DILLON CONSULTING

Resident Properties Ltd.

Noise Assessment

705 Kingston Road, Pickering, Ontario

November 2024 – 24-9026

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Appendices (provided separately)

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1.0 Introduction

1.1 Purpose and Objective

Dillon Consulting Limited (Dillon) was retained by Resident Properties Inc. (Resident) to complete a noise assessment as requested by the Region of Durham for the 705 Kingston Road proposed development. The proposed development consists of five residential towers, located east of Whites Road, south of Kingston Road, and north of the Highway 401 in Pickering, Ontario. This study has been completed in support of the submission application for the proposed development.

The noise assessment presented herein was prepared in accordance with the guidelines and requirements of the Region of Durham and the Ontario Ministry of Environment, Conservation and Parks (MECP) noise publication NPC-300. The assessment focuses on noise impacts from the surrounding environment on the proposed development.

The purpose of the noise assessment is to ultimately create a suitable acoustical environment for the protection of residents of the proposed noise sensitive land uses, to protect existing and/or formally approved transportation corridors, and to create compatible land uses and avoid potential adverse effects due to noise.

1.2 The Project and Surrounding Areas

The proposed development is located to the east of Whites Road, south of Kingston Road, and north of the Highway 401 in Pickering, Ontario. There are commercial businesses, open space, and railway lines in the immediate vicinity of the proposed development parcel. Located to the north, east, and west are commercial properties, located to the south are open spaces and railway lines. The subject site and surrounding area are shown in **Figure 1**.

Currently, the proposed development land parcel is a commercial plaza. The proposed development consists of the following buildings:

- Building 1 – 28 Storeys
- Building 2 – 31 Storeys
- Building 3 – 35 Storeys
- Building 4 – 35 Storeys

- Building 5 – 35 Storeys

The land of the proposed development is currently zoned as an Urban mixed use or residential area (by-law 3036). Immediately surrounding the proposed development are the following zoned lands:

- North – Residential District (R1B);
- East – Residential District (R1B) and Open Space (OS1)
- South – Residential District (SR) and agricultural lands (A); and
- West – Residential District (1B-25).

The concept plan of the proposed development and zoning map is provided in **Appendix A**.

2.0 Impacts from the Environment on the Proposed Development

A review of the site and surrounding area has been conducted to determine potential stationary noise sources associated with commercial and industrial properties in proximity of the proposed development as well as potential noise impacts from transportation sources (road and rail).

2.1 Stationary Noise

The MECP's land-use compatibility guidelines (D-series) are intended to prevent or minimize the encroachment of sensitive land uses upon industrial/commercial land uses and vice versa, as these two types of land uses are normally incompatible, due to possible adverse effects on the sensitive land use. The guidelines were designed to reduce potential complaints and protect sensitive land uses while upholding the ability of commercial and industrial properties to maintain compliance with MECP requirements.

The D-6 guideline separates industries into three classes based on the scale of the industry's operation. This involves considerations including, but not limited to: probability of fugitive emissions, schedule of operations, and production volume. The D-6 criteria for industry classification are shown in **Appendix B.** The guideline provides setback distances for each class representing potential influence areas and recommended minimum separation distances shown in **Table 1**.

Table 1: D-6 Influence Areas and Recommended Separation Distances

Industrial Class	Potential Influence Area	Recommended Minimum Separation Distance
Class I	70 metres (m)	20 m
Class II	300 m	70 m
Class III	1000 m	300 m

The D-6 guideline specifies that for site-specific plans, measurement shall be from the closest existing, committed, or proposed property/lot line of the industrial land use to the property/lot line of the closest existing, committed, or proposed sensitive land use. Areas designated for ancillary land uses that are not of a sensitive nature (such as a parking lot) may be included within the separation distance.

When considering vacant industrial land, determination of its potential influence area is based on a hypothetical "worst case scenario" for which the zoned area is committed.

2.2 Nearby Industries

Dillon reviewed the area surrounding the subject lands in order to classify the existing industrial and commercial lands using the MECP's D-Series framework, as well as to identify nearby vacant lands which are zoned to allow for commercial or industrial uses. Additionally, a site visit was conducted by Dillon personnel on October 9, 2024, to identify industrial or commercial operations with the potential influence areas that intersect the Proposed Development.

Industries were classified based on site visit observations, review of existing MECP approvals documents, and through publicly available information.

Within the study area, the only industry identified with potential for adverse effects on the Proposed Development was the Michael Boyer Chevrolet Cadillac Buick GMC Dealership and service centre (auto centre) located at 715 Kingston Road and approximately 50 m east of the Proposed Development's property boundary. Based on observations made during the site visit, the auto centre is considered a Class II industry with the potential to have noise impacts on the Proposed Development.

As per the D-6 Guideline, the Proposed Development is located within the potential influence area of the auto centre. The following sections provide an assessment of the potential noise impacts from the auto centre on the Proposed Development.

2.2.1 Noise Sources

Dillon has identified the following potential noise sources associated with the servicing area of the auto centre:

- 6 Rooftop HVAC units;
- 2 Paint Spray Booth Exhausts; and
- Air tools used within the service centre while bay doors are open.

The locations of the noise sources are identified in **Figure 2**.

In a 1-hour period, it was assumed that the auto centre's air tools operate cumulatively for a total of 5 minutes and have a quasi-steady impulsive sound characteristic.

Conservatively, it was assumed that the above identified noise sources operate simultaneously during the daytime period. It was assumed that rooftop HVAC units are the only operating noise source during the evening and nighttime period. HVAC units were assumed to run at 50% duty cycle during the nighttime period.

Dillon utilized its in-house library to apply sound power levels to the identified noise sources. A penalty of +10 A-weighted decibels (dBA) was applied to the air tools due to the quasi-steady impulsive sound characteristic.

2.2.2 Noise Criteria

NPC-300 defines sound level limits for noise impacts from stationary sources on noise sensitive land uses. A noise sensitive land use is defined as a property of a person that accommodates a dwelling, a noise sensitive commercial purpose, or a noise sensitive institutional purpose. This definition includes:

- Permanent, seasonal, and rental residences;
- Hotels, motels, and campgrounds;
- Schools, universities, libraries, and daycare centres;
- Hospitals and clinics, nursing/retirement homes; and
- Places of worship.

Points of reception (POR) for dwellings are located at the centre of any window on a noise sensitive space, with a first-storey height of 1.5 m and subsequent storeys separated by 3 m. A dwelling may have an outdoor point of reception located on its property within 30 m of its façade at a height of 1.5 m, typically in back or front yards, terraces, or patios.

In NPC-300, areas are divided into four classes based on their existing background acoustical environment:

- Class 1 – Urban Area;
- Class 2 – Semi-Urban/Semi-Rural Area;
- Class 3 – Rural Area; and
- Class 4 – Areas of Redevelopment and Infill.

The sound level limits for outdoor and plane-of-window PORs for continuous and impulsive noise are outlined in **Table 2**.

Table 2: Stationary Source Continuous Noise Exclusionary Limits

Assessment Location	Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
Plane of window for living area or sleeping quarters[1]	Daytime (07:00 to 19:00)	50 dBA	50 dBA	45 dBA	60 dBA
	Evening (19:00 to 23:00)	50 dBA	50 dBA	40 dBA	60 dBA
	Nighttime (23:00 to 07:00)	45 dBA	45 dBA	40 dBA	55 dBA
Outdoor points of reception	Daytime (07:00 to 19:00)	50 dBA	50 dBA	45 dBA	55 dBA
	Evening (19:00 to 23:00)	50 dBA	45 dBA	40 dBA	55 dBA

Table Note: [1] The plane of window for living area or sleeping quarters will be referred to as the "façade" of a receptor.

Based on observations made during the site visit completed on October 9, 2024, the existing background acoustical environment of the Proposed Development's lands are considered Class 1 – Urban Area.

2.2.2.1 Background Sound Levels

In areas that have increased ambient noise due to road traffic, the background sound level may be used as the sound level limit. Due to the proposed development's proximity to Highway 401, Kingston Road, and Whites Road, a transportation noise analysis was completed to determine the background sound levels for the receptors of the proposed development.

The background sound levels due to road noise is the minimum hourly noise impacts during each hour of the daytime, evening, and nighttime period. Dillon utilized hourly traffic counts over a one week measurement for Highway 401 to determine the minimum hourly road noise impacts on the Proposed Development. Truck percentages for Highway 401 were provided by the Ministry of Transportation Ontario (MTO). Traffic data utilized in this assessment has been provided in **Appendix C**.

The road noise analysis was completed using the STAMSON ORNAMENT protocol. **Table 3** below summarizes the calculated background sound levels for the point of reception of the proposed development with the greatest proximity and exposure to the auto centre.

Table 3: Background Sound Levels

Receptor	Time Period	Background Sound Level (1 hour) (dBA)
4th Storey Podium East Façade	Daytime	67
	Evening	69
	Nighttime	64

2.2.3 Predicted Sound Levels

The stationary noise analysis was completed using CADNA/A, an outdoor noise propagation model, based on International Organization for Standardization (ISO) Standard 9613, Part 1: Calculation of the absorption of sound by the atmosphere, 1993 and Part 2: General method of calculation (ISO-9613-2:1996). The model is capable of incorporating various site specific features, such as elevation, berms, absorptive grounds, and barriers to accurately predict noise levels at specific receptors, pertaining to noise emissions from a particular source / sources. The ISO based model accounts for reduction in sound level due to increased distance and geometrical spreading, air

absorption, ground attenuation, and acoustical shielding by intervening structures and topography. The model is considered conservative as it represents atmospheric conditions that promote propagation of sound from the source to the receiver.

The following assumptions were incorporated in the noise propagation modelling:

- A global ground absorption coefficient of 0.50, representing a mix of reflective and absorptive grounds of the area surrounding the Proposed Development.
- Second order reflection was incorporated in the noise model; and
- The ground within the study area is considered to be generally flat.

Impacts from the stationary noise sources were predicted through noise propagation modelling. **Table 4** below summarizes the worst-case noise impacts on the façades of the Proposed Development for continuous noise.

Table 4: Noise Impact Summary Table

Point of Reception	Time Period	Maximum Leq (1 hour) (dBA)	MECP Compliance
4th Storey Podium East Façade	Daytime (07:00 to 19:00)	56	Compliant with background noise level criteria
	Evening (19:00 to 23:00)	48	Compliant with background noise level criteria
	Nighttime (23:00 to 07:00)	45	Compliant with background noise level criteria

The predicted noise impacts from the auto centre on the Proposed Development have been shown in **Figure 2**. Stationary noise impacts at the remaining points of receptions of the proposed development have been compared against the applicable noise criteria.

The results indicate that the potential noise impacts from the auto centre on the Proposed Development are predicted to be compliance with the MECP exclusionary limits.

2.3 Transportation Noise Assessment

The transportation sources identified with the potential to impact the proposed development include vehicular traffic along Kingston road, Whites Road, and the Highway 401 and rail traffic along the Canadian National Railway (CN) and Metrolinx railways. Impacts from road and rail traffic were predicted and compared against the applicable criteria in the MECP noise guideline publication, **NPC 300 – Environmental Noise Guideline – Stationary and Transportation Sources – Approvals and Planning (2013)**. NPC-300 outlines noise level criteria for sensitive land uses, which assist in determining requirements for façade construction, ventilation requirements, warning clauses, and potential noise barriers for the proposed development.

2.3.1 Noise Criteria

The applicable transportation noise criteria, as outlined in Part C of NPC-300, is summarized below, and presented in **Table 5** through to **Table 8**.

Table 5 summarizes the indoor sound level limits based on the type of space assessed, time of day, and the maximum allowable equivalent sound levels from roadways and railways. The indoor noise levels are based on the assumption of closed windows and doors.

Table 5: Indoor Sound/Level Limits for Road and Rail

Type of Space	Time Period	Equivalent Sound Level - L_{eq} Road	Equivalent Sound Level - L_{eq} Rail
Living/dining areas of residences, hospitals, nursing homes, schools, daycares, etc.	Daytime 07:00 to 23:00	45 dBA	40 dBA
Living/dining areas of residences, hospitals, nursing homes, etc. (except schools and daycares)	Nighttime 23:00 to 07:00	45 dBA	40 dBA

Type of Space	Time Period	Equivalent Sound Level - L_{eq} Road	Equivalent Sound Level - L_{eq} Rail
Sleeping quarters of residences	Daytime 07:00 to 23:00	45 dBA	40 dBA
	Nighttime 23:00 to 07:00	40 dBA	35 dBA

Table 6 outlines the maximum equivalent sound levels, from roadway and railway sources, where if exceeded a detailed building component design assessment is required to ensure the indoor sound level limits (see **Table 5**) are achieved.

Table 6: Requirements for Building Component Assessment

Assessment Location	Time Period	Equivalent Sound Level - L_{eq} Road	Equivalent Sound Level - L_{eq} Rail
Plane of window for living area or sleeping quarters	Daytime 07:00 to 23:00	65 dBA	60 dBA
	Nighttime 23:00 to 07:00	60 dBA	55 dBA

Table 7 summarizes potential noise warning clauses and ventilation requirements that should be used to warn of potential annoyance due to existing noise sources related to transportation.

Table 7: Ventilation and Warning Clause Requirement

Assessment Location	Time Period	Equivalent Sound Level - L_{eq} Road and Rail	Ventilation and Warning Clause Requirements
Plane of window for living area or sleeping quarters	Daytime (07:00 to 23:00)	≤ 55 dBA	No requirement
		> 55 dBA and ≤ 65 dBA	Provision for the installation of central air conditioning with a Type C warning clause
		> 65 dBA	Installation of central air conditioning with a Type D warning clause
Plane of window for living area or sleeping quarters	Nighttime (23:00 to 07:00)	No requirement	No requirement
		Provision for the installation of central air conditioning with a Type C warning clause	Provision for the installation of central air conditioning with a Type C warning clause
		Installation of central air conditioning with a Type D warning clause	Installation of central air conditioning with a Type D warning clause

The applicable noise criteria for Outdoor Living Areas (OLAs) specific to surface transportation are presented in **Table 8**. If the 16-Hour Equivalent Sound Level - L_{eq} 16h at an OLA is greater than 55 dBA and less than or equal to 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA. Otherwise, prospective purchasers or tenants should be informed of potential elevated noise levels by way of

warning clause Type A. For a Leq 16h of greater than 60 dBA, noise mitigation measures are required to reduce the noise levels to 55 dBA or less.

Table 8: OLA Level Limits for Road and Rail

Assessment Location	Equivalent Sound Level - L_{eq} 16h Road and Rail	Noise Control Measures and Warning Clause Requirements
Outdoor Living Areas	≤ 55 dBA	No requirement
	> 55 dBA and ≤ 60 dBA	Installation of noise control measures **OR** a Type A warning clause
	> 60 dBA	Installation of noise control measures to reduce noise level to < 55 dBA **OR** Installation of noise control measures to reduce noise level to > 55 dBA and ≤ 60 dBA with a Type B warning clause

2.3.2 Transportation Sources

In assessing potential transportation noise impacts on the proposed development, the following transportation corridors were considered:

- Kingston Road;
- Whites Road;
- Highway 401;
- CN Kingston Subdivision; and
- GO Transit Kingston.

The CN York subdivision's right-of-way is located approximately 375 m north of the Proposed Development. As per the Guidelines for New Development in Proximity to Railway Operations, this is greater than the 300 m noise influence area of principle main lines and would not require assessment as a transportation noise source.

2.3.2.1 Road Noise Sources

Road traffic information for Kingston Road and Whites Road was provided by the Regional Municipality of Durham. The provided data included the future forecasted Average Annual Daily Traffic (AADT), the percent of trucks, ratio of heavy to medium trucks, and posted speed. It was assumed that 90% of traffic occurs during the daytime period, and 20% during the nighttime period.

Road traffic information for Highway 401 was provided by the MTO. The provided data included the AADT for the year 2021, the percentage of trucks, and hourly traffic counts for Highway 401 Eastbound Express, Westbound Collector, and Westbound Express. An annual growth rate of 1.8% was determined for this section of the Highway 401 based on 10 years of historical AADTs. Based on the hourly traffic counts, it was determined that 83% of traffic on the Highway 401 occurs during the daytime period and 17% during the nighttime period. Based on the MTO guide for completing noise assessments, it was assumed that 75% of truck traffic is heavy trucks and 25% is medium trucks. Highway 401 traffic volumes were forecasted to the year 2035.

The forecasted future road traffic data is presented in **Table 9**.

Table 9: Future Road Traffic Data

Roadway	Forecasted AADT	Medium Trucks	Heavy Trucks	Speed (kilometers/hour [km/hr])
Kingston Road	35,000	5.6%	2.4%	60
Whites Road	35,000	7%	3%	60
Highway 401	344,684	2.5%	7.5%	100

2.3.2.3 Rail Noise Sources

Rail traffic information for CN Kingston Subdivision was provided by Canadian National Railway (CN). The provided rail traffic information included the number of freights, way freights, and passenger trains travelling on the CN Kingston Subdivision during the daytime and nighttime periods. Additionally, the maximum number of locomotives and cars, and the maximum speed was provided for each train type. CN recommended that a 2.5% annual growth rate be used for forecasting future rail traffic volumes. CN Kingston Subdivision traffic volumes were forecasted to the year 2035.

Rail traffic information for GO Transit Kingston was provided by Metrolinx. The provided rail traffic information included the forecasted diesel and electric GO train volumes, including the number of locomotives and cars, and the maximum speed. Metrolinx identified that the use of diesel trains in acoustic modelling is preferred.

The forecasted future rail traffic data is presented in **Table 10** and **Table 11**.

Table 10: Future Rail Traffic Data - Daytime and Evening (07:00 to 23:00)

Rail Operator	Train Type	Locomotives	Cars	Speed (km/h)
CN	Freight	63	2204	105
	Way Freight	0	0	105
	Passenger	89	446	161
GO Transit	Passenger	277	1385	161

Table 11: Future Rail Traffic Data – Nighttime (23:00 to 07:00)

Rail Operator	Train Type	Locomotives	Cars	Speed (km/h)
CN	Freight	26	918	105
	Way Freight	21	131	105
	Passenger	3	13	161
GO Transit	Passenger	77	385	161

Anti-whistling bylaws have been identified for the at-grade crossings in proximity to the Proposed Development. Therefore, train whistle noise was not considered in this assessment.

2.3.3 Predicted Sound Level

The noise analysis was completed using Cadna/A, a noise propagation software. The Cadna/A software includes the implementation of the Transportation Noise Model (TNM) roadway algorithms, as well as the Federal Transit Administration/Federal Railroad Administration (FTA/FRA) railway algorithms. The model is capable of incorporating various site specific features, such as elevation, berms, absorptive grounds, and barriers to accurately predict noise levels at specific receptors, pertaining to noise emissions from a particular noise source. The model accounts for reduction in sound level due to increased distance and geometrical spreading, air absorption, ground attenuation, and acoustical shielding by intervening structures and topography. The model is considered conservative as it represents atmospheric conditions that promote propagation of sound from source to receptor.

Railway Analysis

The railway noise impact assessment was conducted using the FRA algorithm using Cadna/A. The STEAM, utilized through STAMSON Version 5.04 was not used in the assessment due to the complexity of the proposed development and the surrounding area. Based on Dillon's experience using FRA and STEAM in rail noise assessments, the results of the FRA algorithm are within an acceptable range of accuracy.

Roadway Analysis

The assessment for roadway impact noise was completed using the TNM algorithm, developed by the Federal Highway Administration (FHWA), implemented through Cadna/A. The ORNAMENT, utilized through STAMSON Version 5.04 was not used in the assessment due to the complexity of the proposed development and the surrounding area. STAMSON is not capable of incorporating the 3-dimensional components of the Proposed Development and accurately predicting transportation noise impacts for elevated receptors. Based on Dillon's experience using TNM and ORNAMENT in road noise assessments, the results of the ORNAMENT algorithm are within an acceptable range of accuracy.

Comparative modelling using STAMSON was performed to confirm the accuracy of the TNM protocol. The comparative modelling has been presented in **Section 2.4.**

2.3.3.1 Sensitive Receptor Locations

The site plan of the Proposed Development was reviewed to identify the location of sensitive receptors. Representative noise receptors were selected for each façade of the buildings of the Proposed Development and were assessed for transportation noise impacts.

In addition to façade locations, transportation noise impacts were assessed at Outdoor Living Area (OLA) locations. As per NPC-300, OLAs were assessed at the centre of the 5th storey amenity terraces for each building.

The locations of the representative noise receptors assessed in this study has been shown in **Figure 3**.

2.3.3.2 Transportation Noise Impacts – Plane of Window

Table 12 summarizes the predicted building façade noise levels from transportation noise sources at the representative sensitive receptors within the proposed development.

Table 12: Transportation Noise Prediction Summary Table - Façade Impacts

Receptor	Time Period	Equivalent Sound Level - L_{eq}[1] [dBA] Road Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Railway Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Combined Road and Rail
Building 1 L2 to L4 North	Daytime	**70**	55	**70**
	Nighttime	**64**	53	**64**
Building 1 L2 to L4 East	Daytime	61	55	**62**
	Nighttime	55	53	**57**
Building 1 L2 to L4 South	Daytime	**71**	**63**	**72**
	Nighttime	**67**	**61**	**68**
Building 1 L2 to L4 West	Daytime	**73**	**63**	**73**
	Nighttime	**69**	**61**	**69**
Building 1 L5 to L28 North	Daytime	**69**	53	**69**
	Nighttime	**63**	51	**63**
Building 1 L5 to L28 East	Daytime	**68**	58	**69**
	Nighttime	**64**	**56**	**64**
Building 1 L5 to L28 South	Daytime	**74**	**65**	**74**
	Nighttime	**70**	**62**	**70**
Building 1 L5 to L28 West	Daytime	**74**	**63**	**74**
	Nighttime	**69**	**61**	**70**
Building 2 L2 to L4 North	Daytime	**68**	54	**68**
	Nighttime	**61**	52	**62**
Building 2 L2 to L4 East	Daytime	**71**	**61**	**71**
	Nighttime	**67**	**59**	**67**

Receptor	Time Period	Equivalent Sound Level - L_{eq}[1] [dBA] Road Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Railway Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Combined Road and Rail
Building 2 L2 to L4 South	Daytime	**69**	60	**69**
	Nighttime	**65**	**58**	**66**
Building 2 L2 to L4 West	Daytime	**69**	**61**	**69**
	Nighttime	**65**	**59**	**66**
Building 2 L5 to L31 North	Daytime	**67**	53	**67**
	Nighttime	**60**	51	**61**
Building 2 L5 to L31 East	Daytime	**73**	**64**	**73**
	Nighttime	**69**	**62**	**70**
Building 2 L5 to L31 South	Daytime	**73**	**63**	**74**
	Nighttime	**70**	**61**	**70**
Building 2 L5 to L31 West	Daytime	**71**	**60**	**72**
	Nighttime	**67**	**58**	**68**
Building 3 4 5 L2 to L4 North	Daytime	61	57	**62**
	Nighttime	55	55	**57**
Building 3 4 5 L2 to L4 East	Daytime	**74**	**65**	**74**
	Nighttime	**70**	**63**	**71**
Building 3 4 5 L2 to L4 West	Daytime	**74**	**63**	**75**
	Nighttime	**71**	**61**	**71**
Building 3 L5 to L35 North	Daytime	64	54	**64**
	Nighttime	59	52	**60**
Building 3 L5 to L35 East	Daytime	**77**	**67**	**77**
	Nighttime	**73**	**65**	**74**

Receptor	Time Period	Equivalent Sound Level - L_{eq}[1] [dBA] Road Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Railway Impacts	Equivalent Sound Level - L_{eq}[1] [dBA] Combined Road and Rail
Building 3 L5 to L35 South	Daytime	**80**	**70**	**81**
	Nighttime	**77**	**68**	**77**
Building 3 L5 to L35 West	Daytime	**78**	**66**	**78**
	Nighttime	**74**	**64**	**75**
Building 4 L5 to L35 North	Daytime	64	54	**64**
	Nighttime	59	52	**59**
Building 4 L5 to L35 East	Daytime	**77**	**67**	**77**
	Nighttime	**73**	**65**	**73**
Building 4 L5 to L35 South	Daytime	**80**	**70**	**80**
	Nighttime	**76**	**68**	**77**
Building 4 L5 to L35 West	Daytime	**77**	**66**	**77**
	Nighttime	**73**	**64**	**74**
Building 5 L5 to L35 North	Daytime	63	55	**63**
	Nighttime	58	53	**59**
Building 5 L5 to L35 East	Daytime	**76**	**67**	**77**
	Nighttime	**72**	**65**	**73**
Building 5 L5 to L35 South	Daytime	**80**	**70**	**80**
	Nighttime	**76**	**68**	**76**
Building 5 L5 to L35 West	Daytime	**76**	**67**	**77**
	Nighttime	**73**	**64**	**73**

Table Note: [1] Predicted noise levels that exceed the applicable limits are presented in **bold**.

The predicted transportation sound levels at the proposed development are presented in **Figure 1**, for daytime and nighttime impacts.

2.3.3.3 Transportation Noise Impacts – Outdoor Living Areas (OLA)

Table 13 summarizes the worst-case predicted transportation noise levels at the OLAs of the proposed development.

