

NOISE IMPACT STUDY

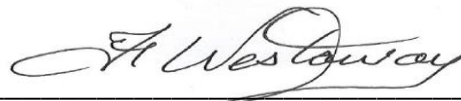
3 SINGLE FAMILY DETACHED DWELLINGS

Located at
382 SOUTHCOTE ROAD
ANCASTER, ON
NOW KNOWN AS HAMILTON, ON

Prepared for:

1376412 Ontario Limited
382 Southcote Road
Ancaster, ON
L9G 2W4

Prepared By:



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Qualified Acoustical Consultant

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Our File No: 23-4025

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TABLE OF CONTENTS

1.0 INTRODUCTION.....	Page 3
2.0 SITE DESCRIPTION.....	Page 3
3.0 NOISE IMPACT ASSESSMENT.....	Page 3
3.1 Noise Criteria.....	Page 3
3.2 Road Noise.....	Page 4
4.0 RECOMMENDATIONS-NOISE CONTROL.....	Page 5
4.1 Outdoor Living Areas.....	Page 5
4.2 Indoor Noise Levels.....	Page 5
5.0 VENTILATION / WARNING CLAUSES.....	Page 6
6.0 SUMMARY OF RECOMMENDATIONS.....	Page 6
7.0 CONCLUSIONS.....	Page 7
FIGURE 1 - Key Map	
FIGURE 2 - Concept Plan	
FIGURE 3 - Receptor Locations	
FIGURE 4 - NEF Contour Map	
APPENDIX "A"	
City of Hamilton 2019 AADT Traffic	
Stamson Calculations	
Elevations	
Cross Section	
Floor Plans	
Development Statistics	
Exterior Wall STC Ratings	

1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has been retained to conduct a noise and vibration study for the proposed 3 single detached dwelling development, located at 382 Southcote Road in Hamilton, ON, on behalf of 1376412 Ontario Limited.

The purpose of the noise and vibration study is to determine the noise and vibration impact for OPA/ZBA approval and traffic volumes for Southcote Road as well as any area stationary noise sources that may impact the development.

This study will detail noise and vibration impacts at the proposed development and recommend noise and vibration control measures necessary (if applicable) to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300, Stationary & Transportation Sources-Approval & Planning and CP guidelines, while satisfying the planning requirements of the City of Hamilton.

Vibration is not considered as there are not any Railway lines in the area or heavy industrial operations in the proposed subdivision area. Aircraft is not a concern as the development is located outside the NEF 25 contour of the area. See attached Figure 1 Site Location.

2.0 SITE DESCRIPTION

Proposed for the development are three (3) 2-storey single detached dwellings with rear yard amenity spaces.

The proposed development site is located approximately 20m west of Southcote Road. Garner Road East is 590m south and the 403 is over 650m west of the proposed development and they will not have an acoustical impact on the proposed development. STAMSON computer traffic program 5.04 does not support traffic calculations over 500m.

The proposed development is situated in an existing residential area with 2-storey single family dwellings on all sides. Local area streets will not have an acoustical impact on the proposed residential subdivision due to low speed limits, low traffic volumes.

Southcote Road is the major road noise source in the area. Southcote Road is a two-lane roadway and has a posted speed limit of 50 km/hr. See Site Plan in Figure 2.

3.0 NOISE IMPACT ASSESSMENT

3.1 NOISE CRITERIA

The MECP specifies limits for road noise relative to new residential developments. The MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning, specifies the criteria, summarized as follows:

TABLE 1- Road Traffic Sound Levels Limits	
Time Period	Leq (dBA)
07:00 – 23:00 (16 hr.)	55 Outdoor Living area
07:00 – 23:00 (16 hr.)	55 Plane of Window
23:00 – 07:00 (8 hr.)	50 Plane of Bedroom window

The OLA refers to an outdoor patio, a backyard, a terrace, or other area where outdoor passive recreation is expected to occur on the residential property. As this is considered a daytime use (07:00 - 23:00) noise levels are calculated at the upper storey bedroom window to represent nighttime (23:00 - 07:00) periods.

Where noise levels estimated in the Outdoor Living Area (OLA) and at an upper storey window are equal to or less than the values listed in Table 1, no noise control measures are required. Where noise levels exceed Table 1 values, the following action is required:

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

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

3.2 ROAD NOISE

Predicted road traffic noise levels were calculated for Southcote Road, the major road noise source in the site area. The most recent road traffic volumes (2019) were sourced from the City of Hamilton Transportation Management System. The MECF computer program STAMSON version 5.04 was used to carry out prediction calculations (See Appendix “A”). Traffic data is summarized in Table 3.

The daytime/nighttime volume ratio relative to Southcote Road is typically calculated using a 90/10 split as required by the MECF. The maximum posted speed limit for Southcote Road is 50 km/hr. The percentage of annual growth was figured at 2% over 14 years. The AADT (Annual Average Daily Traffic) volumes were used reflective of the worst-case scenario.

Truck volumes were factored at 2% medium and 1% heavy of the total vehicle volumes for Southcote Road.

TABLE 3 – Future Road Traffic Volumes (2033)			
Southcote Road	AADT 10473 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	9143	189	94
Night	1016	21	10

Table 4 summarizes the “free field” traffic noise prediction results of Southcote Road modeled at four (4) receptor locations representative of 1st and 2nd floors at the east building façade and the OLA throughout the proposed development.

TABLE 4B - Predicted Traffic Noise Levels-Free Field (Southcote Road)		
Location	L _{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1- East Façade Lot A, B, & C	59 dBA (1.5m)	53 dBA (4.5m)
R2- OLA Lots A, B, & C	32 dBA (1.5m)	N/A

4.0 RECOMMENDATIONS - NOISE CONTROL

4.1 OUTDOOR LIVING AREAS

Calculated noise levels do not exceed the 55 dBA criteria outlined in Table 1, for the rear yard OLA’s for Lots A, B & C. The proposed single detached dwellings, height 10m, to the roofline provide ample noise mitigation for the rear yard outdoor living areas (OLA’s). See Appendix “A” for STAMSON Calculations.

4.2 INDOOR NOISE LEVELS

Specific building components (walls, windows etc.) must be designed and constructed to achieve indoor sound levels within the noise criteria. Predicted noise levels at the outside facade of specific Buildings were used to determine the appropriate building components to satisfy MECP indoor sound level limits. The building components were specified using the STC (Sound Transmission Class) method.

Building design specifications were not available at report time, therefore, STC calculations summarized in Table 5 following with minimum window, door, and wall construction specified for specific dwellings. Assessment was conservative from a noise impact perspective with worst-case design options modeled to satisfy MECP requirements for indoor sound levels. The draft STC value was calculated for each room type, based on typical window to floor ratios of 20% for bedrooms and 30% for living areas. Wall to floor ratio was factored at 100%. A maximum of two components were factored per room. Should final building designs include greater window and wall to floor ratios, current STC values calculations may not satisfy the criteria for noise reduction.

TABLE 5 –Door and Window Construction Requirements			
LOCATION	Acoustically Tested Windows STC	Patio Door Construction	Exterior Walls
All Dwellings	Example	Example STC	Example STC
Bedrooms	OBC	OBC	OBC
Living rooms	OBC	OBC	OBC

Recommendations assume windows are well-fitted, weather-stripped units that can be opened. Casement windows only.

5.0 VENTILATION / WARNING CLAUSES

Ventilation and warning clause requirements for all the residential apartment units are presented in Table 6 following. It is recommended that the appropriate warning clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease and Registered on Title. Specific building component requirements noted in Table 6 for all apartment units will satisfy the MECP criterion for noise control relative to indoor living space.

LOCATION	VENTILATION	WARNING CLAUSE
Lots A, B, & C	Provisions for Central Air Conditioning	Type "A" & "C"

See the following for specific warning clause wording:

TYPE A: Lots A, B, & C

“Purchasers/tenants are advised that sound levels due to increasing road and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality’s and the MECP noise criteria.”

TYPE C: Lots A, B, & C

“This dwelling unit had been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality’s and the MECP’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 MECP Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)”

6.0 SUMMARY OF RECOMMENDATIONS

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

- OBC windows, exterior walls and patio doors. (Table 6).
- All Lots Provisions for Central Air Conditioning (Section 5.0).
- All Lots registered Warning Clauses on title (Section 5.0).

