41 ESSA Rd. & 259 Innisfil St, Barrie

Rail Safety Assessment Report

September 17, 2021

160560021

Prepared for:

Tonlu Holdings Ltd.

Prepared by:

Stantec Consulting Ltd

41 ESSA RD. & 259 INNISFIL ST, BARRIE

This document entitled 41 ESSA Rd. & 259 Innisfil St, Barrie was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Tonlu Holdings Ltd. (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  _____
(signature)

Sonia Rahman, P.Eng

Reviewed by  _____
(signature)

Jeff Kingston

Approved by  _____
(signature)

Steve Donald, PMP

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

Stantec Consulting Ltd. has been retained by Tonlu Holdings Ltd. to complete a Rail Safety Assessment for the proposed development at 41 Essa Rd & 259 Innisfil St. in the City of Barrie.

The purpose of this study is to assess site specific hazards and mitigation measures relating to noise, vibration, trespass, and crash potential.

Architectural drawings completed by architectureunfolded dated Sep 9 2021, shows a mixed-use development consisting of four high-rise buildings which will provide for approximately 1276 residential units, low scale retail spaces and amenity areas. The proposed development will also incorporate 1313 parking spaces (to be situated within a 6-level above ground parking garage). A reduced copy of the Architectural Drawing set has been included in Appendix A.

2.0 SITE LOCATION AND DESCRIPTION

The subject property land is located on the northeast side of Innisfil St. and Essa Rd in the City of Barrie adjacent to Barrie Collingwood Railway's (BCRY) Meaford Subdivision, approximate mile 0.3, as shown in Figure 1. This land, with an area of approximately 4.42 acres, is currently occupied with few low-rise commercial buildings. The triangular shaped site is bound by Innisfil St. to the west, Essa Rd to the east, and the BCRY on the north. The current site conditions will be demolished in the near future to give way to the proposed development which includes 4 high-rise towers as follows:

- Building 1: 29 Storey Tower
- Building 2: 35 Storey Tower
- Building 3: 37 Storey Tower
- Building 4: 20 Storey Tower

The Topographical Survey Plan for the site, included in Appendix A, indicates that the existing elevations of the proposed development range between 226.77 m and 229.92.

Figure 1 Site Location (Key Plan)

3.0 BACKGROUND INFORMATION

The following documentation were consulted in the preparation of this Rail Safety Assessment:

- Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC)'s Guidelines for New Development in Proximity to Railway Operations (May 2013)
- Canadian Railway Safety Act (last amended June 22 2017)
- AECOM's Submission Guidelines for Crash Walls (Revised July 29 2014)

4.0 RAIL OPERATIONS

The existing rail operations in close proximity to the north property limit of the proposed development site are part of Barrie Collingwood Railway's Meaford Subdivision, approximate mile 0.3. Stantec reached out to the Railway to determine the track classification. The Railway considers this subdivision as a Principal Branch Line.

4.1 CURRENT CONFIGURATION

Listed below are the rail operations characteristics associated with this location:

- 1 Branch Line track (BCRY)
- Maximum train speed 10 mph (approx. 16 Km/h)
- 0.57 trains per day (as per the Railway)

4.2 FUTURE CONFIGURATION

A discussion regarding the future expansion plan took place between Stantec and the Railway.

Railway does not anticipate an expansion or changes to services through this area in the near future. Therefore, this report is based on current configuration and maximum train speed.

Figure 1.0 depicts the location of Barrie Collingwood Rail R.O.W. relative to the 41 Essa Rd & 259 Innisfil St. development site.

5.0 DEVELOPMENT PROPOSAL

The drawings provided, dated Sep 9, 2021, by architectureunfolded indicate four high-rise: 20, 29, 35 & 37 Storey, mixed used towers, are proposed. A reduced copy of the Architectural Drawing set has been included in Appendix A.

6.0 HAZARDS IDENTIFICATION

Several factors or concerns should be given consideration when new developments are erected within proximity to railway operations. These include crash safety, trespass, noise pollution, vibration, and stormwater management. These will form the list of criteria for the mitigation measures to be discussed in this report.

Amongst the above listed factors, the two (2) factors the general public most commonly associates with proximity to rail operations are noise pollution and vibration. It can be argued that noise pollution and

vibration are built-in characteristics or properties of rail operations. Generally, noise pollution is generated as a result of wheel – rail interactions, locomotive engines, and whistles. Whereas vibration is produced as the wheels roll on tracks. While it may not be entirely possible to eliminate the impact of these two (2) issues onto neighboring properties, they can be mitigated.

Trespassing and crashes are by far the two (2) most severe hazards since they can lead to the greatest physical impact and could result in serious injury including instant loss of life.

7.0 ASSESSMENT CRITERIA AND METHODOLOGY

The methodology to be employed in this report will be based on comparing or assessing the technical/ engineering criteria from the existing guidelines noted in Section 3.0 of this report, which will form the basis for the selection and discussion of the required mitigation measures for the proposed development site. The most relevant set(s) of criteria will then be selected and the feasibility for the implementation of the associated mitigation measures will also be assessed.