Table 13: Transportation Noise Prediction Summary Table - OLA Impacts

Assessment Location	Daytime Equivalent Sound Level - L_{eq} 16-hr[1] (dBA)
OLA-1	**70**
OLA-2	**68**
OLA-3	**74**
OLA-4	**67**
OLA-5	**67**

Table Note: [1] Predicted noise levels that exceed the applicable limits are presented in **bold**.

2.3.4 Noise Control Measures

2.3.4.1 Façade Construction Recommendations

Based on the predicted façade sound levels shown in **Table 12**, and the threshold criteria outlined in **Table 6**, a detailed building component design analysis is required at the following facades throughout the proposed development to ensure the indoor sound level criteria is met:

- North, south, and west façades of Building 1 levels 2 to 4;
- All façades of Building 1 Levels 5 to 28;
- All façades of Building 2 Levels 2 to 31;
- East and West façades of buildings 3, 4, and 5 podium;
- East, south, and west façades of Building 3;
- East, south, and west façades of Building 4; and
- East, south, and west façades of Building 5.

Indoor sound levels, and the building component analysis were completed using the National Research Council's (NRC) Building Practice Note 56 (BPN56). BPN56 is the method for selecting appropriate Sound Transmission Class (STC) ratings for the façade and glazing components to control impacts from transportation noise sources, and satisfy indoor sound level criterion.

Results from an initial building component analysis are shown in **Table 14**. As detailed floor plans were not available at the time of this study, typical unit layouts were assumed based on typical high-rise residential units. It was assumed that living/dining spaces had 70% façade glazing and the sleeping quarters had 50% façade glazing. Overall window STC requirements were determined using the combined (logarithmic addition) requirements from the individual transportation noise impacts from locomotive, wheel, and roadway noise. STC calculations were completed for daytime and nighttime periods, with the worst-case requirement selected for recommendation. The BPN56 analysis is presented in **Appendix E**. It is recommended that the building component analysis is updated as the development design progresses.

Table 14: Building Component Analysis

Building	Required Glazing (STC) Living/Dining Area	Required Glazing (STC) Sleeping Quarters
Building 1 levels 2 to 4 North Façade	32	30
Building 1 levels 2 to 4 South Façade	34	34
Building 1 levels 2 to 4 West Façade	35	35
Building 1 levels 5 to 28 North Façade	31	30
Building 1 levels 5 to 28 East Façade	31	30
Building 1 levels 5 to 28 South Façade	36	37
Building 1 levels 5 to 28 West Façade	36	36
Building 2 levels 2 to 4 North Façade	30	29

Building	Required Glazing (STC) Living/Dining Area	Required Glazing (STC) Sleeping Quarters
Building 2 levels 2 to 4 East Façade	33	34
Building 2 levels 2 to 4 South Façade	32	32
Building 2 levels 2 to 4 West Façade	32	32
Building 2 levels 5 to 31 North Façade	29	28
Building 2 levels 5 to 31 East Façade	36	36
Building 2 levels 5 to 31 South Façade	36	36
Building 2 levels 5 to 31 West Façade	34	34
Buildings 3, 4, 5 levels 2 to 4 East Facade	37	37
Buildings 3, 4, 5 levels 2 to 4 West Facade	37	37
Building 3 Levels 5 to 35 East Facade	40	40
Building 3 Levels 5 to 35 South Facade	43	43
Building 3 Levels 5 to 35 West Facade	40	40
Building 4 Levels 5 to 35 East Facade	39	40
Building 4 Levels 5 to 35 South Facade	43	43
Building 4 Levels 5 to 35 West Facade	39	40
Building 5 Levels 5 to 35 East Facade	39	39
Building 5 Levels 5 to 35 South Facade	42	43
Building 5 Levels 5 to 35 West Facade	39	39

The above mentioned STC ratings are conservatively calculated and represent the recommended minimum STC ratings for the windows. Windows should be carefully selected to ensure the entire assembly (frame and glazing) meets the specified minimum STC ratings. It is recommended that manufacturer tests and specifications be reviewed by an Acoustical Consultant upon selection.

Sensitive spaces located on corners of buildings, which have multiple façade exposure and potential contribution from multiple sources may require an STC increase of 3. As the design progresses, the façade and glazing requirements should by reviewed by an Acoustical Consultant, ideally at the Site Plan Approval (SPA) stage, to confirm or update the above recommended STC ratings.

2.3.4.2 Ventilation Requirements and Warning Clauses

Based on the predicted sound levels shown in **Table 12** and the threshold criteria outlined in **Table 7**, all residential dwellings of the Proposed Development require the installation of central air conditioning with a Type D warning clause, as outlined below.

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

Additionally, CN and Metrolinx require that a warning clause regarding the potential for noise and vibration impacts be applied to all sensitive locations within 300 metres of their right-of-way.

CN Warning Clause: "Canadian National Railway Company and its assigns or successors in interest has or have a rights-of-way within 1000 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."

Metrolinx: "Metrolinx 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 Metrolinx or any railway entering into an agreement with Metrolinx 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 rising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.

The warning clause should be included in agreements that are registered on Title for all Offers of Purchase and Sale, lease/rental agreements, and condominium declarations.

2.3.4.3 Outdoor Living Areas (OLAs)

As shown in **Table 13**, the sound levels at the amenity terraces are predicted to be in exceedance of the 60 dBA criterion. As such, this unit requires the installation of a noise control measure to achieve predicted levels between 55 dBA and 60 dBA and a **Type B** warning clause **as outlined below.**

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

Following MECP's NPC-300, mitigation in the form of acoustic barriers is recommended to reduce the exposure of the outdoor living areas to transportation noise. The following acoustic barriers are recommended to reduce the impacts at the OLAs:

- Acoustic barriers with a height of 2.5 m surrounding the amenity terraces of Building 3, 4, and 5; and
- Acoustic barriers with a height of 2.8 m surrounding the amenity terraces of Buildings 1 and 2.

With the above recommending acoustic barriers, the amenity terraces of the Proposed Development are predicted to have transportation noise impacts between 55 dBA and 60 dBA. Achieving predicted transportation noise impacts of 55 dBA at the amenity terraces was found to not be feasible with acoustic barriers. Therefore a Type B warning clause should be applied throughout the Proposed Development.

The locations and heights of the recommended acoustic barriers are presented in **Figure 4**. The acoustic barriers should have a minimum surface density of 20 kilograms per square metre (kg/m^2). The barriers should be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps. Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained.

The predicted sound levels at the outdoor living areas with the assessed acoustic barrier mitigation are shown in **Table 15**.

Table 15: Transportation Noise Prediction Summary Table – OLA Impacts with Acoustic Barriers

Assessment Location	Daytime Equivalent Sound Level - L_{eq} 16-hr (dBA)
OLA1	58
OLA2	57
OLA3	60
OLA4	60
OLA5	60

2.4 TNM Modelling Confirmation

Due to the magnitude of noise impacts from Highway 401 on the Proposed Development, confirmatory noise modelling was completed using STAMSON to demonstrate the accuracy of the TNM protocol. As STAMSON is not capable of incorporating the complex geometries and elevations of the sensitive receptors of the Proposed Development, the confirmatory modelling was performed on the first story of Building 4 at the closest building setback from the Highway 401.

The confirmatory modelling was completed only considering the Highway 401 noise source. The ground was between the Proposed Development and Highway 401 was modelled as reflective for both modelling protocols.

Table 16: TNM and STAMSON Confirmatory Modelling

Assessment Location	TNM Modelling Results	STAMSON Modelling Results
Building 4 Level 1 South Facade	79.9 dBA	80.8 dBA

As the modelling results for TNM and STAMSON are demonstrated to be within an acceptable range of accuracy, the TNM modelling presented in this study should be considered acceptable.

The STAMSON model has been included in **Appendix D**.

2.5 Rail Vibration Assessment

The proposed development is located approximately 170 m northwest of the CN Kingston Subdivision and 370 m southeast of the CN York Subdivision. As per the Guidelines for New Development in Proximity to Railway Operations (May 2013), the recommended minimum vibration influence area is considered to be 75 meters from a railway corridor or railyard. The Proposed Development is expected to be outside of the vibration influence area for the above note railway corridors and a rail vibration assessment is therefore not required.

3.0 Impacts from the Proposed Development on itself and the Environment

The mechanical equipment of the proposed development should be assessed for noise impacts on the proposed development itself and the surrounding environment. At the time of this assessment, the mechanical plans for the proposed development were not available.

The future mechanical equipment of the proposed development should be located to reduce exposure to the receptors of the proposed development and the surrounding environment and where possible should be located within mechanical penthouses. Where isolation from noise sensitive receptors is not possible, equipment selection should be completed with consideration for reducing the noise emissions of the equipment.

As mechanical plans become available for the proposed development, it is Dillon's recommendation that a qualified acoustic consultant assesses the stationary noise impacts of the equipment on the development itself and the surrounding environment.

4.0 Conclusions

Dillon Consulting Limited (Dillon) was retained by Resident Properties Limited to complete a noise and vibration assessment as requested by the Region of Durham for a proposed development. This study has been completed in support of the submission application for the proposed development.

The noise assessment presented herein focuses on the noise impacts of nearby stationary noise sources and transportation corridors on the proposed development.

The noise assessment was prepared in accordance with the requirements of the Region of Durham and that of the Ontario Ministry of Environment, Conservation and Parks (MECP) noise publication NPC-300. Based on the results of the completed study, the following conclusions have been reached:

As outlined in **Section 2.1**, stationary noise impacts on the Proposed Development are predicted to be in compliance with applicable noise criteria.

As outlined in **Section 2.3**, transportation noise impacts on the Proposed Development can be sufficiently controlled by:

- The installation of central air conditioning with a Type D warning clause;
- Upgraded window glazing; and
- Installation of acoustic barriers with a Type B warning clause.

As the design of the development progresses and building orientations, elevations, and detailed building plans are finalized, this assessment should be updated by an Acoustic Consultant.

5.0 Closure

This noise and vibration assessment has been prepared based on the information provided and/or approved by Resident Properties Limited. This report is intended to provide a reasonable review of available information within an agreed work scope, schedule, and budget. This report was prepared by Dillon for the sole benefit of Resident Properties Limited. The material in the report reflects Dillon's judgement in light of the information available to Dillon at the time of this report preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that the report is to your satisfaction. Please do not hesitate to contact the undersigned if you have any further questions on this report.

Respectfully Submitted:

Dillon Consulting Limited

Callum Heggart, P. Eng

Callie Airdrie

Figures

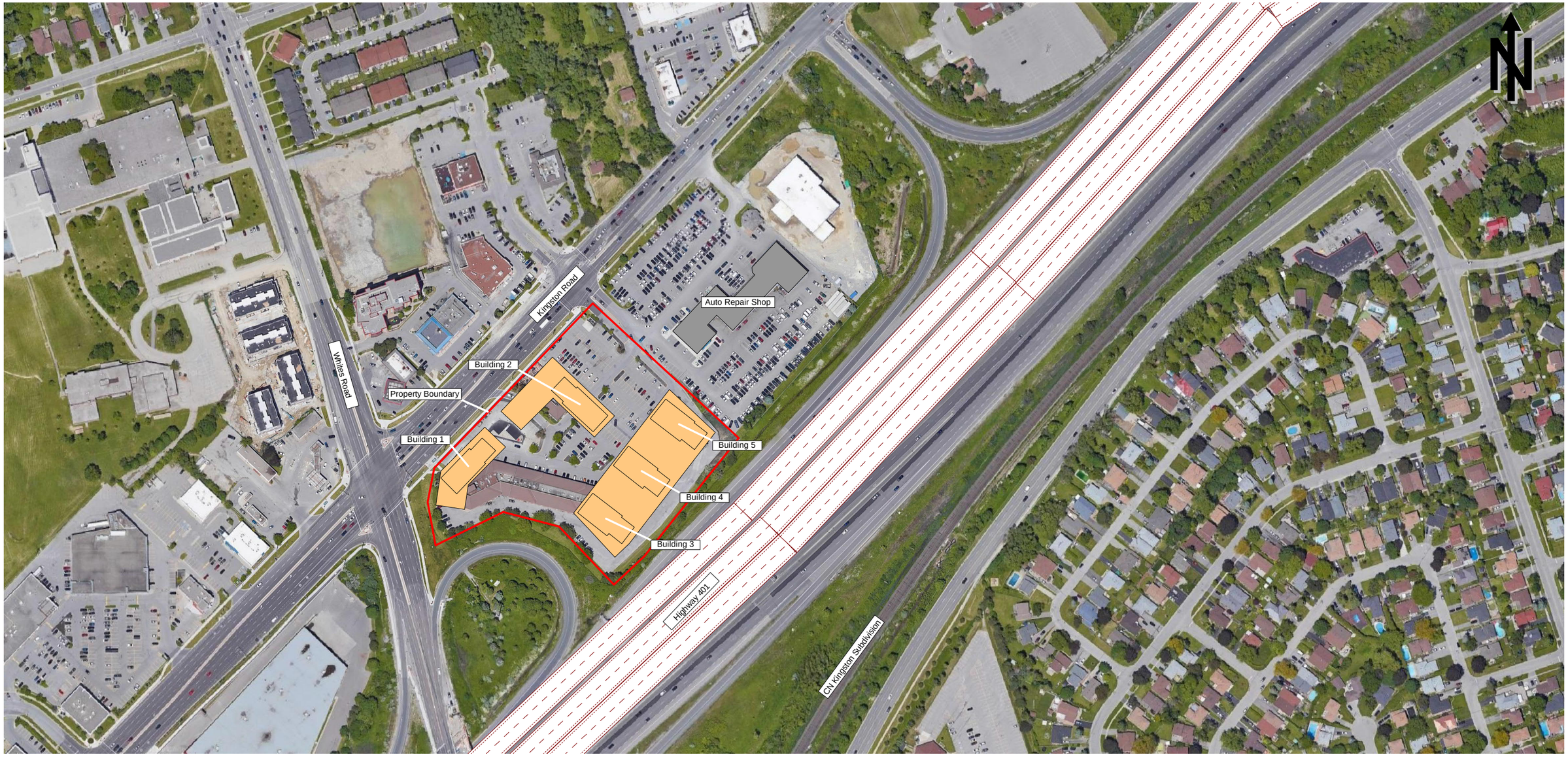

Figure 1

Project # 24-9026

Oct 2024

Subject Site and Surrounding Area

705 Kingston Road, Pickering, Ontario

DILLON CONSULTING

HVAC

HVAC

HVAC

HVAC

HVAC

Paint Spray Booth

Paint Spray Booth

Airtools

4th Storey Podium
East Facade
Daytime: 55 dBA
Evening: 49 dBA
Nighttime: 46 dBA

Figure 2

Project # 24-9026

Oct 2024

Predicted Stationary Noise Impacts - Daytime

705 Kingston Road, Pickering, Ontario

DILLON CONSULTING

OLA1
Daytime: 70 dBA

OLA2
Daytime: 68 dBA

OLA3
Daytime: 74 dBA

OLA4
Daytime: 67 dBA

OLA5
Daytime: 67 dBA

Figure 3

Project # 24-9026

Oct 2024

Predicted Transportation Impacts - Daytime

705 Kingston Road, Pickering, Ontario

DILLON CONSULTING

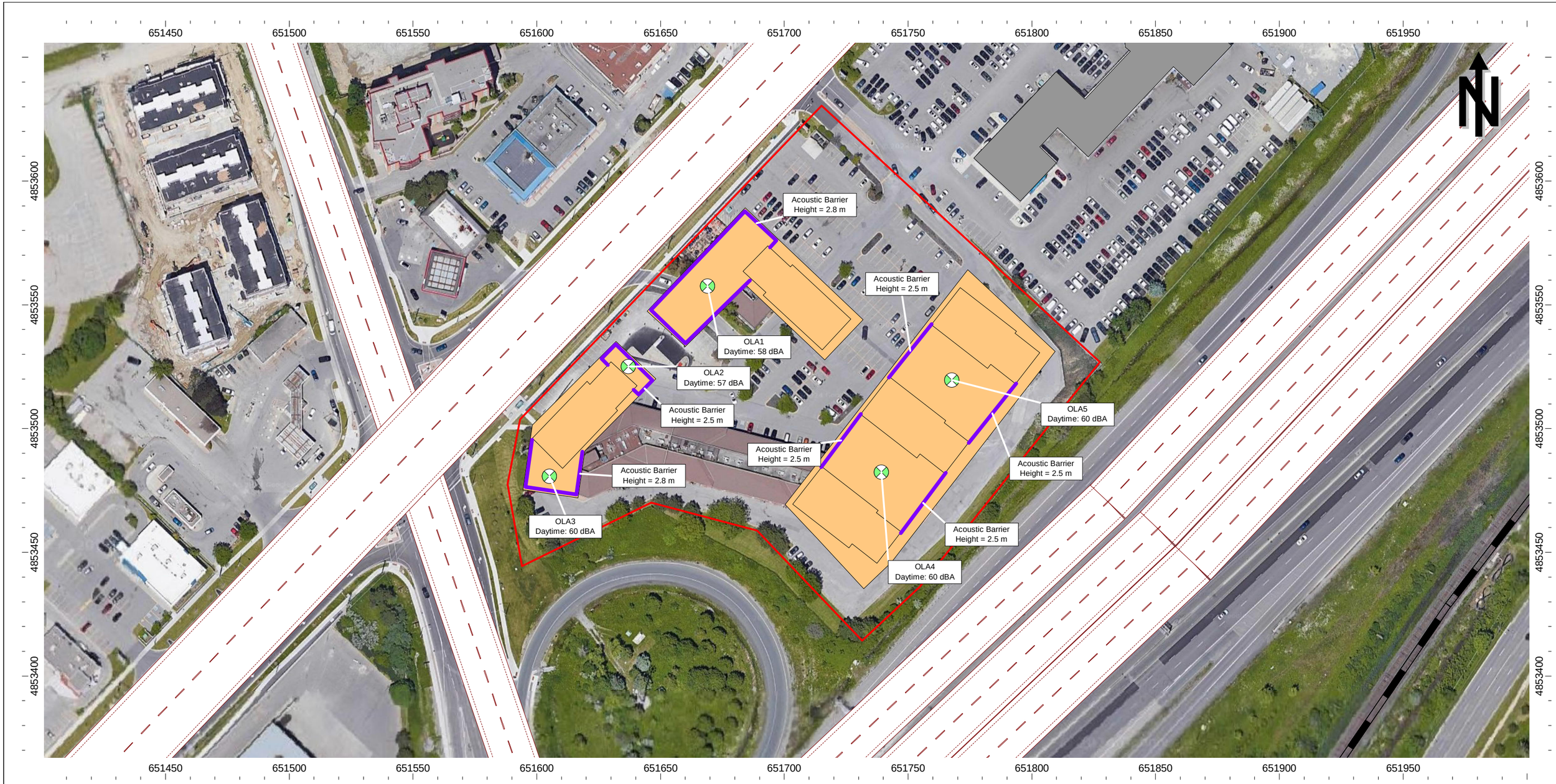

Figure 4

Project # 24-9026

Nov 2024

Predicted Transportation Impacts - Mitigated Outdoor Living Areas

705 Kingston Road, Pickering, Ontario

DILLON CONSULTING

Appendix A

Development Site Plan

DILLON CONSULTING

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

Project No. 21057
Date 16 OCTOBER 2024
Issued for CONSULTANT COORDINATION

ARCHITECTURAL DRAWINGS

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CIVIL ENGINEER

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GEOTHERMAL & ENVIRON-MENTAL ENGINEER

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NOISE & VIBRATION CONSULTANT

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NORTH

1 A001.S Context Plan - NTS

PLAN OF SURVEY WITH TOPOGRAPHY OF
PART OF LOT 28
RANGE 3, BROKEN FRONT CONCESSION
CITY OF PICKERING
REGIONAL MUNICIPALITY OF DURHAM

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
2022

ELEVATION NOTE

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF PICKERING BENCHMARK No. 00820188082.

LOCATION :

A BRASS CAP FLUSH IN CONCRETE LOCATED ON THE CONCRETE BOX CULVERT, NORTH OF HWY 401 IN PICKERING, IT IS NORTHWEST ON RAMP ONTO HWY 401 FROM KINGSTON ROAD, 150.0m EAST OF MICHAEL BOYER CHEVROLET LIMITED.

ELEVATION: (DATUM: CGVD28:78)

PUBLISHED ELEVATION = 94.830 metres.

BEARING NOTE

BEARINGS SHOWN HEREON ARE UTM GRID AND ARE REFERRED TO THE NORTHERLY LIMIT OF PART 1 AS SHOWN ON PLAN DR1379833, HAVING A BEARING OF N43°30'25"E.

SURVEYOR'S CERTIFICATE

I CERTIFIY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON

DATE : ____ ____ ____ ____ ____ ____

D. A. WILTON
ONTARIO LAND SURVEYOR

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
750 OAKDALE ROAD, Units 65 & 66
TORONTO, ONTARIO M3N 2Z4
TEL. 416 749-5(VNG)7864). FAX 416 749-7866
E-MAIL: toronto@vg.on.ca

DRAWN :	F. P. B./M. M.	FILE NAME :	A2200094.DWG
CHECKED :	D. A. W.	PLOT SCALE :	MET. 1=0.40
JOB No. :	220-0094	PLOTTED :	
REF. No. :		UPDATED :	

2 A001.S Surveyor's Certificate

BUILDING 1 — 28 STOREY TOWER w/ 4 STOREY PODIUM

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
MPH	430	1	430	*4,629*	430	0	*0*									
Level 6-28	750	23	17,250	*185,679*	1,380	15,870	*170,825*			0	46	115	69	0	23	253
Level 5	1,375	1	1,375	*14,801*	61	1,314	*14,144*									
Level 4	1,400	1	1,400	*15,070*	61	1,339	*14,413*			0	2	10	2	1	2	17
Level 2-3	1,400	2	2,800	*30,139*	122	2,678	*28,826*			0	4	24	8	2	4	42
Ground Floor	1,485	1	1,485	*15,985*	68	361	*3,886*	1,124	*12,097*							
Building 1 Total		28	24,740	*266,301*		**21,562**	***232,093***	**1,124**	***12,097***	0	52	149	79	3	29	**312**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			624	*6,717*			0.0%	16.7%	47.8%	25.3%	1.0%	9.3%	
Building Height **95.82** m										Saleable Areas (sf)		0	25,314	85,922	54,112	2,298	26,092	***193,738***
Height To top of MPH Roof **101.82** m			RGFA = 20,938 sm			225,377 sf				Average Unit Area (sf)		0	487	577	686	766	901	
			NRGFA = 1,124 sm			12,097 sf				Required Barrier Free Units		0	31	13		5		**49**
			Total = **22,062.0** sm			237,474 sf										

BUILDING 2 — 31 STOREY TOWER w/ 4 STOREY PODIUM

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
MPH	430	1	430	*4,629*	430	0	*0*									0
Level 6-31	750	26	19,500	*209,898*	1,534	17,966	*193,386*			26	52	104	52	26	26	286
Level 5	750	1	750	*8,073*	56	694	*7,470*									0
Level 2-4	2,105	3	6,315	*67,975*	213	6,102	*65,682*			3	3	30	39	6	9	90
Ground Floor	2,045	1	2,045	*22,012*	88	150	*1,615*	1,683	*18,106*							0
Building 1 Total		31	29,040	*312,587*		**24,912**	***268,153***	**1,683**	***18,106***	29	55	134	91	32	35	**376**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			752	*8,095*			7.7%	14.6%	35.6%	24.2%	8.5%	9.3%	
Building Height **104.67** m										Saleable Areas (sf)		10,563	26,866	76,345	62,153	26,312	31,486	***233,725***
Height To top of MPH Roof **110.67** m			RGFA = 24,160 sm			260,058 sf				Average Unit Area (sf)		364	488	570	683	822	900	
			NRGFA = 1,683 sm			18,106 sf				Required Barrier Free Units		5	29	19		6		**59**
			Total = **25,843.0** sm			278,164 sf										

BUILDING 3 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	62	688	7,406									0
Building 3 Total		31	23,680.0	*254,892*		**21,508**	***231,512***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium) **116.77** m										Saleable Areas (sf)		11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
Height To top of MPH Roof **122.77** m			RGFA = 20,848 sm			224,408 sf				Average Unit Area (sf)		0	512	554	678	868	904	
			NRGFA = 0 sm			0 sf				Required Barrier Free Units		5	23		18		5	**51**
			Total = **20,848.0** sm			224,408 sf										

BUILDING 4 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	82	668	7,190									0
Building 4 Total		31	23,680.0	*254,892*		**21,488**	***231,297***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium) **116.77** m										Saleable Areas (sf)		11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
Height To top of MPH Roof **122.77** m			RGFA = 20,828 sm			224,193 sf				Average Unit Area (sf)		0	512	554	678	868	904	
			NRGFA = 0 sm			0 sf				Required Barrier Free Units		5	23		18		5	**51**
			Total = **20,828.0** sm			224,193 sf										

