Noise and Vibration Feasibility Study
Proposed Mixed Use and Residential Development
Silvercreek Junction
Guelph, Ontario

Prepared for:
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1 Introduction and Summary

HGC Engineering was retained by Silvercreek Guelph Developments Limited to conduct a noise and vibration feasibility study for a Draft Plan of Subdivision application to implement lands designated and zoned for a mixed-use and residential development to be located east of Highway 6/Hanlon Parkway and on either side of Silvercreek Parkway in the City of Guelph, Ontario. The proposed development is also north of a railway owned by Canadian National Railway (CN) and south of a railway owned by Metrolinx. The mixed-use development will consist of residential and commercial uses.

This study is being updated to reflect the latest draft plan prepared by Astrid J. Clos Planning Consultants dated October 23, 2019.

The primary sources of noise are road traffic on Highway 6/Hanlon Parkway and rail traffic on the Metrolinx rail line to the north. A secondary source of noise is rail traffic on the CN/GEXR rail line to the south. Relevant road traffic data was obtained from the City of Guelph. Rail traffic data was obtained from GEXR personnel and from recent projects along the same rail line originally obtained from CN and Metrolinx personnel. The data was used to predict future traffic sound levels at the various locations around the development site at the proposed dwelling facades and in the outdoor amenity areas. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP), Municipality and the railways.

The sound level predictions indicate that future rail and road traffic sound levels will exceed MECP guidelines at the façades of many of the proposed buildings. A safety berm 2.5 m in height is required at a minimum for both residential and non-residential uses adjacent to the main line to the north and a 2.0 m high safety berm along the branch line to the south. Acoustic barriers will be required at the rear yards of the townhouses with exposure to Highway 6. Central air conditioning systems and upgraded building constructions will be required for the townhouse units and apartment buildings closest to Highway 6 and the railway to the north. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant will be required for the dwelling units and apartment buildings with some exposure to Highway 6 and the railways. Brick or masonry exterior wall construction will be required for the townhouse units and apartment buildings with exposure to the railways. Warning clauses are also recommended in order to inform
future owners/tenants of the sound level excesses due to road and rail traffic and to inform of the neighboring commercial facilities.

Ground-borne vibration measurements were performed in 2018 and measured vibration levels were below CN and Metrolinx railway guidelines for train passbys at the location of the closest residential dwelling façades for both railway lines. Vibration mitigation is not required for this development.

2 Site Description and Sources of Sound

A key plan showing the location of the proposed mixed use and residential development is attached as Figure 1. The residential development is located east of Highway 6/Hanlon Parkway, on either side of Silvercreek Parkway South in the City of Guelph, Ontario. The Metrolinx Guelph Subdivision’s principal main line and the CN Fergus Subdivision’s principal branch line are located north and south of the development, respectively. The two railways converge east of the proposed development. The proposed draft plan prepared by Astrid J. Clos Planning Consultants dated October 23, 2019, is included as Figure 2. The proposed residential development will consist of stacked townhouses, apartment blocks, parks and commercial buildings. The City of Guelph’s Zoning By-Law applicable to the property is provided in Appendix A.

The subject site is located within 75 m of the railway right-of-ways. CN and Metrolinx guidelines require measurements of ground-borne vibration when residential dwelling units are to be located within 75 metres of a principal main or branch line.

Site visits were made by HGC Engineering personnel in February 2018 and in October 2019 to make observations of the acoustic environment, identify the significant noise sources in the vicinity, and perform ground-borne vibration measurements (in 2018). The primary sources of noise are road traffic on Highway 6 and rail traffic on the Guelph Subdivision located to the north of the site. A secondary source of noise is rail traffic on the Fergus Subdivision located to the south of the site. The site is currently vacant. The surrounding lands are mainly residential and commercial uses. As indicated on the aerial photo of the area, there is a small rail yard located approximately 400 m from the boundary of the subject site. The small yard is located north of the Guelph Subdivision between Alma Street and Edinburgh Road North. GEXR data indicates that shunting operations take place on a daily basis during the week. During the site visits while measuring ground-borne vibration, activity was not observed at the yard and noise was not audible at the subject site. A preliminary assessment
of shunting operations in the yard indicates that sound levels are expected to be below MECP criteria at the proposed closest residences on the subject site. It should also be noted that there are numerous existing residences immediately to the north of the small rail yard and a daycare without any on-site mitigation. Sound from the commercial buildings or the small rail yard were not audible during the site visit, nevertheless, a noise warning clause is recommended in Section 5.6 to inform future occupants of the nearby commercial facilities and rail yard in the area and that sounds may be audible at times.

3 Sound Level Criteria

3.1 Road and Rail Traffic Noise Criteria

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

<table>
<thead>
<tr>
<th>Area</th>
<th>Daytime LEQ (16 hour)</th>
<th>Nighttime LEQ (8 hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor living areas</td>
<td>55 dBA</td>
<td>--</td>
</tr>
<tr>
<td>Inside Living/Dining Rooms</td>
<td>45 dBA / 40 dBA</td>
<td>40 dBA / 35 dBA</td>
</tr>
<tr>
<td>Inside Bedrooms</td>
<td>45 dBA / 40 dBA</td>
<td>40 dBA / 35 dBA</td>
</tr>
<tr>
<td>General offices, reception areas, retail stores, etc.</td>
<td>50 dBA / 45 dBA</td>
<td>-- / --</td>
</tr>
<tr>
<td>Individual or semi-private offices, conference rooms, reading rooms</td>
<td>45 dBA / 40 dBA</td>
<td>-- / --</td>
</tr>
</tbody>
</table>

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

The MECP guidelines allow the daytime sound levels in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the
property. Where OLA sound levels exceed 60 dBA, physical mitigation is recommended to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible. Note that not all OLA’s necessarily require protection, if there are other protected outdoor areas accessible to future residents.

Indoor guidelines are 5 dBA more stringent for rail noise than for road noise, to account for the low frequency (rumbling) character of locomotive sound, and its greater potential to transmit through exterior wall/window assemblies.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows or office windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning by the occupant is required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise, or when the nighttime sound level is greater than 55 dBA or greater than 60 dBA during the daytime due to rail traffic noise.

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

The reader is referred to a copy of CN and Metrolinx requirements respectively for a new development adjacent to a principal main line, principal branch line and non-residential development adjacent to a railway line, which are located in Appendix B.
3.2 Ground-borne Vibration from Rail Traffic

MECP and CN guidelines require measurements of ground-borne vibration when residential dwelling units are to be located within 75 metres of a principal main and branch line such as the CN Fergus Subdivision and the Metrolinx Guelph Subdivision.

Vibration is typically measured in terms of oscillatory velocity or acceleration. The CN and Metrolinx guidelines are given in terms of ground-borne velocity. In this report, vibration levels are quoted in terms of RMS velocity levels (LV) in units of decibels [dB] relative to 1 mm/s (i.e., 1 mm/s = 0 dB). The CN guideline limit is 0.14 mm/s, which is equivalent to -17 dB re 1 mm/s. For ease of reference, this limit of -17 dB re 1 mm/s is identified on velocity plots in this report.

4 Traffic Noise Predictions

4.1 Road Traffic Data

Road traffic data for Highway 6 was obtained from the Ministry of Transportation of Ontario Traffic Volumes database (select data reproduced in Appendix C) in the form of Summer Average Daily Traffic. The 2016 data was projected to the year 2029 using a conservative estimate of 2.5% growth per year. A posted speed limit of 70 km/h was used for Highway 6. A commercial vehicle percentage of 6.6% was used which was obtained from the turning movement counts and split into 2.5% medium trucks and 4.1% heavy trucks, along with a day-night split of 85%/15%. Table 2 below indicates the road traffic data used in the analysis.

Table 2: Projected Road Traffic Data (2029)

<table>
<thead>
<tr>
<th>Road Name</th>
<th>Cars</th>
<th>Medium Trucks</th>
<th>Heavy Trucks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daytime</td>
<td>38 851</td>
<td>1 041</td>
<td>1 705</td>
<td>41 597</td>
</tr>
<tr>
<td>Nighttime</td>
<td>6 856</td>
<td>184</td>
<td>301</td>
<td>7 341</td>
</tr>
<tr>
<td>Total</td>
<td>45 707</td>
<td>1 223</td>
<td>2 006</td>
<td>48 937</td>
</tr>
</tbody>
</table>

4.2 Rail Traffic Data

Rail traffic data for the Fergus Subdivision was obtained from GEXR personnel. Forecasted train traffic volumes for the Guelph Subdivision was obtained from recent projects in the area. In consultation with the client, train traffic data from projects along the same rail line have been used
instead while the data requests are pending. Predicted sound levels are subject to change when new traffic projections are available. Data used in the analysis are attached in Appendix D. The Guelph Subdivision is used for switchers, passenger and freight trains and is classified as a principal main line. The Fergus Subdivision is used for switchers and is classified as a principal branch line. One train has been included for the Fergus line during the nighttime as a worst case scenario. In conformance with CN and Metrolinx assessment requirements, the maximum speeds, maximum number of cars and locomotives per train were used in the traffic noise analysis to yield a worst case estimate of train noise. The data was projected to the year 2029 using a 2.5% per year growth rate and is shown in Table 3.

### Table 3: Projected Rail Traffic Data (2029)

<table>
<thead>
<tr>
<th>Location</th>
<th>Type of Train</th>
<th>Number of locomotives</th>
<th>Number of cars</th>
<th>Max Speed (km/h)</th>
<th>Current Volume Day/Night</th>
<th>Projected Daytime (07:00-23:00) trains</th>
<th>Projected Nighttime (23:00-07:00) train</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guelph Subdivision</td>
<td>Passenger</td>
<td>1</td>
<td>10</td>
<td>112</td>
<td>4/0</td>
<td>5.1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Freight</td>
<td>3</td>
<td>100</td>
<td>88</td>
<td>2/2</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>Way Freight</td>
<td>2</td>
<td>10</td>
<td>88</td>
<td>2/0</td>
<td>2.6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>GO</td>
<td>1</td>
<td>12</td>
<td>113</td>
<td>11/5</td>
<td>14.1</td>
<td>6.4</td>
</tr>
<tr>
<td>Fergus Subdivision</td>
<td>Switchers</td>
<td>2</td>
<td>10</td>
<td>16</td>
<td>2/1</td>
<td>2.6</td>
<td>1.3</td>
</tr>
</tbody>
</table>

### 4.3 Road and Rail Traffic Noise Predictions

To assess the levels of road and rail traffic noise which will impact the site in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix E. Train whistle noise was not included in the predictions at the building facades to determine indoor sound levels since they are used only for emergency purposes.