7.1 APPLICABLE GUIDELINES:

7.1.1 The Federation of Canadian Municipalities and Railway Association of Canada Guidelines for New Development in Proximity to Railway Operations (May 2013)- "FCM-RAC"

- The FCM/RAC Guidelines recommend the use of "standard mitigation measures" which include a 15m setback for Branch lines with an earthen berm constructed to a height of 2.0m above grade for Branch lines with side slopes not steeper than 2.5 to 1
- Marginal reductions in the recommended setback of up to 5m may be achieved through a reciprocal increase in the height of the berm
- Where there are elevation differences between the railway and a subject development property, appropriate variations in the minimum setback should be determined
- No berm is required where the railway line is in a cut of equivalent depth of the standard berm height
- If applicable to the site conditions, in lieu of the recommended berm, a ditch or valley between the railway and the subject new development property that is generally equivalent to or greater than the inverse of the berm could be considered
- Notwithstanding the above, the FCM/RAC Guidelines were also written to offer alternatives where standard mitigation measures are not viable
- At a minimum all new residential developments in proximity to railway corridors must include a 1.83m high chain link fence along the entire property line to provide protection against trespassing

7.2 DERAILMENT IMPACT ANALYSIS:

In addition to the above, the following guidelines detail train derailment as they relate to protection requirements for impact.

- A separation distance of 15 m (minimum) taken horizontally from the rail corridor property line to face of building and a 2.0 m high earthen crash safety berm (sloped 2.5:1) is required (FCM/RAC)
- Minimal reductions in the recommended setback, of up to 5 metres can be achieved by a reciprocal increase in the height of the berm (FCM/RAC)
- Alternate berm designs (e.g. crash walls) may be considered for spatially constrained locations. The intent is to provide a level of energy absorption equivalent to that of a standard berm (FCM/RAC)

8.0 MITIGATION DESIGN ASSESSMENT

Stantec's assessment of the proposed conditions is based on a review of the latest Architectural Drawings which includes 4 buildings. These four buildings will be assessed individually. It has been assumed that structural elements for the residential tower are located in the parking podium levels at the limit of the tower envelope and that these will require protection.

FCM/RAC guidelines stipulate that the minimum building setback distance is measured from the mutual property line to the building face and that the mutual property line is always the reference point for building setbacks, regardless of area conditions. Therefore, all setback calculation in this report is measured from the Railway R.O.W.

FCM/RAC guidelines further measure the setback from the mutual property line and consider the combined horizontal and vertical separation in calculating the setback as shown in Figure 2 which was extracted from the FCM/RAC guidelines.