BUILDING 5 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	101	649	6,986									0
Building 5 Total		31	23,680.0	*254,892*		**21,469**	***231,092***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium) **116.77** m										Saleable Areas (sf)		11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
Height To top of MPH Roof **122.77** m			RGFA = 20,809 sm			223,988 sf				Average Unit Area (sf)		0	512	554	678	868	904	
			NRGFA = 0 sm			0 sf				Required Barrier Free Units		5	23		18		5	**51**
			Total = **20,809.0** sm			223,988 sf										

4-ST SHARED PODIUM & SITE PARKING LEVELS

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Podium: Level 2-4	5,870	3	17,610.0	189,554	12,705	4,905	52,797	0	0	9	36	3	6	0	6	60
Podium: Ground Floor	5,825	1	5,825.0	62,700	4,135	1,690	18,191	0	0	0	0	3	2	0	1	6
Level B1	8,410	1	8,410.0	90,525	7,892	518	5,576	0	0							
Level B2	16,370	1	16,370.0	176,207	13,805	1,432	15,413	1,133	12,197							
Level P1	6,425	1	6,425.0	69,159	6,425	0	0	0	0							
Podium & Parking Total	**Above Grade**	**4**	54,640.0	*588,145*		**8,545**	***91,977***	**1,133**	***12,197***	9	36	6	8	0	7	**66**
	Below Grade	*3*	Interior amenity deduction (2*units) =			132	*1,421*			13.6%	54.5%	9.1%	12.1%	0%	10.6%	
										Saleable Areas (sf)		1,356	3,150	3,731	4,834	0	6,010	***19,081***
			RGFA = 8,413 sm			90,556 sf				Average Unit Area (sf)		452	525	622	690	#DIV/0!	859	
			NRGFA = 1,133 sm			12,197 sf				Required Barrier Free Units		2	7	2		2		**13**
			Total = **9,546.0** sm			102,753 sf										

STATISTICS SUMMARY

TOTAL DEVELOPMENT

	TOTAL NEW RESIDENTIAL GFA sm	TOTAL NEW RESIDENTIAL GFA *sf*	TOTAL NEW RETAIL GFA sm	TOTAL NEW RETAIL GFA *sf*	TOTAL UNIT NUMBER
NORTH	BUILDING 1 = 20,938	*225,377*	BUILDING 1 = 1,124	*12,097*	BUILDING 1 = 312
	BUILDING 2 = 24,160	*260,058*	BUILDING 2 = 1,683	*18,106*	BUILDING 2 = 376
SOUTH	BUILDING 3= 20,848	*224,408*	BUILDING 3= 0	*0*	BUILDING 3= 330
	BUILDING 4= 20,828	*224,193*	BUILDING 4= 0	*0*	BUILDING 4= 330
	BUILDING 5= 20,809	*223,988*	BUILDING 5= 0	*0*	BUILDING 5= 330
	PODIUM= 6,463	*69,568*	PODIUM= 0	*0*	PODIUM= 66
SHARED	P1/B1/B2= 1,950	*20,988*	P1/B1/B2= 1,133	*12,197*	
	TOTAL GFA = 115,996	***1,248,580***	**TOTAL GFA = 3,940**	***42,400***	**TOTAL = 1,744**

FSI

			FSI Calculation		**Parkland Calculation**	**LOT COVERAGE (Gross Site Area)**
			Gross Site Area = 27,316 sm			
			Public Road Conveyance = 1,104 sm		MTO Lands = 4,310 sm	
			Net Site Area for FSI =		**Net Site Area for Parkland =**	
Total Residential GFA=	**115,996 sm**	1,248,580 sf	*(Gross Site Area -Public Road - Parkland)*	**24,019 sm**	*(Gross Site Area -Public Road - MTO)* 21,902 sm	
Total Retail GFA=	**3,940 sm**	42,400 sf			**Min. Parkland - 10% Net Site Area =** *2,191* **sm**	**Total 8,410 sm**
Total GFA=	**119,936 sm**	1,290,980 sf	**FSI = Total GFA/NSA**	**4.99**	**Parkland Provided =** 2,193 sm	**35.01%**

PARKING

Unit Type	Unit Count	Unit %
Bachelor	128	7%
1B	882	51%
2B	573	33%
3B	161	9%
TOTAL	**1,744 units**	

Level	Combined Vis. & Retail	Long Term Residential
Level 4		120
Level 3		120
Level 2		120
Ground Floor	133	104
Level B1	65	90
Level B2	148	117
Level P1	0	457
SITE TOTAL	**346**	**1,128**

Parking Provided

Combined Vis. & Retail	Long Term Residential	Net Parking Space Ratio
0.20	**0.65**	**0.85**

Accessible Parking (included in the total)	Provided	Required (by-law)	Required (AODA)
Level 4	0		
Level 3	0		
Level 2	0		
Ground Floor	2		
Level B1	1		
Level B2	9		
Level P1	13		
TOTAL	**25**	***TBD****	***TBD****

Additional Temporary Drop-Off Spaces	Building	Level	Number
	Building 1	Ground	4
	Building 2	Ground	4
	Building 3	Ground	4
	Building 4	B2	Circular Drop-off
	Building 5	B2	Circular Drop-off

**Values determined by Traffic Consultant*

AMENITY

Building	Unit Count	Location	Amenity Provided (sm) Indoor	Amenity Provided (sm) Outdoor	Total (sm) Indoor	Total (sm) Outdoor	Ratio (sm/unit) Indoor	Ratio (sm/unit) Outdoor	Ratio (sm/unit) Combined
Building 1	312	Level 5	556.2	400.0	**789.2**	**644.2**			
		Level 6	233.0				***2.53***	***2.06***	***4.59***
		Balconies*		244.2					
Building 2	376	Level 5	566.2	800.0	**566.2**	**1144.1**			
		Balconies*		344.1			***1.51***	***3.04***	***4.55***
Buildings 3, 4 & 5	1,056	Level 5	1,662.0	1,500.0	**2128.6**	**3920.0**			
Including 4-ST Podium		Ground	466.6				***2.02***	***2.20***	***4.21***
		Balconies*		820.0					
SITE TOTAL	**1,432**	***Tower Balcony Design is TBD**			**2,695**	**3,464**	***1.88***	***2.42***	***4.30***

TO BE UPDATED

TO BE UPDATED

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 N/A — PROJECT SCALE
MT YA — DRAWN REVIEWED

Statistics & Context Plan

A001.S

2024-10-15 1:40:51 PM

KINGSTON ROAD TO SERVE AS FIRE ROUTE FOR BUILDING 1

KINGSTON ROAD

WHITE ROAD

BUILDING 1
750 SM
28 ST

4 ST PODIUM

AMENITY TERRACE AT L5

MPH TERRACE

BUILDING 2
750 SM
31 ST

BUILDING 3
750 SM
35 ST

BUILDING 4
750 SM
35 ST

BUILDING 5
750 SM
35 ST

URBAN PARK
FFE = +/- 100.00

PARKLAND DEDICATION
2,193 SM (10% OF NET SITE AREA)

PUBLIC ROAD

CUL-DE-SAC

14m MTO SETBACK

ON-RAMP ONTO HIGHWAY 401

HIGHWAY 401

4 SHORT-TERM DROP OFF SPACES EACH FOR BLDG 1 & 2 (NOT INCL. IN COMBINED PARKING COUNT)

5 SHORT-TERM DROP OFF SPACES (NOT INCL. IN COMBINED PARKING COUNT)

BUILDING 1 LOADING AND ACCESS TO P1/B2/B1 PARKING

DROP OFF

DRIVEWAY ENTRANCE

FIRE ROUTE

FIRE ROUTE (4.5m MIN CLEARANCE)

PODIUM SEP

22.1 m

36.0 m

17.3 m

17.4 m

5.0 m

9.0 m

14.0 m

4.6 m

1.5 m

6.0 m

3.0 m

7.0 m

8330

1670

8000

OUTLINE OF B2

LOADING ENTRANCES AT B2

ABOVE-GRADE PARKING ENTRANCE AT GRADE

4.5m EASEMENT

SITE PLAN LEGEND

- PROPERTY LINE
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION

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705 Kingston Road, Pickering

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for
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21057 1:400 PROJECT SCALE

MT YA DRAWN REVIEWED

Site Plan

A101.S

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt

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PARKING NOTES:

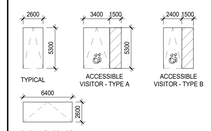
1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)

2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.

3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- 1830 / 315 / 315 — BIKE LOCKER (HORIZONTAL)
- 1766 2134 / 500 / 500 — BIKE PARKING (STACKED)
- 1200 / 500 / 500 — BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE



PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

* 113 SPACES ON B2 TO BE EV-READY (10% OF TOTAL)

** 451 SPACES ON P1 TO BE FITTED WITH EV-ROUGH INS (40% OF TOTAL)

*** BUILDINGS 1, 2 & 3 TO HAVE ADDITIONAL 4 SPACES EACH ON GROUND FLOOR TO SERVE AS SHORT-TERM DROP OFF. THIS VALUE IS NOT INCLUDED IN TOTAL PARKING COUNT.

BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

* 131 ELECTRIC BIKE SPACES ON B1 (15% OF LONG-TERM)

** BICYCLE MOUNTING:
100 VERTICAL SPACES (9.5%)
630 SINGLE HORTIZONTAL SPACES (60%)
320 STACKED HORIZONTAL SPACES (30.6%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

REVISION RECORD

ISSUE RECORD

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 1:250 MT YA
PROJECT SCALE DRAWN REVIEWED

Underground Level P1

A151.S

2024-10-16 1:42:39 PM

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PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)
2. MAINTAIN MININUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

R — RESIDENTIAL PARKING SPACE
1830 × 915 — BIKE LOCKER (HORIZONTAL)
1766 2134 × 610 — BIKE PARKING (STACKED)
1200 × 600 — BIKE PARKING (VERTICAL)
ELECTRIC BICYCLE SPACE
ELECTRIC VEHICLE READY SPACE
ELECTRIC VEHICLE ROUGH-IN SPACE

2600 × 5300 — TYPICAL
3400 1500 × 5300 — ACCESSIBLE VISITOR - TYPE A
2400 1500 — ACCESSIBLE VISITOR - TYPE B
6400 × 2600 — PARALLEL SPACE

PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
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BICYCLE COUNT:

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B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m^2	

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** BICYCLE MOUNTING:
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320 STACKED HORIZONTAL SPACES (30.5%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

REVISION RECORD

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t 416 598 1240 www.bdpquadrangle.com

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Resident

21057	1:250	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Level B2

A152.S

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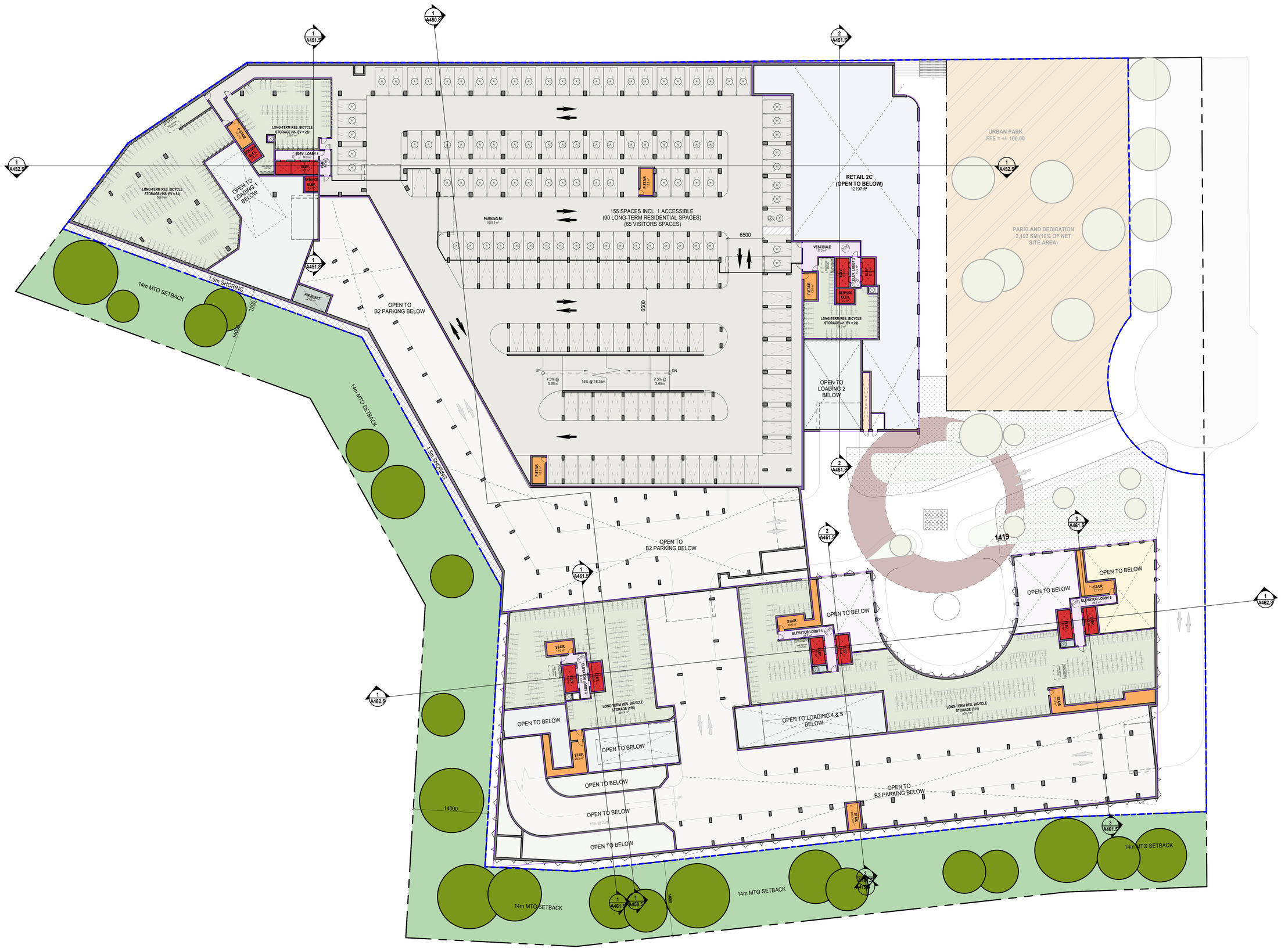

PARKING NOTES:

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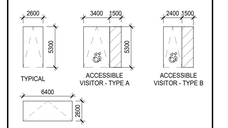
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- 1830 / 315 / 315 — BIKE LOCKER (HORIZONTAL)
- 1766, 2134 / 500 / 500 — BIKE PARKING (STACKED)
- 1200 / 600 / 600 — BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE



PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
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L2	0	120	0
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B1	65	90	1
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RATIO	0.2 /UNIT	0.65 /UNIT	

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BICYCLE COUNT:

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B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

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Ontario, Canada

for
Resident

21057 PROJECT | 1:250 SCALE | MT DRAWN | YA REVIEWED

Level B1

A153.S

Autodesk Docs://705 Kingston Road/BDPQL_SITE_21057_705 Kingston Rd_R23D23.rvt
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SITE PLAN LEGEND

PROPERTY LINE
MAIN BUILDING ENTRANCE
RETAIL ENTRANCE
EXIT
VEHICLE / LOADING ENTRANCE / EXIT
FIRE HYDRANT
SC SIAMESE CONNECTION

PARKING NOTES:

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PARKING LEGEND:

(R) RESIDENTIAL PARKING SPACE
1830 915 BIKE LOCKER (HORIZONTAL)
1766 2134 610 BIKE PARKING (STACKED)
1200 600 BIKE PARKING (VERTICAL)
ELECTRIC BICYCLE SPACE
ELECTRIC VEHICLE READY SPACE
ELECTRIC VEHICLE ROUGH-IN SPACE

2600 5300 TYPICAL
3400 1500 5300 ACCESSIBLE VISITOR - TYPE A
2400 1500 ACCESSIBLE VISITOR - TYPE B
6400 2600 PARALLEL SPACE

PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

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BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 As indicated MT YA
PROJECT SCALE DRAWN REVIEWED

Ground Floor Plan

A201.S

2024-10-16 1:44:56 PM

PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
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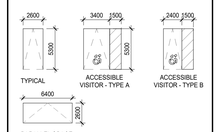
PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- 1830 / 313 / 1900 — BIKE LOCKER (HORIZONTAL)
- 1766, 2134 / 500 / 900 — BIKE PARKING (STACKED)
- 1200 / 500 / 900 — BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE



PARKING COUNT:

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L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

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BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
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B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

PROJECT	SCALE	DRAWN	REVIEWED
21057	As indicated	MT	YA

Typical Podium Floor Plan (Floor 2-4)

A202.S

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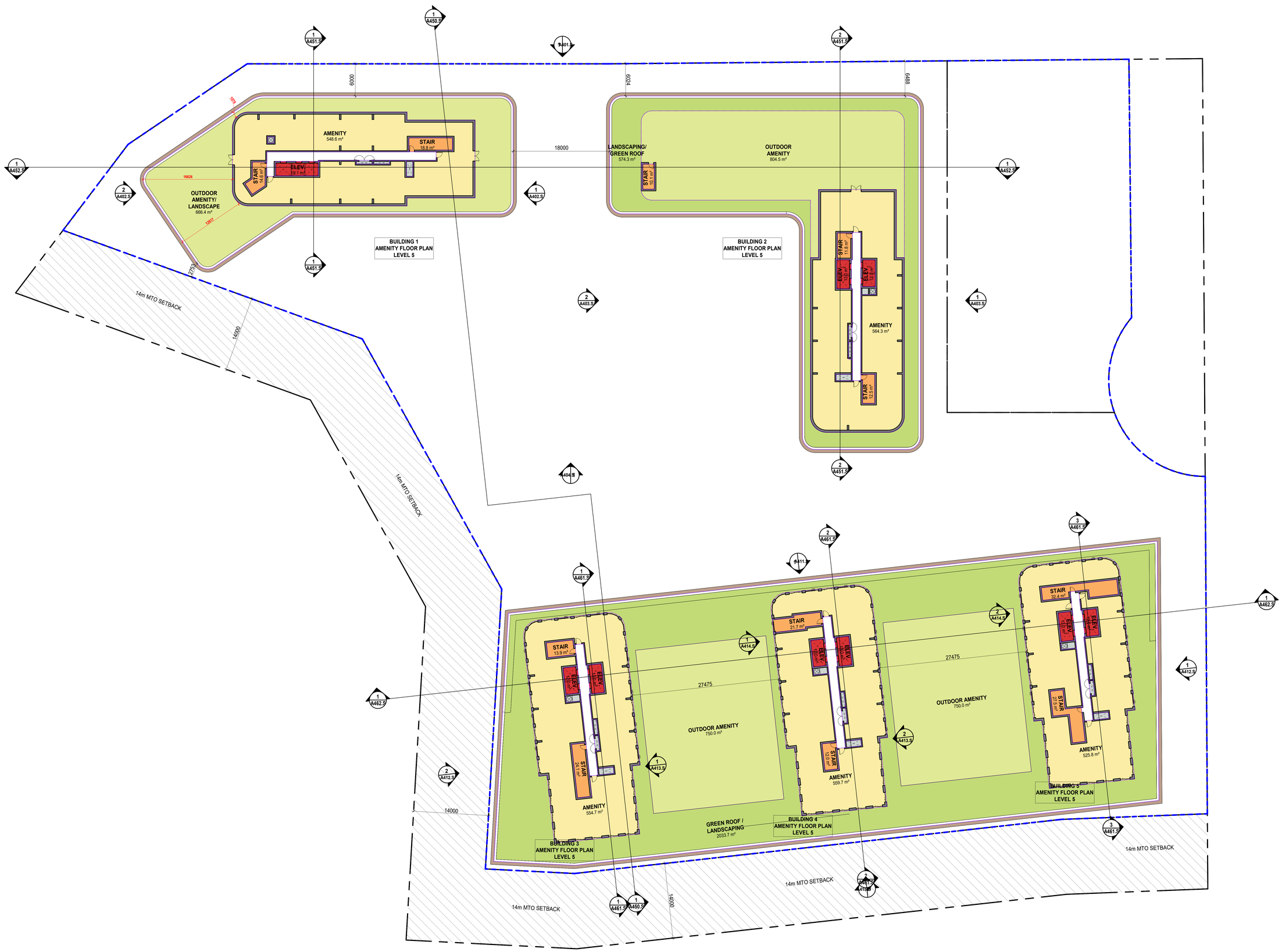

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705 Kingston Road, Pickering

Ontario, Canada

for

Resident

21057 1 : 250 MT YA
PROJECT SCALE DRAWN REVIEWED

Podium Roof Plan (Floor 5)

A203.S

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 1 : 250 MT YA
PROJECT SCALE DRAWN REVIEWED

Typical Tower Floor Plan (Floor 6-35)

A204.S

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Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_C4S23.rvt

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 1 & 2 - North Elevation

A401.S

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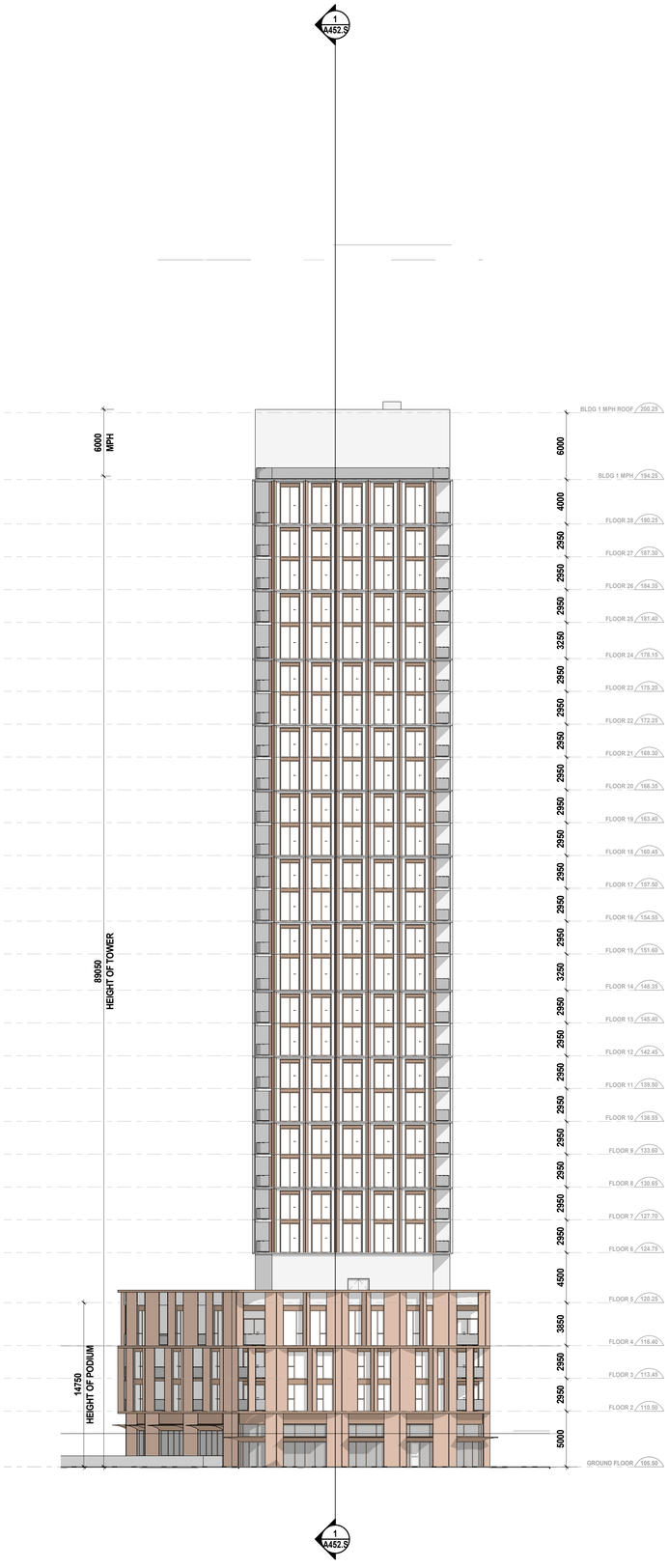

1 A402.S Building 1 - East Elevation

2 A402.S Building 1 - West Elevation

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Ontario, Canada

for
Resident

21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 1 - East & West Elevations