It is recommended that a qualified acoustical consultant certify that the required noise control measures have been incorporated into the builder’s plans prior to issuance of a building permit.

Prior to issuance of an occupancy permit, it is recommended the qualified acoustical consultant certify that the approved noise control measures have been professionally installed.

7.0 CONCLUSIONS

dBa Acoustical Consultants Inc. has conducted a noise and vibration study for the proposed 3 single detached dwelling development, located at 382 Southcote Road in Hamilton, ON, on behalf of 1376412 Ontario Limited.

The noise and vibration study determined the noise and vibration impact for OPA/ZBA approval and traffic volumes for Southcote Road as well as any area stationary noise sources that may have impacted the development.

This study detailed noise and vibration impacts at the proposed development and recommended noise and vibration control measures necessary to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300, Stationary & Transportation Sources-Approval & Planning and CP guidelines, while satisfying the planning requirements of the City of Hamilton.

FIGURE 1
KEY MAP

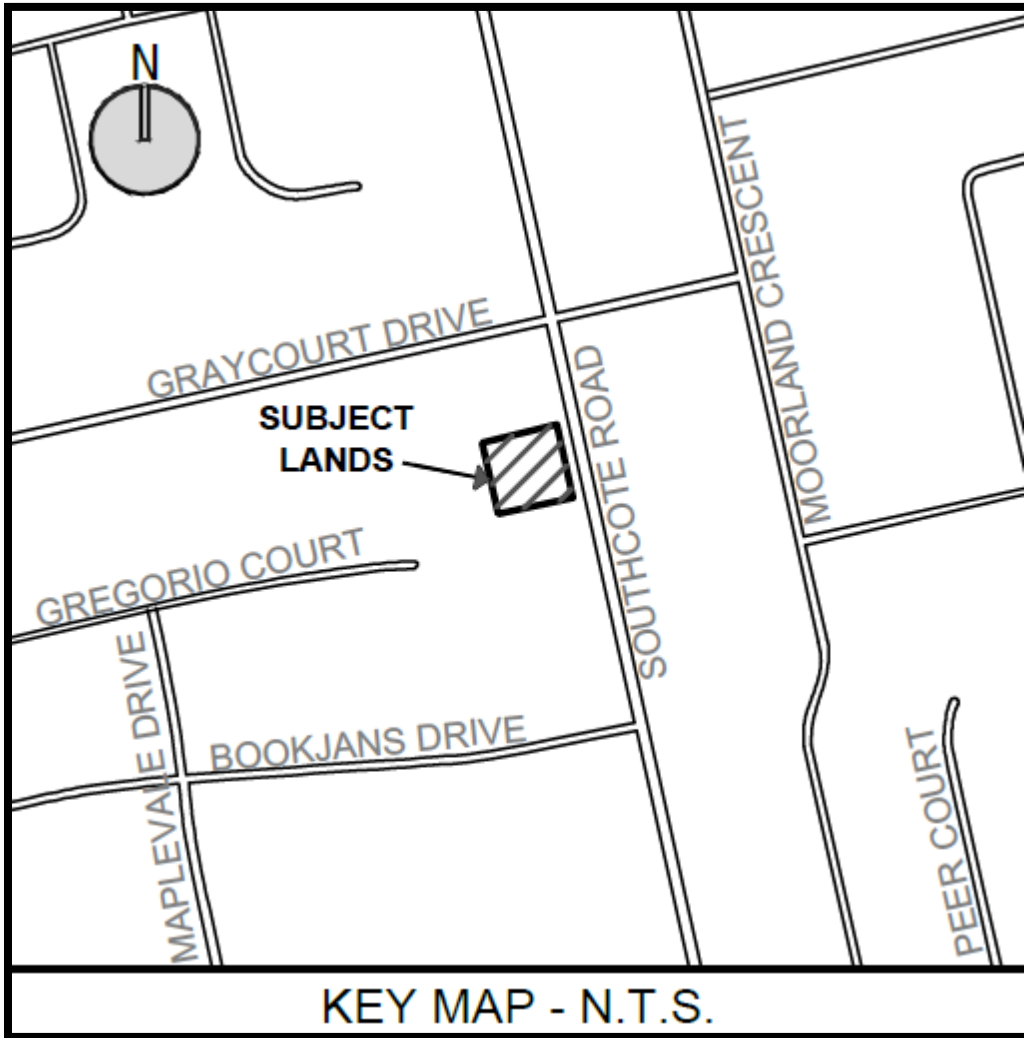


FIGURE 2
CONCEPT PLAN

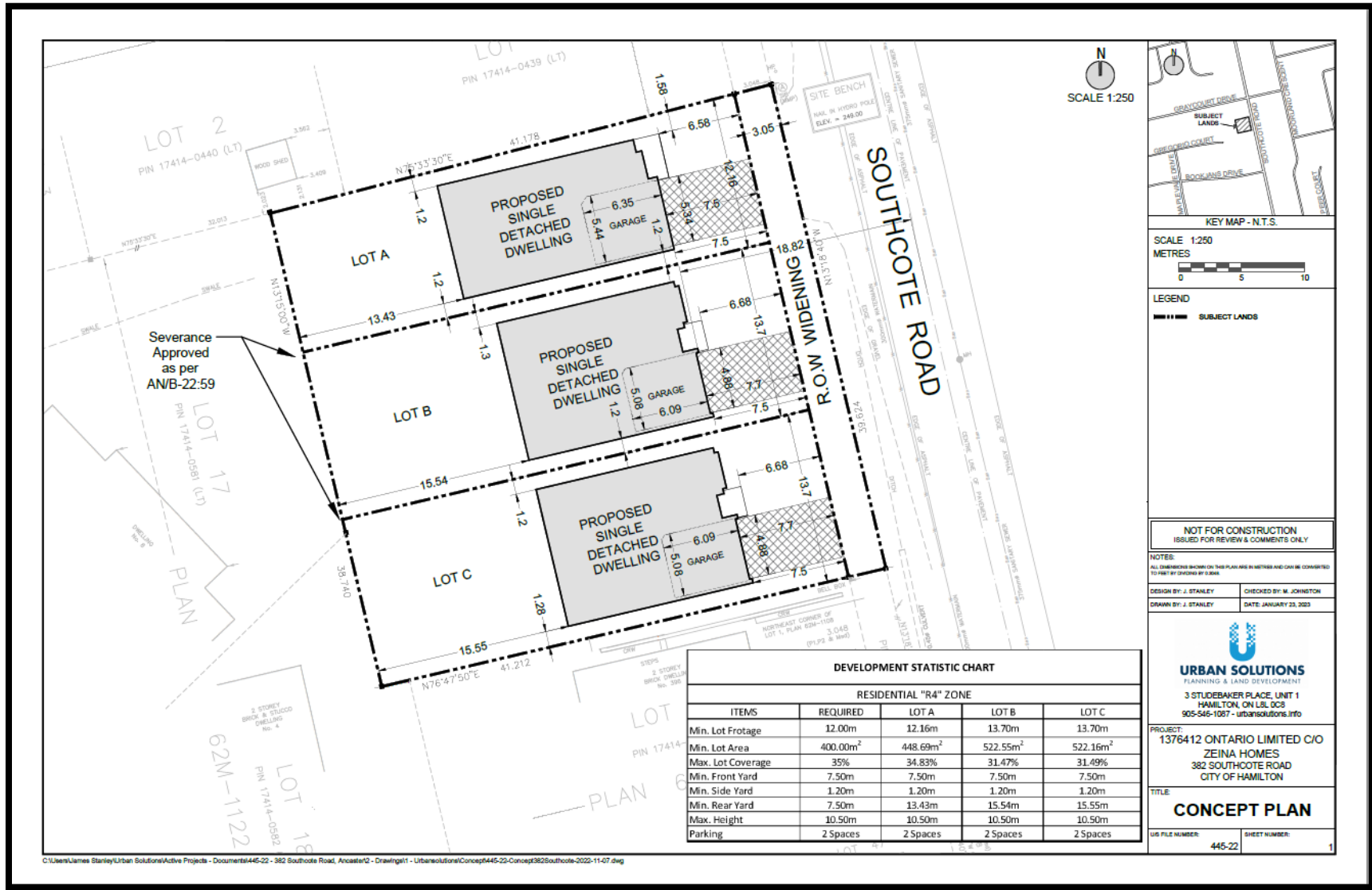


FIGURE 3
RECEPTOR LOCATIONS

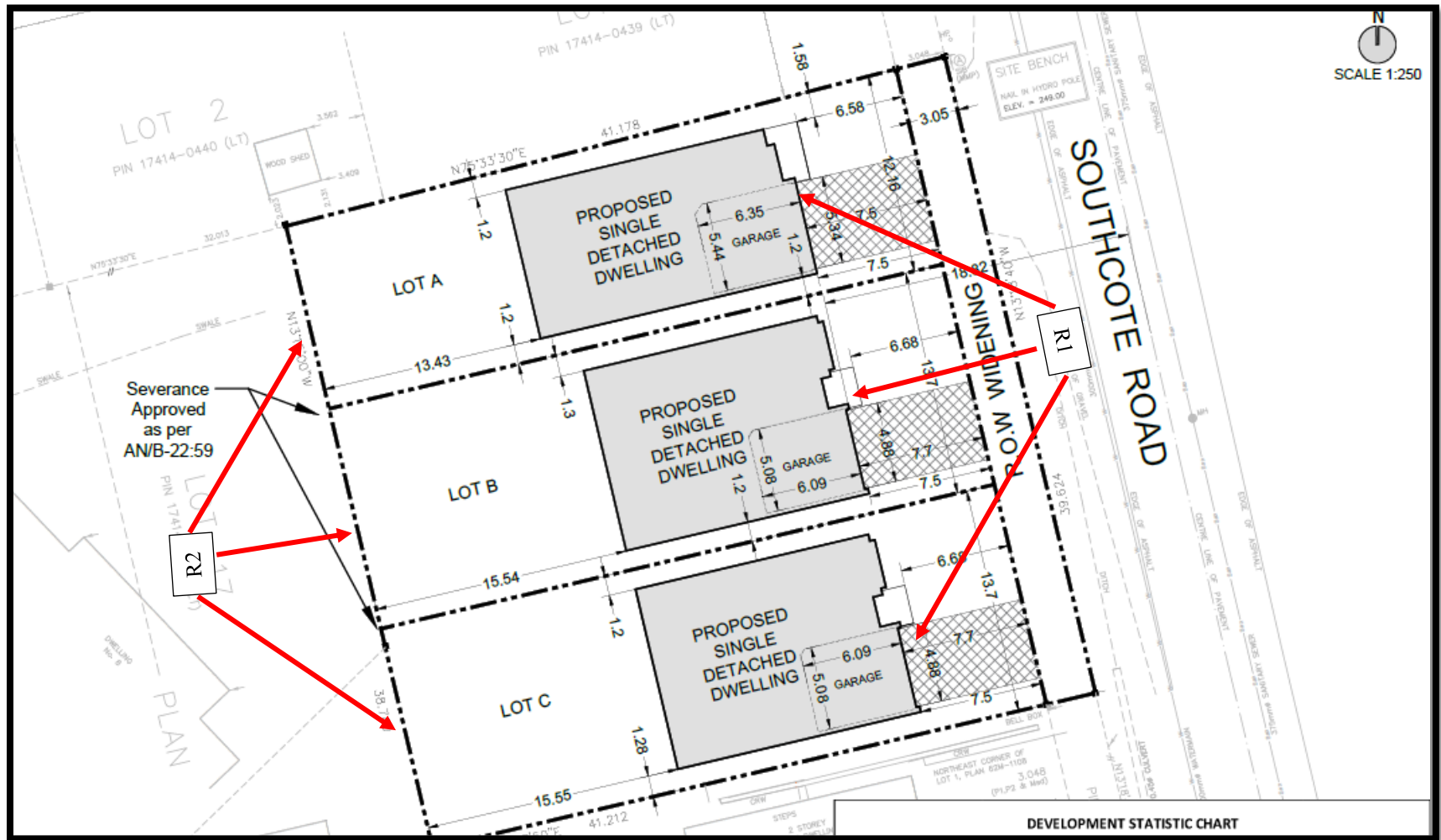
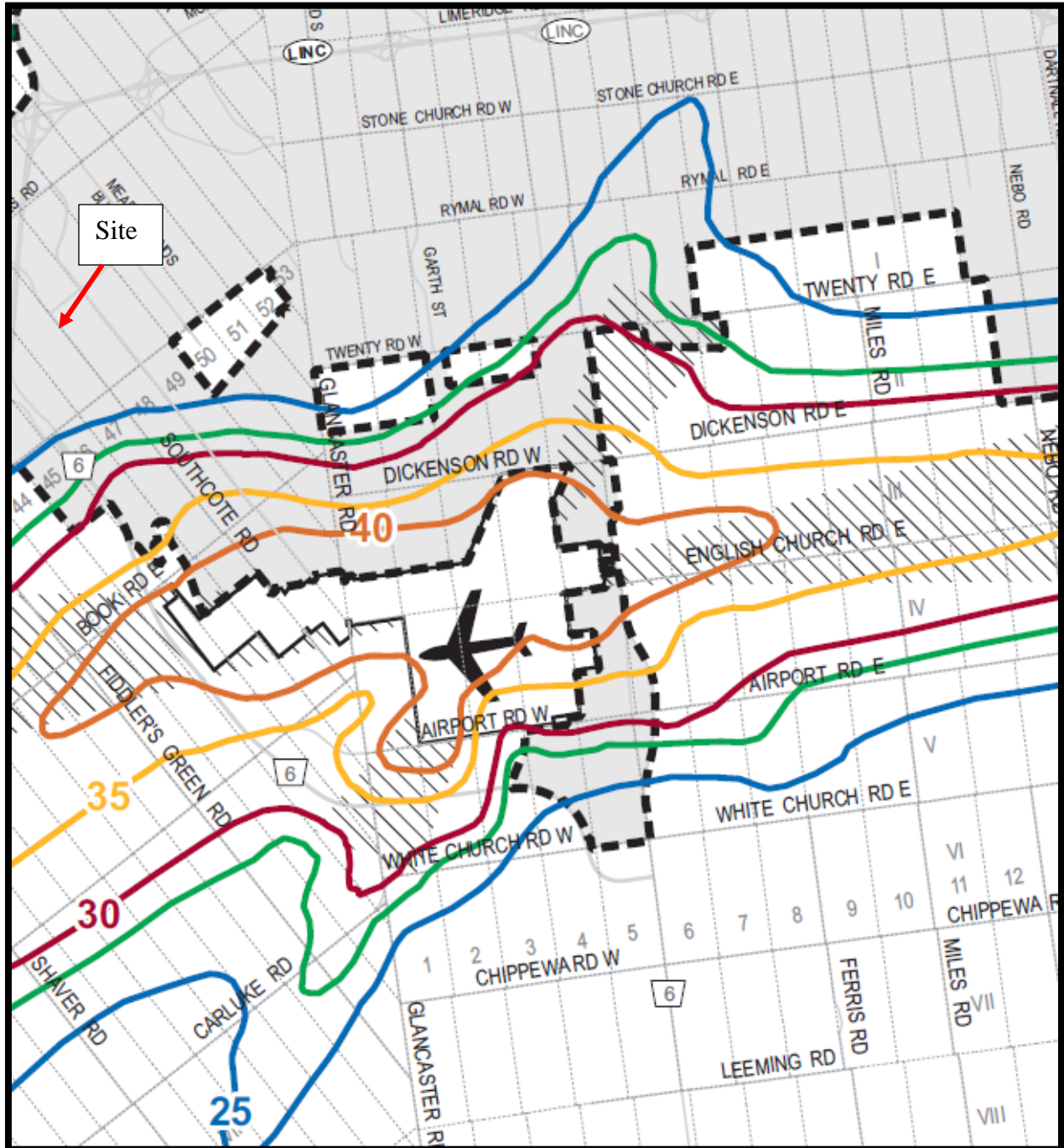
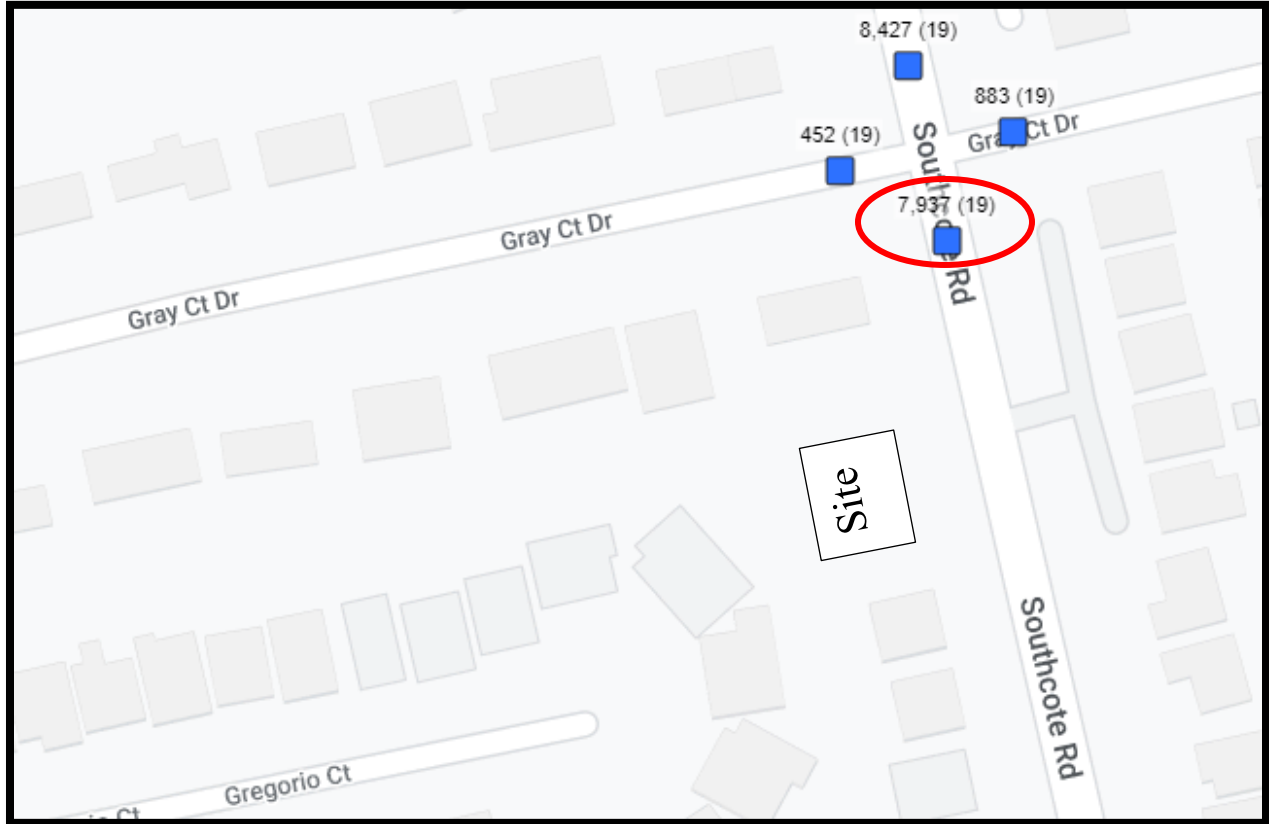