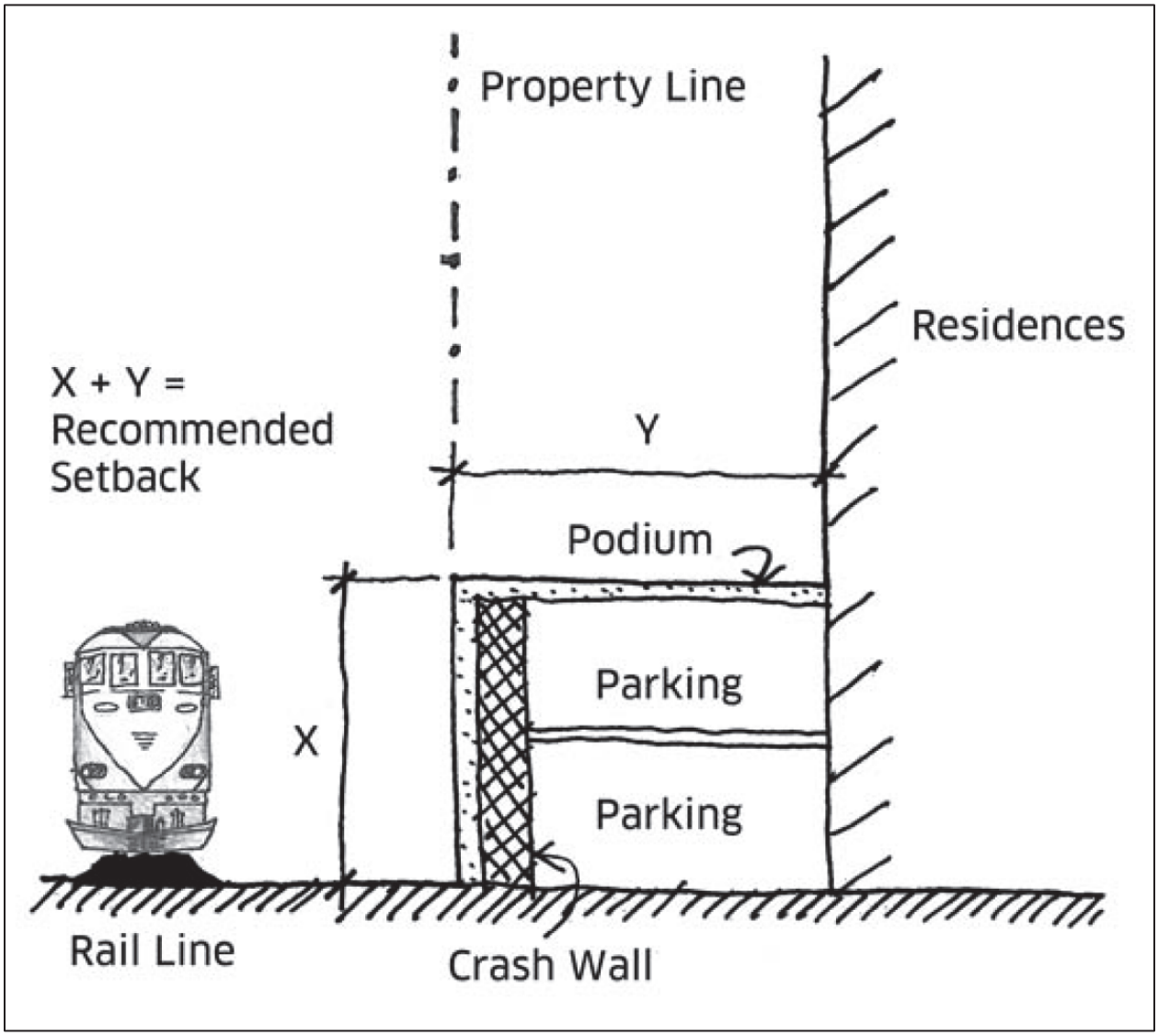


Figure 2 Combining Horizontal and Vertical Setback [Source: FCM/ RAC]

8.1 BUILDING 1

8.1.1 Setback

This proposed 29 Storey building has 6 levels of aboveground podium and incorporates small scale retail & residential units on the ground floor. The latest architectural drawings show that the distance to the nearest structures supporting the residential units from the railway R.O.W approximately 83m. This is well beyond the minimum 15m setback requirement by FCM/ RAC.

8.1.2 Safety Barriers

FCM/ RAC guidelines call for a safety barrier in the form of an earthen berm where full setbacks are provided. Safety barriers reduce the risks associated with railway incidents/ accidents by intercepting or deflecting derailed cars as well minimize the lateral spread or width in which the rail can travel. Viable and site-specific alternatives can be proposed such as crash berms, crash walls, reverse ditches etc. in lieu of earthen berm.

Given the low train speed in the subject area, structural calculations were completed by 'Jablonsky, Ast and Partners' to determine the furthest distance a train could potentially travel in the incident of a train derailment at a speed of 10mph. It was established that a derailed train has the potential to travel as far as 1.4m from track centreline, refer to Structural Report in Appendix B. On this basis, no crash wall or safety barrier is required for this building.

8.2 BUILDING 2

8.2.1 Setback

This proposed 35 Storey building has 6 levels of aboveground podium with residential units starting from the ground floor. The latest architectural drawings show that the distance to the nearest structures supporting the residential units from the railway R.O.W is approximately 15m.

Table 1 - Combined Setback to Residential Units- Building 2

Floor	Horizontal Setback to Residential Units (m)	Vertical Separation above Property Line	Combined Setback (m) (to Residential Units)
1	15	0.6	15.6
2	15	3.6	18.6
3	15	6.6	21.6
4	15	9.6	24.6
5	15	12.6	27.6
6	15	15.6	30.6
7	15	18.6	33.6

As noted in the table above, the lowest combined vertical and horizontal setback to the residential units is 15.6m which occurs on the ground floor. This meets the minimum 15m setback from a Branch Line as per FCM/ RAC.

The lower six levels contain low occupancy locker units, at a setback of approximately 12m from the railway R.O.W. There is no minimum setback requirement for low occupancy uses such as lockers and are allowed within the minimum required setback.

8.2.2 Safety Barriers

FCM/ RAC guidelines call for a safety barrier in the form of an earthen berm where full setbacks are provided. Safety barriers reduce the risks associated with railway incidents/ accidents by intercepting or deflecting derailed cars as well minimize the lateral spread or width in which the rail can travel. Viable and site-specific alternatives can be proposed such as crash berms, crash walls, reverse ditches etc. in lieu of earthen berm.

Given the low train speed in the subject area, structural calculations were completed by 'Jablonsky, Ast and Partners' to determine the furthest distance a train could potentially travel in the incident of a train derailment at a speed of 10mph. It was established that a derailed train has the potential to travel as far as 1.4m from track centreline, refer to Structural Report in Appendix B. On this basis, no crash wall or safety barrier is required.

8.3 BUILDING 3

8.3.1 Setback

This proposed 37 Storey tower has 6 levels of aboveground parking podium with garbage room, lobby, bike storage on the ground floor and locker units from the second to 6th floor. The latest architectural drawings show that the distance to the nearest structures supporting the residential units from the railway R.O.W is approximately 15m with residential units starting from the 7th floor. The lowest combined vertical and horizontal setback to the residential units is 33m which occurs on the 7th floor. This exceeds the minimum required by the FCM/RAC guidelines.

As indicated above, the tower has six levels of aboveground parking podium with low occupancy usage. There is no minimum setback requirement for low occupancy uses, however, the setback requirements for the structural elements supporting the 37-storey residential tower are considered the same as the residential units (15m). The lowest setback to the structural element supporting the residential units is 15m, which meets the minimum 15m setback from a Branch Line as per FCM/ RAC.

8.3.2 Safety Barriers

FCM/ RAC guidelines call for a safety barrier in the form of an earthen berm where full setbacks are provided. Safety barriers reduce the risks associated with railway incidents/ accidents by intercepting or deflecting derailed cars as well minimize the lateral spread or width in which the rail can travel. Viable and site-specific alternatives can be proposed such as crash berms, crash walls, reverse ditches etc. in lieu of earthen berm.

Given the low train speed in the subject area, structural calculations were completed by 'Jablonsky, Ast and Partners' to determine the furthest distance a train could potentially travel in the incident of a train derailment at a speed of 10mph. It was established that a derailed train has the potential to travel as far

as 1.4m from track centreline, refer to Structural Report in Appendix B. On this basis, no crash wall or safety barrier is required.