A402.S

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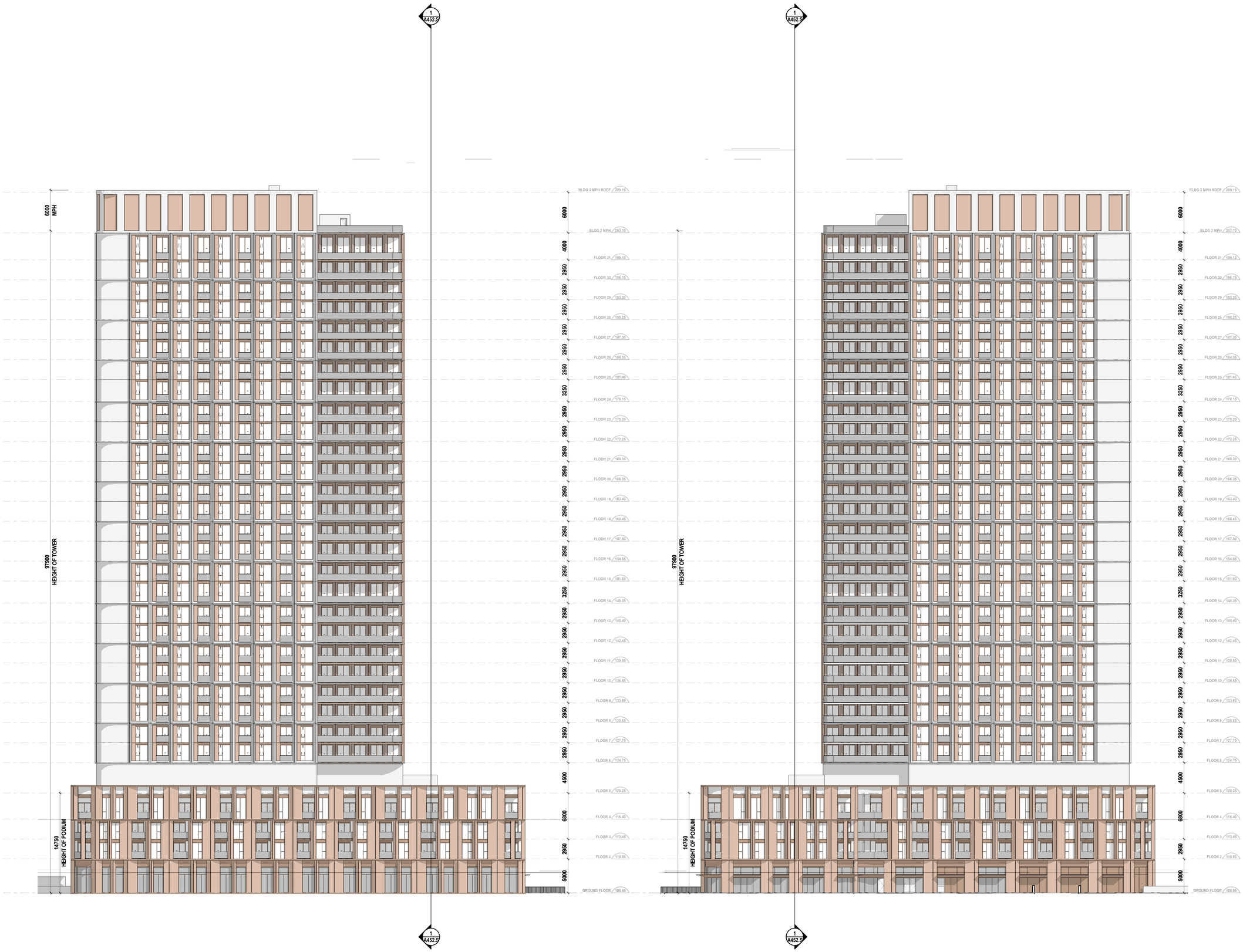

1 A403.S Building 2 - East Elevation

2 A403.S Building 2 - West Elevation

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for
Resident

21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 2 - East & West Elevations

A403.S

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_CA2023.rvt

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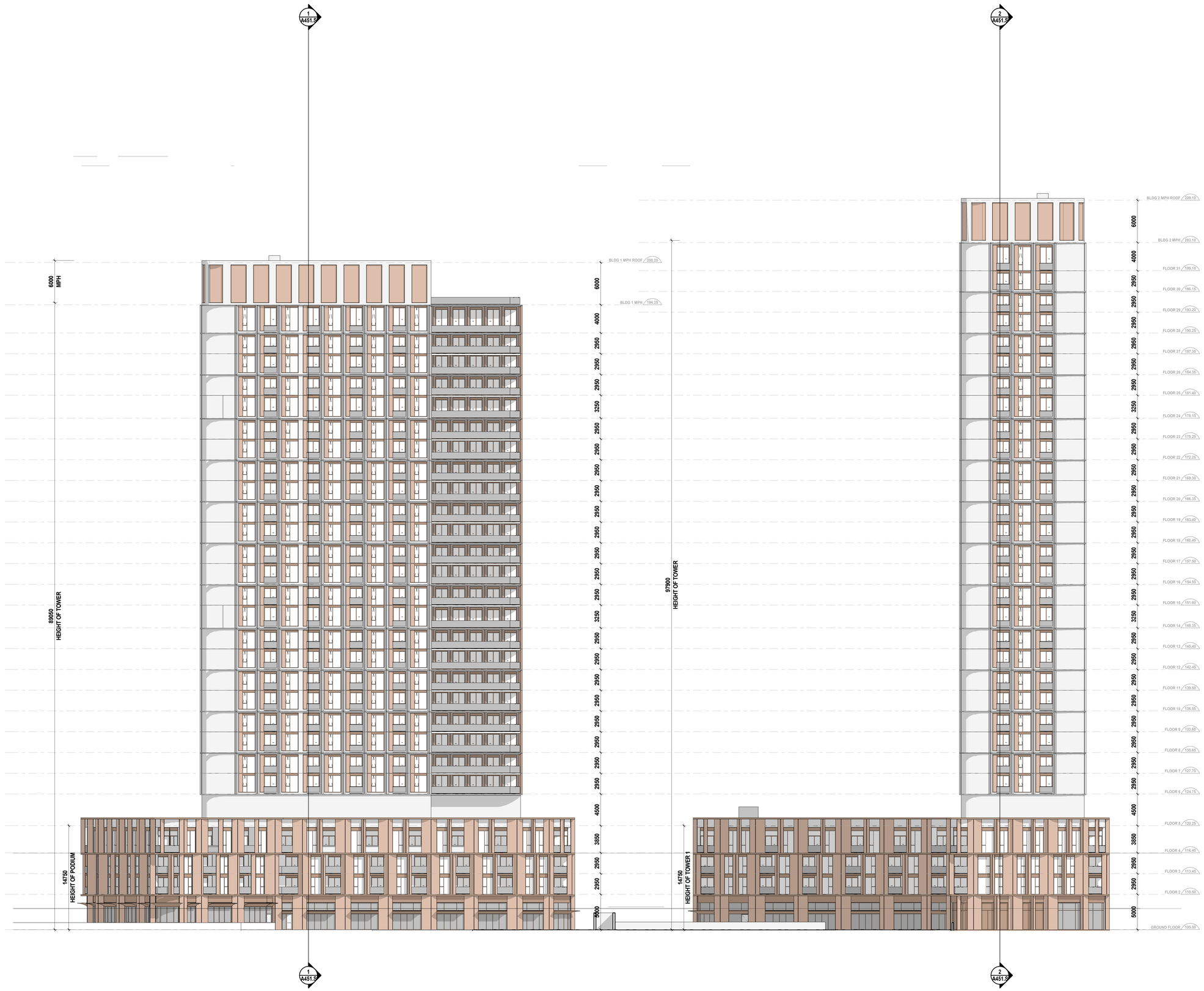

1
A404.S Building 1&2 - South Elevation

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Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416.598.1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

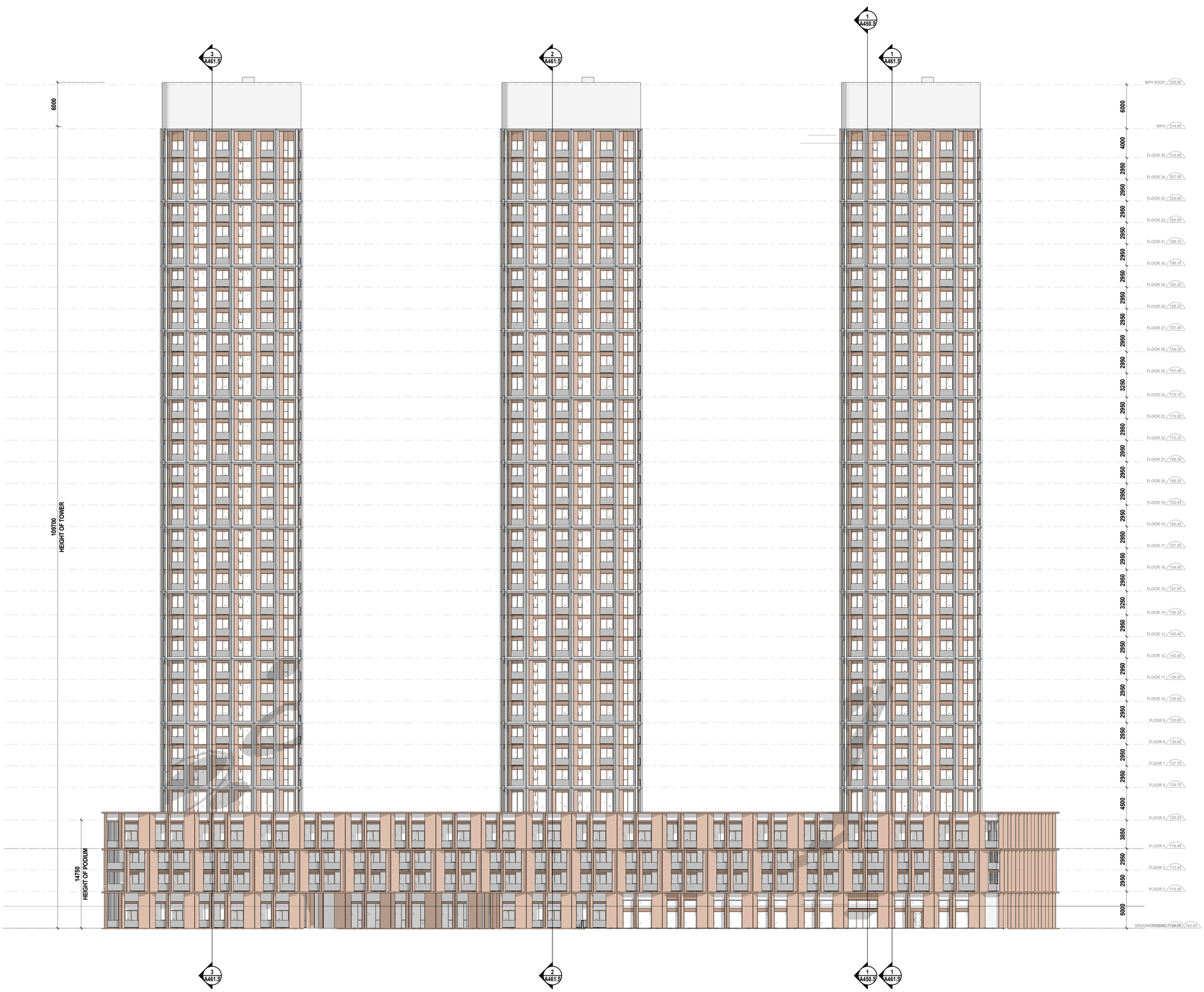
21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 1 & 2 - South Elevation

A404.S

2024-10-16 1:48:01 PM

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt



REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

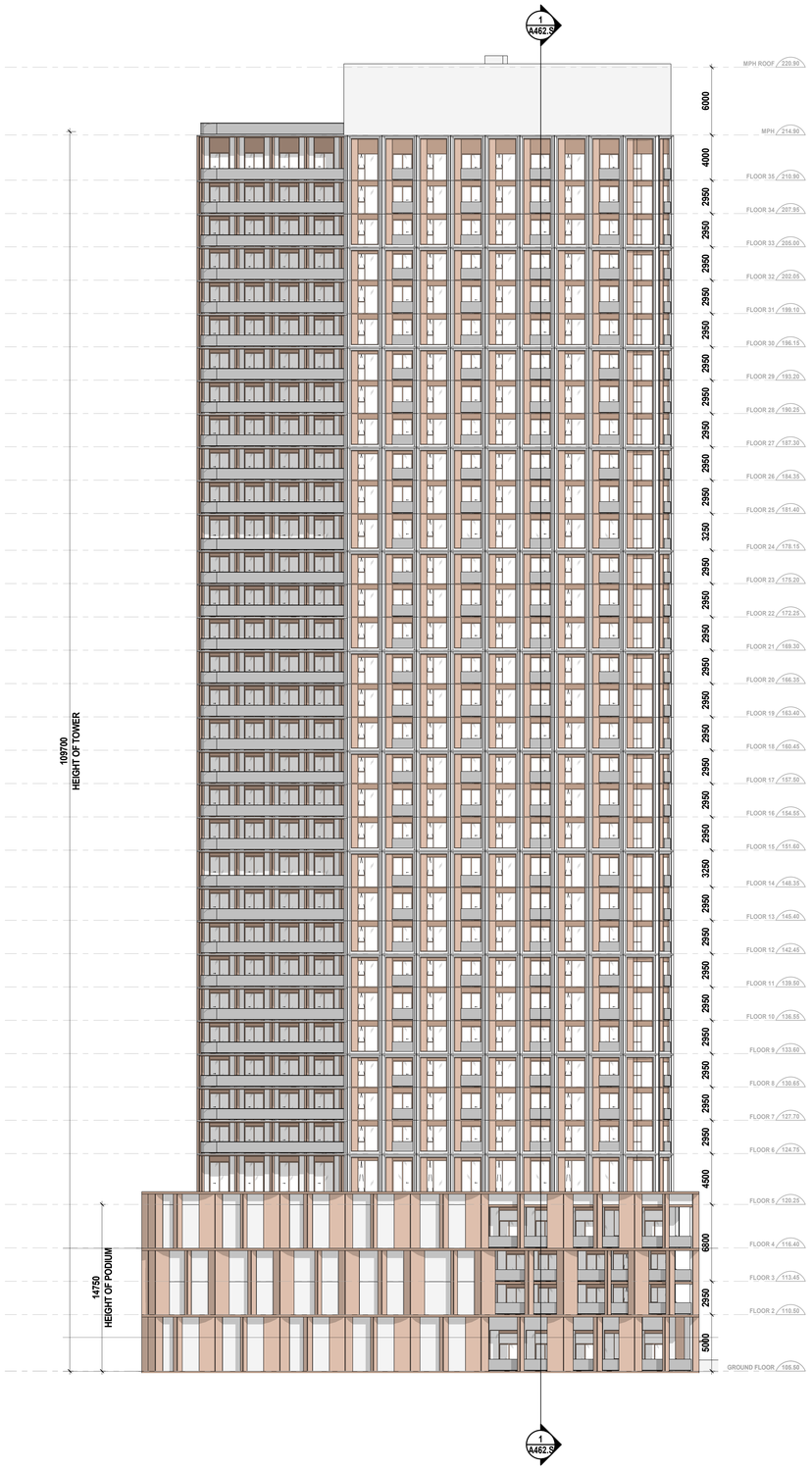
21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 3/4/5 - North Elevation

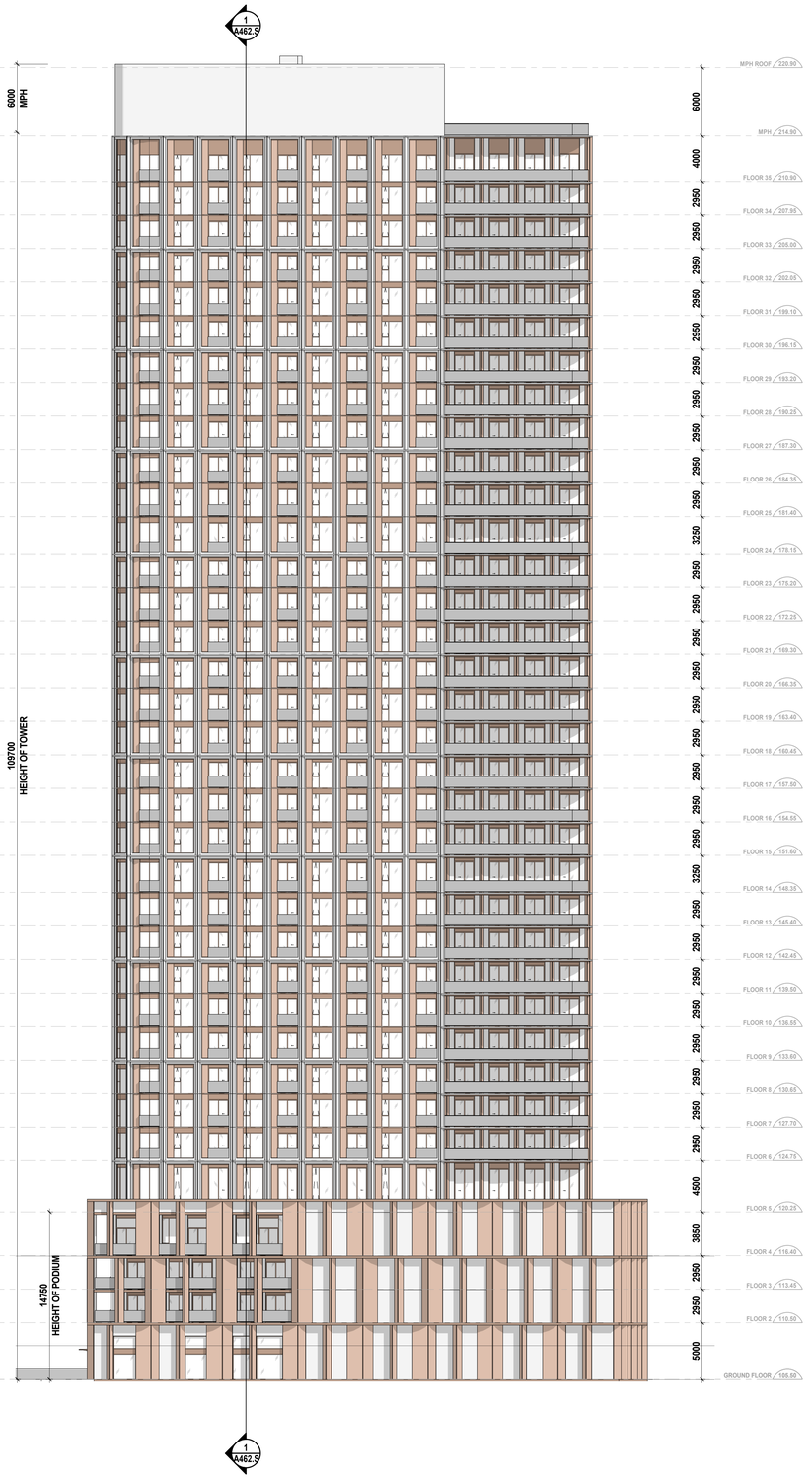
A411.S

2024-10-16 1:51:02 PM

Autodesk Docs://705 Kingston Road/BDP_QL_SITE_21057_705 Kingston Rd_R2023.rvt



1 / A412.S Building 3,4&5 - East Elevation



2 / A412.S Building 3,4&5 - West Elevation

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

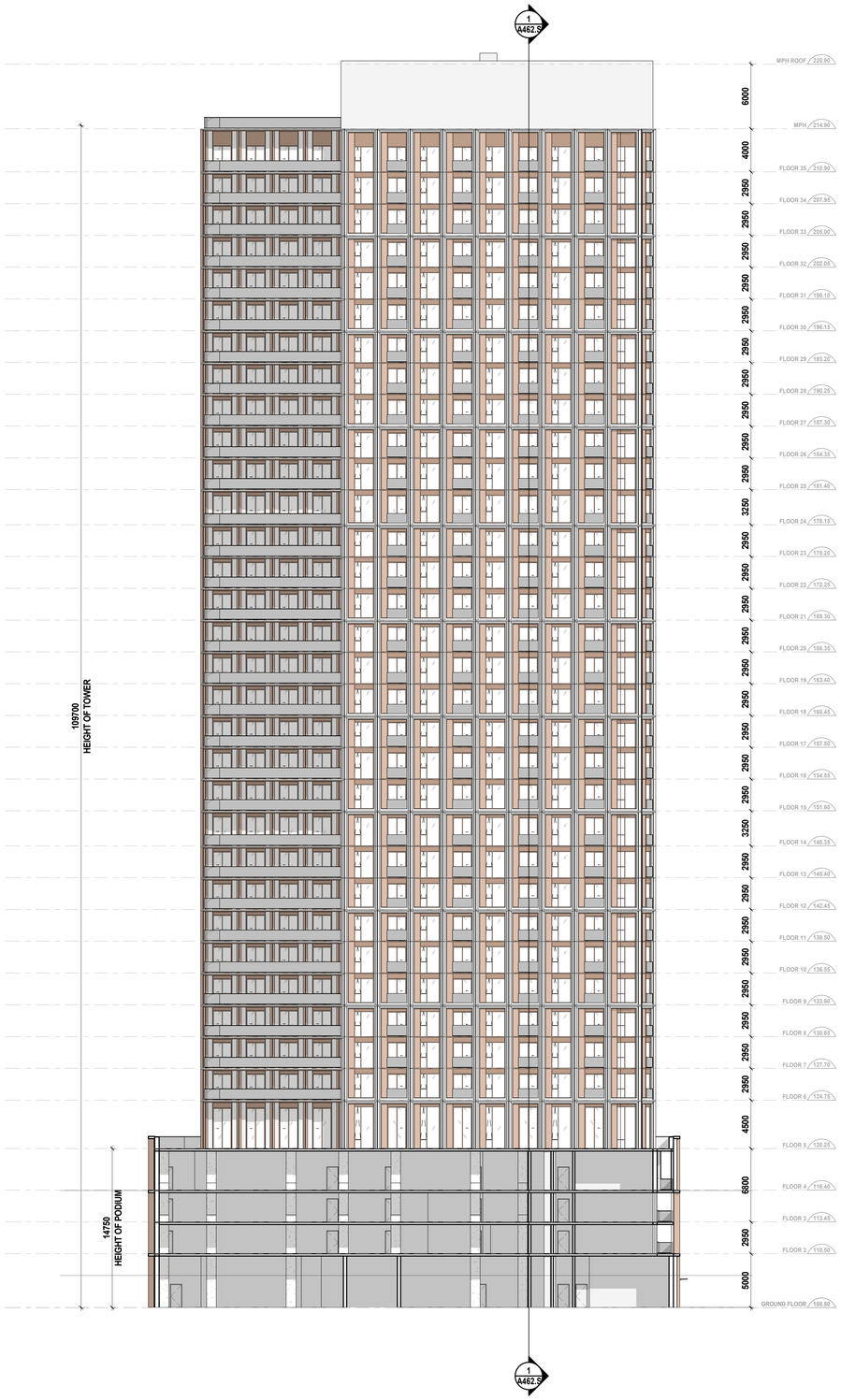
21057 PROJECT | 1 : 200 SCALE | MT DRAWN | YA REVIEWED

Building 3/4/5 - East & West Elevations

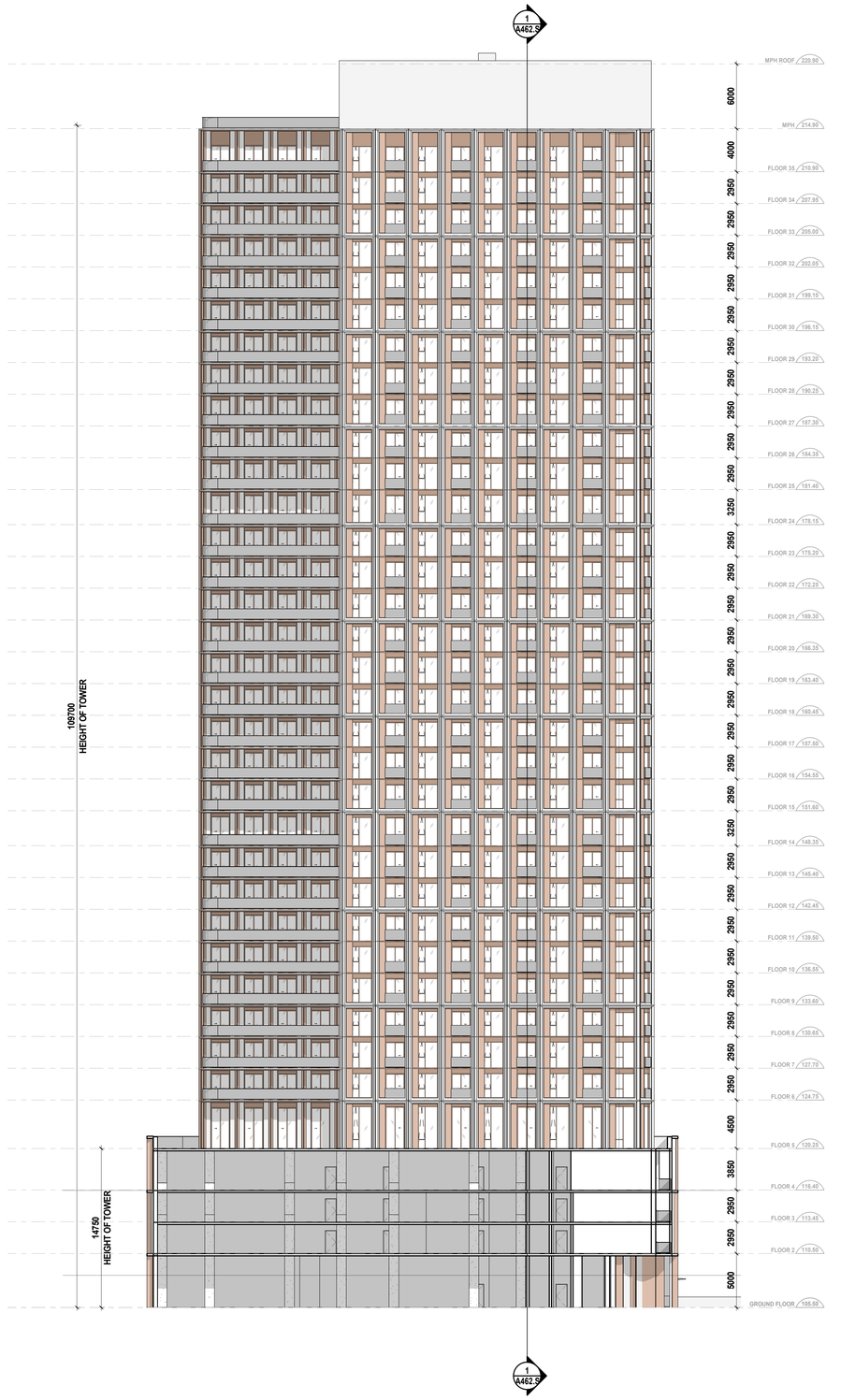
A412.S

2024-10-16 1:53:39 PM

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt



1 A413.S Building 3 - East Elevation



2 A413.S Building 4 - East Elevation

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The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