FIGURE 4
JOHN C. MONRO INTERNATIONAL AIRPORT
NEF CONTOUR MAP



APPENDIX “A”

CITY OF HAMILTON 2019 AADT TRAFFIC SOUTHCOTE ROAD



The screenshot shows the user interface of the Hamilton Transportation Data Management System (MS2). At the top left is the Hamilton logo. To the right are icons for PDF files, a help icon, a refresh icon, and the MS2 logo. Below these are links for 'TCDS User Guide', 'Help', and 'Refresh'. The main title is 'Transportation Data Management System'. A horizontal menu contains tabs for 'Home', 'TMC', 'TCLS', 'TTDS', 'PMS', 'PMDS', 'RSMS', 'NMDS', 'WOTS', and 'RTTV'. Below the menu are buttons for 'Login', '+ Locate', and '+ Locate All'. In the bottom right corner, it says 'Auto-Locate OFF'.

STAMSON CALCULATIONS

STAMSON 5.04 SUMMARY REPORT Date: 06-03-2023 18:51:16
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: southR2.te Time Period: Day/Night 16/8 hours
Description: R2 Rear Yard OLA Facade Lots 1, 2, and 3
TOTAL Leq FROM ALL SOURCES (DAY) : 31.54

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

```
-----
Car traffic volume : 9143/1016 veh/TimePeriod *
Medium truck volume : 189/21 veh/TimePeriod *
Heavy truck volume : 94/10 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 7937
Percentage of Annual Growth : 2.00
Number of Years of Growth : 14.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00
```

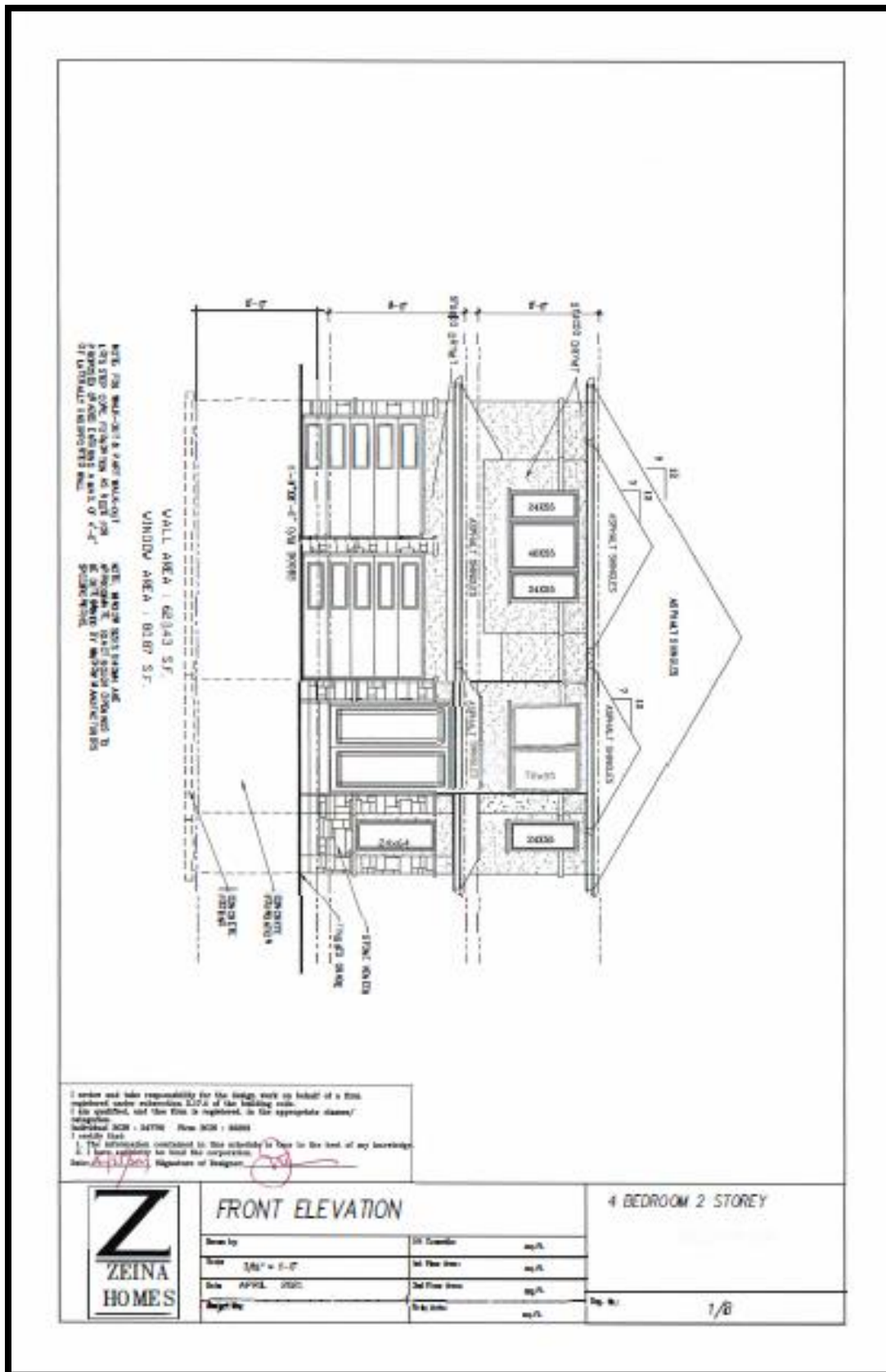
Data for Segment # 1: Southcote Dr (day/night)