8.4 BUILDING 4

8.4.1 Setback

This proposed 20 Storey tower has 6 levels of aboveground parking podium with low scale retail and indoor amenities on the ground floor. The latest architectural drawings show that the distance to the nearest structures supporting the residential units from the railway R.O.W is approximately 12.3m with residential units starting from the 7th floor.The lowest combined vertical and horizontal setback to the residential units is 31.5m which occurs on the 7th floor. This exceeds the minimum required by the FCM/RAC guidelines.

The tower has six levels of aboveground parking podium with low scale retail and amenities on the ground floor. There is no minimum setback requirement for low occupancy uses such as parking podiums, however, the setback requirements for the structural elements supporting the 20-storey residential tower are considered the same as the residential units (15m). The lowest setback to the structural element supporting the residential units is 13.5m, which is less than the requirement. Due to this setback deficit of supporting the structural elements, a safety barrier in the form of crash wall might be required. However, the low train speed could negate this requirement, structural calculations were completed to determine whether further crash protection is required, described in the section below.

8.4.2 Safety Barriers

Given the low train speed in the subject area, structural calculations were completed by 'Jablonsky, Ast and Partners' to determine the furthest distance a train could potentially travel in the incident of a train derailment at a speed of 10mph. It was established that a derailed train has the potential to travel as far as 1.4m from track centreline, refer to Structural Report in Appendix B. On this basis, no crash wall or safety barrier is required.

9.0 RISK ANALYSIS

9.1 HISTORIC RAIL OCCURRENCES

Dataset on Transportation Safety Board (TSB) records and publishes data from Rail Occurrence Database System (RODs) on reportable accidents and incidents since January 1983. According to this dataset there has not been a TSB reportable accident or injury reported within ½ km of the subject property on the Meaford Subdivision since 1983.

9.2 CRASH IMPACT – FREQUENCY & SEVERITY MATRIX

A 5x5 standard matrix of frequency vs. severity has been constructed based on the following criteria to assess the potential impact of a crash upon completion of the proposed development. The frequency/severity matrix provided is intended to present only the anticipated level of impact on life safety in the unlikely event of a derailment.

The following definitions were used to access the frequency and severity for Table 3.

Frequency:

- Minimal (1) - First aid or minor medical treatment
- Marginal (2) - Reportable injury/occupational illness, lost workday
- Serious (3) - Serious injury, multiple injuries
- Critical (4) - Permanent partial disability
- Catastrophic (5) - Death or permanent total disability

Probability:

- Improbable (1) - So unlikely it can be assumed that an occurrence may not be experienced in a lifetime.
- Remote (2) - Unlikely, but possible to occur in the lifetime of a person or item.
- Occasional (3) - Likely to occur sometime in the life of a person or item.
- Probable (4) - Will occur several times in the life of a person or item.
- Frequent (5) - Likely to occur frequently in the life of a person or item

Table 2 - Frequency/Severity Matrix

Frequency	Frequent (5)	-	-	-	-	-
	Probable (4)	-	-	-	-	-
	Occasional (3)	-	-	-	-	-
	Remote (2)	2	-	-	-	-
	Improbable (1)	-	-	-	-	-
		Minimal (1)	Marginal (2)	Serious (3)	Critical (4)	Catastrophic (5)

Legend: *01-03 Very Low; 04-06 Low;* *07-11 Medium; 12-18 High;* *19-25 Very High*	**Severity**

Considering the low train speed and light train traffic, it can be anticipated that the severity of impact in the event of a train derailment would be minimal within the development lands, however, the rating above accounts for the overall severity of the potential derailment which includes the impacts within the corridor (trains, track infrastructure, rail passengers/staff).

10.0 RECOMMENDED MITIGATION MEASURES

From this Rail Safety Assessment study, it is our opinion that the proposed development is compliant with FCM/ RAC guidelines for development adjacent to rail corridor.

General Site

- Entire site meets the recommended setback as per FCM/ RAC Guidelines. No supplementary safety barrier (mitigation measure against crash protection) is required due to the low train speed as established in the structural report.
- As per FCM/ RAC guidelines, at a minimum all new residential developments in proximity to railway corridors must include a 1.83m high chain link fence along the entire property line to provide protection against trespassing. Therefore, a 1.83m high trespass mitigation fence should be installed along the Railway R.O.W. to create a barrier between the municipal ROW and the corridor providing added protection against trespassing onto the existing railway corridor by way of traversing across the new proposed roadway from the development property. Party accountable for this installation should be determined.
- Considerations for noise pollution should be assessed by a qualified noise consultant.
- Considerations for vibration during and post construction are to be assessed by a qualified vibration consultant.
- It is expected that Drainage and Stormwater Management programs for the proposed development conditions within the site will need to be based on appropriate standards. Drainage and Stormwater management matters are to be further investigated and addressed by the project's civil engineering consultant.

11.0 CONSIDERATIONS DURING CONSTRUCTION

The following matters should be given consideration during construction:

- Crane swing agreement
- Impact of railway loading onto shoring
- Trespass
- Railway personnel for flagging
- Vibration to and from the railway corridor during excavation and construction
- Erosion and Sediment Control

12.0 CONCLUSION

Based on the discussion in this report, the proposed measures put forth can be safely implemented on-site to adequately address crash, trespass, noise pollution, vibration, and drainage considerations.