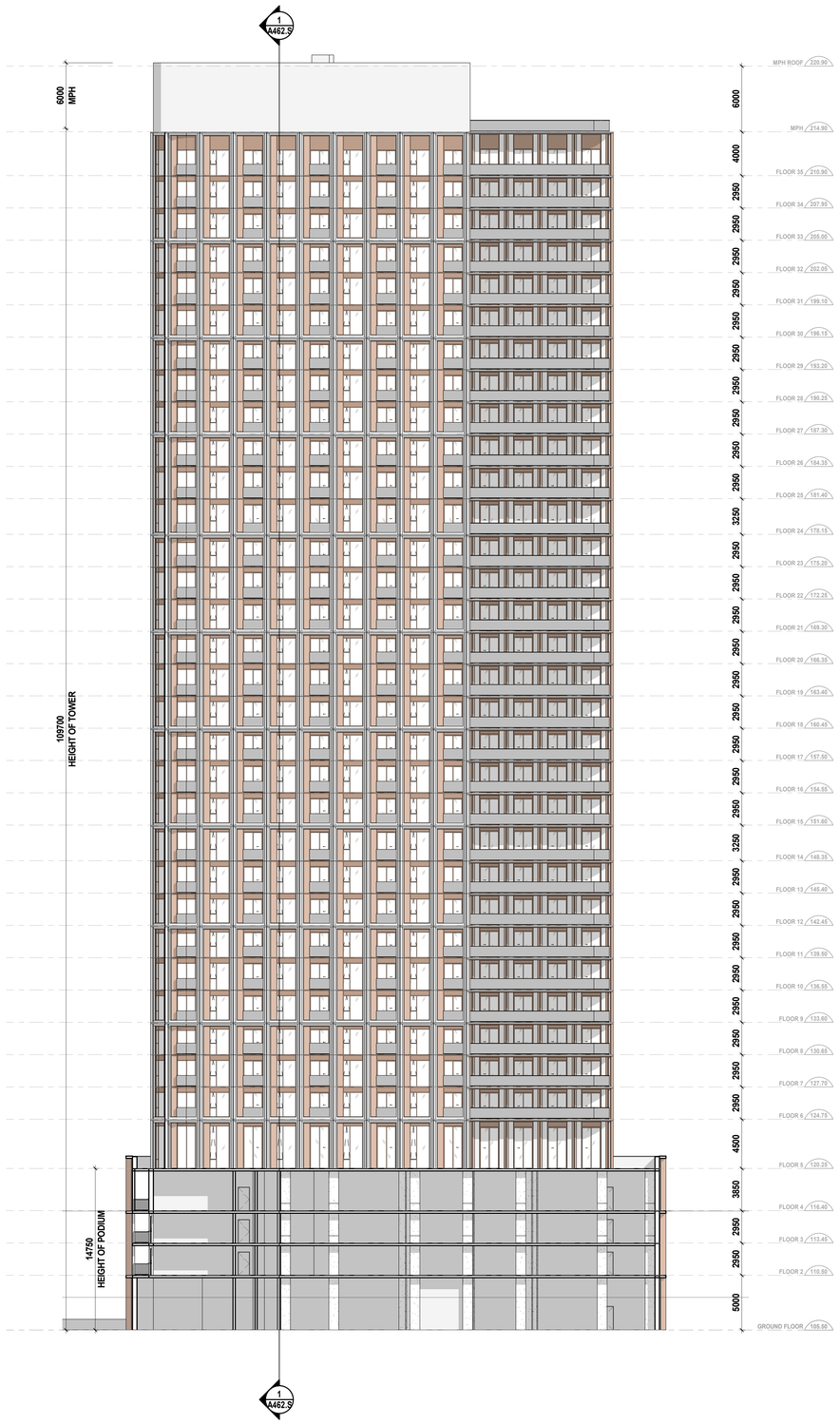
for
Resident

21057 PROJECT | 1 : 200 SCALE | MT DRAWN | YA REVIEWED

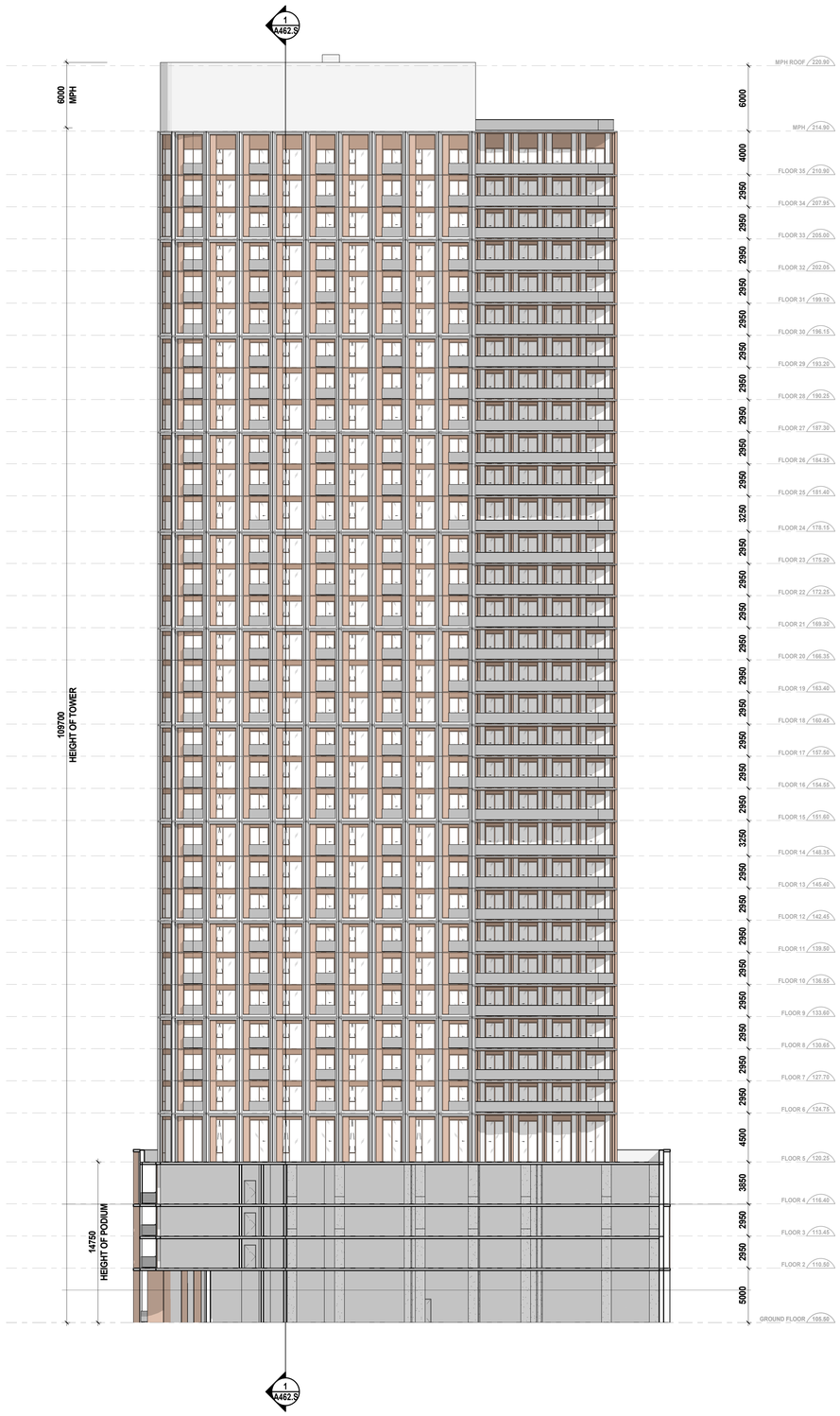
Building 3/4/5 - East Elevation

A413.S

2024-10-16 1:05:03 PM



1 / A414.S Building 4 - West Elevation



2 / A414.S Building 5 - West Elevation

REVISION RECORD

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The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 3/4/5 - West Elevation

A414.S

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt
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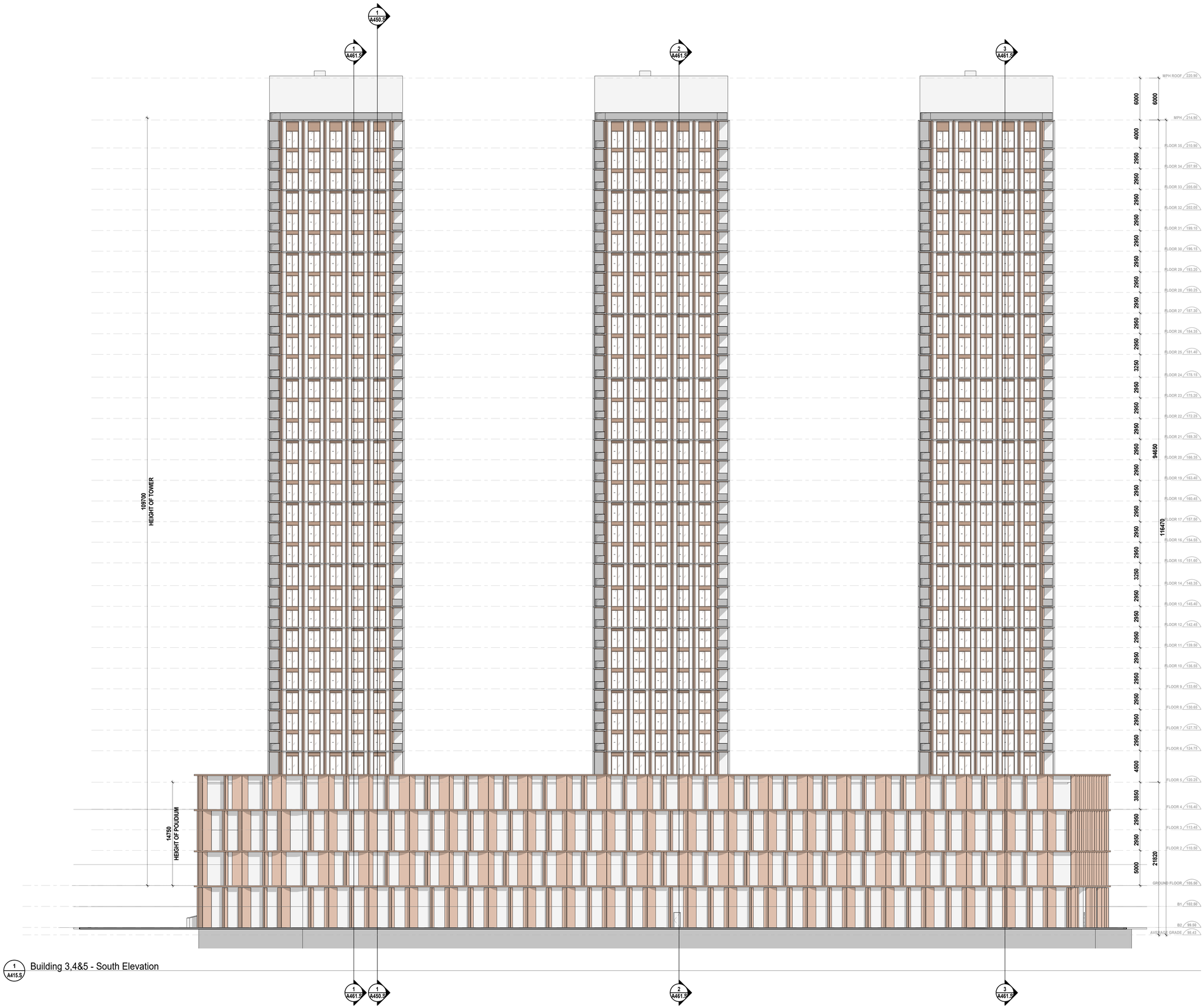

1 A415.S Building 3,4&5 - South Elevation

REVISION RECORD

ISSUE RECORD

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Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 PROJECT | 1 : 200 SCALE | MT DRAWN | YA REVIEWED

Building 3/4/5 - South Elevations

A415.S

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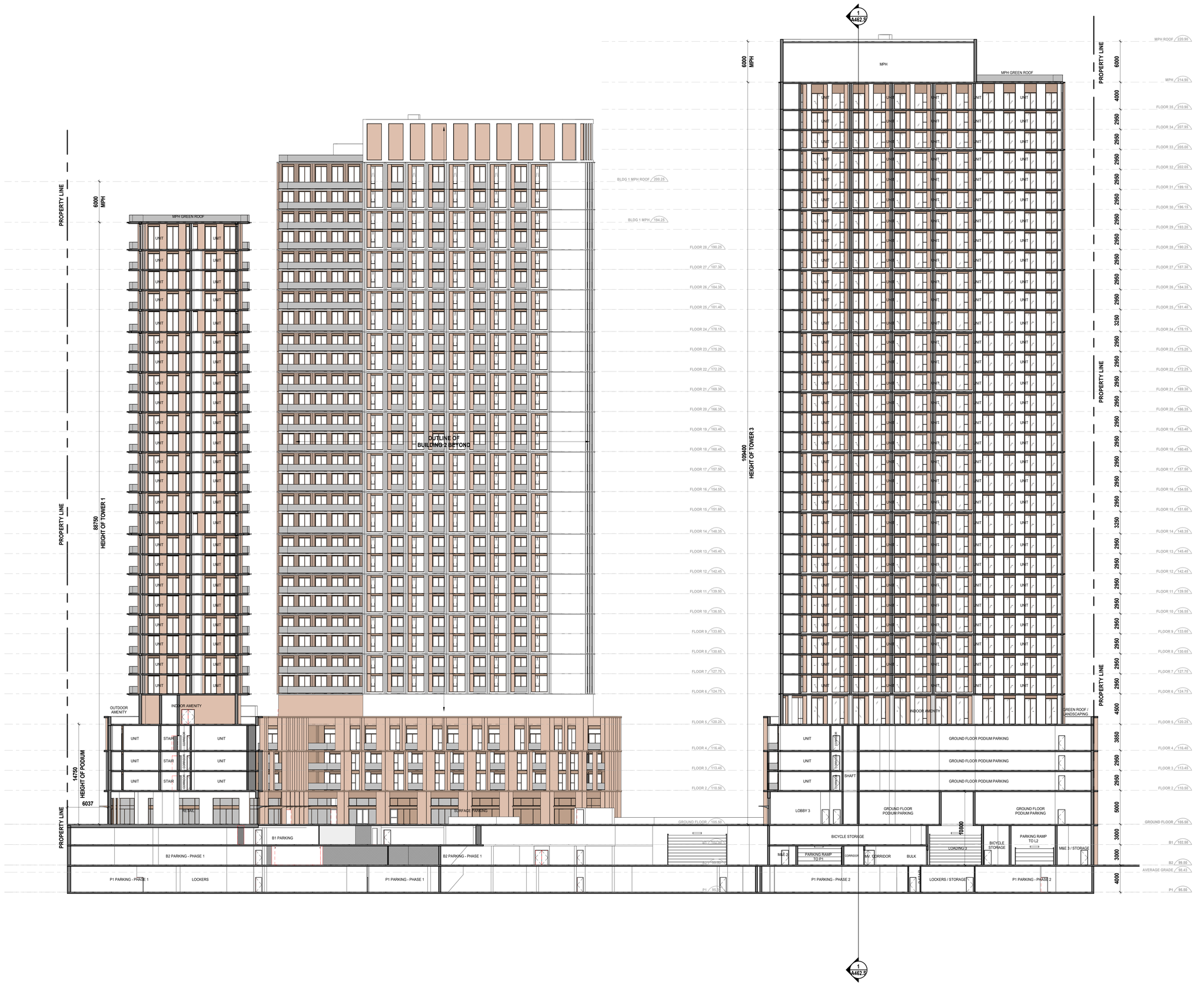

1 Site Section N-S
A450.S

REVISION RECORD

ISSUE RECORD

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

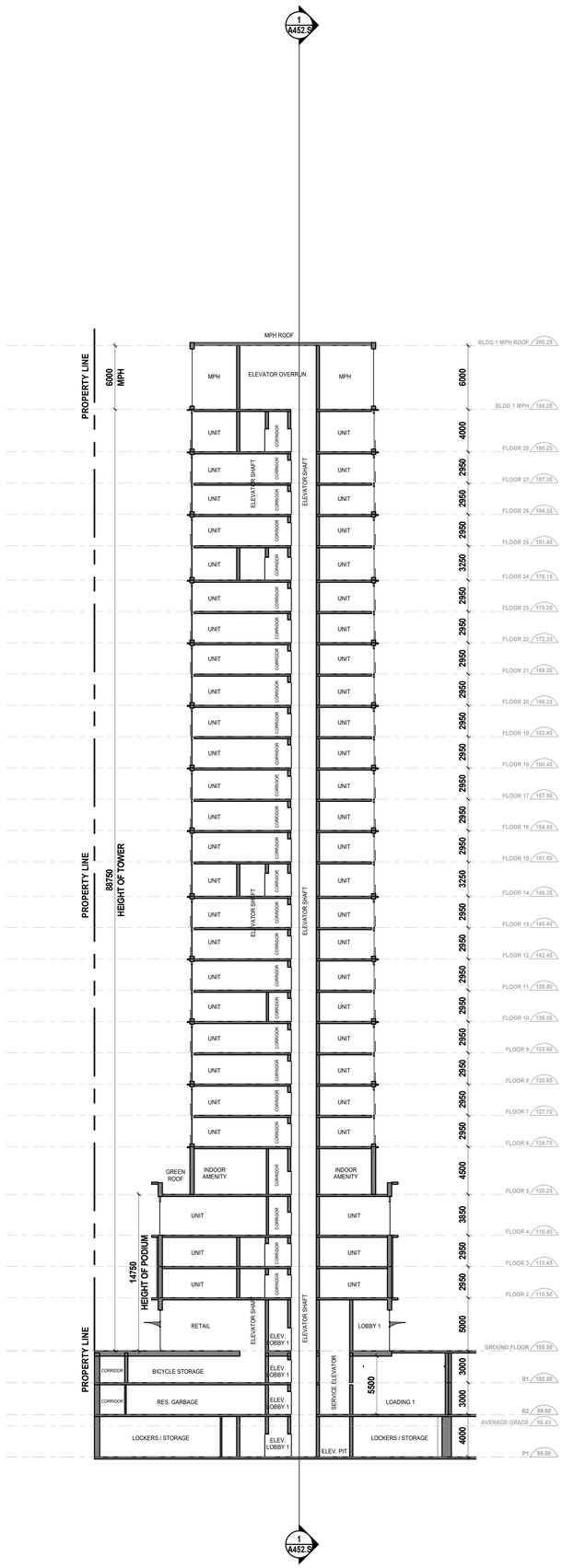
21057 1 : 200 MT YA
PROJECT SCALE DRAWN REVIEWED

Site Section

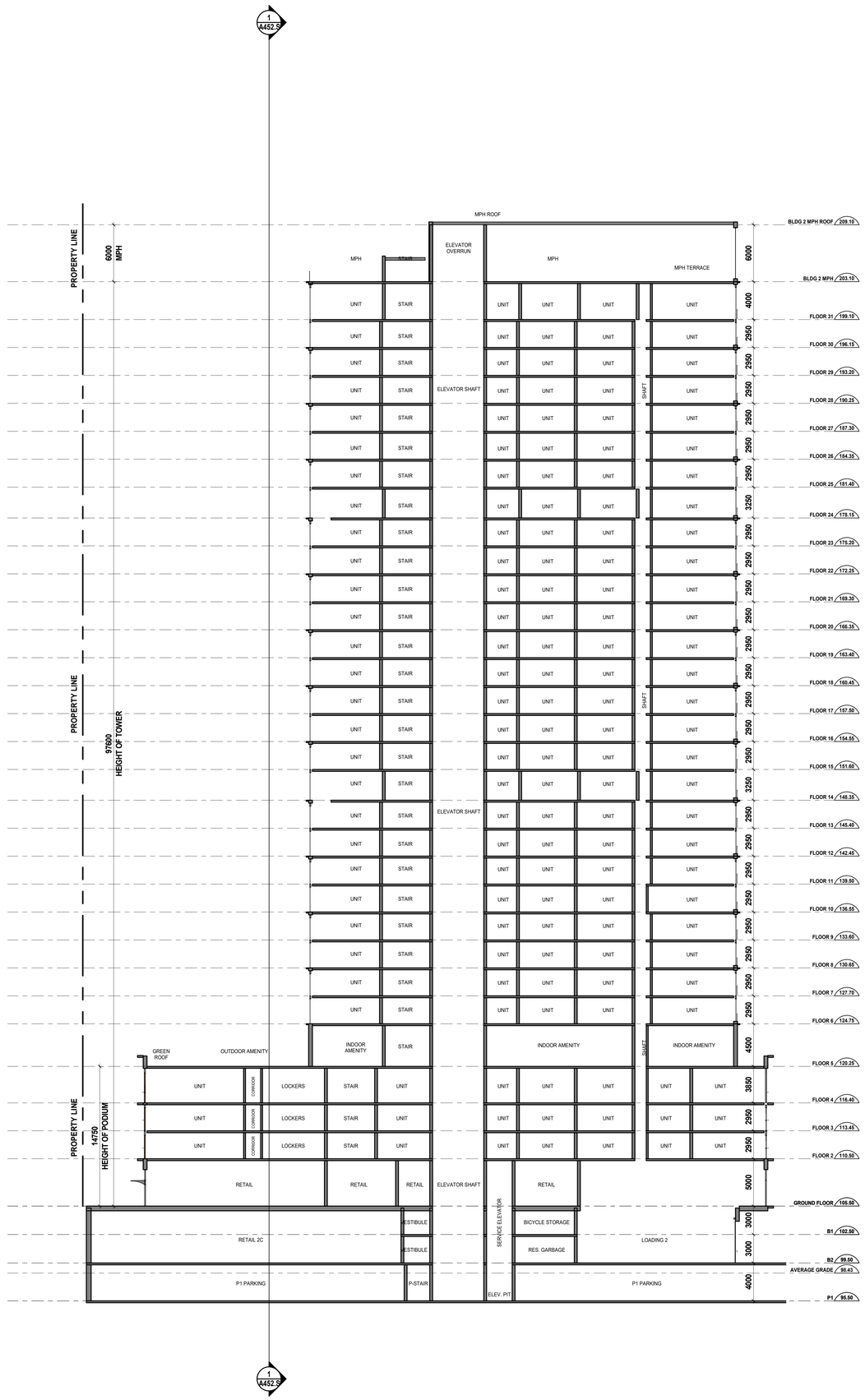
A450.S

2024-10-16 1:58:42 PM

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R24023.rvt



1 A451.S Building 1 Section N-S



2 A451.S Building 2 Section N-S

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

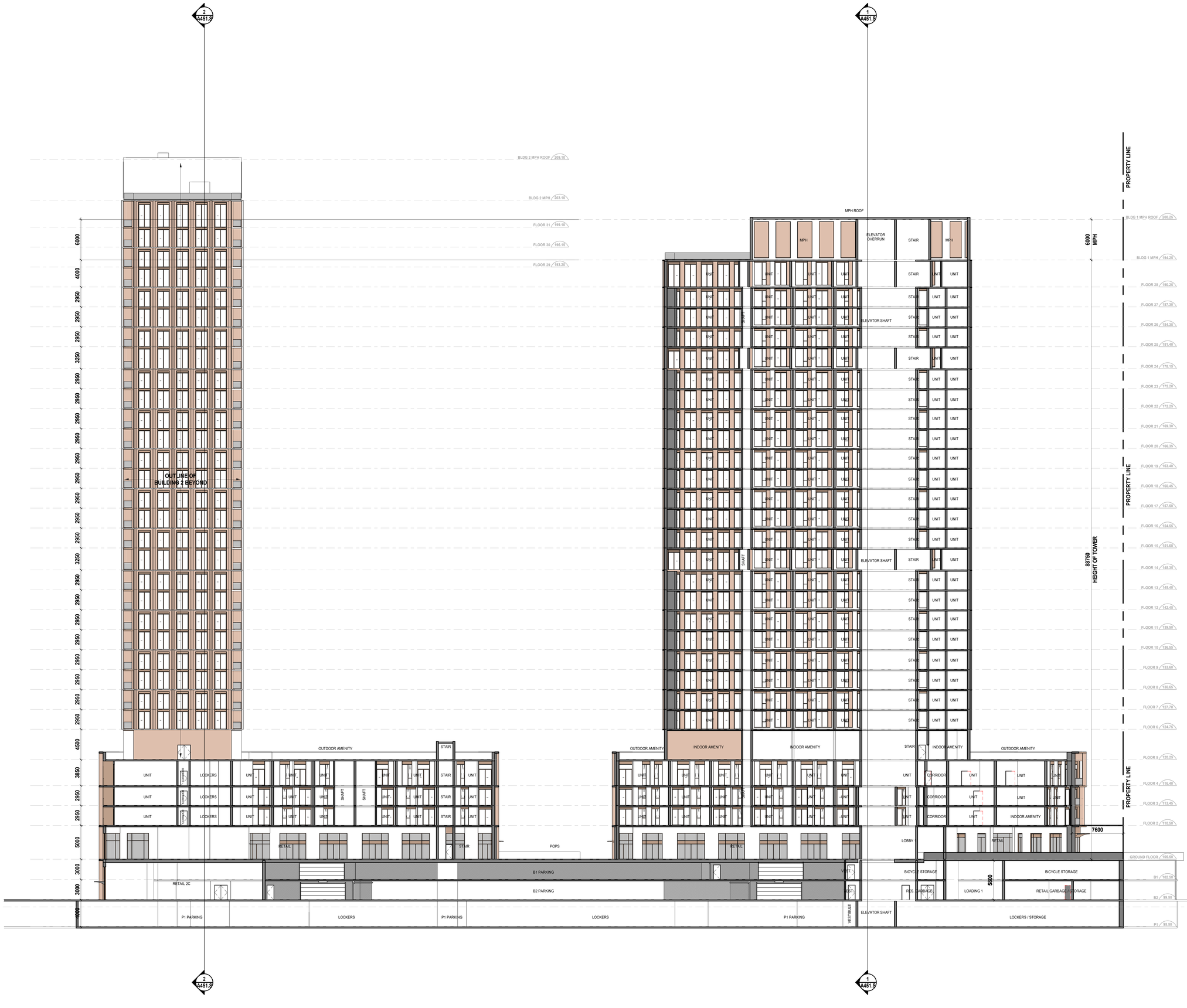
21057 PROJECT | 1 : 200 SCALE | MT DRAWN | YA REVIEWED