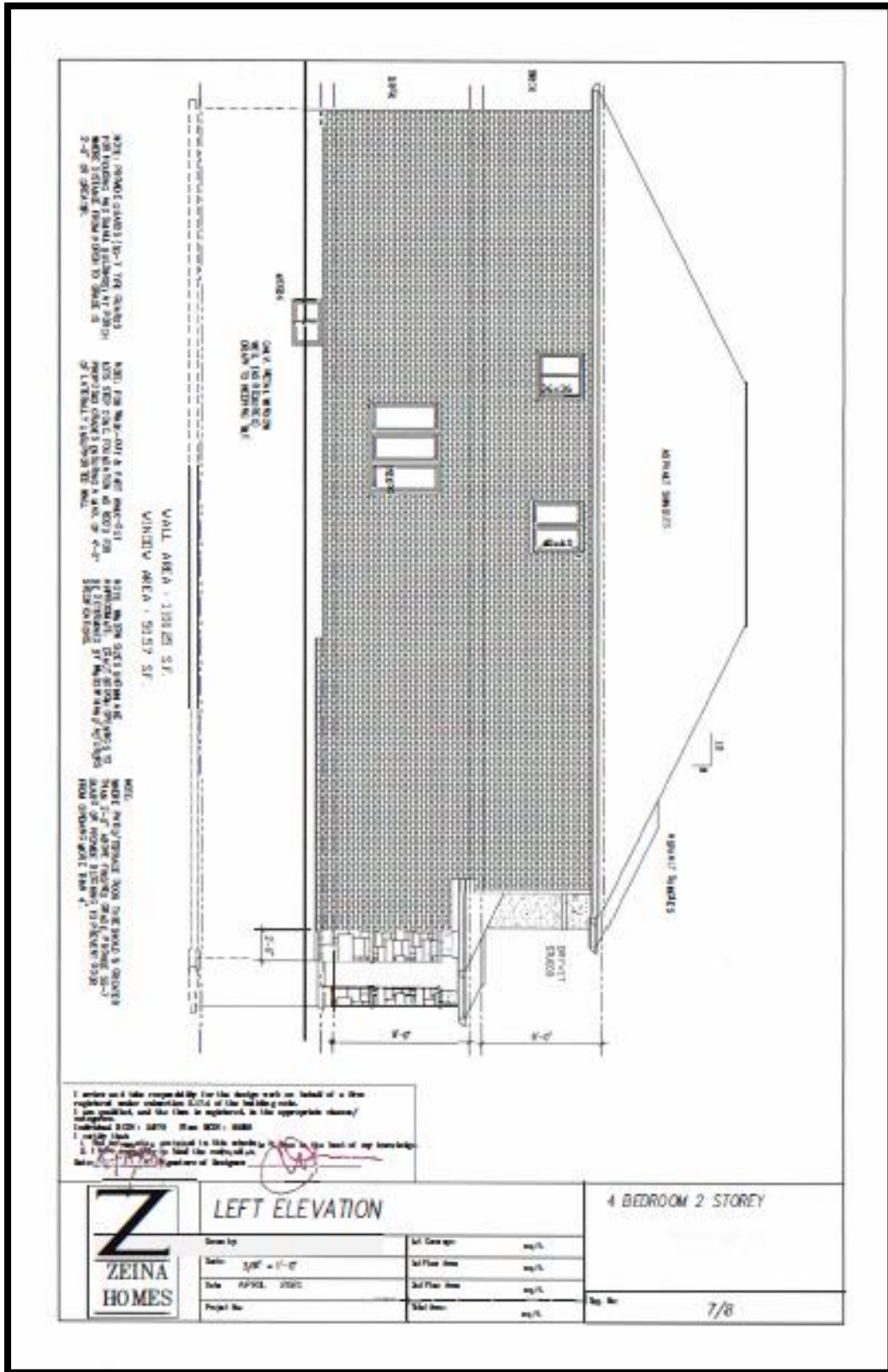
```
-----
Angle1 Angle2 : -0.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -0.00 deg Angle2 : 45.00 deg
Barrier height : 10.50 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00
```

Result summary (day)

```
-----
! source ! Road ! Total
! height ! Leq ! Leq
! (m) ! (dBA) ! (dBA)
-----+-----+-----+-----
1.Southcote Dr ! 1.00 ! 31.54 ! 31.54
-----+-----+-----+-----
Total 31.54 dBA
```