We trust that the above report meets your requirements. Please contact us should you have any questions.

Regards,

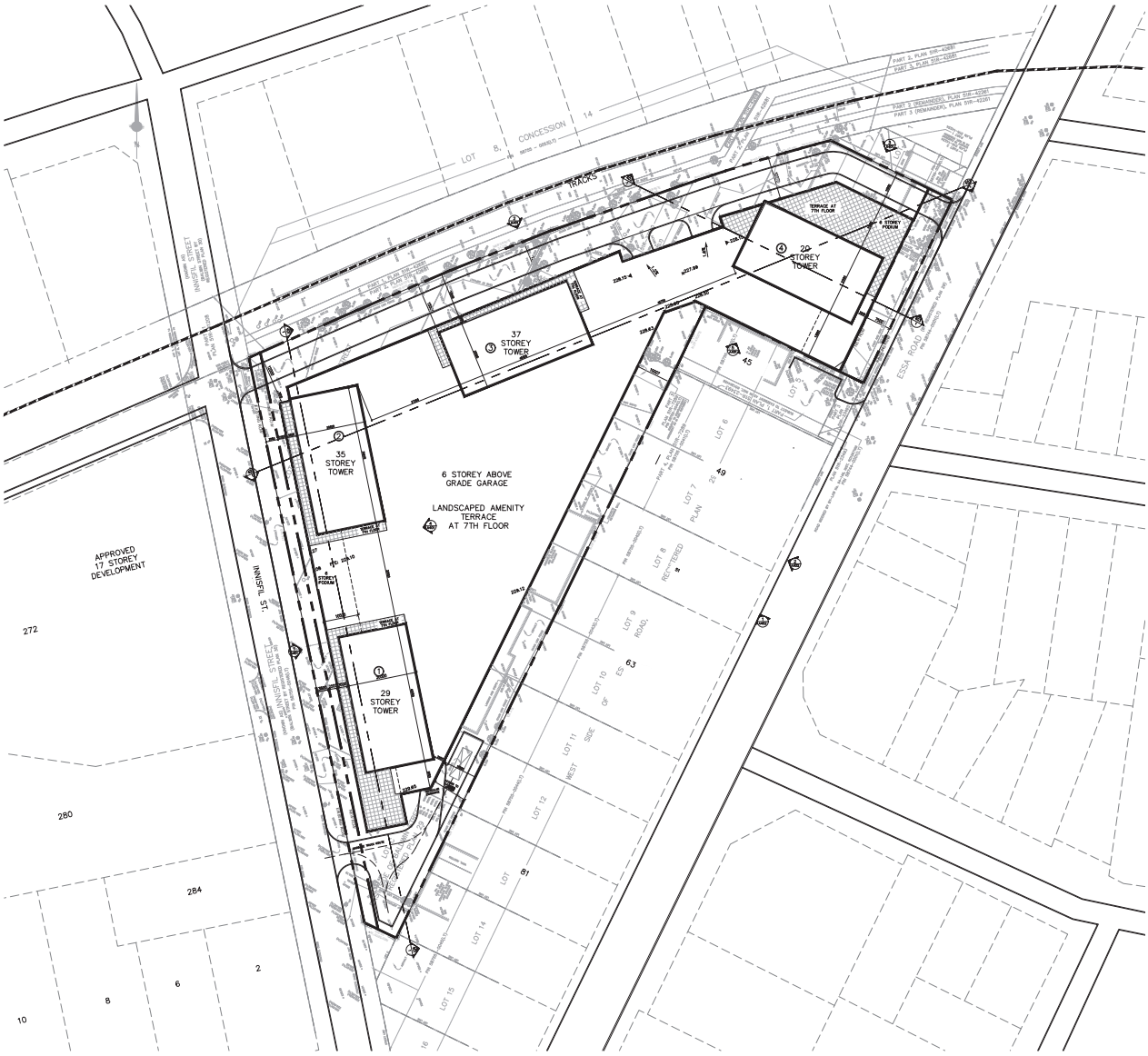
Stantec Consulting Ltd.

Sonia Rahman P.Eng
Rail Engineer
Phone: 437-994 7303
Sonia.rahman@stantec.com

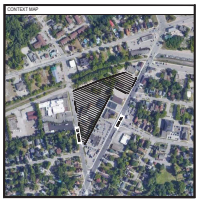
Jeff Kingston
Senior Technical Advisor
Phone: 905 944 6216
Jeff.kingston@stantec.com

Appendix A ARCHITECTURAL PLANS

TOPOGRAPHICAL SURVEY PLAN



CONTEXT MAP



notes:

STATISTICS

ZONING											
BUILDING	TOTAL						11,840.1	255,245	644	7	
7th											
	BUILDING 29										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						1,332	14,341			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE (1) BEDROOMS						1,411.1	15,190			
	ONE (1) BEDROOMS	1,085.2	85%	1			1,227.2	13,211			
	ONE (1) BEDROOMS	125.8	85%	1			142.2	1,531			
	ONE						890.8	9,588			
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 35										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						1,332	14,341			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE (1) BEDROOMS	1,085.2	85%	1			1,227.2	13,211			
	ONE						890.8	9,588			
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 37										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						1,332	14,341			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE	854	85%	1			1,227.2	13,211			
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 29										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						1,332	14,341			
	ONE (1) BEDROOMS	1,085.2	85%	1			1,227.2	13,211			
	ONE						890.8	9,588			
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	GRAND TOTAL						33,472.0	360,299			
6th											
	BUILDING 29										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						999.0	10,756			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE (1) BEDROOMS	1,085.2	85%	1			1,227.2	13,211			amenity/ex floor
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 35										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						999.0	10,756			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE	854	85%	1			1,227.2	13,211			amenity/ex floor
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 37										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						999.0	10,756			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE	1,085.2	85%	1			1,227.2	13,211			amenity/ex floor
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	BUILDING 29										
	BASE (7th flr)						890.8	9,588			
	BASE RESIDENTIAL						1,332	14,341			
	TWO (2) BEDROOMS						999.0	10,756			
	ONE (1) BEDROOMS						333.0	3,585			
	ONE	1,085.2	85%	1			1,227.2	13,211			amenity/ex floor
	40TH (40th)	890	85%	1			1,007.0	10,841			
	TOTAL						8,368.0	90,075			
	GRAND TOTAL						33,472.0	360,299			
RETAIL/AMENITY	BUILDING 29						1,332	14,341			
AREA	BUILDING 35						1,332	14,341			
	BUILDING 37						1,332	14,341			
	BUILDING 29						1,332	14,341			
	GRAND TOTAL						5,328	57,365			
RESIDENTIAL	BUILDING 29						31,476				
	BUILDING 35						31,476				
	BUILDING 37						31,476				
	BUILDING 29						31,476				
UNITS	BUILDING 29										
		A	1B	1B+D	2B	2B+D	3B	TOTAL			
	BASE	0	0	0	0	0	0	0			
	ONE	0	0	0	0	0	0	0			
	ONE + DEN	0	0	0	0	0	0	0			
	TWO	0	0	0	0	0	0	0			
	40TH (40th)	0	0	0	0	0	0	0			
	TOTAL	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%			
	BUILDING 35										
		A	1B	1B+D	2B	2B+D	3B	TOTAL			
	BASE	0	0	0	0	0	0	0			
	ONE	0	0	0	0	0	0	0			
	ONE + DEN	0	0	0	0	0	0	0			
	TWO	0	0	0	0	0	0	0			
	40TH (40th)	0	0	0	0	0	0	0			
	TOTAL	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%			
	BUILDING 37										
		A	1B	1B+D	2B	2B+D	3B	TOTAL			
	BASE	0	0	0	0	0	0	0			
	ONE	0	0	0	0	0	0	0			
	ONE + DEN	0	0	0	0	0	0	0			
	TWO	0	0	0	0	0	0	0			
	40TH (40th)	0	0	0	0	0	0	0			
	TOTAL	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%			
	BUILDING 29										
		A	1B	1B+D	2B	2B+D	3B	TOTAL			
	BASE	0	0	0	0	0	0	0			
	ONE	0	0	0	0	0	0	0			
	ONE + DEN	0	0	0	0	0	0	0			
	TWO	0	0	0	0	0	0	0			
	40TH (40th)	0	0	0	0	0	0	0			
	TOTAL	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%			
	GRAND TOTAL	0	0%	0%	0%	0%	0%	0	0%		
PARKING	REQUIRED	Visitor Parking						0.2 per unit			
		Residential (incl. Visitor)						1.0 per unit			
		Total						1.2 per unit			
	PROPOSED							TOTAL			
		Level						259			
		6th						259			
		7th						259			
		8th						259			
		9th						259			
		Other						1,554			
LAUNDRY	REQUIRED							1/du			
	PROPOSED		WASHER								
			WASHER #1					3.764	m2		
			WASHER #2					4.164	m2		
			WASHER #3					3.764	m2		
			WASHER #4					4.164	m2		
			TOTAL					15.856	m2		
			DRYWASHER								
			DRYER #1					4.464	m2		
			DRYER #2					3.972	m2		
			TOTAL					8.436	m2		
			GRAND TOTAL					8.436	m2		
WEIGHT	PERMITTED							1/du			
	PROPOSED		WASHER #1					3.764	2,023.0	2,023.0	
			WASHER #2					4.164	2,238.0	2,238.0	
			WASHER #3					3.764	2,023.0	2,023.0	
			WASHER #4					4.164	2,238.0	2,238.0	

The drawings are the property of architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the drawings and may not be used in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and accepts no claims for work based on these documents unless clarification or supplementary information regarding the intent of the Contract Documents is sought and interpreted through governed terms in the Contract(s) for design and/or service.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Consultants prior to the architect/trades commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and the like are not to be scaled from the drawings. Refer to the relevant details or architectural drawings govern over the mechanical and electrical drawings. Those items not clearly located will be located as directed by the architect.

Drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to the fitness for any purpose of any structure constructed by others in accordance with these plans and specifications. The completed structure must be visited at all times that they can properly construct the work represented by these plans.