Building 1 & 2 - North-South Sections

A451.S

2024-10-15 1:58:49 PM

Autodesk Docs://705 Kingston Road/BDPQL_SITE_21057_705 Kingston Rd_R2323.rvt



REVISION RECORD

ISSUE RECORD

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for

Resident

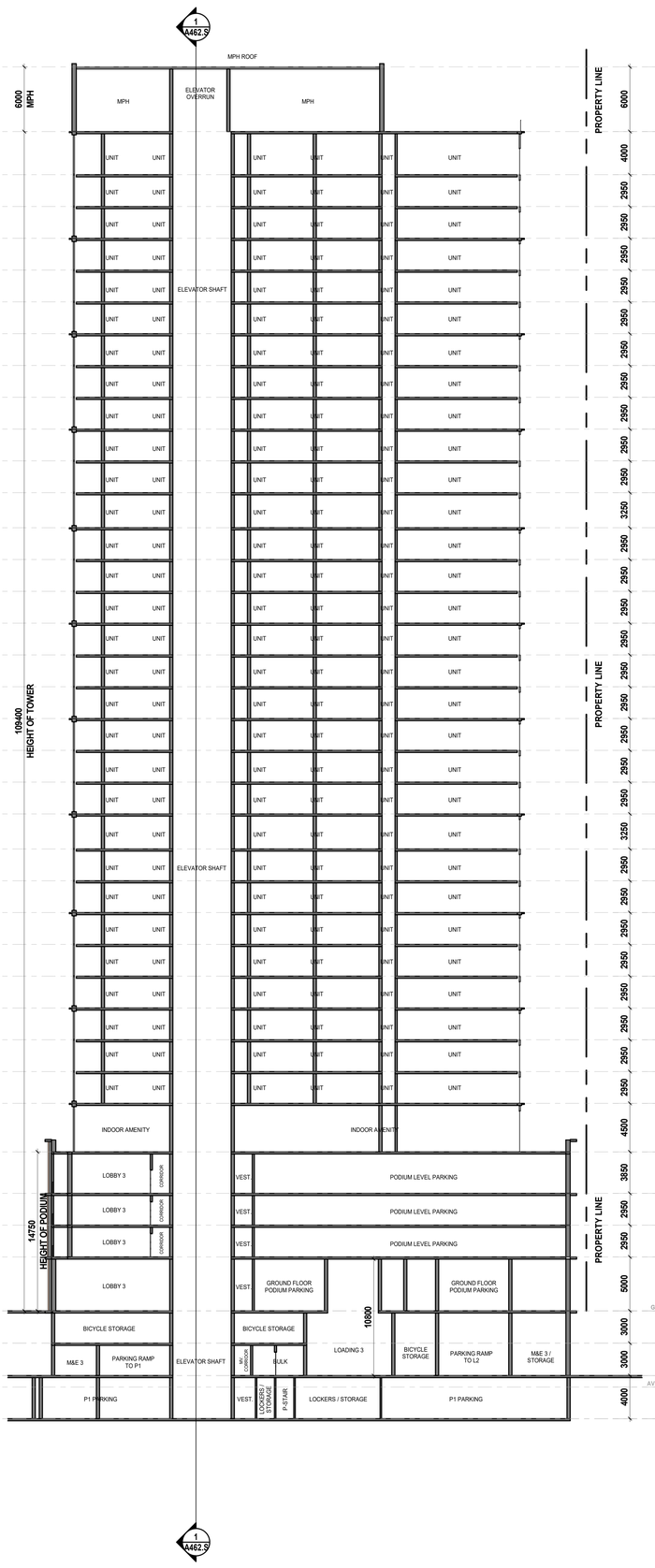
21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 1 & 2 - East-West Sections

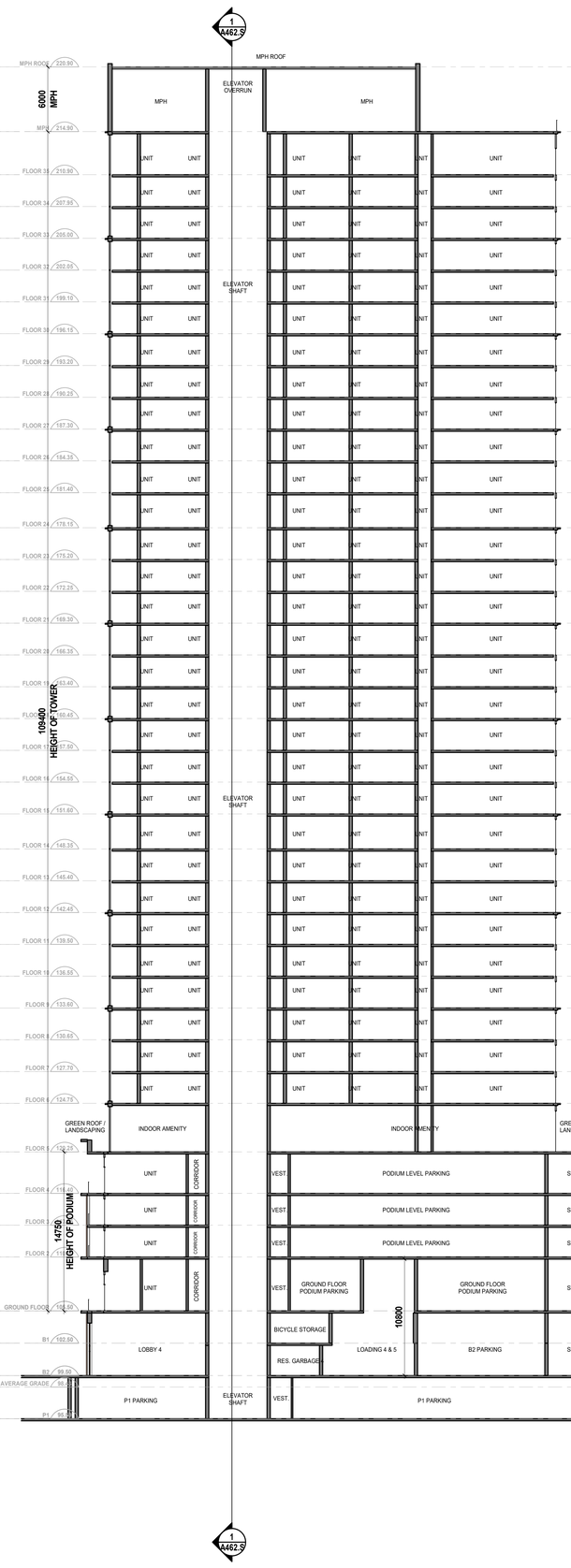
A452.S

2024-10-16 1:05:03 PM

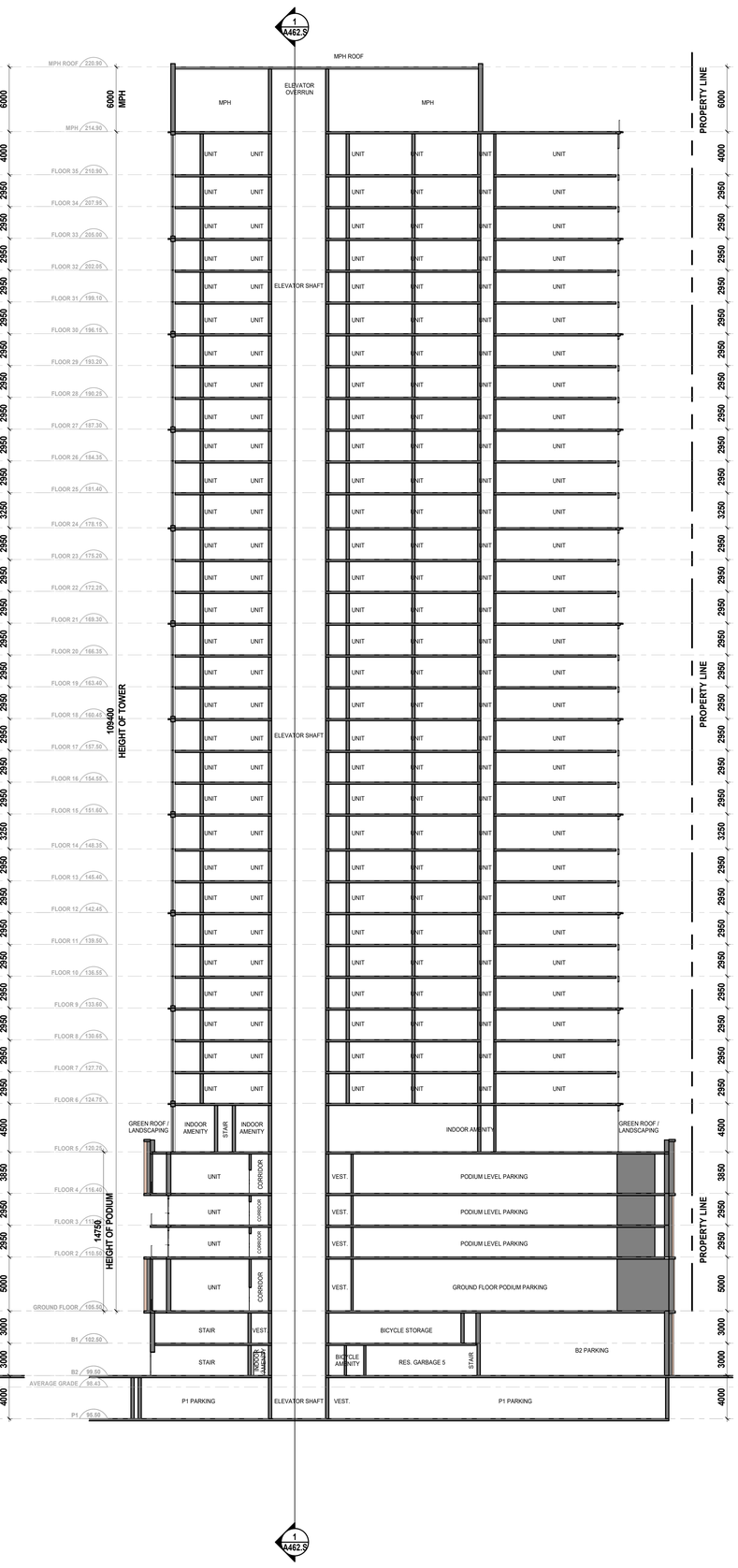
Autodesk Docs://705 Kingston Road/BDPQL_SITE_21057_705 Kingston Rd_R2323.rvt



1 Building 3 Section N-S



2 Building 4 Section N-S



3 Building 5 Section N-S

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for

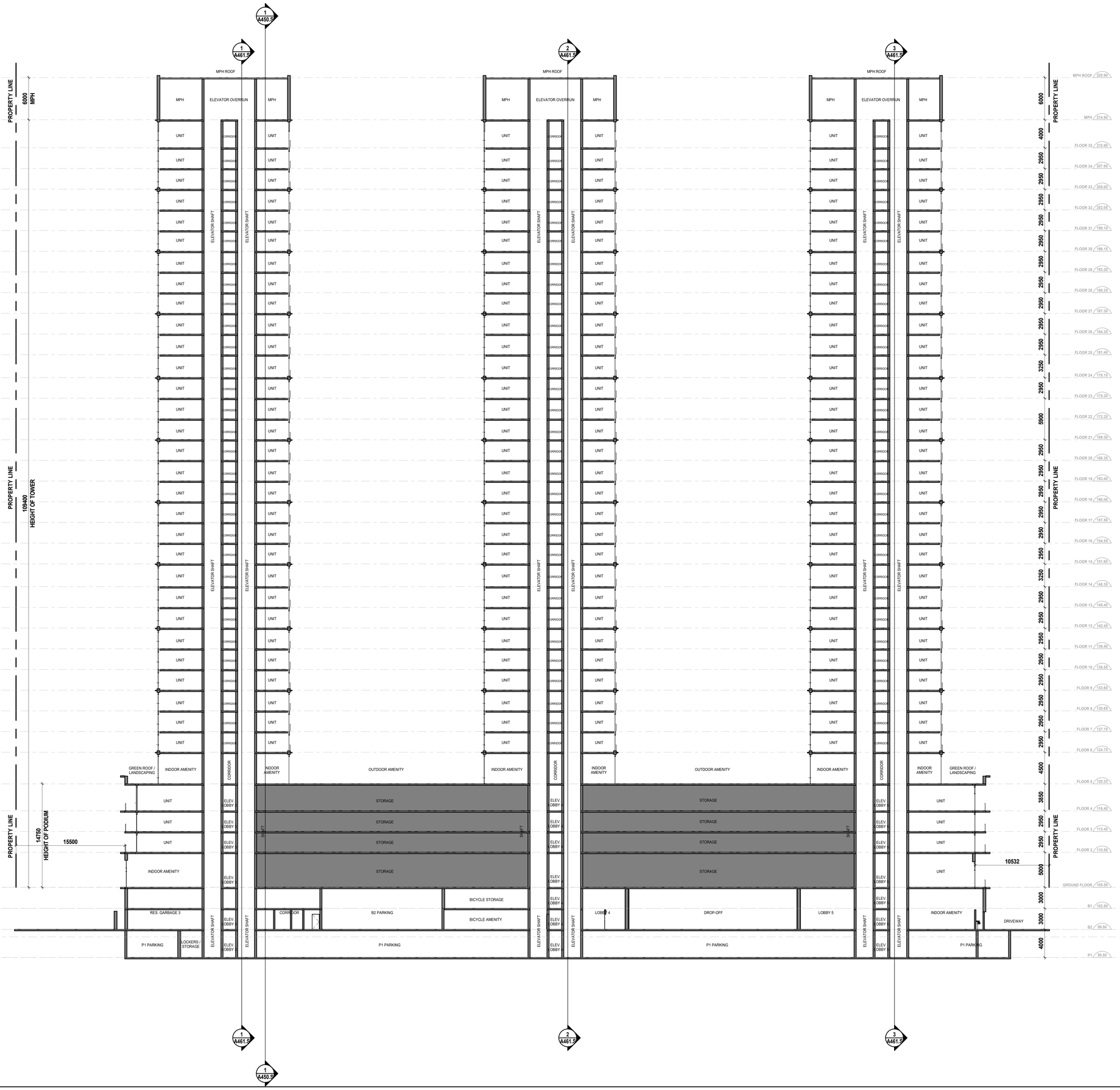
Resident

21057 1 : 200 MT YA
PROJECT SCALE DRAWN REVIEWED

Building 3/4/5 - North-South Sections

A461.S

2024-10-15 1:59:12 PM



REVISION RECORD

ISSUE RECORD

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 1 : 200 MT YA
PROJECT SCALE DRAWN REVIEWED

Building 3/4/5 - East-West Sections

A462.S

2024-10-15 1:05:19 PM

Autodesk Docs://705 Kingston Road/BDPQL_SITE_21057_705 Kingston Rd_R2323.rvt

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 PROJECT 1:400 SCALE | MT DRAWN | YA REVIEWED

Renderings - Aerial View

A901.S

REVISION RECORD

ISSUE RECORD

BDP.
Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057	1:400	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

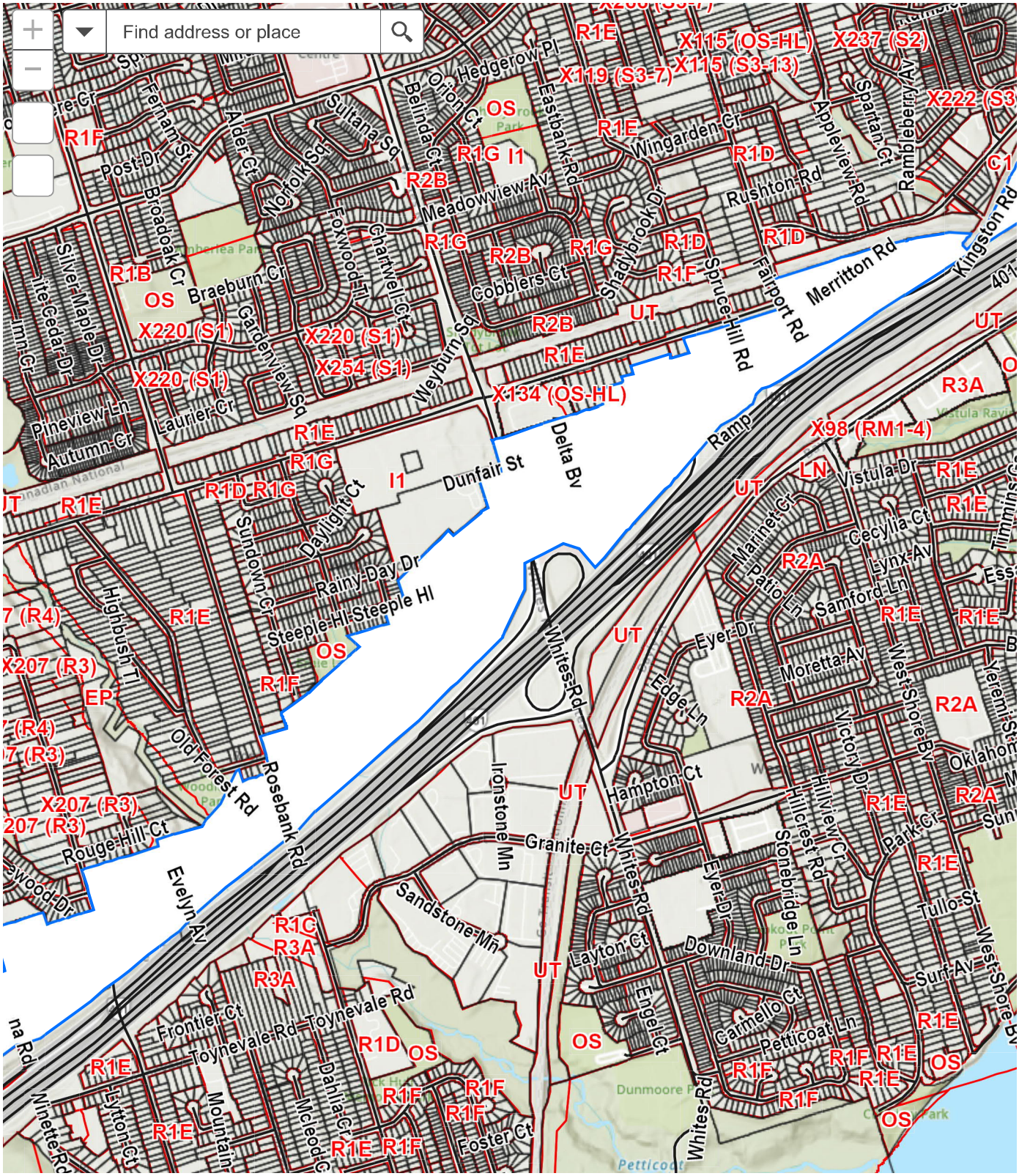
Renderings - Street Views

A902.S

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt

2024-10-16 1:09:24 PM

City of Pickering Zoning By-law Review



Appendix B

D-6 Classification Criteria

Category	Outputs	Scale	Process	Operations/Intensity	Possible Examples
Class I	• Noise: Sound not audible off property • Dust and/or Odour: Infrequent and not intense • Vibration: No ground borne vibration on plant property	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria for this Class	• Self-contained plant or building which produces/stores a packaged product. Low probability of fugitive emissions	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Electronics manufacturing and repair • Furniture repair and refinishing • Beverages bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply
Class II	• Noise: Sound occasionally audible off property • Dust and/or Odour: Frequent and occasionally intense • Vibration: Possible groundborne vibration, but cannot be perceived off property	• Outside storage permitted • Medium level of production allowed	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Shift operations permitted • Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	• Magazine printing • Paint spray booths • Metal command • Electrical production manufacturing • Manufacturing of dairy products • Dry cleaning services • Feed packing plant
Class III	• Noise: sound frequently audible off property • Dust and/or Odour: Persistent and/or intense • Vibration: Ground-borne vibration can frequently be perceived off property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Manufacturing of paint and varnish • Organic chemicals manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Manufacturing of resins and costing • Metal manufacturing

Appendix C

Traffic Data

DILLON CONSULTING

Airdrie, Callie <cairdrie@dillon.ca>

Road Traffic Information Request - Kingston Road and Whites Road

noiserequests <noiserequests@durham.ca> Fri, Oct 4, 2024 at 2:09 PM
To: "Airdrie, Callie" <cairdrie@dillon.ca>

Hi Callie,

Here is the information you requested.

For future request – please fill in the online portal: https://forms.durham.ca/Noise-Analysis-Data-Request

Thank you and have a great weekend.

Anthony

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Friday, September 27, 2024 8:56 AM
To: noiserequests <noiserequests@durham.ca>
Subject: Road Traffic Information Request - Kingston Road and Whites Road

You don't often get email from cairdrie@dillon.ca. Learn why this is important

Good morning,

On behalf of the Resident, Dillon Consulting Ltd. is completing a Noise Feasibility Study for a proposed residential development located at 705 Kingston road in Pickering, Ontario.

To support the Noise Feasibility Study, I would like to request traffic information for both Kingston road and Whites road. Please let me know if the following information can be made available:

- Expected annual growth rate
- Medium and heavy truck percentage
- AADT

Thanks,

Callie

–

Callie Airdrie
Dillon Consulting Limited
51 Breithaupt Street Suite 200
Kitchener, Ontario, N2H 5G5
T - 519.571.9833 ext. 3159
cairdrie@dillon.ca
www.dillon.ca

Oct4_24_Pl.pdf
96K

Planning and Economic
Development Department

Planning Division

605 ROSSLAND RD. E.
4TH FLOOR
P.O. BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-666-6208
E-Mail: planning@durham.ca

www.durham.ca

Brian Bridgeman, MCIP, RPP, PLE
Commissioner of Planning and
Economic Development

The Regional Municipality of Durham

ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

Provided For:

Name / Name of Firm: Callie Airdrie, Dillion Consulting Ltd

Address: 51 Breithaupt Street, Suite 200, Kitchener, ON N2H 5G5

Telephone: (519) 571-9833 Fax:

Location of Proposal:

705 Kingston Road, Pickering

Municipality: Lot(s): Concession:

Durham Region File No. (if available):

Name of Property Owner (if available):

Date Request Received: September 28, 2024 Received By: Anthony Caruso

Date Forecast Sent: October 4, 2024

Name of Road Segment	Forecasted AADT*	No. of Lanes	% of Trucks	Heavy : Medium Truck Ratio		Speed (km/h)
Kingston Road (Whites to Fairport)	35,000	4	8	30	70	60
Whites Road (Kingston to Sheppard)	35,000	6	10	70	30	60

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.

DILLON CONSULTING

Airdrie, Callie <cairdrie@dillon.ca>

Road Traffic Information Request - 401

Patel, Sohil (MTO) <Sohil.Patel@ontario.ca> Tue, Oct 1, 2024 at 9:34 AM
To: "Airdrie, Callie" <cairdrie@dillon.ca>
Cc: "Schmid, Kelly (MTO)" <Kelly.Schmid@ontario.ca>, "Bevers, Cameron (MTO)" <Cameron.Bevers@ontario.ca>, "Sedkowski, Martin (MTO)" <Martin.Sedkowski@ontario.ca>

Hello Callie,

Please see attached hourly volume available for closet location at Highway 401 and study site. Unfortunately, MTO doesn't have vehicle classification counts.