Predictions of the traffic sound levels were made at the top-storey building façades. Prediction locations are indicated on Figure 2. The results of these predictions are summarized in Table 4 and 5.
### Table 4: Daytime Future Traffic Sound Levels Without Mitigation, [dBA]

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Block No.</th>
<th>Description</th>
<th>Daytime in OLA L\text{\textit{EQ-16}} hr</th>
<th>Daytime at Façade L\text{\textit{EQ-16}} hr</th>
<th>Total Daytime at Façade L\text{\textit{EQ-16}} hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A]</td>
<td>2</td>
<td>Apartment Block adjacent to the north railway</td>
<td>--</td>
<td>55</td>
<td>62</td>
</tr>
<tr>
<td>[B]</td>
<td>6</td>
<td>Townhouse Block adjacent to the north railway</td>
<td>--</td>
<td>&lt;55</td>
<td>64</td>
</tr>
<tr>
<td>[C]</td>
<td>1</td>
<td>Apartment Block adjacent to the north railway</td>
<td>--</td>
<td>61</td>
<td>67</td>
</tr>
<tr>
<td>[D]</td>
<td>5</td>
<td>Townhouse Block with some exposure to Highway 6 and the north railway</td>
<td>--</td>
<td>58</td>
<td>59</td>
</tr>
<tr>
<td>[E]</td>
<td>4</td>
<td>Townhouse Block adjacent to Highway 6</td>
<td>64</td>
<td>64</td>
<td>59</td>
</tr>
<tr>
<td>[F]</td>
<td>17</td>
<td>Apartment block with exposure to Highway 6 and both railways</td>
<td>--</td>
<td>59</td>
<td>&lt;55</td>
</tr>
<tr>
<td>[G]</td>
<td>11</td>
<td>Townhouse block with some exposure to the north railway</td>
<td>--</td>
<td>&lt;55</td>
<td>&lt;55</td>
</tr>
<tr>
<td>[H]</td>
<td>19</td>
<td>Neighbourhood Park</td>
<td>&lt;55</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>[I]</td>
<td>15</td>
<td>Townhouse block with exposure to the south railway</td>
<td>--</td>
<td>&lt;55</td>
<td>&lt;55</td>
</tr>
<tr>
<td>[J]</td>
<td>13</td>
<td>Townhouse block with exposure to the Highway 6 and the south railway</td>
<td>--</td>
<td>&lt;55</td>
<td>&lt;55</td>
</tr>
<tr>
<td>[K]</td>
<td>3</td>
<td>Apartment Block adjacent to the south railway</td>
<td>--</td>
<td>59</td>
<td>55</td>
</tr>
<tr>
<td>[L]</td>
<td>18</td>
<td>Urban Square Park</td>
<td>&lt;55</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
Table 5: Nighttime Future Traffic Sound Levels Without Mitigation, [dBA]

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Block No.</th>
<th>Description</th>
<th>Nighttime at Façade LEQ-8 hr</th>
<th>Total Nighttime at Façade LEQ-8 hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A]</td>
<td>2</td>
<td>Apartment Block adjacent to the north railway</td>
<td>51</td>
<td>62</td>
</tr>
<tr>
<td>[B]</td>
<td>6</td>
<td>Townhouse Block adjacent to the north railway</td>
<td>&lt;50</td>
<td>64</td>
</tr>
<tr>
<td>[C]</td>
<td>1</td>
<td>Apartment Block adjacent to the north railway</td>
<td>56</td>
<td>67</td>
</tr>
<tr>
<td>[D]</td>
<td>5</td>
<td>Townhouse Block with some exposure to Highway 6 and the north railway</td>
<td>58</td>
<td>59</td>
</tr>
<tr>
<td>[E]</td>
<td>4</td>
<td>Townhouse Block adjacent to Highway 6</td>
<td>59</td>
<td>62</td>
</tr>
<tr>
<td>[F]</td>
<td>17</td>
<td>Apartment block with exposure to Highway 6 and both railways</td>
<td>57</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[G]</td>
<td>11</td>
<td>Townhouse block with some exposure to the north railway</td>
<td>&lt;50</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[I]</td>
<td>15</td>
<td>Townhouse block with exposure to the south railway</td>
<td>&lt;50</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[J]</td>
<td>13</td>
<td>Townhouse block with exposure to the Highway 6 and the south railway</td>
<td>&lt;50</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[K]</td>
<td>3</td>
<td>Apartment Block adjacent to the south railway</td>
<td>53</td>
<td>55</td>
</tr>
</tbody>
</table>

5 Recommendations

The predictions indicate that the traffic sound levels are expected to exceed MECP limits during daytime hours and nighttime hours at the dwelling units closest to the railways and Highway 6. The following discussion and recommendations are provided.

5.1 Outdoor Living Areas

Typically for residential developments adjacent to Metrolinx principal main lines such as the Guelph Subdivision located along the northeast property line of the subject site, a minimum 2.5 m high earth berm, inverted berm, crash wall or other suitable alternative is required for safety purposes.

For residential developments adjacent to CN principal branch lines such as the Fergus Subdivision located along the southeast property line of the subject site, a minimum 2.0 m high earth berm or other suitable alternative is typically required for safety purposes. The total height of the barrier is
taken in reference to the top of rail elevation in the area. The location of the required acoustic barriers is provided on Figure 3.

Without mitigation, the future sound levels in the rear yards of the dwelling units with backing exposure to Highway 6 (prediction location [E]) will be up to 63 dBA, 8 dBA in excess of the MECP’s limit of 55 dBA. Physical mitigation in the form of an acoustic barrier will be required. The various barrier heights required to achieve MECP’s OLA requirements for this location are provided in Table 6. An acoustic barrier 1.8 m in height to achieve 59 dBA in the rear yards is recommended.

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Sound Level in OLA [dBA]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55</td>
</tr>
<tr>
<td>[E]</td>
<td>3.9</td>
</tr>
</tbody>
</table>

The predicted sound level in the interior neighbourhood park and urban square park (prediction locations [H] and [L]) will be less than 55 dBA. Physical mitigation will not be required.

The remaining townhouse units and the apartment buildings within the proposed development may have balconies and patios that are less than 4 m in depth. These areas are not considered to be outdoor amenity areas under MECP guidelines, and are therefore exempt from traffic noise assessment.

When detailed grading information is available, the acoustic barrier height should be refined. An acoustic barrier may be a combination of an acoustic wall and an earth berm. The wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m². The City of Guelph has additional requirements for noise barriers. Examples of suitable materials that satisfy the requirements are Durisol and AcoustiGuard. The heights and extents of the barriers should be chosen to reduce the sound levels in the OLA’s to below 60 dBA and as close to 55 dBA as is technically, administratively and economically feasible, subject to the approval of the municipality respecting any applicable fence height by-laws.

a) Apartment Blocks 1, 2, 3
These blocks are proposed to include apartment buildings. Any outdoor amenity area associated with the apartments should be placed on the shielded side of the buildings to reduce the need for high
b) Mixed-Use Blocks 16 and 17

These blocks have been reserved for future apartment buildings and commercial uses. Some dwellings near these future blocks may be impacted by the activities of the commercial blocks. The permitted uses of the service blocks are known but details are pending. A noise study is required for these blocks at the time of Site Plan approval when the siting plans including building elevations and potential uses are available to determine the impact of its activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, rooftop cooling towers or trucking activities will need to be considered. A preliminary review of the building locations indicates that any mitigation could be addressed through roof screens or wing walls at loading areas, as necessary. A noise study is required to ensure that the noise emissions from the commercial/business facilities complies with MECP guidelines limits contained in NPC-300.

5.2 Minimum Distance Setbacks

For noise control and safety reasons, CN policies stipulate that the minimum required setback between a new dwelling and a principal main line and principal branch line is to be a minimum of 30 metres and 15 meters, respectively. The proposed development will be located at least 30 meters and 15 metres from the railway right-of-way of the principal main line and branch line, respectively, meeting the requirement.

5.3 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning

The predicted sound levels at the proposed townhouses and apartment buildings closest to Highway 6 and the north railway (prediction locations [A], [B], [C] and [E]) will be greater 60 dBA during the nighttime. Central air conditioning systems are required so that windows may remain closed. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300.
### Provision for the Future Installation of Air Conditioning

The predicted sound levels at the plane of the bedroom windows of the future townhouse units and apartment buildings with some exposure to Highway 6 and the railways (prediction locations [D], [F], [G], [I], [J], [K]) will be 56 and 65 dBA during the daytime and between 51 and 60 dBA during the nighttime. These units require the provision for the future installation of central air conditioning systems. This requirement is typically satisfied through the installation of forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant. These units are indicated in Figure 3. The guidelines also recommend warning clauses for these dwelling units. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300.

#### 5.4 Building Façade Constructions

Future road and rail traffic sound levels at the proposed townhouse units and apartment buildings closest to Highway 6 (prediction locations [A], [B], [C] and [E]) will exceed 60 dBA during the nighttime. MECP guidelines recommend that the windows, walls and doors be designed so that the indoor sound levels comply with the noise criteria.

The required building components are selected based on the AIF value for road and rail traffic. To do so, calculations were performed to determine the acoustical insulation factors to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the anticipated area ratios of the facade components (walls, windows and doors) and the floor area of the adjacent room.

**Exterior Wall Construction**

According to MECP and CN guidelines, the dwellings in the first row of townhouses (prediction locations [A], [B]) and the façades of the future apartment blocks (prediction location [C]) with exposure to the railway will require brick or masonry exterior walls or an acoustical equivalent.
Acoustical Requirements for Glazing

The minimum necessary specification for prediction location [A] is Acoustical Insulation Factor, AIF-27 for living/dining rooms and AIF-32 for bedrooms, based on the possibility of sound entering the dwelling through the windows only. As a general guideline, a glazing construction with two panes of 3 mm glass and a 13 mm airspace will be sufficient for prediction location [A] as long as the window to floor area ratio does not exceed 50% for living/dining rooms and 16% for bedrooms.

The minimum necessary specification for prediction location [B] is Acoustical Insulation Factor, AIF-29 for living/dining rooms and AIF-34 for bedrooms, based on the possibility of sound entering the dwelling through the windows only. As a general guideline, a glazing construction with two panes of 3 mm glass and a 13 mm airspace will be sufficient for prediction location [B] as long as the window to floor area ratio does not exceed 32% for living/dining rooms and 10% for bedrooms.

The minimum necessary specification for prediction location [C] is Acoustical Insulation Factor, AIF-32 for living/dining rooms and AIF-37 for bedrooms, based on the possibility of sound entering the dwelling through the windows only. As a general guideline, a glazing construction with two panes of 3 mm glass and a 13 mm airspace will be sufficient for prediction location [C] as long as the window to floor area ratio does not exceed 16% for living/dining rooms and 5% for bedrooms.

The minimum necessary specification for prediction locations [D] and [E] is Acoustical Insulation Factor, AIF-29 for bedrooms, based on the possibility of sound entering the dwelling through the windows only. As a general guideline, a glazing construction with two panes of 3 mm glass and a 13 mm airspace will be sufficient for prediction locations [D] and [E] as long as the window to floor area ratio does not exceed 32% for bedrooms. Any OBC construction will be sufficient for the living/dining/family rooms.

Further Analysis

When detailed floor plans and elevations are available for the dwelling units closest to Highway 6 and the railways (prediction locations [A] – [E]), a detailed noise study should be performed to specify wall and window requirements with sufficient acoustical insulation for the dwelling units based on actual window to floor area ratios and to verify the exterior wall construction.
The remaining façades of the buildings in the development have future sound levels that are less than 65 dBA during the daytime and 60 dBA during the nighttime. Any glazing construction meeting the minimum requirements of the Ontario Building Code will provide sufficient insulation.

### 5.5 Rail Vibration Assessment

CN requires an assessment of ground-borne vibration through measurement if building foundations are to be located within 75 metres of the right-of-way. Measurements were performed 15 m and 30 m away from the south and north railway lines, respectively, representing the locations of the closest future building façades. Measurement locations are indicated in Figure 1. The results of the measurements are presented in Figures 4 to 11. Table 7 shows the maximum RMS vibration velocity measurements during each of the train pass-bys.

<table>
<thead>
<tr>
<th>Location</th>
<th>Train Pass-by</th>
<th>Figure</th>
<th>Type of Train</th>
<th>Measured Vibration Level (mm/s)</th>
<th>Criteria (mm/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Guelph Subdivision)</td>
<td>1</td>
<td>4</td>
<td>Passenger</td>
<td>0.04</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5</td>
<td>Freight</td>
<td>0.01</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td>Passenger</td>
<td>0.06</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>7</td>
<td>Freight</td>
<td>0.02</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>8</td>
<td>Passenger</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>2 (Fergus Subdivision)</td>
<td>1</td>
<td>9</td>
<td>Freight</td>
<td>0.04</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
<td>Freight</td>
<td>0.03</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>11</td>
<td>Freight</td>
<td>0.04</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Vibration levels are below the CN limit of 0.14 mm/s. Vibration mitigation measures are not required for the proposed development.

### 5.6 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all units with anticipated road and rail traffic sound levels. Examples are provided below.
Suggested wording for future dwellings with minor sound level excesses.

Type A:

Purchasers/tenants are advised that sound levels due to increasing road and rail traffic may occasionally interfere with some activities of the dwelling unit occupants as the sound levels exceed the Municipality’s and the Ministry of the Environment, Conservation and Parks’s noise criteria.

Suggested wording for future dwelling units with daytime OLA sound levels exceeding the MECP criteria by 6 dB or more, for which physical mitigation has been provided is given below.

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 rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality’s and the Ministry of the Environment, Conservation and Parks’s noise criteria. The acoustical barrier as installed shall be maintained, repaired or replaced by the owner. Any maintenance, repair or replacement shall be with the same material, to the same standards and having the same colour and appearance of the original.