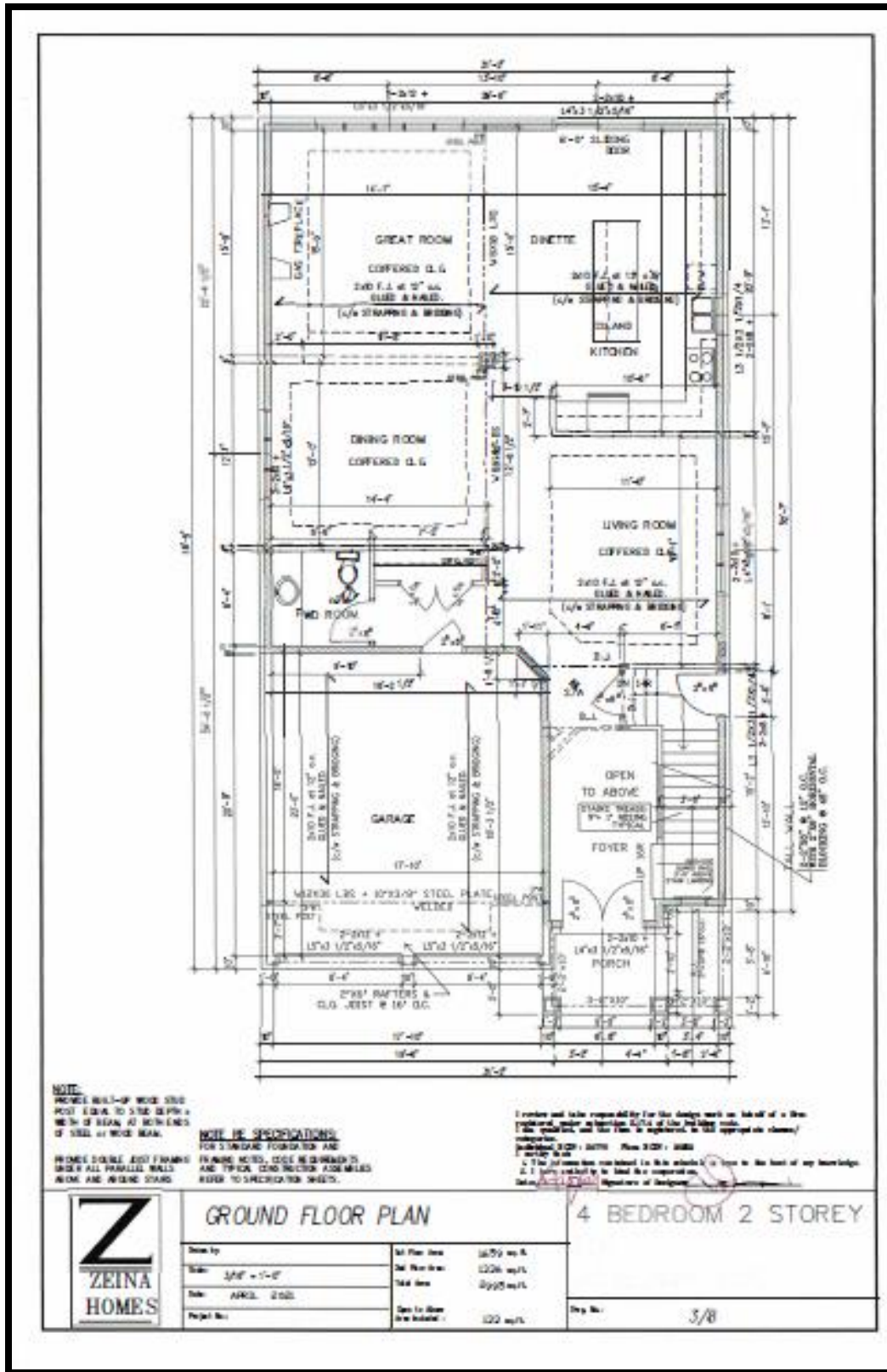

ELEVATIONS





CROSS SECTION

FLOOR PLANS



DEVELOPMENT STATISTICS

DEVELOPMENT STATISTIC CHART				
RESIDENTIAL "R4" ZONE				
ITEMS	REQUIRED	LOT A	LOT B	LOT C
Min. Lot Frotage	12.00m	12.16m	13.70m	13.70m
Min. Lot Area	400.00m ²	448.69m ²	522.55m ²	522.16m ²
Max. Lot Coverage	35%	34.83%	31.47%	31.49%
Min. Front Yard	7.50m	7.50m	7.50m	7.50m
Min. Side Yard	1.20m	1.20m	1.20m	1.20m
Min. Rear Yard	7.50m	13.43m	15.54m	15.55m
Max. Height	10.50m	10.50m	10.50m	10.50m
Parking	2 Spaces	2 Spaces	2 Spaces	2 Spaces

GENERAL SPECIFICATIONS ND O.B.C. REQUIREMENTS		Lot Coverage: sq.ft. 1st Floor Area: sq.ft. 2nd Floor Area: sq.ft. Total Area: sq.ft.	Dwg. No.:
<p>CODES AND STANDARDS</p> <p>1. STAIR DIMENSIONS</p> <p>INTERIOR STAIRS (INCLUDING THE GARAGE) MAX. RISE 200mm (7 7/8") MIN. RUN 210mm (8 1/4") MIN. TREAD 235mm (9 1/4") NOSING 25mm (1") UNIFORM RISE AND RUN IN ANY ONE FLIGHT OF STAIRS MIN. HEADROOM 1900mm (6'-5")</p> <p>GUARD HEIGHT: - AT LANDINGS 900mm (35") - AT STAIRS 900mm (35") - GUARDS TO BE NON-CUMBLE WITH MAX. SPACING OF 100mm (4") - HANDRAILS INSTALLED 900mm (35")</p> <p>EXTERIOR STAIRS MAX. RISE 200mm (7 7/8") MIN. RUN 210mm (8 1/4") MIN. TREAD 235mm (9 1/4") NOSING 25mm (1")</p> <p>GUARD HEIGHT: GREATER THAN 2'-0" ABOVE GRADE = 900mm (35") GREATER THAN 5'-11" ABOVE GRADE = 1070mm (42")</p> <p>A LANDING IS REQUIRED AT THE MAIN ENTRANCE. A LANDING IS REQUIRED AT ANY SECONDARY ENTRANCE WHEN MORE THAN 3 RISERS ARE INSTALLED 900mm (35")</p> <p>GUARD NOTES ALL INTERIOR AND EXTERIOR GUARDS SHALL CONFORM TO SUPPLEMENTARY GUIDELINES TO THE ONTARIO BUILDING CODE 2006 SB-7 GUARDS FOR HOUSING AND SMALL BUILDINGS.</p> <p>2.2 STRUCTURAL DETAILS FROM TABLE 2.2.1. - EXTERIOR POST AND RAIL SYSTEM CONNECTION DETAILS REFER TO CONNECTION DETAILS EA-1, EB-1 AND EC-4. FROM TABLE 2.2.2 EXTERIOR CANTILEVERED PICKET SYSTEM CONNECTION DETAILS REFER TO CONNECTION DETAILS ED-1, ED-2 AND ED-5.</p> <p>3.2 STRUCTURAL DETAILS FROM TABLE 3.2.1. - INTERIOR POST AND RAIL SYSTEM CONNECTION DETAILS REFER TO CONNECTION DETAILS IA-1, IB-1, IC-2 AND ID-1 FROM TABLE 3.2.3. - INTERIOR STAIR GUARD CONNECTION DETAILS REFER TO CONNECTION DETAILS IF-1, IG-1, IG-3, IG-4, AND IH-1 (ALSO IG-2 MODIFIED TO SUIT SLOPE).</p> <p>2. ALL LIGHTING AND ELECTRICAL TO COMPLY WITH O.B.C. 9.34.</p> <p>3. SMOKE DETECTORS ARE REQUIRED ON EACH FLOOR LEVEL AND ALL THE BEDROOMS ARE TO BE INTERCONNECTED. TO COMPLY WITH O.B.C. ARTICLE 9.10.19.3.</p> <p>4. RANGE HOODS TO BE VENTED TO THE EXTERIOR c/w NON-COMBUSTIBLE PIPING.</p> <p>5. ATTIC VENTILATION TO COMPLY WITH O.B.C. 9.32.</p> <p>6. PROVIDE AN AIR BARRIER IN ACCORDANCE WITH O.B.C. 9.25.3.</p>	<p>7. HEADROOM UNDER DUCTS AND BEAMS MIN. 6'-5".</p> <p>8. INSULATE & WEATHERSTRIP ATTIC ACCESS HATCHES (MIN. 21.5"x28")</p> <p>9. ALL DOORS & WINDOWS TO COMPLY WITH RESISTANCE TO FORCED ENTRY - O.B.C. 9.7.5.2.</p> <p>10. FLASHING REDD. OVER OPENINGS IN EXTERIOR WALLS OBC 9.27.3</p> <p>11. DOOR FROM GARAGE TO HOUSE TO BE EXTERIOR TYPE c/w WEATHERSTRIPPING AND CLOSER.</p> <p>12. PROVIDE MINIMUM R-24 INSULATION ON INTERIOR GARAGE WALL.</p> <p>13. PROVIDE MINIMUM R31 INSULATION IN FLOOR SPACE OVER GARAGE AND ENSURE WALLS AND CEILING ON GARAGE SIDE ADJACENT TO LIVING SPACE ARE TO BE DRYWALLED AND SEALED (GAS-PROOFED).</p> <p>14. EVERY FLOOR CONTAINING BEDROOMS MUST HAVE AT LEAST ONE WINDOW WITH AN UNSTRUCTURED OPENING WITH AN OPENABLE PORTION NOT LESS THAN 0.35sq.m. (3.8sq.ft.), WITH NO DIMENSION LESS THAN 300mm (15"), AND A SILL HEIGHT NO MORE THAN 1m (3'-3") ABOVE FIN. FLOOR.</p> <p>15. FOR MASONRY VENEER INSTALLATION, PROVIDE CONTINUOUS FLASHING AND WEAPHOLES EVERY 315/6" MAX.</p> <p>16. PRIOR TO PROCEEDING WITH CONSTRUCTION, THE BUILDER MUST VERIFY ALL INFORMATION, DIMENSIONS AND SPECIFICATIONS OF THIS PLAN.</p> <p>FOUNDATION NOTES</p> <p>1. CONTRACTOR SHALL CHECK ALL DIMENSIONS ON WORKING DRAWINGS AND REPORT ANY DISCREPANCIES TO DESIGNER BEFORE PROCEEDING WITH THE WORK. ANY CHANGES, ALTERATIONS OR REVISIONS MUST BE REPORTED TO DESIGNER BEFORE PROCEEDING WITH THE WORK.</p> <p>2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION SAFETY ACT 1980 AND ANY SUBSEQUENT AMENDMENTS.</p> <p>3. REMOVE ALL TOPSOIL, ORGANIC AND LOOSE FILL MATERIAL FROM BUILDING AREA BEFORE STARTING CONSTRUCTION.</p> <p>4. PROOF ROLL EXISTING FILL MATERIAL. REMOVE ANY LOOSE OR SOFTENED AREAS BENEATH SLAB ON GRADE BEFORE PLACING GRANULAR FILL.</p> <p>5. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR COMPACTED FILL WITH A MINIMUM SOIL BEARING CAPACITY OF 3000 p.s.f.</p> <p>6. APPROVED GRANULAR FILL UNDER FOOTINGS AND FLOOR SLABS SHALL BE COMPACTED IN 8" LAYERS TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.</p> <p>7. ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM 4 ft. BELOW FINISHED EXTERIOR GRADE TO PROTECT THE FOOTINGS FROM FROST ACTION.</p> <p>8. ALL CONCRETE WORK TO CONFORM TO CSA STANDARD A438-00 AND A23.1-04.</p> <p>9. REINFORCING STEEL SHALL BE DEFORMED HI-BOND HARD GRADE WITH A MINIMUM YIELD STRENGTH OF 58,000 p.s.f.</p> <p>10. ALL STUD WALLS SHALL BE ANCHORED TO THE FOUNDATION OR FLOOR SLAB WITH 5/8" DIAMETER ANCHOR BOLTS AT 4 ft. o/c MAXIMUM.</p> <p>11. CONCRETE FOR SLABS ON GRADE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 p.s.f. ALL OTHER CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 p.s.f. UNLESS OTHERWISE SPECIFIED.</p>	<p>12. ALL CONCRETE FORMS TO BE WET THOROUGHLY BEFORE POURING CONCRETE.</p> <p>13. DO NOT ADD WATER TO CONCRETE. IF HIGHER SLUMP CONCRETE IS DESIRED, CONCRETE SUPPLIER SHALL DESIGN AND SUPPLY ACCORDINGLY.</p> <p>14. WATER CURING OF CONCRETE IS RECOMMENDED.</p> <p>15. USE A MINIMUM OF 8" COMPACTED LAYER OF 3/4" CLEAR STONE UNDER ALL GROUND SLABS.</p> <p>16. ANY NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT EXISTING FOOTINGS ARE NOT DISTURBED OR UNDERMINED IN ANY WAY DURING EXCAVATION.</p> <p>17. THE FOLLOWING MINIMUM CONCRETE COVERS FOR REINFORCING STEEL SHALL BE PROVIDED: FOOTINGS 3"+/-, PIERS AND WALLS 1 1/2"+/- UNLESS NOTED OTHERWISE.</p> <p>18. SPACING OF CONTROL JOINTS IN CONCRETE SLABS SHALL NOT EXCEED 20 FEET O.C.</p> <p>FRAMING NOTES</p> <p>1. STRUCTURAL STEEL SHALL CONFORM TO CSA C40.21-44W, C40.21-50W CLASS H FOR H.S.S AND C40.21-50W FOR W SHAPE SECTIONS.</p> <p>2. STEEL BEAMS SHALL HAVE 3 1/2" MINIMUM END BEARING AND THE STEEL UNITS SHALL HAVE 6" MINIMUM END BEARING ON MASONRY UNLESS INDICATED OTHERWISE. TO COMPLY WITH O.B.C. SENTENCE 9.20.5.2(4)</p> <p>3. ALL BEAMS CANTILEVERED OVER A COLUMN OR OTHER SUPPORT SHALL HAVE A MINIMUM OF 2- 3/8" THICK STIFFENER PLATES EACH SIDE OF WEB UNLESS INDICATED OTHERWISE.</p> <p>4. COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL BE GROUTED WITH 1 1/2" NON-SHRINK GROUT.</p> <p>5. SHOP DRAWINGS OF STRUCTURAL STEEL SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BEFORE FABRICATION.</p> <p>6. WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD W59 AND SHALL BE UNDERTAKEN BY A FABRICATOR FULLY APPROVED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA STANDARD W47.</p> <p>7. BOLTED CONNECTIONS SHALL USE A325 BOLTS, USING BEARING TYPE CONNECTIONS.</p> <p>8. PREFABRICATED WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE DETAILS AND DESIGN LOADS ON THE ARCHITECTURAL DRAWINGS AND/OR O.B.C. REQUIREMENTS. SHOP DRAWINGS OF THE ROOF TRUSSES INCLUDING LAYOUT OF THE TRUSSES, BRIDGING, BRACING AND BEARING DETAILS (INCLUDING HOLD-DOWN CLIPS) SHALL BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO AND SHALL BE SUBMITTED TO THE BUILDER FOR REVIEW BEFORE FABRICATION.</p> <p>9. ALL TIMBER FOR WOOD TRUSSES SHALL BE KILN DRIED AND WELL SEASONED IN ORDER TO PREVENT POSSIBLE DISTORTION OR DEFORMATION OF THE TRUSSES.</p> <p>10. NAILING REQUIREMENTS (AS PER O.B.C.) SHALL BE AS FOLLOWS: A. VERTICAL STUDS TO BOTTOM PLATES: 4- 3" ARDOX NAILS. B. VERTICAL STUDS TO TOP PLATES: 4- 3 1/2" ARDOX NAILS. C. ROOF TRUSSES TO PLATES: TO BE DESIGNED BY TRUSS ENGINEER. D. WIND BRACING (PER TRUSS): TO BE DESIGNED BY TRUSS ENGINEER. E. BRIDGING (PER TRUSS): TO BE DESIGNED BY TRUSS ENGINEER. F. UNITS: 3 1/2" ARDOX NAILS @ 12" O.C. HORIZONTAL AND 4" O.C. VERTICAL STAGGERED. G. WALL SHEATHING: 1 1/2" ARDOX NAILS @ 8" O.C. TO STUDS & PLATES.</p> <p>11. ALL STUD WALLS SHALL BE ANCHORED TO THE FOUNDATION OR FLOOR SLAB WITH 5/8" DIAMETER ANCHOR BOLTS AT 4 FEET O.C. MAXIMUM.</p> <p>12. ALL WOOD SHALL BE No. 2 SPRUCE OR BETTER.</p> <p>13. THE GENERAL CONTRACTOR SHALL TAKE PRECAUTIONS TO NOT OVERLOAD THE STRUCTURE DURING CONSTRUCTION.</p> <p>14. WHERE FLOOR JOISTS ARE PARALLEL TO EXTERIOR SUPPORT WALL TURN JOISTS BACK 2'-0" FOR BRICK CANTILEVER.</p>	
<p>I review and take responsibility for the design work on behalf of a firm registered under subsection 2.17.4 of the Building Code. I am qualified, and the firm is registered, in the appropriate class(es) category.</p> <p>Included BCIN: 2679 Firm BCIN: 20200</p> <p>I certify that:</p> <p>1. The information contained in this schedule is true to the best of my knowledge.</p> <p>2. I have authority to bind the corporation.</p> <p>Date: 2/15/2023 Signature of Designer: [Signature]</p>			

