</td><td>75</td><td>95</td><td>DIN</td><td>135</td></t<>	glase bite	3ma and 6mm glass	(3)					9	6 et	16	20	25	32	40	រព រព	75	95	DIN	135
Effect as a percentage of total floor area of gingle Zian a i 6 8 10 13 16 20 25 32 40 50 63 80 glazking Zian a i 33 32 31 30 29 26 27 26 25 23 23 23 31 30 29 28 27 26 25 23 31 31 31 31 32 31 30 29 28 27 26 25 23 23 31 31 31 31 31 32 31 30 29 28 27 26 25 23 31 <t< td=""><td>indicatod</td><td>fum and firm glass</td><td>spacing in</td><td></td><td>3.1</td><td></td><td>40</td><td>13</td><td>16</td><td>20</td><td>25</td><td>32</td><td>4 D</td><td>50</td><td>29</td><td>08</td><td>100</td><td>125</td><td>150</td></t<>	indicatod	fum and firm glass	spacing in		3.1		40	13	16	20	25	32	4 D	50	29	08	100	125	150
Effect as a percentage of total floor area of gingle Zian a i 6 8 10 13 16 20 25 32 40 50 63 80 glazking Zian a i 33 32 31 30 29 26 27 26 25 23 23 23 31 30 29 28 27 26 25 23 31 31 31 31 32 31 30 29 28 27 26 25 23 23 31 31 31 31 31 32 31 30 29 28 27 26 25 23 31 <t< td=""><td>glazing of</td><td>and glass</td><td>Interpune</td><td></td><td>1</td><td>40</td><td>13</td><td>36</td><td>20</td><td>25</td><td>32</td><td>0.4</td><td>30</td><td>63</td><td>ង</td><td>100</td><td>125</td><td>150</td><td></td></t<>	glazing of	and glass	Interpune		1	40	13	36	20	25	32	0.4	30	63	ង	100	125	150	
Accumbtic final float area of com (1) Accumbtic finulation Factor (ATP) 25 32 40 50 63 80 Accumbtic finulation Factor (ATP) 20 25 32 40 50 63 80 Accumbtic finulation Factor (ATP) 20 25 27 26 25 24 23 22 33 32 31 30 29 25 27 26 25 24 23 23 35 36 33 32 31 30 29 28 27 26 25 24 23 23 35 36 33 32 31 30 29 28 27 26 25 24 23 23 23 23 23 31 30 29 28 27 26 25 24 27 26 25 24 27 26 25 28 23 31 30 29 26 2	Double	and gleas		40	13	15	1,6	22	82	ះរា ខា	42	50	63	8 D	100	125	150		
Accumptic Accumptic <t< td=""><td>Single</td><td>glazing</td><td>Thickness</td><td>2 mil</td><td></td><td>300</td><td>âma, 6ma</td><td></td><td>9420 (4)</td><td></td><td>1 Zinm (4)</td><td></td><td><u>,</u></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Single	glazing	Thickness	2 mil		300	âma, 6ma		9420 (4)		1 Zinm (4)		<u>,</u>						
Stee As a percentage of Loose floor area of Acoubtic 10 13 16 20 25 32 40 50 63 Acoubtic 10 13 16 20 25 32 40 50 53 33 32 31 30 29 25 27 26 27	oom (1)	0		. 22	EN	24	35	26	77	28	29	30	1E	32	e E	34	32	36	37
Effect All percentages Of Loose All percentages Of Loose All percentages		63		23	23	25	26	27	28	29	30	11	32	5	34	50	9	37	38
Acted as a percentaça of total 6 8 10 13 16 20 Acoubtic Insulation Factor 33 32 31 30 29 35 34 33 32 31 30 29 35 34 33 32 31 30 29 35 34 33 32 31 30 29 35 36 33 32 31 30 29 36 35 34 33 32 31 30 36 35 34 33 32 31 30 37 36 35 34 33 32 31 37 36 35 34 33 32 31 37 36 35 34 33 32 31 37 36 35 34 35 34 40 39 38 37 36 35 38 37 36 35 34 36 41 40 39 38 37 36 42 41 40 39 37 41 43 <		8	(2)		25	26	27		29										
Effex as Percuntaça of total 6 8 10 13 16 20 25 7 33 32 31 30 29 28 27 33 32 31 30 29 28 27 28 27 35 34 33 32 31 30 29 28 27 30 29 28 27 30 29 33 31 30 29 31 30 29 31 30 29 31 30 29 31 30 29 31 30 29 31 30 29 31 30 29 31 30 29 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32 31 30 32	001		AIN																
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	Winde	"C'		35	36	37	38	39	40	Tŧ	42	43	8 4 8	5	46	47	48	49	20

K3 (93-123) Bedroom

Source: National Research Council, Division of Building Research, June 1980.

Explanatory Notas:

1) Where the calculated percentege window area is not presented as a column heading, the nearcat percentage column in the table values

- windows are closed. For windows fixed and swaled to the frame, add three (3) to the AIF given in the table. If the interpene specing or gless thickness for a specific Couble glazed window is not listed in the table, the nearest listed 2) AIF data listed in the table are for well-fitted meatherstripped units that can be opened. The AIF values apply only when
 - Ē
- Ç
- The AIF ratings for 9mm and 12mm glass are for luminated glass unly; for solid glass subtract two (2) from the AIF values listed in the table. ŝ
 - (9
- If the interpane spacings for a specific triple-glared window are not listed in the table, use the listed case whose combined specings are nearest the setual combined specing. The AIF data listed in the table are for typical windows, but details of glaus mounting, window seals, etc. may regult in aligntly different performance for some manufacturers' products. If laboratory sound transmission loss date (conforming to ASTM test method E-90): are available, these should be used to calculate the ASTM.

R3 (9B-12B) Bedroom

ſ	1
Vindow (or door)	Acoustic
area expressed as	Insulation
percentage of room	· Factor
floor area	(AIF)
	<u>.</u>
80.	STC-5
63	STC-4
50	STC-3
40	STC-2
32	STC-1
25	STC
20	STC+1
16	STC+2
12.5	STC+3
10	STC+4
8	STC+5
6.3	STC+6
5	STC+7
4	STC+8
ų	91010

TABLE 11: Approximate conversion from STC to AIF for windows and doors:

Note: For area percentages not listed in the table use the nearest listed value.

Examples: For a vindow whose area = 20% of the room floor area and STC = 32 the AIF is 32 + 1 = 33.

For a window whose area = 60% of the room floor area and STC = 29 the AIF is 29 - 4 = 25.

STC = AIF - 3 = 28 - 3 = 25 dBA