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

Type C:

This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the municipal and provincial sound level limits.

Suitable wording for future dwellings requiring central air conditioning systems is given below.

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 municipal and provincial sound level limits.
Suitable wording for future dwellings near commercial facilities is given below.

Type E:

Purchasers/tenants are advised that due to the proximity of the adjacent commercial facilities, sound levels may at times interfere with outdoor activities.

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

GEXR and CN’s standard warning clause which is required for all residential developments located within 300 m of their branch line is given below.

Type F:

Warning: Canadian National Railway Company, Goderich Exeter Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. CNR and GEXR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way.

Metrolinx’s standard warning clause which is required for all residential developments located within 300 m of their main line is given below.

Type G:

Warning: Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest are the owners of lands within 300 metres from the land which is the subject hereof. In addition to the current use of the lands owned by Metrolinx, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the Metrolinx lands or Metrolinx and their respective assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under its lands.
Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour $L_{eq}$ ambient (background) sound level from road traffic, at any potentially impacted residential point of reception, to comply with MECP guidelines. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be 50 dBA or more during the day and 45 dBA at night. Thus, any electro-mechanical equipment associated with this development (e.g. emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges.

Impact of the Development on Itself

Section 5.9.1 of the Ontario Building Code (OBC) specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls should meet or exceed STC-50. Walls separating a suite from a noisy space such as a refuse chute, or elevator shaft, should meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

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

Summary and Recommendations

The following list and Table 8 summarizes the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.
1. Acoustic barriers are required for the rear yards of dwelling units adjacent to Highway 6. Safety berms are required near the railway lines. The required heights and locations are indicated in Figure 3.

2. A detailed noise study should be performed when lotting information and grading information is available to refine the acoustic barrier heights and provide specific recommendations on a lot/block basis.

3. Central air conditioning is required for the townhouse units and apartment building closest to Highway 6 and the railway to the north. Provision for the future installation of air conditioning at the occupant’s discretion is required for the apartment block and townhouse units with some exposure to Highway 6 and the railways. These units are shown in Figure 3.

4. Upgraded glazing constructions will be required for the townhouse blocks and buildings closest to north railway. When detailed floor plans and building elevations are available, the glazing constructions should be revised based on actual window to floor area ratios. Masonry or brick exterior wall or an acoustical equivalent will be required for the exterior facades of dwelling units and buildings with exposure to the railways. When exterior wall details are available, an acoustical consultant should review the details for compliance with this report.

5. When details such as siting plans, building elevations and potential uses are available for the future commercial buildings in the mixed-use blocks, a noise study should be performed to determine the impact of its activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, rooftop cooling towers or trucking activities will need to be considered. The noise study is required to ensure that the noise emissions from the facilities complies with MECP guidelines limits contained in NPC-300.

6. At the detailed stage or as the development is phased, a detailed noise study should be performed to update the acoustic requirements for the site based on the latest rail traffic projections, detailed grading information and siting information for specific blocks. Warning clauses are required in the property and tenancy agreements and offers of purchase and sale in order to inform future owners/tenants of the sound level excesses and the proximity to the railway line and nearby commercial uses.
7. Tarion Builder’s Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the City of Guelph’s noise by-law.

Table 8: Summary of Noise Control Requirements and Noise Warning Clauses

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Block No.</th>
<th>Acoustic Barrier</th>
<th>Ventilation Requirements*</th>
<th>Type of Warning Clause</th>
<th>AIF Requirements LRDR/BR ¹</th>
<th>Brick Exterior Wall Construction+</th>
</tr>
</thead>
<tbody>
<tr>
<td>[B]</td>
<td>6</td>
<td>--</td>
<td>Central A/C</td>
<td>A, D, E, F G</td>
<td>LRDR – AIF-29 BR – AIF-34</td>
<td>✓</td>
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<tr>
<td>[D]</td>
<td>5</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>LRDR – OBC BR – AIF-29</td>
<td>--</td>
</tr>
<tr>
<td>[E]</td>
<td>4</td>
<td>✓</td>
<td>Central A/C</td>
<td>B, D, E, F G</td>
<td>LRDR – OBC BR – AIF-29</td>
<td>--</td>
</tr>
<tr>
<td>[F]</td>
<td>17</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>[G]</td>
<td>11</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>[H]</td>
<td>19</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>[I]</td>
<td>15</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>[J]</td>
<td>13</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>[K]</td>
<td>3</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>✓</td>
</tr>
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<td>[L]</td>
<td>18</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
<tr>
<td>Remaining Blocks</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>E, F G</td>
<td>OBC</td>
<td>--</td>
</tr>
</tbody>
</table>

Note:
- no specific requirement
*The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
1 – Through windows only
Windows, walls and doors to be specified to meet these minimum AIF requirements.
LRDR – Living room/ Dining Room
BR – Bedroom
OBC – Ontario Building Code
+ Brick, masonry exterior wall construction or an acoustical equivalent.
8.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1) A detailed noise study should be conducted at the time of Site Plan approval when final siting and grading information is available to refine the barrier heights, ventilation requirements and the building constructions for the residential portion of the site.

2) When siting plans, building elevations and potential uses are available to determine the acoustical requirements for the commercial portion of the development, a noise study should be performed to determine the impact of its activities on existing and future residences nearby.

3) Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the architectural plans and building elevations to refine glazing requirements based on actual window to floor areas ratios for the townhouse units with exposure to Highway 6. The Municipality’s building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly incorporated and the exterior walls of the buildings are in conformance to the approved noise report.
Figure 1: Key Plan
INSTITUTIONAL

RESIDENTIAL

COMMERCIAL

STORMWATER MANAGEMENT

URBAN SQUARE

LAND USE SCHEDULE

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>BLOCKS</th>
<th>UNITS</th>
<th>AREA (ha)</th>
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</thead>
<tbody>
<tr>
<td>Apartment</td>
<td>1.5</td>
<td>320</td>
<td>3.83</td>
</tr>
<tr>
<td>TOWNHOUSE</td>
<td>2.0</td>
<td>228</td>
<td>3.19</td>
</tr>
<tr>
<td>Townhouse</td>
<td>1.8</td>
<td>196</td>
<td>2.97</td>
</tr>
<tr>
<td>PARK</td>
<td>0.35</td>
<td>18</td>
<td>2.05</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>521</td>
<td>8.98</td>
</tr>
</tbody>
</table>

ADDITIONAL INFORMATION

(PLANS HELD IN ARCHIVE OF THE PLANNING ACT)

OWNER’S CERTIFICATE

SURVEYOR'S CERTIFICATE

Figure 2: Draft Plan Showing Prediction Locations
Figure 3: Draft Plan Showing Ventilation and Barrier Requirements
6.2.3.2.21 **CC-21 (H25)**
35 and 40 Silvercreek Parkway South
As shown on Defined Area Map Numbers 10 and 15

6.2.3.2.21.1 **Permitted Uses**
All Uses permitted by Section 6.2.1.2 with the following additions:

- A maximum of one (1) Large-Format Retail Establishment, which may consist of any one of a Retail Establishment Use, a Warehouse Membership Club, or a Home Improvement Retail Warehouse Establishment
- Apartment Building
- Stacked Townhouse
- Cluster Townhouse

6.2.3.2.21.2 Deleted by By-law (2013)-19670.

The following definitions shall apply in the CC-21 (H25) Zone:

A "Large-Format Retail Establishment" shall mean a Retail Establishment with a minimum Gross Floor Area of 9,300 sq. m (100,000 sq. ft.)

A "Warehouse Membership Club" shall mean a Retail Establishment engaged in the retailing to Club members of a wide range of non-food items and services, in combination with a general line of food-related products, where the goods, wares, merchandise, substances or articles are displayed, stored and sold in a Warehouse format. The Warehouse format means a configuration where the floor area devoted to sales is integrated with the storage of things sold and is accessible to patrons of the Warehouse Membership Club.

A "Home Improvement Retail Warehouse Establishment" shall mean a Building where a full range of home furnishings and home improvement products are displayed, stored and sold in a Warehouse format. Such products may include but are not limited to a combination of furniture, appliances, electrical fixtures, lumber and building supplies, hardware, carpets and floor coverings, home décor items, landscape and garden supplies, and plumbing fixtures.

6.2.3.2.21.3 **Regulations**
In accordance with the regulations of the CC Zone as specified in Sections 4 and 6.2.2 (Community Shopping Centre Zone regulations) of Zoning By-law (1995)-14864, as amended, with the following additions and exceptions:

19670 6.2.3.2.21.3.1 Maximum Total Gross Floor Area for all Retail Establishments
21,832 sq. m (235,000 sq. ft.)
6.2.3.2.21.3.2 Maximum **Gross Floor Area** for a **Large-Format Retail Establishment**
13,470 sq. m (145,000 sq. ft.)

19670 6.2.3.2.21.3.3 **Gross Floor Area** for all **Retail Establishments** other than a **Large-Format Retail Establishment**
a. Minimum unit size shall be 465 square metres (5,000 square feet) and the maximum unit size shall be 5,574 square metres (60,000 square feet)
b. Such floor area shall be located in a minimum of two (2) separate **Buildings**.

6.2.3.2.21.3.4 **Minimum Off-Street Parking**
The minimum off-street parking required for all permitted commercial **Uses** shall be 1 space per 23.2 sq. m (250 sq. ft.) of **Gross Floor Area**.

6.2.3.2.21.3.5 **Regulations for Apartment Buildings**
All **Apartment Buildings** shall be developed in accordance with the R.4B provisions of Section 5.4.2 of Zoning By-law (1995)-14864, as amended.

6.2.3.2.21.3.6 **Regulations for Cluster and Stacked Townhouses**
All **Cluster** or **Stacked Townhouses** shall be developed in accordance with the regulations of Section 5.3.2 of the Zoning By-law (1995)-14864, as amended.

6.2.3.2.21.3.7 **Severability Provision**
The provisions of this **By-law** shall continue to apply collectively to the whole of the lands identified on Defined Area Maps 10 and 15 as CC-21, despite any future severance, partition or division for any purpose.

6.2.3.2.22 **CC-22**
31-33 Farley Drive
As shown on Defined Area Map Number 42 of Schedule "A" of this **By-law**.

6.2.3.2.22.1 **Permitted Uses**
- **Dwelling Units** with permitted commercial **Uses** in the same **Building**
- **Art Gallery**
- **Artisan Studio**
5.3 RESIDENTIAL TOWNHOUSE (R.3) ZONES

5.3.1 PERMITTED USES
The following are permitted Uses within the Residential Townhouse R.3 Zone:

15692 5.3.1.1 R.3A – Cluster Townhouse Zone

• Maisonette dwelling
• Stacked Townhouse
• Cluster Townhouse
• Home Occupation in accordance with Section 4.19
• Accessory Use in accordance with Section 4.23

15692 5.3.1.2 R.3B – On-Street Townhouse Zone

• On-Street Townhouse
• Home Occupation in accordance with Section 4.19
• Accessory Use in accordance with Section 4.23

5.3.2 REGULATIONS

Within the Residential Townhouse R.3 Zones, no land shall be Used and no Building or Structure shall be erected or Used except in conformity with the applicable regulations contained in Section 4 - General Provisions, the regulations set out in Table 5.3.2, and the following:

5.3.2.1 Maximum Building Coverage

20134 Despite Row 8 of Table 5.3.2, in an R.3A, Cluster Townhouse Zone, where one Parking Space per unit is provided underground or Garages are attached or designed as an integral part of the dwelling units, the maximum coverage for the Buildings shall be 40 per cent.

5.3.2.2 Minimum Side and Rear Yards – R.3A Zones

5.3.2.2.1 No Building shall be located closer to any Rear or Side Lot Line than a distance equal to one-half the Building Height, and in no case less than 3 metres from any Rear or Side Lot Line.

19063 5.3.2.2.2 Deleted by By-law (2010)-19063
5.3.2.3 Minimum Distance Between Buildings and Private Amenity Areas

R.3A Zones

20134 5.3.2.3.1 The distance between the front, exterior side and rear face of one Building and the front, exterior side and rear face of another Building, each of which contains windows to Habitable Rooms shall in no case be less than 15 metres.