WALL TYPES

TYPICAL EXTERIOR BASEMENT FNDTR. WALL
SB-12 PACKAGE "A1"

- 8" CONCRETE FOUNDATION BETWEEN
- ASPHALTIC DAMPPROOFING TO FINISHED GRADE AND
- No. 15 ASPHALT IMPREG. FELT INSIDE
- R-20ci BLANKET INSULATION TO 6" ABOVE FINISHED BASEMENT FLOOR
- 6 MIL POLY VAPOUR BARRIER OVERLAPPED AND SEALED

REAR WALK-OUT & GARAGE FOUNDATION

- 8" CONCRETE FOUNDATION
- R10 (2" THICK) RIGID PERIMETER INSULATION (MIN. 2"-0" BELOW FINISHED GRADE)
- SEE FOUNDATION PLANS FOR EXTENT OF WALL DOWN TO TOP OF FOOTINGS

TYPICAL INTERIOR BASEMENT WALL

- 8" CONCRETE FOUNDATION
- SEE FOUNDATION PLANS FOR EXTENT OF WALL DOWN TO TOP OF FOOTINGS

FLOOR TYPES

TYPICAL SLAB ON GRADE

- 3" CONCRETE SLAB ON
- 6 MIL POLY DAMPPROOFING
- GRANULAR 1" BASE (COMPACT IN MIN. 6" THICK LAYERS)
- PROVIDE SAWY CONTROL JOINTS c/w JOINT FILLER

TYPICAL FRAMED FLOOR

- 5/8" T&G SUBFLOOR ON
- 2x10 SPRUCE JOISTS @ 16" or 12" o.c. AS NOTED
- SEE PLANS
- 2x2 CROSS BRIDGING @ 6"-10" MAX.
- 1/2" GYPSUM BOARD CEILING (SECOND FLOOR ONLY)
- 1/4" PLYWOOD UNDERLAY IN VINYL FLOOR AREAS
- BATT INSULATION AT EXTERIOR HEADER SPACE