In the year of 2021, The AADT was 267,400 and %Truck was 10%.

Thank you,

Sohil Patel, Traffic Analyst

Highway Operations Management Branch

Operational Traffic Engineering Section

Ministry of Transportation,

301 St Paul St, St. Catharines, ON L2R 7R4

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Monday, September 30, 2024 11:26 AM
To: Christopher.Bee@ontario.ca
Cc: Patel, Sohil (MTO) <Sohil.Patel@ontario.ca>; Schmid, Kelly (MTO) <Kelly.Schmid@ontario.ca>
Subject: Re: Road Traffic Information Request - 401

Good morning,

I would like to follow up on this request to ask additionally for the Summer Average Daily Traffic for the property noted above.

Thanks,

Callie

On Fri, Sep 27, 2024 at 8:49 AM Airdrie, Callie <cairdrie@dillon.ca> wrote:

> Hi Christopher,
>
> On behalf of the Resident, Dillon Consulting Ltd. is completing a Noise Feasibility Study for a proposed development located at 705 Kingston road in Pickering, Ontario.
>
> To support the Noise Feasibility Study I would like to request traffic information for the 401. Please let me know if the following information can be made available:
>
> - Expected annual growth rate
> - Medium and heavy truck percentage
> - AADT
>
> Thanks,
>
> Callie
>
> --
>
> **Callie Airdrie**
> **Dillon Consulting Limited**
> 51 Breithaupt Street Suite 200
> Kitchener, Ontario, N2H 5G5
> T - 519.571.9833 ext. 3159
> cairdrie@dillon.ca
> www.dillon.ca

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Kitchener, Ontario, N2H 5G5
T - 519.571.9833 ext. 3159
cairdrie@dillon.ca
www.dillon.ca

3 attachments

Hwy 401-Whites Rd-EB-Express-Seven Day Report - Hourly (401DE0560DEE,47610) 2023-07-04.pdf
11K

Hwy 401-Whites Rd- WB-collector-Seven Day Report - Hourly (401DE0510DWC,47610) 2024-07-16.pdf
11K

Hwy 401-Whites Rd- WB-express-Seven Day Report - Hourly (401DE0510DWE,47610) 2024-07-16.pdf
11K

SEVEN DAY HOURLY REPORT

Station 1:	401DE0560DEE				
HIGHWAY:	401	STREAM:	EXPRESS	DIRECTION:	EAST BOUND
LHRS / OFFSET:	47610 / 2.25	LOCATION:	(43.819, -79.111)	CONFIDENCE LEVEL:	95%
DESCRIPTION	E. OF WHITES				

HOUR-ENDING	TUE	WED	THU	FRI	SAT	SUN	MON
	04-Jul.-23	05-Jul.-23	06-Jul.-23	07-Jul.-23	08-Jul.-23	09-Jul.-23	10-Jul.-23
	NITS	NITS	NITS	NITS	NITS	NITS	NITS
01:00	1521	1575	1574	1759	2128	2242	1536
02:00	942	888	954	1063	1413	1459	1039
03:00	704	691	700	752	995	1137	683
04:00	606	657	N/A	728	864	824	N/A
05:00	728	775	775	838	748	N/A	764
06:00	1657	1407	1595	1566	1088	759	1563
07:00	2750	2721	2600	2743	1776	1206	2830
08:00	3054	3052	3095	3301	2674	1993	3098
09:00	2887	2894	2911	3120	3348	2474	2845
10:00	2924	2647	2853	3399	3774	3222	2983
11:00	3084	3367	3062	3552	3742	3520	3278
12:00	2963	3164	3259	3882	3798	4050	3339
13:00	3192	3380	3440	3684	3845	4187	3173
14:00	3597	3617	3643	3618	3629	4127	3706
15:00	3577	3827	3578	3463	3838	3845	3746
16:00	3611	3455	3506	3117	3574	3697	3253
17:00	3898	3626	3747	3890	3490	3741	3152
18:00	3694	3712	3584	3847	3414	3584	3111
19:00	3817	3574	3867	3878	3423	3476	3502
20:00	3443	3579	3754	3669	3251	3346	3139
21:00	2995	3293	3482	3397	3016	3281	3273
22:00	2641	2823	2906	3142	2989	3072	2654
23:00	1914	2427	2541	2821	3050	2510	2119
23:59	1889	2138	1991	2245	2675	1947	1750

24 Hr Total	62,088	63,289	63,417	67,474	66,542	63,699	60,536
A.M. Total	23,820	23,838	23,378	26,703	26,348	22,886	23,958
P.M. Total	38,268	39,451	40,039	40,771	40,194	40,813	36,578
Noon-Noon		62,106	62,829	66,742	67,119	63,080	64,771
Highest Hour Starting	16:00	14:00	18:00	16:00	12:00	12:00	14:00
Highest Hour Volume	3,898	3,827	3,867	3,890	3,845	4,187	3,746

ADT = 63,864 AWD = 64,112

ADT (Average Daily Traffic)-The average daily volume of the days being LHRS (Linear Highway Reference

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Oct. 01, 2024 09:23:05

SEVEN DAY HOURLY REPORT

Station 1:	401DE0510DWC				
HIGHWAY:	401	STREAM:	COLLECTORS	DIRECTION:	WEST BOUND
LHRS / OFFSET:	47610 / 2.5	LOCATION:	(43.817, -79.114)	CONFIDENCE LEVEL:	95%
DESCRIPTION	WHITES				

HOUR-ENDING	TUE	WED	THU	FRI	SAT	SUN	MON
	16-Jul.-24	17-Jul.-24	18-Jul.-24	19-Jul.-24	20-Jul.-24	21-Jul.-24	22-Jul.-24
	NITS	NITS	NITS	NITS	NITS	NITS	NITS
01:00	N/A	893	896	1172	1499	1685	N/A
02:00	N/A	N/A	N/A	N/A	1019	1115	N/A
03:00	N/A	N/A	N/A	N/A	N/A	856	N/A
04:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
05:00	1143	1150	1034	1189	N/A	N/A	1003
06:00	3718	3685	3418	3347	1192	N/A	3273
07:00	4922	5002	4938	4154	1570	1326	4485
08:00	4866	4949	4785	3885	1820	1332	4289
09:00	4689	4692	4654	3985	2593	1799	4242
10:00	3597	3948	3937	3636	3335	2410	3745
11:00	3123	3427	3536	3487	3769	3244	3219
12:00	2673	3353	3482	3439	3929	3512	3133
13:00	2693	3314	3414	3525	3958	3647	3219
14:00	2850	3343	3487	3543	3981	N/A	3214
15:00	3231	3544	3671	3653	3995	3773	3458
16:00	3473	3713	3955	3621	3781	3792	3482
17:00	3732	3838	4118	3950	3774	3891	3664
18:00	3636	3779	4039	4064	3886	4027	3788
19:00	3254	3582	3665	3759	3917	4008	3408
20:00	2852	3059	3282	3636	3556	3562	3091
21:00	2539	2694	2908	2972	3020	3340	2804
22:00	2589	2743	2918	2996	2927	3089	2444
23:00	2157	2367	2366	2719	2833	2780	1828
23:59	1346	1549	1681	2140	2406	1448	1208

24 Hr Total	63,083	68,624	70,184	68,872	62,760	54,636	62,997
A.M. Total	28,731	31,099	30,680	28,294	20,726	17,279	27,389
P.M. Total	34,352	37,525	39,504	40,578	42,034	37,357	35,608
Noon-Noon		65,451	68,205	67,798	61,304	59,313	64,746
Highest Hour Starting	06:00	06:00	06:00	06:00	14:00	17:00	06:00
Highest Hour Volume	4,922	5,002	4,938	4,154	3,995	4,027	4,485

ADT = 64,451 AWD = 66,550

ADT (Average Daily Traffic)-The average daily volume of the days being LHRS (Linear Highway Reference

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Oct. 01, 2024 09:21:07

SEVEN DAY HOURLY REPORT

Station 1:	401DE0510DWE				
HIGHWAY:	401	STREAM:	EXPRESS	DIRECTION:	WEST BOUND
LHRS / OFFSET:	47610 / 2.5	LOCATION:	(43.817, -79.114)	CONFIDENCE LEVEL:	95%
DESCRIPTION	WHITES				

HOUR-ENDING	TUE	WED	THU	FRI	SAT	SUN	MON
	16-Jul.-24	17-Jul.-24	18-Jul.-24	19-Jul.-24	20-Jul.-24	21-Jul.-24	22-Jul.-24
	NITS	NITS	NITS	NITS	NITS	NITS	NITS
01:00	663	714	816	707	1059	1212	1088
02:00	N/A	492	599	N/A	699	791	772
03:00	477	476	470	N/A	N/A	N/A	583
04:00	524	527	632	542	539	N/A	588
05:00	1133	1135	1338	899	582	N/A	1298
06:00	3428	3491	3716	3064	996	N/A	3678
07:00	3767	3829	3683	3579	1669	992	4093
08:00	3686	3622	3529	3688	2237	1107	4044
09:00	3383	3281	3161	3319	2897	1655	3490
10:00	2779	3167	3165	3141	3457	2889	3261
11:00	2337	3143	3074	3205	3688	3726	3178
12:00	2223	3035	2952	3222	3594	4058	3001
13:00	2095	3074	2924	3005	3627	3838	3018
14:00	2644	2996	2817	3132	3643	N/A	3058
15:00	2629	2830	2653	3052	3555	3778	2906
16:00	2773	2958	2732	3023	3515	3856	2930
17:00	2660	2748	2676	3065	3463	3946	2896
18:00	2718	2968	2876	3096	3650	4050	3060
19:00	2660	2863	2816	3093	3628	3979	3099
20:00	2512	2739	2894	3310	3560	3803	3082
21:00	2229	2444	2633	2993	3359	3743	2664
22:00	1754	1935	2017	2812	3315	3618	2232
23:00	1378	1391	1494	2362	2683	3143	1877
23:59	946	1025	1065	1320	1736	1625	1237

24 Hr Total	51,398	56,883	56,732	59,629	61,151	55,809	61,133
A.M. Total	24,400	26,912	27,135	25,366	21,417	16,430	29,074
P.M. Total	26,998	29,971	29,597	34,263	39,734	39,379	32,059
Noon-Noon		53,910	57,106	54,963	55,680	56,164	68,453
Highest Hour Starting	06:00	06:00	05:00	07:00	10:00	11:00	06:00
Highest Hour Volume	3,767	3,829	3,716	3,688	3,688	4,058	4,093

ADT = 57,534 AWD = 58,608

ADT (Average Daily Traffic)-The average daily volume of the days being LHRS (Linear Highway Reference

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Oct. 01, 2024 09:19:50

DILLON CONSULTING

Airdrie, Callie <cairdrie@dillon.ca>

Rail Volume Information Request

Rail Data Requests <RailDataRequests@metrolinx.com> Tue, Oct 1, 2024 at 9:29 AM
To: "Airdrie, Callie" <cairdrie@dillon.ca>

Hi Callie,

Yes, I can confirm that this rail data provided is what Metrolinx forecasts over a 10-year horizon.

Let me know if you have any other questions.

Best,

Jenna Auger (She/Her)

Third Party Projects Review (TPPR)

Development & Real Estate Management

T: (416)-881-0579

10 Bay Street | Toronto | Ontario | M5J 2N8

METROLINX

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Monday, September 30, 2024 2:28 PM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Subject: Re: Rail Volume Information Request

Hi Jenna,

Thank you for sending this over. I was just hoping you could confirm the provided rail volumes are representative of the year 2035? If they are not, could you also provide me with an expected rail volume growth rate.

Thanks again,

Callie

On Fri, Sep 27, 2024 at 2:36 PM Rail Data Requests <RailDataRequests@metrolinx.com> wrote:

> Hi Callie,
>
> The subject lands (705 Kingston Road, Pickering) are located within 300 metres of the Metrolinx Kingston Subdivision (which carries Lakeshore East GO rail service).
>
> It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 5 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 324 trains. The planned detailed trip breakdown is listed below:
>
> | | 1 Diesel Locomotive | 1 Electric Locomotive | | 1 Diesel Locomotive | 1 Electric Locomotive |
> |---|---|---|---|---|---|
> | Day (0700-2300) | 64 | 213 | Night (2300-0700) | 10 | 37 |
>
> The current track design speed near the subject lands is 100 mph (161 km/h).
>
> We estimate that the type of track located near the subject lands is Class 5 CWR track.
>
> There are *anti-whistling by-laws* in affect near the subject lands at Rodd Avenue at railway crossing.
>
> With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.
>
> Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the procurement phase. The successful proponent team will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. The contract is in a multi-year procurement process and teams have submitted their bids to Infrastructure Ontario and Metrolinx for evaluation and contract award. GO Expansion construction will get underway in late 2022 or 2023.
>
> However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel- track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.
>
> Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

Best,

Jenna Auger (She/Her)

Third Party Projects Review (TPPR)

Development & Real Estate Management

T: (416)-881-0579

10 Bay Street | Toronto | Ontario | M5J 2N8

METROLINX

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Friday, September 27, 2024 1:39 PM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Subject: Re: Rail Volume Information Request

Hi Jenna,

The address is 705 Kingston Road. Please let me know if there is any other information that would be helpful.

Thanks,

Callie

On Fri, Sep 27, 2024 at 12:40 PM Rail Data Requests <RailDataRequests@metrolinx.com> wrote:

Hi Callie,

Would you be able to provide an exact address or an intersection in proximity to the property? We would be able to provide you with more accurate information if we are able to know the approximate whereabouts of the subject lands.

Let me know when you get the chance.

Thanks,

Jenna Auger (She/Her)

Third Party Projects Review (TPPR)

Development & Real Estate Management

T: (416)-881-0579

10 Bay Street | Toronto | Ontario | M5J 2N8

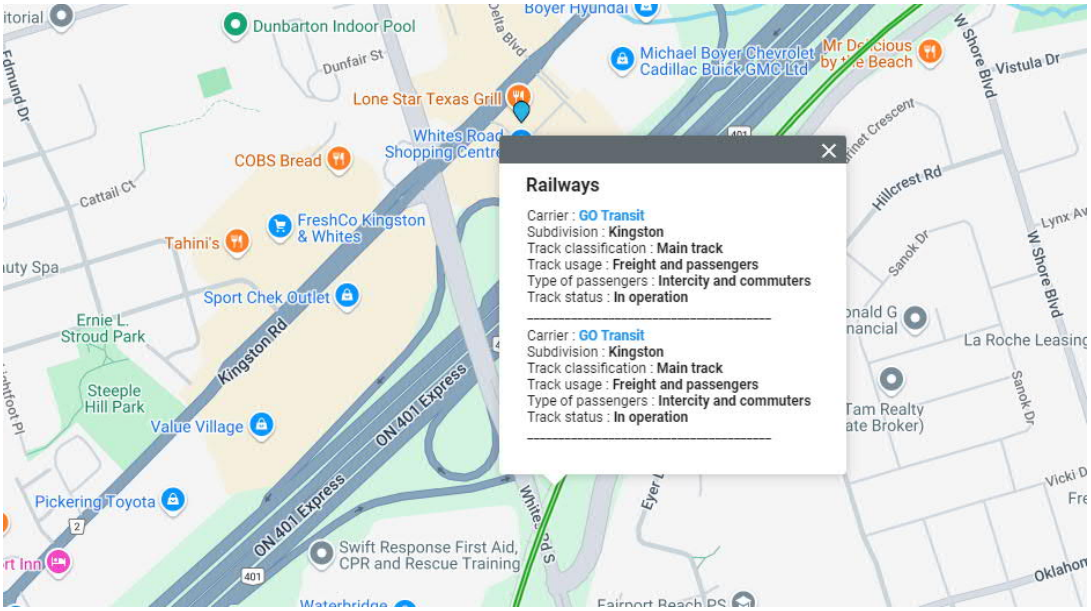
METROLINX

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Friday, September 27, 2024 9:11 AM
To: Rail Data Requests <RailDataRequests@metrolinx.com>
Subject: Rail Volume Information Request

Good morning,

I have been retained to complete a noise feasibility study for a proposed residential development in the city of Pickering. As the proposed development is in proximity to a Go Transit rail line, I would like to request rail data for the purpose of noise modelling. The rail line I am interested in is pictured below (Kingston Subdivision).

Can you please provide rail traffic volumes and all relevant information to complete the noise study including speed, whistle activity, and track conditions?



Thanks,

Callie

–

Callie Airdrie
Dillon Consulting Limited
51 Breithaupt Street Suite 200
Kitchener, Ontario, N2H 5G5
T - 519.571.9833 ext. 3159
cairdrie@dillon.ca
www.dillon.ca

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DILLON CONSULTING

Airdrie, Callie <cairdrie@dillon.ca>

KNG-313.04- Liverpool Road, Pickering ON Rail Volume Information Request

Sarangan Srikanth <Sarangan.Srikanth@cn.ca> Tue, Oct 15, 2024 at 9:26 AM
To: "Airdrie, Callie" <cairdrie@dillon.ca>

Hi Callie,

The attached document is regarding your request for the Train Traffic Data for the following location: KNG-313.04- Liverpool Road, Pickering ON; this data does not reflect GO Metrolinx Traffic.

If you have any additional questions, please feel free to reach out to me.

Thank you,

Sarangan Srikanth

Officer Public Works | Engineering-GLD- Eastern Canada
T: **905-669-3000** | C: **437-329-4963**

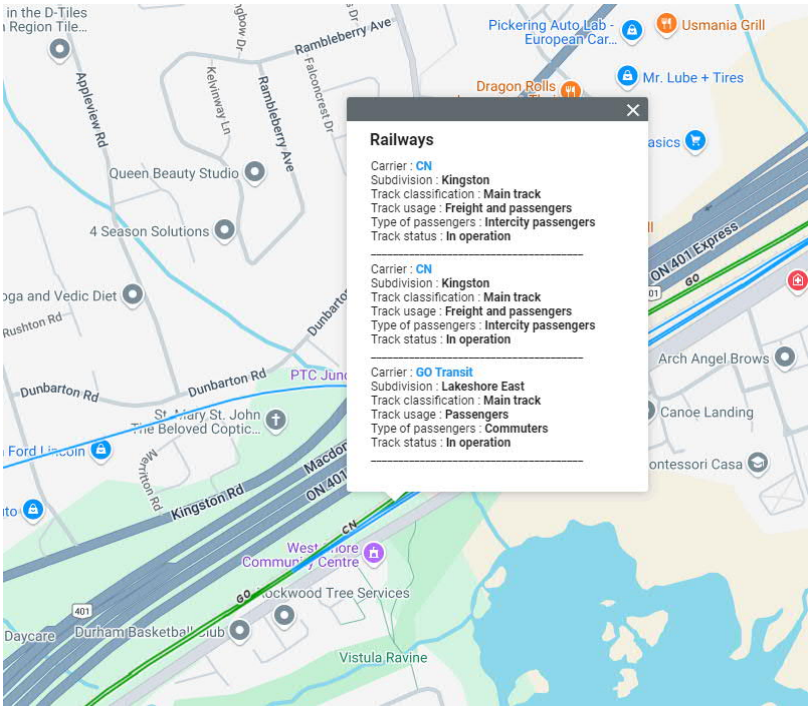
What's New at CN | Quoi de neuf au CN

From: Airdrie, Callie <cairdrie@dillon.ca>
Sent: Friday, September 27, 2024 9:08 AM
To: GLD-Permits <permits.gld@cn.ca>
Subject: Rail Volume Information Request

Good morning,

I have been retained to complete a noise feasibility study for a proposed residential development in the city of Pickering. As the proposed development is in proximity to a CN rail line, I would like to request rail data for the purpose of noise modelling. The rail line I am interested in is pictured below (Kingston Subdivision).

Can you please provide rail traffic volumes and all relevant information to complete the noise study including speed, whistle activity, and track conditions?



Thanks,

Callie

--

Callie Airdrie
Dillon Consulting Limited
51 Breithaupt Street Suite 200
Kitchener, Ontario, N2H 5G5
T - 519.571.9833 ext. 3159
cairdrie@dillon.ca
www.dillon.ca

Train Count Response - KNG - 313.04 - Liverpool Rd, Pickering ON.pdf
352K

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	Dillon Consulting Limited 51 Breithaupt Street Suite 200 Kitchener, Ontario, N2H 5G5	*Project :*	KNG - 313.04 - Liverpool Rd, Pickering ON
Att'n:	Callie Airdrie	*Routing:*	cairdrie@dillon.ca
From: *Expéditeur :*	Sarangan Srikanth	*Date:*	2024/10/15
Cc:	Adjacent Development CN via e-mail		

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

Re: Train Traffic Data – CN Kingston Subdivision near Liverpool Road in Pickering 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 permits.gld@cn.ca.

Sincerely,

Sarangan Srikanth

Sarangan Srikanth
Officer Public Works
Permits.gld@cn.ca

Date: 2024/10/15 Project Number: KNG - 313.04 – Liverpool Road, Pickering ON

Dear Callie:

Re: Train Traffic Data – CN Kingston Subdivision near Liverpool Road in Pickering ON

The following is provided in response to Callie's 2023/02/17 request for information regarding rail traffic in the vicinity of Liverpool Road in Pickering, ON at approximately Mile 313.04 on CN's Kingston 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**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	12	140	65	4
Way Freight	0	25	65	4
Passenger	34	10	100	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	5	140	65	4
Way Freight	4	25	65	4
Passenger	1	10	100	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Kingston Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are no at-grade crossing in the immediate vicinity of the study area. 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 triple (3) mainline track is considered to be continuously welded rail throughout the study area. The presence of 4 switches located at Mile 313.02, 313.04, 313.12, and 313.13 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,

Sarangan Srikanth

Sarangan Srikanth
Officer Public Works
Permits.gld@cn.ca

Appendix D

Stamson Outputs

DILLON CONSULTING

STAMSON 5.0 NORMAL REPORT Date: 24-10-2024 10:09:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: comp.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: 401 WB CL (day/night)

Car traffic volume : 94594/3220 veh/TimePeriod
Medium truck volume : 2628/196 veh/TimePeriod
Heavy truck volume : 7883/84 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 401 WB CL (day/night)

Angle1 Angle2 : -70.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 52.00 / 52.00 m
Receiver height : 1.50 / 115.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: 401 WB EX (day/night)

Car traffic volume : 72058/3150 veh/TimePeriod
Medium truck volume : 2002/105 veh/TimePeriod
Heavy truck volume : 6005/245 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 401 WB EX (day/night)

Angle1 Angle2 : -70.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 73.50 / 73.50 m
Receiver height : 1.50 / 115.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: 401 EB EX (day/night)

Car traffic volume : 89536/18922 veh/TimePeriod
Medium truck volume : 2487/525 veh/TimePeriod
Heavy truck volume : 7461/1576 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 401 EB EX (day/night)

Angle1 Angle2 : -70.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 1.50 / 115.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Results segment # 1: 401 WB CL (day)

```
                    --------------------
-----------------

Source height = 1.65 m

ROAD (0.00 + 77.62 + 0.00) = 77.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj
H.Adj  B.Adj SubLeq
-------------------------------------------------------
-------------------
   -70     90   0.00  83.53   0.00  -5.40  -0.51   0.00
0.00   0.00  77.62
-------------------------------------------------------
-------------------

Segment Leq : 77.62 dBA

↟
Results segment # 2: 401 WB EX (day)
-----------------------------------

Source height = 1.65 m

ROAD (0.00 + 74.93 + 0.00) = 74.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj
H.Adj  B.Adj SubLeq
-------------------------------------------------------
-------------------
   -70     90   0.00  82.35   0.00  -6.90  -0.51   0.00
0.00   0.00  74.93
-------------------------------------------------------
-------------------

Segment Leq : 74.93 dBA

↟
Results segment # 3: 401 EB EX (day)
-----------------------------------

Source height = 1.65 m
```

ROAD (0.00 + 74.81 + 0.00) = 74.81 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj
H.Adj B.Adj SubLeq

   -70   90   0.00 83.29   0.00 -7.97 -0.51   0.00
0.00   0.00 74.81

Segment Leq : 74.81 dBA

Total Leq All Segments: 80.76 dBA

🡅
Results segment # 1: 401 WB CL (night)

Source height = 1.24 m

ROAD (0.00 + 64.33 + 0.00) = 64.33 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj
H.Adj B.Adj SubLeq

   -70   90   0.00 70.24   0.00 -5.40 -0.51   0.00
0.00   0.00 64.33

Segment Leq : 64.33 dBA

🡅
Results segment # 2: 401 WB EX (night)