19063 5.3.2.3.2 Deleted by By-law (2010)-19063

17187 5.3.2.3.3 The distance between the interior Side Yard of any two Buildings on the same Lot shall in no case be less than 3 metres.

19063 5.3.2.3.4 No part of a Private Amenity Area shall be located within 10.5 metres of a wall in another Building containing windows of Habitable Rooms which face the Private Amenity Area.

17187 5.3.2.3.5 The minimum distance between the Private Amenity Areas of two separate Buildings shall be 6 metres where one Private Amenity Area faces any part of the other Private Amenity Area or 3 metres where the Private Amenity Areas are side by side and aligned parallel to each other. The minimum distance between a Private Amenity Area and the wall of another Building shall be 6 metres.

5.3.2.4 Minimum Common Amenity Area - R.3A Zone

5.3.2.4.1 a) Except for developments which contain less than 20 dwellings, a minimum of 5 m² of Amenity Area per dwelling shall be provided and be developed as Common Amenity Area. This Common Amenity Area shall be aggregated into areas of not less than 50 m².

b) Despite Section 5.3.2.4.1 a), the following shall apply to Stacked Townhouse developments:

i) Except for developments which contain less than 20 dwellings, a minimum of 10 m² of Amenity Area per dwelling shall be provided and be developed as Common Amenity Area, and be aggregated into areas of not less than 50 m².

c) Where combined Cluster and Stacked Townhouses occur, the Common Amenity Area for the site shall be calculated by using the provisions of Section 5.3.2.4.1 b) for the proportion of units which are stacked and utilizing the provisions of Section 5.3.2.4.1 a) for the proportion of units which are Cluster Townhouse.
Amenity Areas shall be designed and located so that the length does not exceed 4 times the width.

A Common Amenity Area shall be located in any Yard other than the required Front Yard or required Exterior Side Yard.

Landscaped Open Space areas, Building rooftops, patios and above ground decks may be included as part of the Common Amenity Area if recreational facilities are provided and maintained (e.g. swimming pools, tennis courts, lounges and landscaped areas).

Minimum Private Amenity Area Per Dwelling Unit

R.3A Zone - Cluster Townhouses and Ground Level Stacked Townhouse Units

A Private Amenity Area shall be provided for each unit and it shall:

a) have a minimum area of 20 m²;
b) have a minimum depth (from the wall of the dwelling unit) of 4.5 metres;
c) have a minimum width equal to the width of the unit when the layout of the unit permits. If the preceding cannot be accomplished, the minimum width of the Private Amenity Area shall be 4.5 metres;
d) not form part of a required Front or Exterior Side Yard;
e) not face onto a public Street;
f) be accessed through a doorway to a hall or Habitable Room, other than a bedroom;
g) be separate and not include walkways, play areas, or any other communal area; and
h) be defined by a wall or Fence.
i) to be a minimum distance of 3.0 metres from a side or rear Lot Line.

Despite Section 5.3.2.5.1, for Stacked Townhouse units above grade, each Private Amenity Area shall:

a) have a minimum area of 10 m²;
b) consist of a patio or terrace; and

c) be defined by a wall or railing between adjacent units to a height of 1.8 metres.

For both Cluster and Stacked Townhouse developments, Private Amenity Areas shall be screened in a manner which prevents viewing into a part of it from any adjacent areas to a height of 1.8 metres. The extent of screening may be reduced if such screening would impair a beneficial outward and open orientation of view and
there is not adverse effect on the privacy of the Private Amenity Area.

5.3.2.6 Maximum Density of Site

5.3.2.6.1 The maximum density of Cluster Townhouse developments shall be 37.5 dwellings per hectare.

5.3.2.6.2 The maximum density for Stacked Townhouse Developments shall be 60 dwellings per hectare. This shall be increased by 1 dwelling per hectare for every 6 required resident Parking Spaces and associated manoeuvring aisles which are provided underground, up to a maximum density of 75 dwellings per hectare.

5.3.2.6.3 For Townhouse developments which consist of a mix of Stacked and Cluster Townhouses, the densities shall be determined separately for blocks on the property.

5.3.2.7 Additional Front and Exterior Side Yard Regulations

Despite Row 5 of Table 5.3.2, for R.3 blocks not located on Streets listed in Section 4.24 and located within the boundaries of Defined Area Map Number 66 of Schedule "A" of this By-law, the Front or Exterior Side Yard shall be the average of the existing Yards within the same City Block Face and where the average of the existing Yards within the same City Block Face cannot be determined, the minimum Front or Exterior Side Yard shall be as set out in Row 5 of Table 5.3.2. Where legal off-street Parking Spaces are provided within an enclosed Structure, a minimum vehicular access of 6 metres between the Street Line and Structure shall be provided. In addition, location of units within this Defined Area shall be subject to the provisions of a Sight Line Triangle in Section 4.6.2.

Where a road widening is required in accordance with Section 4.24, the calculation of Front or Exterior Side Yards shall be as set out in Section 5.3.2.7, provided that the Yard is not less than the new Street Line established by the required road widening.

5.3.2.8 Maximum Driveway Width R.3B Zone On-Street Townhouses

Maximum Driveway (Residential) Width of R.3B Zone On-Street Townhouses shall comply with 4.13.7.2.5.
<table>
<thead>
<tr>
<th>Row</th>
<th>Residential Type</th>
<th>R.3A Zone Cluster Townhouse</th>
<th>R.3A Zone Stacked Townhouse</th>
<th>R.3B Zone On-Street Townhouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Minimum Lot Area</td>
<td>800 m²</td>
<td>1,000 m²</td>
<td>180 m²</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Lot Area Per Dwelling Unit</td>
<td>270 m²</td>
<td>150 m²</td>
<td>180 m²</td>
</tr>
<tr>
<td>4</td>
<td>Minimum Lot Frontage</td>
<td>18 metres</td>
<td>18 metres</td>
<td>6 metres</td>
</tr>
<tr>
<td>5</td>
<td>Minimum Front Yard</td>
<td>6 metres and as set out in Section 4.24 and 5.3.2.7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td>Minimum Exterior Side Yard</td>
<td>4.5 metres and in accordance with Sections 4.24, 4.28 and 5.3.2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Minimum Side Yard</td>
<td>See Section 5.3.2.2.</td>
<td>1.5m from the side of the Building</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Minimum Rear Yard</td>
<td>See Section 5.3.2.2.</td>
<td>7.5 metres</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Maximum Building Coverage (% of Lot Area)</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>9</td>
<td>Maximum Building Height</td>
<td>3 Storeys and in accordance with Sections 4.16 and 4.18.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Minimum Distance Between Buildings</td>
<td>See Section 5.3.2.3</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Minimum Common Amenity Area</td>
<td>See Section 5.3.2.4</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Minimum Private Amenity Area</td>
<td>See Section 5.3.2.5</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Minimum Landscaped Open Space (% of Lot Area)</td>
<td>40</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>14</td>
<td>Buffer Strip</td>
<td>Where an R.3 Zone abuts any other Residential Zone or any Institutional, Park, Wetland, or Urban Reserve Zone a Buffer Strip shall be provided. Buffer strips may be located in a required Side or Rear Yard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Fences</td>
<td>In accordance with Section 4.20.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Off-Street Parking</td>
<td>In accordance with Section 4.13.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Accessory Buildings or Structures</td>
<td>In accordance with Section 4.5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Maximum Number of Dwelling Units in a Row</td>
<td>12. Despite the proceeding, where units are adjacent to a public Street, the maximum number of Dwelling Units in a row shall be 8.</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>19</td>
<td>Garbage, Refuse Storage and Composters</td>
<td>In accordance with Section 4.9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Maximum Density of Site</td>
<td>See Section 5.3.2.6</td>
<td>-- -- --</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Maximum Driveway (Residential) width R.3B Zone On-Street Townhouses</td>
<td>See Section 4.13.7.2.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A drive-through *Use* associated with a *Financial Establishment* at the corner intersection of Gordon Street and Clair Road shall be permitted, subject to the vehicular drive-through facility being designed such that it is:

1. Not located between any *Building* and a public *Street*.
2. Significantly screened from public view from all public *Streets*.
3. Safely separated from pedestrian spaces and corridors.
4. Designed in a manner that is compatible with surrounding *Uses* and activities.
5. Provides a minimum of five (5) vehicular stacking spaces with a maximum of three (3) stacking spaces parallel to the *Street Line*.

(For purposes of this *Zone*, a Drive-Through *Use* shall be defined as:

A *Use* which involves or is designed to encourage a customer to remain in a vehicle while receiving a service, obtaining a product or completing a business transaction. The *Use* shall include vehicular stacking spaces, a serving window and may include an order intercom box).

6.4.3.1.55.2.3 **Minimum Building Height Requirement in Specific Locations**
The minimum *Building Height* requirement of all *Buildings* located at the corner intersection of Gordon Street and Clair Road shall be two (2) *Storeys*.

6.4.3.1.56 **SC.1-56 (H25)**
Silvercreek Parkway South
As shown on Defined Area Map Numbers 10 and 15

6.4.3.1.56.1 **Permitted Uses**
Despite the *Uses* permitted by Section 6.4.1.1 the *Uses* in the SC.1-56 (H25) *Zone* shall be limited to the following:

- *Restaurant*
- *Restaurant (take-out)*
- *Medical Office*
- *Personal Service Establishment*
- *Travel Agent*
- *Convenience Store*
- *Financial Establishment*
- *Food Vehicle* in accordance with Section 4.30
• Day Care Centre
• Dry Cleaning Outlet
• Video Rental Outlet
• Office
• Artisan Studio
• Art Gallery
• Florist
• Bake Shop
• Commercial School
• Veterinary Service
• Catering Service
• Dwellings Units with permitted commercial Uses in the same Building in accordance with Section 4.15.2
• Live-Work Units
• Accessory Uses in accordance with Section 4.23
• Occasional Uses in accordance with Section 4.21

The following definitions shall apply in the SC.1-56 (H25) Zone:

A "Live-Work Unit" shall mean a Dwelling Unit, part of which may be used as a business establishment and the Dwelling Unit is the principal residence of the business operator.

A "Street Entrance" shall mean the principal entrance to a business which shall be located in a part of the Building facing a public Street or public square which is at or within 0.2 metres above or below Finished Grade.

An "Art Gallery" shall mean a Place where works of art such as paintings, sculpture, pottery, glass and weaving are displayed for public viewing and shall include accessory sales of the works.

A "Drive-Through Use" shall mean a Use which involves or is designed to encourage a customer to remain in a vehicle while receiving a service, obtaining a product or completing a business transaction. The Use shall include vehicular stacking spaces and a serving window, and may include an intercom order box.

Retail Establishment Use
Notwithstanding 6.4.1.56.1, Retail Establishment shall be a permitted Use, limited to a total Gross Floor Area of 929 square metres (10,000 square feet).
6.4.3.1.56.2 Regulations

6.4.3.1.56.2.1 Maximum Total Gross Floor Area for Permitted Uses
3,900 sq. m (42,000 sq. ft.)

6.4.3.1.56.2.2 Maximum Gross Floor Area of an individual Office, Medical Office or Commercial School
465 sq. m (5,000 sq. ft.) per business.

6.4.3.1.56.2.3 Building Entrances
The Street Entrance to the each business shall be located facing Silvercreek Parkway South or the Market (Public) square.

6.4.3.1.56.2.4 Minimum Off-Street Parking

a) Office
1 space per 33 square metres of Gross Floor Area

b) Residential
1 space per unit

c) All other permitted commercial Uses
1 space per 23.2 sq. m (250 sq. ft.) of Gross Floor Area

6.4.3.1.56.2.5 Maximum Front and Exterior Side Yard (Build-to Line)
Despite the provisions of Table 6.4.2:

a) Buildings adjacent to Silvercreek Parkway and/or the public square shall be set back a minimum of 0 m (0 ft.) and a maximum of 3 m (10 feet) from Silvercreek Parkway and/or the Market (Public) square.

b) Buildings developed within 30 metres of the Neighbourhood Park (P.2) Zone east of Silvercreek Parkway shall be set back a minimum of 0 m (0 ft.) and a maximum of 3 m (10 feet) from the limits of that P.2 Zone.

c) The minimum Building Setback from the local Street shall be 2.0 metres.