TYPICAL INSULATED FRAMED FLOOR (GARAGES)

- SAME AS FLOOR ABOVE EXCEPT
- 6" SPRAYED URETHANE FOAM INSULATION - MIN. R25
- SEAL JOIST SPACE FROM AIR INFILTRATION AND COVER COMPLETELY ALL PIPES

ROOF TYPES

TYPICAL WOOD TRUSS ROOF
SB-12 PACKAGE "A1"

- MIN. 210# ASPHALT SHINGLES
- MIN. 36" WIDE EAVE PROTECTION TO MINIMUM 12" INSIDE INNER FACE OF WALL
- MIN. 36" WIDE VALLEY FLASHINGS AS REQUIRED
- ROOF VENTS WITH UNOBSTRUCTED FREE AREA OF 1/300 OF INSULATION CEILING AREA
- 3/8" PLYWOOD, WAFFERBOARD OR O.S.B. SHEATHING c/w EDGE CLIPS ON
- PRE-ENG. WOOD TRUSSES @ 2'-0" O.C.
- R 60 INSULATION AT BOTTOM CHORD
- INSULATION BAFFLES & AIR CHANNELS TO INSURE ADEQUATE VENTILATION
- 6 MIL CONT. POLY VAPOUR BARRIER
- 1/2" GYPSUM BOARD CEILING

WOOD RAFTER ROOF
SB-12 PACKAGE "A1"

- MIN. 210# ASPHALT SHINGLES
- MIN. 36" WIDE EAVE PROTECTION TO MINIMUM 12" INSIDE INNER FACE OF WALL
- MIN. 36" WIDE VALLEY FLASHINGS AS REQUIRED
- 3/8" PLYWOOD, WAFFERBOARD OR O.S.B. SHEATHING c/w EDGE CLIPS ON
- 2x6 WD. RAFTERS @ 16" o/c (UNLESS NOTED OTHERWISE ON FRAMING PLAN)
- 2x6 CEILING JOISTS @ 16" o/c (UNLESS OTHERWISE ON FRAMING PLAN)
- R 60 INSULATION AT BOTTOM CHORD
- INSULATION BAFFLES & AIR CHANNELS TO INSURE ADEQUATE VENTILATION
- 6 MIL CONT. POLY VAPOUR BARRIER

TYPICAL REINFORCING DETAILS OF FOUNDATION WALL AT STAIRS OPENING.

REINFORCING

- 1-10M STEEL BAR HORIZONTALLY MAX. 11 3/4" FROM TOP OF WALL
- 10M STEEL BARS @ 603 5/8" O.C. MAX VERTICALLY

TYPICAL WOOD STUD PARTITION

- 1/2" GYPSUM BOARD EACH SIDE OF
- 2x4 WOOD STUDS @ 16" o/c
- CHANGE TO 2x6 WOOD STUDS WHERE DIMENSIONED THIS ON FLOOR PLANS

TYPICAL EXTERIOR GARAGE WALL

- BRICK VENEER c/w GALV. BRICK TIES / OVERHANG FOUNDATION (SHOWN DASHED)
- 1" MIN. AIR SPACE
- 15 LB. BUILDING PAPER
- 1/4" WAFFERBOARD OR O.S.B. SHEATHING
- 2x4 WOOD STUDS @ 16" o/c

TYPICAL INTERIOR GARAGE WALL
SB-12 PACKAGE "A1"

- 1/2" GAS PROOF GYP. BOARD
- 2x6 WOOD STUDS @ 16" o/c
- R22 BATT INSULATION
- 6 MIL POLY VAPOUR BARRIER
- 1/2" GYPSUM BOARD

TYP. BSMT. WALL at STEPPED CONDITION
SB-12 PACKAGE "A1"

- MASONRY VENEER c/w BRICK TIES OVERHANG FNDTR. (SHOWN DASHED)
- 1" MIN. AIR SPACE
- 15 LB. BUILDING PAPER
- 1/4" WAFFERBOARD OR O.S.B. SHEATHING
- 2x6 @ 16" o.c. c/w R20ci INSUL. TO 6" ABOVE BASEMENT FLOOR
- R20 ci BLANKET INSULATION

TYPICAL EXTERIOR SIDING WALL
SB-12 PACKAGE "A1"

- PREFIN. HORIZONTAL SIDING
- 15 LB. BUILDING PAPER
- 7/16" WAFFERBOARD OR O.S.B. SHEATHING
- R22 BATT INSULATION
- 6 MIL POLY VAPOUR/AIR BARRIER OVERLAPPED AND SEALED
- 1/2" GYPSUM BOARD

TYPICAL EXTERIOR MASONRY VENEER WALL
SB-12 PACKAGE "A1"

- BRICK VENEER c/w GALV. BRICK TIES OVERHANG FOUNDATION (SHOWN DASHED)
- 1" MIN. AIR SPACE
- 15 LB. BUILDING PAPER
- 1/4" WAFFERBOARD OR O.S.B. SHEATHING
- 2x6 WOOD STUDS AT 16" o/c
- R22 BATT INSULATION
- 6 MIL POLY VAPOUR/AIR BARRIER OVERLAPPED AND SEALED
- 1/2" GYPSUM BOARD

NOTE: FOR 45 min. RATING WHERE SIDEYARD IS (0.6m to 1.2m)

- SAME AS ABOVE WITH
- 5/8" TYPE "X" GYPSUM BOARD IN LIEU OF 1/2" GYPSUM BOARD

NOTE: FOR 45 min. RATING WHERE SIDEYARD IS (0.6m to 1.2m)

- SAME AS ABOVE WITH
- 5/8" TYPE "X" GYPSUM BOARD IN LIEU OF 1/2" GYPSUM BOARD

NOTE: FOR 45 min. RATING WHERE SIDEYARD IS (0.6m to 1.2m)

- FOR GABLE END ONLY,
- 2 LAYERS OF EXTERIOR GRADE
- 1/2" TYPE "X" GYPSUM BOARD

I review and take responsibility for the design work on behalf of a firm registered under subsection 277.4 of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.
Individual BCIN : 24770 Firm BCIN : 50005
I certify that:
1. The information contained in this schedule is true to the best of my knowledge.
2. I have authority to bind the corporation.
Date: 03/21/23 Signature of Designer: [Signature]

GENERAL CONSTRUCTION DETAILS

Lot Coverage	sq. ft.
1st Floor Area	sq. ft.
2nd Floor Area	sq. ft.
Total Area	sq. ft.

Drawn By: _____
Scale: _____
DATE: APRIL 2023
Project No: _____
Dep. No: _____

EXTERIOR WALL STC RATINGS

EXTERIOR WALL STC RATINGS

Wall Configuration	EW1	EW2	EW3	EW4	EW1R	EW2R	EW3R	EW5	EW4R	EW6	EW7 EW5R	EW8
STC Rating	38	40	43	46	47	48	49	54	55	57	58	62

Source: National Research Council, Division of Building Research

NOTES:

- 1 The common structure of walls EW1 to EW5 is composed of 12.7mm gypsum board, vapour barrier and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
 - EW1 denotes the common structure, plus sheathing, plus wood siding or metal siding and fibre backer board
 - EW2 denotes the common structure, plus rigid insulation (25 to 30 mm), and wood siding or metal siding and fibre backer board.
 - EW3 denotes simulated mansard with the common structure, plus sheathing, 28 X89 mm framing, sheathing and asphalt roofing material
 - EW4 denotes the common structure, plus sheathing and 20 mm stucco.
 - EW5 denotes the common structure, plus sheathing, 25 mm air space, 100mm brick veneer.
 - EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 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 to 50 mm), 140mm back-up block, 100 mm face brick.
 - EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 200 mm concrete.

- 2 R signifies the mounting of the interior gypsum board on resilient clips.

- 3 An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25 to 50 mm), 25 mm air space, and 100 mm brick veneer has the same STC as EW6.

- 4 An exterior wall described in EW1 with the addition of rigid insulation (25 to 50 mm) between the sheathing and the external finish has the same STC as EW2.