Source height = 1.63 m

ROAD (0.00 + 64.25 + 0.00) = 64.25 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj

```
H.Adj  B.Adj SubLeq
-------------------------------------------------------------
-------------------
   -70     90   0.00  71.66   0.00  -6.90  -0.51   0.00
0.00   0.00  64.25
-------------------------------------------------------------
-------------------

Segment Leq : 64.25 dBA

🡅
Results segment # 3: 401 EB EX (night)
---------------------------------------

Source height = 1.65 m

ROAD (0.00 + 71.07 + 0.00) = 71.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj
H.Adj  B.Adj SubLeq
-------------------------------------------------------------
-------------------
   -70     90   0.00  79.55   0.00  -7.97  -0.51   0.00
0.00   0.00  71.07
-------------------------------------------------------------
-------------------

Segment Leq : 71.07 dBA

Total Leq All Segments: 72.59 dBA

🡅



TOTAL Leq FROM ALL SOURCES (DAY): 80.76
                           (NIGHT): 72.59
🡅
🡅
```

STAMSON 5.0 SUMMARY REPORT Date: 16-10-2024 20:25:25 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por21a_d.te Time Period: 1 hours
Description:

Road data, segment # 1: 401EE

Car traffic volume : 1085 veh/TimePeriod
Medium truck volume : 30 veh/TimePeriod
Heavy truck volume : 90 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 401EE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 120.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 2: 401WC

Car traffic volume : 1193 veh/TimePeriod
Medium truck volume : 33 veh/TimePeriod
Heavy truck volume : 99 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 401WC

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 80.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 3: 401WE

Car traffic volume : 893 veh/TimePeriod
Medium truck volume : 25 veh/TimePeriod Heavy truck volume : 74 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 401WE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 100.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Result summary
---

source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.401EE	1.65	60.68	60.68
2.401WC	1.65	63.38	63.38
3.401WE	1.65	60.87	60.87
Total			66.60 dBA

TOTAL Leq FROM ALL SOURCES: 66.60

STAMSON 5.0 SUMMARY REPORT Date: 16-10-2024 20:25:50 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por21a_e.te Time Period: 1 hours
Description:

Road data, segment # 1: 401EE

Car traffic volume : 2377 veh/TimePeriod
Medium truck volume : 66 veh/TimePeriod
Heavy truck volume : 198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 401EE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 120.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 2: 401WC

Car traffic volume : 2200 veh/TimePeriod
Medium truck volume : 61 veh/TimePeriod
Heavy truck volume : 183 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 401WC

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 80.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 3: 401WE

Car traffic volume : 1579 veh/TimePeriod
Medium truck volume : 44 veh/TimePeriod Heavy truck volume : 132 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 401WE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 100.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Result summary
---

source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.401EE	1.65	64.10	64.10
2.401WC	1.65	66.04	66.04
3.401WE	1.66	63.36	63.36

Total 69.42 dBA

TOTAL Leq FROM ALL SOURCES: 69.42

STAMSON 5.0 SUMMARY REPORT Date: 16-10-2024 20:26:15 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por21a_n.te Time Period: 1 hours
Description:

Road data, segment # 1: 401EE

Car traffic volume : 2377 veh/TimePeriod
Medium truck volume : 66 veh/TimePeriod
Heavy truck volume : 198 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: 401EE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 120.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 2: 401WC

Car traffic volume : 2200 veh/TimePeriod
Medium truck volume : 61 veh/TimePeriod
Heavy truck volume : 183 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: 401WC

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 80.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Road data, segment # 3: 401WE

Car traffic volume : 1579 veh/TimePeriod
Medium truck volume : 44 veh/TimePeriod Heavy truck volume : 132 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: 401WE

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface) Receiver source distance : 100.00 m
Receiver height : 13.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Result summary
---

source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.401EE	1.65	64.10	64.10
2.401WC	1.65	66.04	66.04
3.401WE	1.66	63.36	63.36

Total 69.42 dBA

TOTAL Leq FROM ALL SOURCES: 69.42

Appendix E

BPN Analysis

DILLON CONSULTING

BPN-56

Receptor	Source	Time of Day	Location	Sound Levels: Level (dBA)	Free Field Correction (dBA)	Indoor Requirement (dBA)	Required Reduction (dBA)	and Room Inputs: Exposed Height (m)	Exposed Length (m)	Room Depth (m)	Floor Area (m^2)	Area (m^2)	Glazing as % of Area (%)	Glazing as % of Floor Area (%)	Veneer as % of Floor Area (%)	Room Absorption	Height of Receptor (m)	Horizontal Distance to Source (m)	Source Inputs: Incident Sound Angle (deg)	Angle Correction	Source Spectrum	Component 1 - Veneer: Assumed Veneer (STC)	Building Component	Spectrum Correction	Room Correction	% Total Transmitted Energy (%)	Energy Correction	Component 2 - Glazing: Building Component	Spectrum Correction	Room Correction	% Total Transmitted Energy (%)	Energy Correction	Required Glazing (STC)	
Building 1 L2 to L4 North	Roadway	Daytime	Living/Dining	70	3	45	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*31*	
	Locomotive	Daytime	Living/Dining	50	3	40	13	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*19*	
	Wheel	Daytime	Living/Dining	54	3	40	17	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*17*	Living / Dining Areas
																																32	
	Roadway	Night-time	Living/Dining	64	3	45	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*26*	
	Locomotive	Night-time	Living/Dining	48	3	40	11	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*17*	
	Wheel	Night-time	Living/Dining	52	3	40	15	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*15*	
																																27	32
	Roadway	Daytime	Sleeping Quarters	70	3	45	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*30*	
	Locomotive	Daytime	Sleeping Quarters	50	3	40	13	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*17*	
	Wheel	Daytime	Sleeping Quarters	54	3	40	17	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*16*	Sleeping Quarters
																																30	
	Roadway	Night-time	Sleeping Quarters	64	3	40	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*29*	
	Locomotive	Night-time	Sleeping Quarters	48	3	35	16	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*20*	
	Wheel	Night-time	Sleeping Quarters	52	3	35	20	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*19*	
																																30	30
Building 1 L2 to L4 South	Roadway	Daytime	Living/Dining	71	3	45	29	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*33*	
	Locomotive	Daytime	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*27*	
	Wheel	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*24*	Living / Dining Areas
																																34	
	Roadway	Night-time	Living/Dining	67	3	45	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*29*	
	Locomotive	Night-time	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*25*	
	Wheel	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*22*	
																																31	34
	Roadway	Daytime	Sleeping Quarters	71	3	45	29	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*31*	
	Locomotive	Daytime	Sleeping Quarters	58	3	40	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*25*	
	Wheel	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*23*	Sleeping Quarters
																																33	
	Roadway	Night-time	Sleeping Quarters	67	3	40	30	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*32*	
	Locomotive	Night-time	Sleeping Quarters	56	3	35	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*28*	
	Wheel	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*26*	
																																34	34
Building 1 Levels 2-4 West Facade	Roadway	Daytime	Living/Dining	73	3	45	31	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*34*	
	Locomotive	Daytime	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*27*	
	Wheel	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*24*	Living / Dining Areas
																																35	
	Roadway	Night-time	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*30*	
	Locomotive	Night-time	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*25*	
	Wheel	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*22*	
																																32	35
	Roadway	Daytime	Sleeping Quarters	73	3	45	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*33*	
	Locomotive	Daytime	Sleeping Quarters	58	3	40	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*25*	
	Wheel	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*23*	Sleeping Quarters
																																34	
	Roadway	Night-time	Sleeping Quarters	69	3	40	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*34*	
	Locomotive	Night-time	Sleeping Quarters	56	3	35	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*28*	
	Wheel	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*26*	
																																35	35
Building 1 Levels 5-28 North	Roadway	Daytime	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*31*	
	Locomotive	Daytime	Living/Dining	47	3	40	10	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*16*	
	Wheel	Daytime	Living/Dining	52	3	40	15	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*15*	Living / Dining Areas
																																31	
	Roadway	Night-time	Living/Dining	63	3	45	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*24*	
	Locomotive	Night-time	Living/Dining	45	3	40	8	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*13*	
	Wheel	Night-time	Living/Dining	50	3	40	13	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*13*	
																																25	31
	Roadway	Daytime	Sleeping Quarters	69	3	45	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*29*	
	Locomotive	Daytime	Sleeping Quarters	47	3	40	10	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*14*	
	Wheel	Daytime	Sleeping Quarters	52	3	40	15	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*14*	Sleeping Quarters
																																30	
	Roadway	Night-time	Sleeping Quarters	63	3	40	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*28*	
	Locomotive	Night-time	Sleeping Quarters	45	3	35	13	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*17*	
	Wheel	Night-time	Sleeping Quarters	50	3	35	18	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*17*	
																																29	30
Building 1 Levels 5-28 East	Roadway	Daytime	Living/Dining	68	3	45	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*30*	
	Locomotive	Daytime	Living/Dining	53	3	40	16	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*22*	
	Wheel	Daytime	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*20*	Living / Dining Areas
																																31	
	Roadway	Night-time	Living/Dining	64	3	45	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*25*	
	Locomotive	Night-time	Living/Dining	51	3	40	14	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*20*	
	Wheel	Night-time	Living/Dining	54	3	40	17	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*18*	
																																27	31
	Roadway	Daytime	Sleeping Quarters	68	3	45	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*28*	
	Locomotive	Daytime	Sleeping Quarters	53	3	40	16	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*20*	
	Wheel	Daytime	Sleeping Quarters	56	3	40	19	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*18*	Sleeping Quarters
																																29	
	Roadway	Night-time	Sleeping Quarters	64	3	40	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*29*	
	Locomotive	Night-time	Sleeping Quarters	51	3	35	19	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*23*	
	Wheel	Night-time	Sleeping Quarters	54	3	35	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*21*	
																																30	30
Building 1 Levels 5-28 South	Roadway	Daytime	Living/Dining	74	3	45	32	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*35*	
	Locomotive	Daytime	Living/Dining	60	3	40	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*28*	
	Wheel	Daytime	Living/Dining	63	3	40	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*26*	Living / Dining Areas
																																36	
	Roadway	Night-time	Living/Dining	70	3	45	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*31*	
	Locomotive	Night-time	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*26*	
	Wheel	Night-time	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*24*	
																																33	36
	Roadway	Daytime	Sleeping Quarters	74	3	45	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*34*	
	Locomotive	Daytime	Sleeping Quarters	60	3	40	23	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*27*	
	Wheel	Daytime	Sleeping Quarters	63	3	40	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*25*	Sleeping Quarters
																																35	
	Roadway	Night-time	Sleeping Quarters	70	3	40	33	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*35*	
	Locomotive	Night-time	Sleeping Quarters	58	3	35	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*39*	
	Wheel	Night-time	Sleeping Quarters	61	3	35	29	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*28*	
																																37	37

Building 1 Levels 5-28 West	Roadway	Daytime	Living/Dining	74	3	45	32	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*35*	
	Locomotive	Daytime	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*27*	
	Wheel	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*25*	Living / Dining Areas
																																36	
	Roadway	Night-time	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*31*	
	Locomotive	Night-time	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*25*	
	Wheel	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*23*	
																																32	36
	Roadway	Daytime	Sleeping Quarters	74	3	45	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*34*	
	Locomotive	Daytime	Sleeping Quarters	58	3	40	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*25*	
	Wheel	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*23*	Sleeping Quarters
																																35	
	Roadway	Night-time	Sleeping Quarters	69	3	40	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*34*	
	Locomotive	Night-time	Sleeping Quarters	56	3	35	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*28*	
	Wheel	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*26*	
																																36	36
Building 2 Levels 2-4 North	Roadway	Daytime	Living/Dining	68	3	45	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*30*	
	Locomotive	Daytime	Living/Dining	49	3	40	12	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*18*	
	Wheel	Daytime	Living/Dining	53	3	40	16	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*16*	Living / Dining Areas
																																30	
	Roadway	Night-time	Living/Dining	61	3	45	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*23*	
	Locomotive	Night-time	Living/Dining	47	3	40	10	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*16*	
	Wheel	Night-time	Living/Dining	51	3	40	14	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*14*	
																																24	30
	Roadway	Daytime	Sleeping Quarters	68	3	45	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*28*	
	Locomotive	Daytime	Sleeping Quarters	49	3	40	12	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*16*	
	Wheel	Daytime	Sleeping Quarters	53	3	40	16	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*15*	Sleeping Quarters
																																29	
	Roadway	Night-time	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*27*	
	Locomotive	Night-time	Sleeping Quarters	47	3	35	15	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*19*	
	Wheel	Night-time	Sleeping Quarters	51	3	35	19	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*18*	
																																28	29
Building 2 Levels 2-4 East	Roadway	Daytime	Living/Dining	71	3	45	29	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*32*	
	Locomotive	Daytime	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*25*	
	Wheel	Daytime	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*23*	Living / Dining Areas
																																33	
	Roadway	Night-time	Living/Dining	67	3	45	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*28*	
	Locomotive	Night-time	Living/Dining	55	3	40	18	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*23*	
	Wheel	Night-time	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*21*	
																																30	33
	Roadway	Daytime	Sleeping Quarters	71	3	45	29	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*31*	
	Locomotive	Daytime	Sleeping Quarters	57	3	40	20	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*24*	
	Wheel	Daytime	Sleeping Quarters	59	3	40	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*21*	Sleeping Quarters
																																32	
	Roadway	Night-time	Sleeping Quarters	67	3	40	30	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*32*	
	Locomotive	Night-time	Sleeping Quarters	55	3	35	23	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*27*	
	Wheel	Night-time	Sleeping Quarters	57	3	35	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*24*	
																																34	34
Building 2 Levels 2-4 South	Roadway	Daytime	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*30*	
	Locomotive	Daytime	Living/Dining	55	3	40	18	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*24*	
	Wheel	Daytime	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*22*	Living / Dining Areas
																																32	
	Roadway	Night-time	Living/Dining	65	3	45	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*27*	
	Locomotive	Night-time	Living/Dining	53	3	40	16	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*22*	
	Wheel	Night-time	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*20*	
																																28	32
	Roadway	Daytime	Sleeping Quarters	69	3	45	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*29*	
	Locomotive	Daytime	Sleeping Quarters	55	3	40	18	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*22*	
	Wheel	Daytime	Sleeping Quarters	58	3	40	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*20*	Sleeping Quarters
																																30	
	Roadway	Night-time	Sleeping Quarters	65	3	40	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*30*	
	Locomotive	Night-time	Sleeping Quarters	53	3	35	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*25*	
	Wheel	Night-time	Sleeping Quarters	56	3	35	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*23*	
																																32	32
Building 2 Levels 2-4 West	Roadway	Daytime	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*30*	
	Locomotive	Daytime	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*25*	
	Wheel	Daytime	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*22*	Living / Dining Areas
																																32	
	Roadway	Night-time	Living/Dining	65	3	45	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	20	38.66	1	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*26*	
	Locomotive	Night-time	Living/Dining	54	3	40	17	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*23*	
	Wheel	Night-time	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*29*	
																																29	32
	Roadway	Daytime	Sleeping Quarters	69	3	45	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*29*	
	Locomotive	Daytime	Sleeping Quarters	56	3	40	19	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*23*	
	Wheel	Daytime	Sleeping Quarters	59	3	40	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*21*	Sleeping Quarters
																																30	
	Roadway	Night-time	Sleeping Quarters	65	3	40	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	20	38.66	1	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*30*	
	Locomotive	Night-time	Sleeping Quarters	54	3	35	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*26*	
	Wheel	Night-time	Sleeping Quarters	57	3	35	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*24*	
																																32	32

Building 2 Levels 5-31 North	Roadway	Daytime	Living/Dining	67	3	45	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	29	
	Locomotive	Daytime	Living/Dining	47	3	40	10	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	16	
	Wheel	Daytime	Living/Dining	52	3	40	15	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	16	Living / Dining Areas
																																29	
	Roadway	Night-time	Living/Dining	60	3	45	18	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	22	
	Locomotive	Night-time	Living/Dining	45	3	40	8	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	14	
	Wheel	Night-time	Living/Dining	50	3	40	13	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	14	
																																23	29
	Roadway	Daytime	Sleeping Quarters	67	3	45	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	27	
	Locomotive	Daytime	Sleeping Quarters	47	3	40	10	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	14	
	Wheel	Daytime	Sleeping Quarters	52	3	40	15	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	14	Sleeping Quarters
																																28	
	Roadway	Night-time	Sleeping Quarters	60	3	40	23	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	26	
	Locomotive	Night-time	Sleeping Quarters	45	3	35	13	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	17	
	Wheel	Night-time	Sleeping Quarters	50	3	35	18	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	17	
																																27	28
Building 2 Levels 5-31 East	Roadway	Daytime	Living/Dining	73	3	45	31	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	35	
	Locomotive	Daytime	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	28	
	Wheel	Daytime	Living/Dining	62	3	40	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	26	Living / Dining Areas
																																36	
	Roadway	Night-time	Living/Dining	69	3	45	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	31	
	Locomotive	Night-time	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	26	
	Wheel	Night-time	Living/Dining	60	3	40	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	24	
																																32	36
	Roadway	Daytime	Sleeping Quarters	73	3	45	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	33	
	Locomotive	Daytime	Sleeping Quarters	59	3	40	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	26	
	Wheel	Daytime	Sleeping Quarters	62	3	40	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	24	Sleeping Quarters
																																34	
	Roadway	Night-time	Sleeping Quarters	69	3	40	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	34	
	Locomotive	Night-time	Sleeping Quarters	57	3	35	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	29	
	Wheel	Night-time	Sleeping Quarters	60	3	35	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	27	
																																36	36
Building 2 Levels 5-31 South	Roadway	Daytime	Living/Dining	73	3	45	31	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	35	
	Locomotive	Daytime	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	27	
	Wheel	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	25	Living / Dining Areas
																																36	
	Roadway	Night-time	Living/Dining	70	3	45	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	31	
	Locomotive	Night-time	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	25	
	Wheel	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	22	
																																32	36
	Roadway	Daytime	Sleeping Quarters	73	3	45	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	33	
	Locomotive	Daytime	Sleeping Quarters	58	3	40	21	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	25	
	Wheel	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	23	Sleeping Quarters
																																34	
	Roadway	Night-time	Sleeping Quarters	70	3	40	33	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	35	
	Locomotive	Night-time	Sleeping Quarters	56	3	35	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	28	
	Wheel	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	26	
																																36	36
Building 2 Levels 5-31 West	Roadway	Daytime	Living/Dining	71	3	45	29	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	33	
	Locomotive	Daytime	Living/Dining	56	3	40	19	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	24	
	Wheel	Daytime	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	22	Living / Dining Areas
																																34	
	Roadway	Night-time	Living/Dining	67	3	45	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	20	78.69	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	29	
	Locomotive	Night-time	Living/Dining	54	3	40	17	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	22	
	Wheel	Night-time	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	100	250	21.80	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	20	
																																30	34
	Roadway	Daytime	Sleeping Quarters	71	3	45	29	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	32	
	Locomotive	Daytime	Sleeping Quarters	56	3	40	19	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	23	
	Wheel	Daytime	Sleeping Quarters	59	3	40	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	21	Sleeping Quarters
																																32	
	Roadway	Night-time	Sleeping Quarters	67	3	40	30	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	20	78.69	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	32	
	Locomotive	Night-time	Sleeping Quarters	54	3	35	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	26	
	Wheel	Night-time	Sleeping Quarters	57	3	35	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	100	250	21.80	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	24	
																																34	34
Buildings 3, 4, 5 Podium East	Roadway	Daytime	Living/Dining	74	3	45	32	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	35	
	Locomotive	Daytime	Living/Dining	60	3	40	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	29	
	Wheel	Daytime	Living/Dining	63	3	40	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	27	Living / Dining Areas
																																37	
	Roadway	Night-time	Living/Dining	70	3	45	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	31	
	Locomotive	Night-time	Living/Dining	58	3	40	21	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	27	
	Wheel	Night-time	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	24	
																																33	37
	Roadway	Daytime	Sleeping Quarters	74	3	45	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	34	
	Locomotive	Daytime	Sleeping Quarters	60	3	40	23	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	27	
	Wheel	Daytime	Sleeping Quarters	63	3	40	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	25	Sleeping Quarters
																																35	
	Roadway	Night-time	Sleeping Quarters	70	3	40	33	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	35	
	Locomotive	Night-time	Sleeping Quarters	58	3	35	26	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	39	
	Wheel	Night-time	Sleeping Quarters	61	3	35	29	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	28	
																																37	37
Buildings 3, 4, 5 Podium West	Roadway	Daytime	Living/Dining	74	3	45	32	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	36	
	Locomotive	Daytime	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	27	
	Wheel	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	25	Living / Dining Areas
																																37	
	Roadway	Night-time	Living/Dining	71	3	45	29	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	32	
	Locomotive	Night-time	Living/Dining	57	3	40	20	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	25	
	Wheel	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	23	
																																33	37
	Roadway	Daytime	Sleeping Quarters	74	3	45	32	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	35	
	Locomotive	Daytime	Sleeping Quarters	59	3	40	22	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	26	
	Wheel	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	23	Sleeping Quarters
																																35	
	Roadway	Night-time	Sleeping Quarters	71	3	40	34	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	36	
	Locomotive	Night-time	Sleeping Quarters	57	3	35	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	29	
	Wheel	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	26	
																																37	37
Building 3 Levels 5-35 East	Roadway	Daytime	Living/Dining	77	3	45	35	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	39	
	Locomotive	Daytime	Living/Dining	62	3	40	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	31	
	Wheel	Daytime	Living/Dining	65	3	40	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	29	Living / Dining Areas
																																40	
	Roadway	Night-time	Living/Dining	73	3	45	31	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	45	19.57	0	D	45	D	7	-4	5%	42	C	4	-1	95%	0	35	
	Locomotive	Night-time	Living/Dining	60	3	40	23	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	29	
	Wheel	Night-time	Living/Dining	63	3	40	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	16	250	3.66	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	27	
																																38	40
	Roadway	Daytime	Sleeping Quarters	77	3	45	35	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	37	
	Locomotive	Daytime	Sleeping Quarters	62	3	40	25	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	29	
	Wheel	Daytime	Sleeping Quarters	65	3	40	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	27	Sleeping Quarters
																																38	
	Roadway	Night-time	Sleeping Quarters	73	3	40	36	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	45	19.57	0	D	45	D	7	-2	5%	40	C	4	-2	95%	0	38	
	Locomotive	Night-time	Sleeping Quarters	60	3	35	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	32	
	Wheel	Night-time	Sleeping Quarters	63	3	35	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	16	250	3.66	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	30	
																																40	40

	Roadway	Daytime	Living/Dining	80	3	45	38	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	45	68.63	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*42*	
	Locomotive	Daytime	Living/Dining	65	3	40	28	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*34*	
	Wheel	Daytime	Living/Dining	68	3	40	31	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*31*	Living / Dining Areas
																																43	
	Roadway	Night-time	Living/Dining	77	3	45	35	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	45	68.63	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*38*	
	Locomotive	Night-time	Living/Dining	63	3	40	26	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*32*	
	Wheel	Night-time	Living/Dining	66	3	40	29	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*29*	
																																40	43
	Roadway	Daytime	Sleeping Quarters	80	3	45	38	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	45	68.63	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*41*	
	Locomotive	Daytime	Sleeping Quarters	65	3	40	28	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*32*	
	Wheel	Daytime	Sleeping Quarters	68	3	40	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*39*	Sleeping Quarters
																																41	
	Roadway	Night-time	Sleeping Quarters	77	3	40	40	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	45	68.63	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*42*	
	Locomotive	Night-time	Sleeping Quarters	63	3	35	31	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*35*	
	Wheel	Night-time	Sleeping Quarters	66	3	35	34	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*33*	
																																43	43
	Roadway	Daytime	Living/Dining	78	3	45	36	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	45	68.63	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*40*	
	Locomotive	Daytime	Living/Dining	61	3	40	24	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*30*	
	Wheel	Daytime	Living/Dining	64	3	40	27	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*28*	Living / Dining Areas
																																40	
	Roadway	Night-time	Living/Dining	74	3	45	32	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	45	68.63	3	D	45	D	7	-4	5%	42	C	4	-1	95%	0	*36*	
	Locomotive	Night-time	Living/Dining	59	3	40	22	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	F	45	D	10	-4	5%	39	C	6	-1	95%	0	*28*	
	Wheel	Night-time	Living/Dining	62	3	40	25	3.00	3.00	3.00	9.00	9.00	70%	70%	30%	Intermediate	115	250	24.70	0	B	45	D	2	-4	5%	47	C	1	-1	95%	0	*26*	
																																37	40
	Roadway	Daytime	Sleeping Quarters	78	3	45	36	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	45	68.63	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*38*	
	Locomotive	Daytime	Sleeping Quarters	61	3	40	24	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*29*	
	Wheel	Daytime	Sleeping Quarters	64	3	40	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*26*	Sleeping Quarters
																																39	
	Roadway	Night-time	Sleeping Quarters	74	3	40	37	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	45	68.63	3	D	45	D	7	-2	5%	40	C	4	-2	95%	0	*39*	
	Locomotive	Night-time	Sleeping Quarters	59	3	35	27	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	F	45	D	10	-2	5%	37	C	6	-2	95%	0	*32*	
	Wheel	Night-time	Sleeping Quarters	62	3	35	30	3.00	3.00	3.00	9.00	9.00	50%	50%	50%	Intermediate	115	250	24.70	0	B	45	D	2	-2	5%	45	C	1	-2	95%	0	*29*	
																																40	40

Building 3 Levels 5-35 South

Building 3 Levels 5-35 West

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