6.4.3.1.56.2.6 Minimum Building Height Requirement
Any portion of a Building shall have a minimum Building Height equivalent to two (2) Storeys, and in no case less than 7.6 metres to the underside of the main roof deck.
6.4.3.1.56.2.7 Maximum Building Height
Despite the provisions of Table 6.4.2
• 4 Storeys

6.4.3.1.56.2.8 Planting Area
Despite Table 6.4.2, Row 17
• No planting area shall be required.

6.4.3.1.56.2.9 Uses Prohibited in Certain Locations

6.4.3.1.56.2.9.1 Drive-Through Uses shall be prohibited within 30 metres of the limits of the Market (Public) Square.

6.4.3.1.56.2.9.2 A Drive-Through Use in the SC.1-56 (H25) Zone shall also be:

a) Not located between any Building and a public Street.
b) Significantly screened from public view from all public Streets.
c) Safely separated from pedestrian spaces and corridors.

6.4.3.1.56.2.10 Severability Provision
The provisions of this By-law shall continue to apply collectively to the whole of the lands identified on Schedule “A” as SC.1-56 (H25), despite any future severance, partition or division for any purpose.
6.4.2 REGULATIONS

Within the Service Commercial (SC) Zones, no land shall be Used and no Building or Structure shall be erected or Used except in conformity with the applicable regulations contained in Section 4 - General Provisions, the regulations set out in Table 6.4.2, and the following:

6.4.2.1 Regulations Governing Car washes, Automatic and Car washes, Manual

6.4.2.1.1 Entry Ramps
There shall be no more than one entry ramp for each 15 metres of Street frontage and the width of any entry ramp shall not exceed 9 metres at the Street Line.

6.4.2.1.2 Number of Vehicle Standing Spaces
In accordance with Section 4.13.4.2.

6.4.2.1.3 Surfaces
The surfaces of all ramps, Driveways, service areas, and off-street loading areas shall be surfaced with a capped, hard top substance such as asphalt, or other stable surface treated to prevent the raising of dust and/or loose particles.

6.4.2.1.4 Enclosed Operations
Despite Section 4.22, the following shall apply to car wash establishments in the SC Zones:

6.4.2.1.4.1 All of the operations of a Car wash, Automatic or Car wash, Manual shall be conducted within an enclosed Building except for the moving and storage of Vehicles.

6.4.2.1.4.2 Despite Section 6.4.2.1.4.1, on-site vacuuming devices, and wiping or drying areas, where provided may be located outside the Main Building.
<table>
<thead>
<tr>
<th>Row</th>
<th>Commercial Type</th>
<th>Service Commercial</th>
<th>Highway Service Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Zones</td>
<td>SC.1</td>
<td>SC.2</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Lot Frontage</td>
<td>30 metres</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Minimum Front and Exterior Side Yard</td>
<td>6 metres and in accordance with Section 4.24.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Minimum Side Yard</td>
<td>3 metres except where adjacent to any residential Zones in which case the minimum Side Yard shall be no less than 6 metres or one half the Building Height, whichever is greater.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Minimum Rear Yard</td>
<td>One-half the Building Height but not less than 6 metres.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Maximum Building Height</td>
<td>3 Storeys and in accordance with Sections 4.16 and 4.18.</td>
<td>5 Storeys and in accordance with Sections 4.16 and 4.18.</td>
</tr>
<tr>
<td>8</td>
<td>Buffer Strips</td>
<td>Where a SC Zone abuts any Residential, Institutional, Park, Wetland, or Urban Reserve Zone, a buffer strip shall be developed.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Off-Street Parking</td>
<td>In accordance with Section 4.13.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Off-Street Loading</td>
<td>In accordance with Section 4.14.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Minimum Landscaped Open Space</td>
<td>10% of the Lot Area.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Outdoor Storage</td>
<td>In accordance with Section 4.12.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Fences</td>
<td>In accordance with Section 4.20.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Accessory Buildings or Structures</td>
<td>In accordance with Section 4.5.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Enclosed Operations</td>
<td>In accordance with Section 4.22.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Garbage, Refuse Storage and Composters</td>
<td>In accordance with Section 4.9.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Planting Area</td>
<td>A landscaped strip of land, 3 metres in width shall be maintained adjacent to the Street Line, except for those areas required for entry ramps.</td>
<td></td>
</tr>
</tbody>
</table>
5.4.3.1.35.2.4 **Common Amenity Area**
Despite Section 5.4.2.4.3, a **Common Amenity Area** may be provided in the **Front Yard** or **Exterior Side Yard**

5.4.3.1.35.2.5 **Underground Parking**
A minimum of 50% of the required parking shall be provided underground

5.4.3.1.35.2.6 **Maximum Exterior Side Yard Setback** (Build-to Line)
A minimum of 90% of the **Apartment Building** face shall be located at a maximum **Exterior Side Yard Setback** of 6 metres from Arkell Road

5.4.3.1.35.2.7 **Buffer Strips**
A minimum 3 metre **Buffer Strip** shall be provided along the southerly and easterly boundary of the site.

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**R.4A-36 (H25)**
Silvercreek Parkway South
As shown on Defined Area Map Number 15

5.4.3.1.36.1 **Permitted Uses**
In accordance with Section 5.4.1.1 of Zoning **By-law** (1955)-14864, except that the following **Use** shall not be permitted:

- **Maisonette**

5.4.3.1.36.2 **Regulations**
In accordance with Section 5.4.2 and Table 5.4.2 with the following exceptions:

5.4.3.1.36.2.1 **Minimum Density**
175 units/ha (70 units/ac.)

5.4.3.1.36.2.2 **Maximum Building Height**
8 **Storeys**, except within 30 metres of south property line where a maximum height of 4 **Storeys** shall apply.

5.4.3.1.36.2.3 **Minimum Building Height**
3 **Storeys**

5.4.3.1.36.2.4 **Maximum Front and Exterior Side Yard** (Build-to Line)
Despite the provisions of Table 5.4.2:

a) **Buildings** adjacent to Silvercreek Parkway shall be set back a minimum of 3.0 metres and a maximum of 6.0 metres from
Silvercreek Parkway

b) **Buildings** adjacent to the local public road located in the area between Silvercreek Parkway and Howitt Creek shall be set back a minimum of 2.0 metres and a maximum of 6.0 metres from that local road allowance.

c) **Buildings** developed within 30 metres of the Neighbourhood Park (P.2) **Zone** east of Silvercreek Parkway shall be set back a minimum of 2.0 metres and a maximum of 4.5 metres from the limits of that P.2 **Zone**.

5.4.3.1.36.2.5 Minimum **Rear Yard**
6 metres

5.4.3.1.36.2.6 Minimum **Setback** from the Railway Property Line
15 metres

5.4.3.1.36.2.7 **Severability Provision**
The provisions of this **By-law** shall continue to apply collectively to the whole of the lands identified on Schedule “A” as R.4-36 (H25), despite any future severance, partition or division for any purpose.

5.4.3.1.37 **R.4A-37**
1291 Gordon Street
As shown on Defined Map Number 32 of Schedule “A” of this **By-law**.

5.4.3.1.37.1 **Permitted Uses**
In accordance with the provisions of Section 5.4.1.1 of Zoning **By-law** (1995)-14864, as amended.

5.4.3.1.37.2 **Regulations**
In accordance with the provisions of Section 5.4.2 of Zoning **By-law** (1995)-14864, as amended, with the following exceptions and additions:

5.4.3.1.37.2.1 Minimum **Front Yard Setback**
Notwithstanding the provisions of Table 5.4.2, Row 6, the minimum **Front Yard Setback** shall be 3.0 metres.

5.4.3.1.37.2.2 Maximum **Front Yard Setback**
Notwithstanding the provisions of Table 5.4.2, Row 6, the maximum **Front Yard Setback** shall be 6.0 metres.

5.4.3.1.37.2.3 Minimum **Side Yard**
Notwithstanding the provisions of Table 5.4.2, Row 8, the minimum
5.4 **RESIDENTIAL APARTMENT (R.4) ZONES**

5.4.1 **PERMITTED USES**

The following are permitted Uses within the Residential Apartment R.4 Zones:

17187 5.4.1.1 **R.4A - General Apartment Zone**
- Apartment Building
- Nursing Home
- Home for the Aged
- Retirement Residential Facility
- Maisonette

- Accessory Uses in accordance with Section 4.23
- Home Occupation in accordance with Section 4.19.

16595 5.4.1.2 **R.4B - High Density Apartment Zone**
- Apartment Building
- Accessory Uses in accordance with Section 4.23
- Home Occupation in accordance with Section 4.19.

17187 5.4.1.3 **R.4C - Central Business District Apartment Zone**
- Apartment Building
- Nursing Home
- Home for the Aged
- Retirement Residential Facility

- Accessory Uses in accordance with Section 4.23
- Home Occupation in accordance with Section 4.19.

16595 5.4.1.4 **R.4D - Infill Apartment Zone**
The R.4D Zone shall only be utilized within the boundaries indicated on Defined Area Map Number 66 of Schedule "A" of this By-law. The R.4D Zone shall permit the following:
- Apartment Building
- Nursing Home
- Home for the Aged
- Retirement Residential Facility
- Maisonette

- Accessory Uses in accordance with Section 4.23
- Home Occupation in accordance with Section 4.19.
5.4.2 REGULATIONS
Within the Apartment R.4 Zones, no land shall be Used and no Building or Structure shall be erected or Used except in conformity with the applicable regulations contained in Section 4 - General Provisions, the regulations set out in Table 5.4.2, and the following:

5.4.2.1 Minimum Side Yard - R.4A and R.4B Zones
Despite Row 8 of Table 5.4.2, where windows of a Habitable Room face on a Side Yard, such Side Yard shall have a minimum width of not less than 7.5 metres.

5.4.2.2 Minimum Distance Between Buildings - R.4A and R.4B Zones
Where two or more Buildings are located on any one Lot, the following regulations shall apply:

5.4.2.2.1 The distance between the face of one Building and the face of another Building either of which contains windows of Habitable Rooms, shall be one-half the total height of the two Buildings, and in no case less than 15 metres.

5.4.2.2.2 The distance between the faces of any two Buildings with no windows to Habitable Rooms shall be a minimum of 15 metres.

5.4.2.3 Minimum Distance Between Buildings - R.4C and R.4D Zones
Where two or more Buildings are located on any one Lot, the following regulations shall apply:

5.4.2.3.1 The distance between the faces of two Buildings which contain windows of Habitable Rooms shall be one-half the Building Height to a maximum of 30 metres and a minimum of 5 metres.

5.4.2.3.2 The distance between the faces of any two Buildings with no windows to Habitable Rooms shall be a minimum of 5 metres.

5.4.2.4 Minimum Common Amenity Area

5.4.2.4.1 An amount not less than 30 m² per dwelling unit for each unit up to 20. For each additional dwelling unit, not less than 20 m² of Common Amenity Area shall be provided and aggregated into areas of not less than 50 m².

5.4.2.4.2 Amenity Areas shall be designed and located so that the length does not exceed 4 times the width.
5.4.2.4.3 A **Common Amenity Area** shall be located in any **Yard** other than the required **Front Yard** or required **Exterior Side Yard**.

5.4.2.4.4 **Landscaped Open Space** areas, **Building** roof tops, patios, and above ground decks may be included as part of the **Common Amenity Area** if recreational facilities are provided and maintained (e.g. swimming pools, tennis courts, lounges, and landscaped areas).

5.4.2.5 **Additional Building Regulations - R.4B Zone**

5.4.2.5.1 Despite Row 10 of Table 5.4.2, properties **Zoned** R.4B or specialized R.4B as defined by this **By-law** within the "Older Built-Up Area Outside the CBD" as indicated on Defined Area Map Number 68 shall have a maximum **Building Height** of 6 **Storeys** and shall be in accordance with Sections 4.16 and 4.18.

5.4.2.5.2 Properties **Zoned** R.4B or specialized R.4B as defined by this **By-law** within the "Older Built-Up Area Outside the CBD" as indicated on Defined Area Map Number 68 shall use the R.4C **Zone** regulations as specified in Table 5.4.2 for the following: minimum **Front** and **Exterior Side Yard**, minimum **Side Yard**, minimum **Rear Yard**, minimum distance between **Buildings**, minimum **Common Amenity Area**, minimum **Landscaped Open Space**, and **Floor Space Index** (F.S.I.).
<table>
<thead>
<tr>
<th>Row</th>
<th>Residential Type</th>
<th>General Apartment</th>
<th>High Density Apartment</th>
<th>Central Business District Apartment</th>
<th>Infill Apartment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Zones</td>
<td>R.4A</td>
<td>R.4B</td>
<td>R.4C</td>
<td>R.4D</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Lot Area</td>
<td></td>
<td></td>
<td>650 m²</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Minimum Lot Frontage</td>
<td></td>
<td></td>
<td>15 metres</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Maximum Density (units/ha)</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Minimum Front and Exterior Side Yard</td>
<td>6 metres and as set out in Section 4.24.</td>
<td>3 metres and in accordance with Section 4.24.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Maximum Front and Exterior Side Yard</td>
<td></td>
<td></td>
<td>6 metres</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Minimum Side Yard</td>
<td>Equal to one-half the Building Height but not less than 3 metres and in accordance with Section 5.4.2.1.</td>
<td>Equal to one-half the Building Height but in no case less than 3 metres, except where adjacent to any other R.4. Commercial, Industrial or Institutional Zone. In these circumstances, a minimum of 3 metres is required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Minimum Rear Yard</td>
<td>Equal to 20% of the Lot Depth or one-half the Building Height, whichever is greater, but in no case less than 7.5 metres.</td>
<td>Equal to 20% of the Lot Depth or one-half the Building Height, whichever is greater, but in no case less than 7.5 metres, except where adjacent to Commercial, Industrial or Institutional Zones. In these circumstances, a minimum of 7.5 metres is required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Maximum Building Height</td>
<td>8 Storeys and in accordance with Sections 4.16, 4.18 and Defined Area Map No. 68.</td>
<td>10 Storeys and in accordance with Sections 4.16, 4.18, 5.4.2.5 and Defined Area Map No. 68.</td>
<td>6 Storeys and in accordance with Sections 4.16, 4.18, 6.3.2.3 and Defined Area Map No. 68.</td>
<td>4 Storeys and in accordance with Sections 4.16, 4.18 and Defined Area Map No. 68.</td>
</tr>
<tr>
<td>11</td>
<td>Minimum Distance Between Buildings</td>
<td>See Section 5.4.2.2.</td>
<td></td>
<td>See Section 5.4.2.3.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Minimum Common Amenity Area</td>
<td>See Section 5.4.2.4.</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Minimum Landscaped Open Space</td>
<td>20% of the Lot Area for Building Heights from 1 - 4 Storeys and 40% of the Lot Area for Buildings from 5 - 10 Storeys.</td>
<td>The Front Yard of any Lot, excepting the Driveway, shall be landscaped. In addition, no parking shall be permitted within this Landscaped Open Space.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Off-Street Parking</td>
<td>In accordance with Section 4.13.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Buffer Strips</td>
<td>Where an R.4 Zone abuts any other Residential Zone or any Institutional, Park, Wetland, or Urban Reserve Zone, a Buffer Strip shall be developed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Accessory Buildings or Structures</td>
<td>In accordance with Section 4.5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Garbage, Refuse Storage and Composters</td>
<td>In accordance with Section 4.9.</td>
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<tr>
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<td>Floor Space Index (F.S.I.)</td>
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<td>1.5</td>
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<td>2</td>
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<tr>
<td>19</td>
<td>Fences</td>
<td>In accordance with Section 4.20.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Cemetery
- Cleaning Establishment (i.e. a dry cleaning facility)
- Contractor's Yard
- Disposal of leachable waste (including the spreading of biosolids)
- Facilities for treating or disposing of hazardous waste
- Furniture and wood stripping and refinishing
- Garden Centre
- Intensive livestock operations including the spreading of manure
- Meat Processing Plant
- Outdoor Storage of road salt or other de-icing materials and the ir salt laden snow
- Petroleum product refining and manufacturing
- Underground pipeline transmission of oil, gasoline, or other petro products
- Repair Service
- Sanitary Landfill Site
- Tradespersons' Shop
- Towing Establishment
- Trucking Operation
- Underground Storage Tank for Fuel or Hazardous substances
- Vehicle Gas Bar
- Vehicle Salvage Yard
- Vehicle Service Station (defined to include a Car Wash)
- Vehicle Wrecking Establishment
- Waste Transfer Station
- Wood preserving and treating

Permitted Uses
In accordance with Section 7.4.1 of Zoning By-law (1995) – 14864, with the following exceptions:

- Manufacturing (entirely within a Building)
- Warehouse (entirely within a Building)

and with the following additional permitted Uses:

- Club
- Maximum of one (1) Religious Establishment
- Recreation Centre
- Maximum of one (1) Apartment Building
7.3.5.6.2 Prohibited Uses
In accordance with Section 7.4.3 of Zoning By-law (1995)-14864 with the following additional prohibited Uses:

- Manufacturing (entirely within a Building)
- Warehouse (entirely within a Building)

7.3.5.6.3 Regulations
In accordance with Section 7.4.4 and Table 7.4 with the following exceptions:

7.3.5.6.3.1 Maximum Front and Exterior Side Yard (Build-to Line)

a) Buildings adjacent to Silvercreek Parkway shall be set back a minimum of 2 m and a maximum of 6 m from Silvercreek Parkway
b) Buildings adjacent to the local public road located in the area between Silvercreek Parkway and Howitt Creek shall be set back a minimum of 2 m and a maximum of 6 m from that local road allowance
c) Buildings developed within 30 metres of the Neighbourhood Park (P.2) Zone east of Silvercreek Parkway shall be set back a minimum of 2 m and a maximum of 4.5 m from the limits of that P.2 Zone

7.3.5.6.3.2 Minimum Building Height
2 Storeys

7.3.5.6.3.3 Minimum Setback from the Railway Property Line
30 metres

7.3.5.6.3.4 Additional Regulations for an Apartment Building

7.3.5.6.3.4.1 Maximum Number of Permitted Apartment Units
100 units

7.3.5.6.3.4.2 Use Restricted to Certain Location
The Apartment Building shall be located only within 70 m of the adjacent Neighbourhood Park (P.2) Zone east of Silvercreek Parkway.

7.3.5.6.3.4.3 Other Regulations for the Permitted Apartment Building
As per the provisions of the R.4A-36 (H25) Zone
7.3.5.6.3.5 Severability Provision
The provisions of this By-law shall continue to apply collectively to the whole of the lands identified on Schedule "A" as B.5-6 (H25), despite any future severance, partition or division for any purpose.

7.3.5.7
65 Hanlon Creek Boulevard
As shown on Defined Area Map Number 70 of Schedule "A" of this By-law.

7.3.5.7.1 Permitted Uses
In accordance with Sections 7.4.1, 7.4.2 and 7.4.3 of Zoning By-law (1995)-14864, as amended, with the following additional permitted Uses:

- Bake Shop
- Convenience Store
- Courier Service
- Day Care Centre
- Florist
- Financial Establishment
- Office Supply
- Personal Service Establishment
- Postal Service
- Recreation Centre
- Rental Outlet
- Restaurant
- Restaurant (take-out)
- Tavern

7.3.5.7.2 Regulations
In accordance with Section 7.4.4 of Zoning By-law (1995)-14864, as amended, with the following exceptions:

7.3.5.7.2.1 Off-Street Parking
Despite Sections 4.13 and 7.4.4.5 of the By-law, the minimum off-street parking required shall be 1 Parking Space per 23 square metres of Gross Floor Area.
B.5 (Corporate Business Park) Zone

7.4.1 Permitted Uses

- Catering Service
- Commercial School
- Computer Establishment
- Hotel
- Laboratory
- Mall
- Manufacturing (entirely within a Building)
- Medical Clinic
- Medical Office
- Office
- Post Secondary School
- Print Shop
- Public Hall
- Research Establishment
- Trade and Conventions Facilities
- Veterinary Service
- Warehouse (entirely within a Building)

7.4.2 Accessory Uses

Including but not limited to, Factory Sales Outlet, Recreation Centre, Restaurant are permitted provided that such use is subordinate, incidental and exclusively devoted to a permitted use and complies with Section 4.23.

7.4.3 Prohibited Uses

Any trade, business, manufacturer and related Uses deemed offensive or noxious by the Environmental Protection Act, as amended from time to time, or any successor thereof, shall be prohibited.

- Abattoir
- Bulk Storage of Petroleum Products
- Contractor's Yard
- Meat Processing Plant
- Repair Service
- Sanitary Landfill Site
- Tradespersons' Shop
- Towing Establishment
- Trucking Operation
- Waste Transfer Station
7.4.4 Regulations

Within the Corporate Business Park (B.5) Zones, no land shall be Used and no Building or Structure shall be erected or Used except in conformity with the applicable regulations contained in Section 4 — General Provisions, the regulations set out in Table 7.4 and the following:

7.4.4.1 Minimum Side and Rear Yards

Despite Row 4 and Row 5 of Table 7.4, where any Corporate Business Park Zone abuts a Residential, Urban Reserve, or Park Zone the Minimum Side or Rear Yard shall be 10 metres or one-half the Building Height, whichever is greater.

Notwithstanding the minimum Side and Rear Yards the minimum Setback from the Hanlon Expressway shall be 14 metres.

Where a B.5 Corporate Business Park Zone abuts a rail spur right-of-way, no Side or Rear Yard is required.

7.4.4.2 Accessory Uses

Despite Row 6 of Table 7.4, with B.5 Zones, the maximum area for an Accessory Use in a Mall shall be determined in the basis of the Gross Floor Area of each individual unit in the Mall and not the Gross Floor Area of the entire Building.

7.4.4.3 Off-Street Loading Space Requirements – B.5 Zones

No Loading Spaces shall be located in the Front Yard or Exterior Side Yard or any Yard between a Lot Line abutting Hanlon Road or Hanlon Parkway and the nearest wall of the Main Building on the same Lot. A landscaped strip consisting of trees, shrubbery and/or berms shall screen the Loading Space so that it is not visible from any public Street.

In addition to Section 4.14, within Corporate Business Park Zone (B.5) Zones adequate space shall be provided on-site for the temporary parking of vehicles awaiting access to Loading Spaces, exclusive of areas Used for parking or storage, and Loading Space access areas shall be designed to avoid interference with the normal Use of the Street and with internal on-site Vehicle circulation.

7.4.4.4 Minimum Building Size Requirements

For properties within the B.5 Zone, the following minimum Building sizes shall be required:
-10 per cent of the Lot Area for Lots 3 acres or less in size, but in no
case less than 464.5 m²
-15 per cent of the Lot Area for Lots between 3-10 acres in size
-20 per cent of the Lot Area for Lots over 10 acres.

7.4.4.5 For 'Manufacturing' and 'Mall', the following parking requirements
shall apply:
-1 Parking Space per 50 square metres up to 1,000 square metres of
Gross Floor Area.
-1 Parking Space per 100 square metres between 1,000 square
metres and 5,000 square metres of Gross Floor Area, and
-1 Parking Space per 150 square metres over 5,000 square metres of
Gross Floor Area.
### TABLE 7.4 - REGULATIONS GOVERNING CORPORATE BUSINESS PARK (B.5) ZONES

<table>
<thead>
<tr>
<th></th>
<th>Zone(s)</th>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>B.5</td>
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</tr>
<tr>
<td>2</td>
<td>Minimum Lot Frontage</td>
<td>30 metres</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Front and Exterior Side Yard</td>
<td>6 metres and in accordance with Section 4.24.</td>
</tr>
<tr>
<td>4</td>
<td>Minimum Side Yard</td>
<td>6 metres and in accordance with Section 7.4.4.1</td>
</tr>
<tr>
<td>5</td>
<td>Minimum Rear Yard</td>
<td>6 metres and in accordance with Section 7.4.4.1</td>
</tr>
<tr>
<td>6</td>
<td>Accessory Uses</td>
<td>Not more than 25% of the Building floor area shall be Used for any Accessory Uses permitted in a B.5 Zone and in accordance with Section 7.4.4.2</td>
</tr>
<tr>
<td>7</td>
<td>Off-Street Parking</td>
<td>In accordance with Section 4.13. In addition to Section 4.13.3.3, all parking and driveway areas shall have an impervious or paved surface. Further, in spite of Section 4.13.2.4.1, no Parking Area shall be located within 6 metres of a Street Line</td>
</tr>
<tr>
<td>8</td>
<td>Off-Street Loading</td>
<td>In accordance with Sections 4.14 and 7.4.4.3</td>
</tr>
<tr>
<td>9</td>
<td>Outdoor Storage</td>
<td>Prohibited</td>
</tr>
<tr>
<td>10</td>
<td>Minimum Landscaped Open Space</td>
<td>15% of the Lot area. The required minimum 6 metre front and exterior side yard on any lot except the driveway shall be landscaped. Further, a minimum landscaped area 9.0 metres in width shall be provided along any lot line directly facing the Hanlon Expressway</td>
</tr>
<tr>
<td>11</td>
<td>Buffer Strips</td>
<td>Where a B.5 Zone abuts any Residential, Institutional, Wetland, or Urban Reserve Zone, a Buffer Strip shall be developed</td>
</tr>
<tr>
<td>12</td>
<td>Maximum Building Height</td>
<td>20 metres, with exception of a hotel which is permitted a maximum building height of 32 metres and in accordance with Section 4.18</td>
</tr>
<tr>
<td>13</td>
<td>Fences</td>
<td>In accordance with Section 4.20</td>
</tr>
<tr>
<td>14</td>
<td>Garbage, Refuse Storage and Composters</td>
<td>In accordance with Section 4.9</td>
</tr>
<tr>
<td>15</td>
<td>Maximum Public Floor Space</td>
<td>A maximum of 30% of the Gross Floor Area of an industrial mall building may be used for display and sales areas or assembly occupancies open to the public. In the case of phased construction, not more than 30% of the actual area shall be used for display and sales area of public assembly occupancies at any time</td>
</tr>
<tr>
<td>16</td>
<td>Minimum Building Size Requirements</td>
<td>In accordance with Section 7.4.4.4</td>
</tr>
<tr>
<td>17</td>
<td>Accessory Buildings or Structures</td>
<td>In accordance with Section 4.5. Despite Section 4.5.2.2, within B.5 Zones, accessory buildings or structures may be constructed to the height of the Main Building</td>
</tr>
</tbody>
</table>
Conditions
Prior to the removal of the Holding symbol (H), the owners shall complete the following conditions to the satisfaction of the City:

1. That the owners enter into an Engineering Services Agreement with the City satisfactory to the City Engineer.

2. That the owners agree to pay their share of the actual cost of constructing and installing the following works:
   a. sanitary sewer complete with all appurtenances including restoration on College Avenue from Power House Lane to the middle of the lands associated with 222 College Avenue East;
   b. sanitary sewer laterals including restoration to each of the properties.

3. That the owners pay to the City, the City's estimate of the cost of constructing the above noted works.

4. That the owners have connected their dwellings to the municipal watermain to the satisfaction of the City Engineer and the City's Plumbing Inspector. Furthermore, the owners have paid to the City all unpaid frontage and lateral charges in accordance with the policies of the City.

5. That the owners have connected their dwellings to the municipal sanitary sewer to the satisfaction of the City Engineer and the City's Plumbing Inspector.

6. That any domestic wells on the properties have been properly abandoned in accordance with current Ministry of the Environment Regulations and Guidelines to the satisfaction of the City Engineer.

7. That the owners have entered into an Agreement with the City, registered on title, satisfactory to the City Solicitor covering the above noted conditions.

(H25) Silver Creek Junction
As shown on Defined Area Map Numbers 10 and 15

Purpose:
To ensure that development of the subject lands does not proceed until
the following conditions have been met to the satisfaction of the City related to the subject development.

Conditions:

1. Completion and final approval of the class environmental assessment processes for a grade-separated crossing at the intersection of Silvercreek Parkway and the C.N.R. rail line at the north edge of the subject lands; and for the realignment of Silvercreek Parkway between Paisley Road and Waterloo Avenue and a new public road on the subject lands east of Silvercreek Parkway [right-of-way of 18 m (59 ft.)]

2. Registration on title to the subject lands of an executed Site Plan Agreement which addresses, among other items, appropriate infrastructure requirements

3. The Owner entering into an agreement for a financial contribution to the construction of a stormwater management facility on the portion of the subject lands east of Howitt Creek

4. Conveyance of any lands required for the underpass and road projects noted above, and for the stormwater management facility east of Howitt Creek, and for the proposed parks on the subject lands between Silvercreek Parkway and Howitt Creek, with the exception of the Market (public) square.

5. The awarding of contracts for the construction of the underpass, road and stormwater management projects noted above.

2.9.1 (xxvi) (H26) Deleted by By-law Number (2015)-19946

2.9.1 (xxvii) (H27) 78 Starwood Drive – southerly portion (Defined Area Map 62)

Purpose
To ensure that development of the subject lands does not proceed until the following condition has been met to the satisfaction of the City.

Conditions
The necessary assembly or consolidation of any lands required to ensure orderly development and satisfactory driveway access in association with abutting developable lands with frontage on Watson Parkway North.

2.9.1 (xxiii) (H28) 78 Starwood Drive – northerly portion (Defined Area Map 62)
APPENDIX B

Railway Guideline Requirements
PRINCIPAL MAIN LINE REQUIREMENTS FOR NEW DEVELOPMENT

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 30 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.5 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. Noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 5.5 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, GO Transit may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, +3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way.

Warning: Metrolinx, carrying on business as GO Transit, and its assigns and successors in interest has or have a right-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future including the possibility that GO Transit or any railway entering into an agreement with GO Transit to use the right-of-way or their assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.

F. Any proposed alterations to the existing drainage pattern affecting the railway right-of-way must receive prior concurrence from GO Transit and be substantiated by a drainage report to the satisfaction of GO Transit.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of GO Transit.

H. The Owner enter into an Agreement stipulating how GO Transit’s concerns will be resolved and will pay GO Transit’s reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant GO Transit an environmental easement for operational emissions, registered on title against the subject property in favour of GO.
PRINCIPAL BRANCH LINE REQUIREMENTS

A. Safety setback of dwellings from the railway rights-of-way to be a minimum of 15 metres in conjunction with a safety berm. The safety berm shall be adjoining and parallel to the railway rights-of-way with returns at the ends, 2.0 metres above grade at the property line, with side slopes not steeper than 2.5 to 1.

B. The Owner shall engage a consultant to undertake an analysis of noise. At a minimum, a noise attenuation barrier shall be adjoining and parallel to the railway rights-of-way, having returns at the ends, and a minimum total height of 4.0 metres above top-of-rail. Acoustic fence to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre of surface area. Subject to the review of the noise report, the Railway may consider other measures recommended by an approved Noise Consultant.

C. Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec RMS between 4 Hz and 200 Hz. The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, ±3 dB with an RMS averaging time constant of 1 second. If in excess, isolation measures will be required to ensure living areas do not exceed 0.14 mm/sec RMS on and above the first floor of the dwelling.

D. The Owner shall install and maintain a chain link fence of minimum 1.83 metre height along the mutual property line.

E. The following clause should be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or Lease of each dwelling unit within 300m of the railway right-of-way: "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way.”

F. Any proposed alterations to the existing drainage pattern affecting railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

G. The Owner shall through restrictive covenants to be registered on title and all agreements of purchase and sale or lease provide notice to the public that the safety berm, fencing and vibration isolation measures implemented are not to be tampered with or altered and further that the Owner shall have sole responsibility for and shall maintain these measures to the satisfaction of CN.

H. The Owner enter into an Agreement stipulating how CN’s concerns will be resolved and will pay CN’s reasonable costs in preparing and negotiating the agreement.

I. The Owner may be required to grant CN an environmental easement for operational noise and vibration emissions, registered against the subject property in favour of CN.

March 2002

A wholly owned subsidiary of Canadian National Railway Company / Une filiale en propriété exclusive de la Compagnie des chemins de fer nationaux du Canada
NON-RESIDENTIAL DEVELOPMENT ADJACENT TO THE RAILWAY RIGHT-OF-WAY
(Main Lines)

CN recommends the following protective measures for non-residential uses adjacent Main Lines (note some are requirements):

- A minimum 30 metre building setback, from the railway right-of-way, in conjunction with a 2.5 metre high earthen berm or 2.0 metres for a secondary main line, is recommended for institutional, commercial (i.e. office, retail, hotel, restaurants, shopping centres, warehouse retail outlets, and other places of public assembly) and recreational facilities (i.e. parks, outdoor assembly, sports area).

- A minimum 15 metre building setback, from the railway right-of-way, is recommended for heavy industrial, warehouse, manufacturing and repair use (i.e. factories, workshops, automobile repair and service shops).

- A minimum 30 metre setback is **required** for vehicular property access points from at-grade railway crossings. If not feasible, restricted directional access designed to prevent traffic congestion from fouling the crossing may be a suitable alternative.

- A chain link fence of minimum 1.83 metre height is **required** to be installed and maintained along the mutual property line.

- Any proposed alterations to the existing drainage pattern affecting Railway property **require** prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

- While CN has no noise and vibration guidelines that are applicable to non-residential uses, it is recommended the proponent assess whether railway noise and vibration could adversely impact the future use being contemplated (hotel, laboratory, precision manufacturing). It may be desirable to retain a qualified acoustic consultant to undertake an analysis of noise and vibration, and make recommendations for mitigation to reduce the potential for any adverse impact on future use of the property.

- There are no applicable noise, vibration and safety measures for unoccupied buildings, but chain link fencing, access and drainage requirements would still apply.
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<td>33,200</td>
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<td>UC</td>
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<td>WILLOW RD</td>
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<td></td>
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<td>1990</td>
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<td>21,800</td>
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<td>Dist. (KM)</td>
<td>Year</td>
<td>Pattern Type</td>
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<td>SADT</td>
<td>SAWDT</td>
<td>WADT</td>
<td>AR</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>-----------</td>
<td>------</td>
<td>--------------</td>
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<td>------</td>
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<td>SPEEDVALE AV</td>
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<td>1988</td>
<td>C</td>
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<td>15,900</td>
<td>17,100</td>
<td>14,200</td>
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<td></td>
<td></td>
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<td>C</td>
<td>15,400</td>
<td>17,000</td>
<td>17,200</td>
<td>13,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>1990</td>
<td>C</td>
<td>15,700</td>
<td>17,300</td>
<td>17,300</td>
<td>14,000</td>
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<td>1991</td>
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<td></td>
<td></td>
<td>1992</td>
<td>C</td>
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<td>16,900</td>
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<td></td>
<td>1993</td>
<td>C</td>
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<td>15,200</td>
<td>16,600</td>
<td>13,600</td>
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<tr>
<td></td>
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<td>1994</td>
<td>C</td>
<td>15,700</td>
<td>16,600</td>
<td>18,200</td>
<td>14,300</td>
</tr>
</tbody>
</table>
Hello Sheeba,

The 2016 commercial percentage on Highway 6 from Highway 7/Wellington Street to Willow Road is 6.6.

Trusting this is helpful.

Heather Hanson
Traffic Supervisor
West Region, London

Good Morning Colleen,

Just wondering about whether or not you had a chance to take a look at the traffic percentage request I sent you earlier last week for Highway 6 in Guelph.

Any update provided would be greatly appreciated.

Thank you.

Best,

Yvonne Lo, BASc, EIT
Project Consultant

HGC Engineering  NOISE | VIBRATION | ACOUSTICS
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada  L5N 1P7
t: 905.826.4044  e: ylo@hgcengineering.com
Visit our website: www.hgcengineering.com  Follow Us – LinkedIn | Twitter | YouTube

This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any
APPENDIX D

Rail Traffic Data
Train Count Data

TRANSMITTAL

To: HGC Engineering

Destinataire : 2000 Argenta Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7

Att'n: Yvonne Lo

From: Michael Vallins

Expéditeur :

Cc: Adjacent Development
CN via e-mail

Project : GPH – 50.24 – Silvercreek Pkwy S, Guelph, ON
GPH – 49.80(29.51) – Silvercreek Pkwy S, Guelph, ON

Routing: ylo@hgcengineering.com

Date: 2019/11/7

☐ Urgent ☐ For Your Use ☐ For Review ☐ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Guelph Subdivision and CN Fergus Spur track near Silvercreek Pkwy S Guelph, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of $500.00 +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at 905-669-3264.

Sincerely,

CN Design & Construction

Michael Vallins P.Eng
Manager of Public Works
permits.gld@cn.ca
Dear Yvonne Lo:

Re:  **Train Traffic Data – CN Guelph Subdivision near Silvercreek Pkwy S Guelph, ON**

The following is provided in response to Yvonne Lo’s 2019/10/31 request for information regarding rail traffic in the vicinity of Silvercreek Pkwy S in Guelph, ON at approximately Mile 50.24 on CN’s Guelph Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

*Maximum train speed is given in Miles per Hour*

<table>
<thead>
<tr>
<th>Type of Train</th>
<th>0700-2300 Volumes</th>
<th>Max.Consist</th>
<th>Max. Speed</th>
<th>Max. Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>1</td>
<td>140</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Way Freight</td>
<td>1</td>
<td>25</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Passenger</td>
<td>4</td>
<td>10</td>
<td>70</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Train</th>
<th>2300-0700 Volumes</th>
<th>Max.Consist</th>
<th>Max. Speed</th>
<th>Max. Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>2</td>
<td>140</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Way Freight</td>
<td>0</td>
<td>25</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Passenger</td>
<td>0</td>
<td>10</td>
<td>70</td>
<td>2</td>
</tr>
</tbody>
</table>

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN’s Guelph Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are five (5) at-grade crossings in the immediate vicinity of the study area at Mile 49.33 Yorkshire St, Mile 49.54 Edinburgh Rd, Mile 49.79 Alma St, Mile 51.80 Farm Xing and Mile 52.09 Farm Xing. Anti-whistling bylaws are not in effect at these crossings. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.
The single mainline track is considered to be continuously welded rail throughout the study area. The presence of nine (9) switches located at Mile 49.46, Mile 49.48, Mile 49.51, Mile 49.75, Mile 49.79, Mile 49.80 and Mile 49.87, Mile 50.19 and Mile 50.21 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

[Signature]

Michael Vallins P.Eng
Manager of Public Works
Dear Yvonne Lo:

Re: **Train Traffic Data – CN Fergus Spur track on the Guelph Subdivision near Silvercreek Pkwy S Guelph, ON**

The following is provided in response to Yvonne Lo’s 2019/10/31 request for information regarding rail traffic in the vicinity of Silvercreek Pkwy S in Guelph, ON near CN’s Fergus Spur at approximately Mile 29.51 off of CN’s Guelph Subdivision approximately Mile 49.80.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

*Maximum train speed is given in Miles per Hour*

<table>
<thead>
<tr>
<th>Type of Train</th>
<th>Volumes</th>
<th>Max.Consist</th>
<th>Max. Speed</th>
<th>Max. Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>0</td>
<td>140</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Way Freight</td>
<td>1</td>
<td>25</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Passenger</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Train</th>
<th>Volumes</th>
<th>Max.Consist</th>
<th>Max. Speed</th>
<th>Max. Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>0</td>
<td>140</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Way Freight</td>
<td>1</td>
<td>25</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Passenger</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

The volumes recorded reflect southbound and northbound freight and passenger operations on CN’s Fergus Spur of CN’s Guelph Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are three (3) at-grade crossings in the immediate vicinity of the study area at Mile 28.60 Fife Rd, Mile 29.51 Silvercreek Pkwy S and Mile 29.98 Alma St. Anti-whistling bylaws are not in effect at these crossings. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.
The single mainline track is considered to be continuously welded rail throughout the study area. The presence of one (1) switch located at Mile 30.9 may exacerbate the noise and vibration caused by train movements.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Michael Vallins P.Eng
Manager of Public Works
February 5, 2018 (via email)

Re: GEXR Rail Traffic Data Request – Guelph & Fergus Subdivision – Guelph, ON

As per your request, the following information is provided for the area bordered by Highway 6 to the West, Highway 7 to the South, Silvercreek Parkway to the East, and Paisley Road to the North in Guelph, Ontario.

The typical daily rail traffic volumes are representative of a twenty four (24) hour period, however volumes are subject to overall economic conditions and will fluctuate with varying traffic demands, weather conditions, track maintenance programs and statutory holidays.

At the specified location, the Guelph Subdivision, principally east-west in direction, owned by Metrolinx, is a single track principal main line constructed using continuous welded rail, and the Fergus Spur, owned by CN, principally north-south in direction, is a single track principal branch line constructed using bolted rail. Within the city limits of Guelph, whistling by trains except to prevent accident, warn persons on or about tracks is prohibited.

At present the number of trains which are scheduled to operate at the specified location Monday to Friday on the Guelph Subdivision between 0545 and 2145 are seven (7) passenger trains, two (2) freight trains, and two (2) switchers and on the Fergus Spur between 0730 and 1600 are two (2) switchers.

At present the number of trains which are scheduled to operate at the specified location Saturday and Sunday between 0545 and 2145 are three (3) passenger trains, two (2) freight trains, and two (2) switchers on the Guelph Subdivision. Weekend operations on the Fergus Spur are on an Ad Hoc basis.

Between the hours of 2145 to 0545 Monday through Sunday, there are currently no regularly scheduled trains.

NOTE: Unscheduled train movements may occur at any time in any direction. For your safety, do not enter railway property at any time without permission and an escort from a GEXR representative.
Passenger trains normally operate on average with one (1) locomotive and two to ten (2-10) coaches, freight trains are normally operated with one to three (1-3) locomotives and up to 100 cars.

On the Guelph Subdivision at this location, passenger trains may operate at up to a maximum speed of seventy (70) miles per hour while freight train speeds are a maximum of fifty five (55) miles per hour and typically accelerating or decelerating. On the Fergus Spur, freight trains are limited to a maximum of ten (10) miles per hour.

A small yard is also in the vicinity of this location north of the Guelph Subdivision between Alma Street and Edinburgh Road North where shunting operations take place on a daily basis during the week.

If you have any further questions or are unclear about any of this information, please contact us for assistance.

Sincerely,

Adrian Tena-Russell
Regional Railroad Engineer
Goderich-Exeter Railway Company Limited
APPENDIX E

Sample STAMSON 5.04 Output
Future sound levels at the proposed townhouse unit adjacent to the north railway, Prediction Location [B].

Rail data, segment # 1: North (day/night)

<table>
<thead>
<tr>
<th>Train Type</th>
<th>Trains</th>
<th>Speed (km/h)</th>
<th># loc</th>
<th># Cars</th>
<th>Eng</th>
<th>Weld</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Passenger</td>
<td>5.1/0.0</td>
<td>112.0</td>
<td>1.0</td>
<td>10.0</td>
<td>Diesel</td>
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<tr>
<td>2. Freight</td>
<td>2.6/2.6</td>
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<td>3.0</td>
<td>100.0</td>
<td>Diesel</td>
<td>Yes</td>
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<tr>
<td>3. Switcher</td>
<td>2.6/0.0</td>
<td>88.0</td>
<td>2.0</td>
<td>10.0</td>
<td>Diesel</td>
<td>Yes</td>
</tr>
<tr>
<td>4. GO</td>
<td>14.1/6.4</td>
<td>112.0</td>
<td>1.0</td>
<td>12.0</td>
<td>Diesel</td>
<td>Yes</td>
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The identified number of trains have been adjusted for future growth using the following parameters:

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<th>Train type</th>
<th>Unadj</th>
<th>Annual %</th>
<th>Years of</th>
</tr>
</thead>
<tbody>
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<td>1. Passenger</td>
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<td>2.50</td>
<td>10.00</td>
</tr>
<tr>
<td>2. Freight</td>
<td>2.0/2.0</td>
<td>2.50</td>
<td>10.00</td>
</tr>
<tr>
<td>3. Switcher</td>
<td>2.0/0.0</td>
<td>2.50</td>
<td>10.00</td>
</tr>
<tr>
<td>4. GO</td>
<td>11.0/5.0</td>
<td>2.50</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Results segment # 1: North (day)

| Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq |
|------------------|---------------|--------------|----------|----------|-------|-------|-------|-------|----------|
| -90   90        | 0.41          | 70.69        | -6.70    | -0.99    | 0.00  | 0.00  | 0.00  | 62.99 |
| -90   90        | 0.51          | 63.51        | -7.20    | -1.19    | 0.00  | 0.00  | 0.00  | 55.11 |
Segment Leq : 63.65 dBA
Total Leq All Segments: 63.65 dBA

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

LOCOMOTIVE (0.00 + 63.33 + 0.00) = 63.33 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---------------------------------------------------------------------
-90     90   0.41  71.03 -6.70 -0.99   0.00   0.00   0.00  63.33
---------------------------------------------------------------------

WHEEL (0.00 + 55.90 + 0.00) = 55.90 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---------------------------------------------------------------------
-90     90   0.51  64.30 -7.20 -1.19   0.00   0.00   0.00  55.90
---------------------------------------------------------------------

Segment Leq : 64.05 dBA
Total Leq All Segments: 64.05 dBA

Road data, segment # 1: HWY 6 (day/night)
-----------------------------------------
Car traffic volume  : 19426/3428 veh/TimePeriod *
Medium truck volume :   520/92   veh/TimePeriod *
Heavy truck volume  :   853/150  veh/TimePeriod *
Posted speed limit  :    70 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):  17750
Percentage of Annual Growth        :   2.50
Number of Years of Growth          :  13.00
Medium Truck % of Total Volume     :   2.50
Heavy Truck  % of Total Volume     :   4.10
Day (16 hrs) % of Total Volume     :  85.00

Data for Segment # 1: HWY 6 (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 390.00 / 390.00 m
Receiver height           :  7.50 / 7.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: HWY 6 (day/night)
Car traffic volume: 19426/3428 veh/TimePeriod *
Medium truck volume: 520/92 veh/TimePeriod *
Heavy truck volume: 853/150 veh/TimePeriod *
Posted speed limit: 70 km/h
Road gradient: 0 %
Road pavement: 1 (Typical asphalt or concrete)

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

<table>
<thead>
<tr>
<th>Traffic Volume (AADT or SADT)</th>
<th>17750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Annual Growth</td>
<td>2.50</td>
</tr>
<tr>
<td>Number of Years of Growth</td>
<td>13.00</td>
</tr>
<tr>
<td>Medium Truck % of Total Volume</td>
<td>2.50</td>
</tr>
<tr>
<td>Heavy Truck % of Total Volume</td>
<td>4.10</td>
</tr>
<tr>
<td>Day (16 hrs) % of Total Volume</td>
<td>85.00</td>
</tr>
</tbody>
</table>

Data for Segment # 2: HWY 6 (day/night)

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>0</td>
<td>0.48</td>
<td>71.94</td>
<td>0.00</td>
<td>-20.97</td>
<td>-4.15</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>46.82</td>
</tr>
</tbody>
</table>

Results segment # 1: HWY 6 (day)

Source height = 1.42 m
ROAD (0.00 + 46.82 + 0.00) = 46.82 dBA

---

Segment Leq: 46.82 dBA

Results segment # 2: HWY 6 (day)

Source height = 1.42 m
ROAD (0.00 + 46.26 + 0.00) = 46.26 dBA

---

Source height = 1.42 m
ROAD (0.00 + 46.26 + 0.00) = 46.26 dBA
---
-90 0 0.48 71.94 0.00 -21.53 -4.15 0.00 0.00 0.00
46.26
---

Segment Leq : 46.26 dBA

Total Leq All Segments: 49.56 dBA

Results segment # 1: HWY 6 (night)
----------------------------------

Source height = 1.42 m

ROAD (0.00 + 42.29 + 0.00) = 42.29 dBA

---
-90 0 0.48 67.41 0.00 -20.97 -4.15 0.00 0.00 0.00
42.29
---

Segment Leq : 42.29 dBA

Results segment # 2: HWY 6 (night)
----------------------------------

Source height = 1.42 m

ROAD (0.00 + 41.73 + 0.00) = 41.73 dBA

---
-90 0 0.48 67.41 0.00 -21.53 -4.15 0.00 0.00 0.00
41.73
---

Segment Leq : 41.73 dBA

Total Leq All Segments: 45.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.82
(NIGHT): 64.10