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dadour

planning:
Weston Consulting Inc.
201 Millway Ave, Unit 19, Vaughan, ON, L4K 5K8

landscape:
Studio TLA
30 Wertheim Court, Suite 102, Richmond Hill, ON, L4B 1B9 | 2 Carlaw Ave, Unit 1, Toronto, ON, M4M 2R1

traffic:
GHD LTD.
245 Consumers Road, Unit 1, Willowdale, ON M2J 4V6

site services:
turkstra.ingineering
1 Concorde Gate, Suite 607, Toronto, ON, M3C 3N6

structural:
Jablonsky, Ast and Partners International
365 Bloor Street East, Toronto, ON, M4W 3L4

project:
259 Innisfil Street
Barrie, Ontario

site plan

2020	date:
1:400	scale:
21-04	project:
mz - ld	drawn by:
	drawing number:

A101

architectureunfolded
368 bathurst street toronto, on. m5t 2s5
t 416.551.5445 info@unfolded.ca

The drawings are the property of architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the drawings and documents and may not be used in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and any changes made to the drawings or the use of partial modification or supplementary information regarding the intent of the Contract Documents by others without the knowledge of the Designer is done so at the Contractor's or others own risk and is to their benefit.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Designer. The Contract Documents take precedence over scaling.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are not necessarily shown but shall be located as required to suit the architectural drawings govern over the mechanical and electrical drawings. Those items not clearly located will be located as directed by the architect.

These Contract Documents are not to be used for construction unless noted below as "Issued for Construction".

All work to be executed out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to the adequacy or sufficiency of the plans and specifications for any purpose and assumes no liability whatsoever. The Contractor shall satisfy himself as to the sufficiency of these documents for the purpose intended and shall at all times that they can properly construct the work represented by these plans.

notes:

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dadour

planning:
IBI Group Consulting Inc.

landscape:
Studio TLA

traffic:
GHD LTD.

site services:
forfum Engineering

structural:
Jablonsky, Ast and Partners International

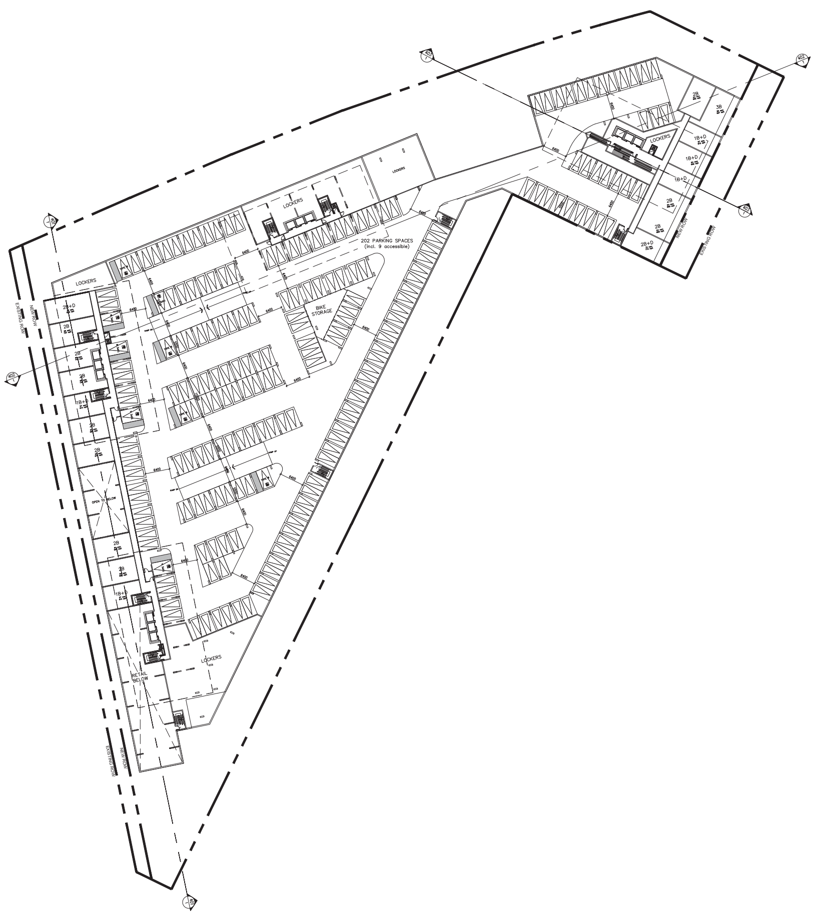
project:
259 Innisfil Street

ground floor plan

date: 2020
scale: 1:400
project: 21-04
drawn by: mz - kd

drawing number: A301

architectureunfolded
768 dufferin street toronto, on. m6h 4b
t: 416.651.3443 info@unfolded.ca



The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

architectureunfolded

368 dufferin street, toronto, on, m6k 1z8 tel: (416)601.5416 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21

submissions: date

architectural team :

mark zwicker
ihab daakour

planning:
IPS Consulting Inc.
647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

landscape:
Studio TLA
20 Champlain Blvd., Suite 102, Toronto, ON, M3H 2Z1, Canada

traffic:
GHD Ltd.
6705 Millcreek Drive, Unit 1, Mississauga, ON L5N 5M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:

259 Innisfil Street
barrie, ontario

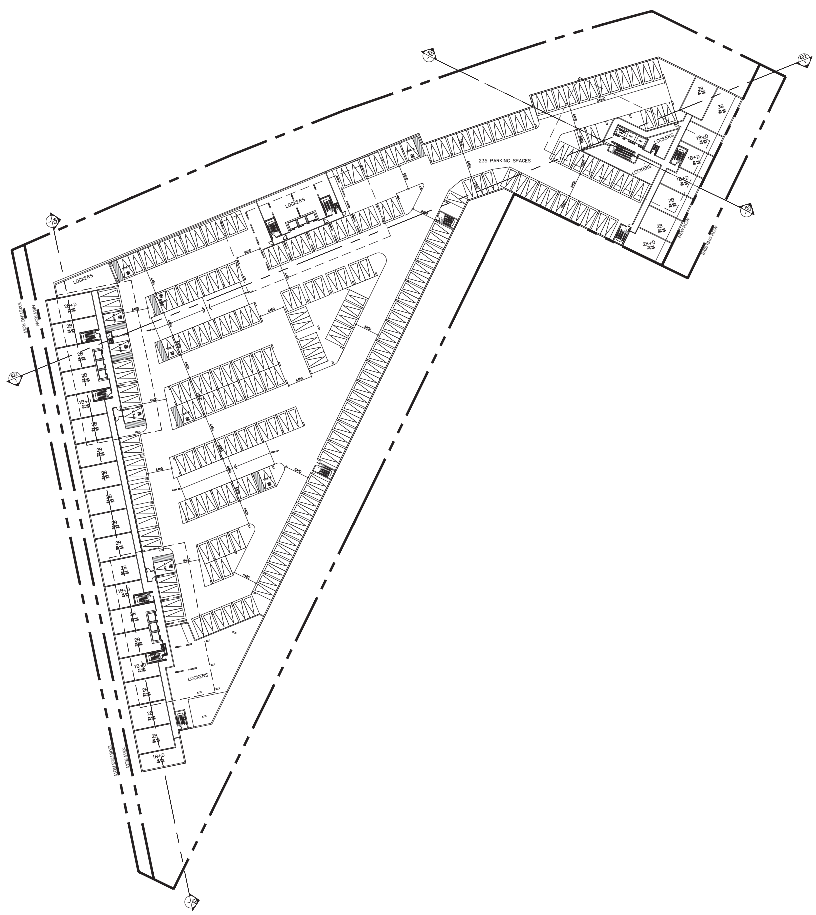
2nd floor plan

2020	date:
1:400	scale:
21-04	project:
mz - id	drawn by:

drawing number:

true north   construction north

A301



The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

architectureunfolded

368 dufferin street, toronto, on. m6k 1z8 tel: (416)601.5416 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21

submissions: date

architectural team :

mark zwicker
ihab daakour

planning:
IPS Consulting Inc.
647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

landscape:
Studio TLA
20 Champlain Blvd., Suite 102, Toronto, ON, M3H 2Z1, Canada

traffic:
GHD Ltd.
6705 Millcreek Drive, Unit 1, Mississauga, ON L5N 5M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

3rd-5th floor plan

2020	date:
1:400	scale:
21-04	project:
mz - id	drawn by:

drawing number:

A303

The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

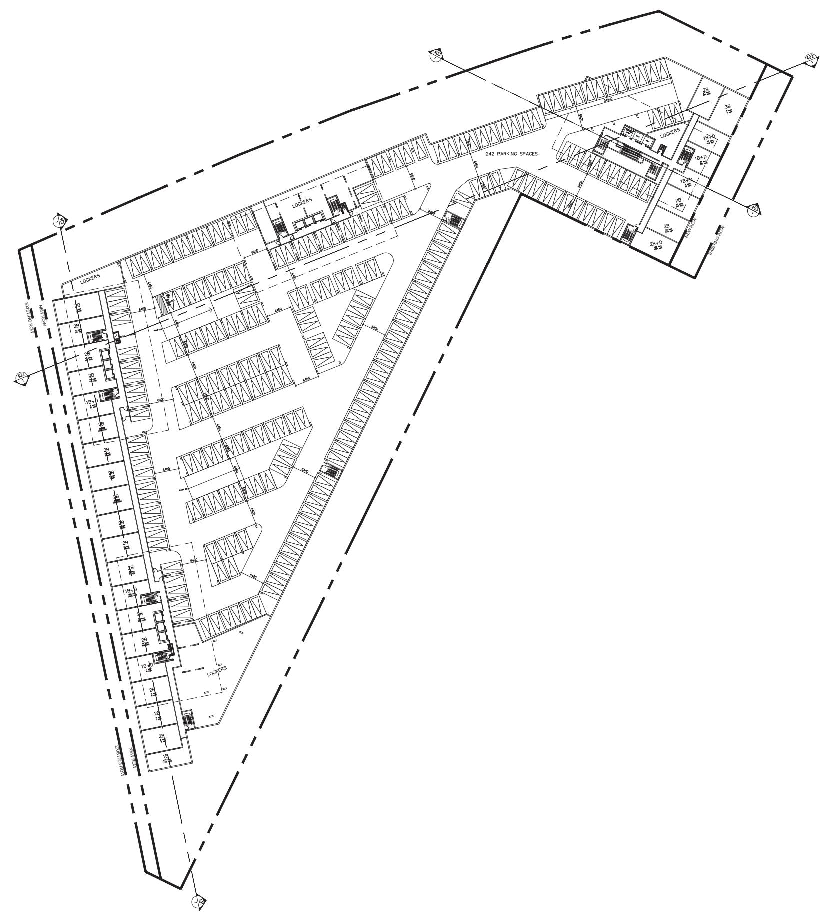
All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

architecture unfolded

368 dufferin street, toronto, on, m6k 1z8 tel: (416)601.5416 info@unfolded.ca



revisions: date

1 ZBA submission 07-09-21

submissions: date

architectural team :

mark zwicker
ihab daakour

planning:
IPS Consulting Inc.
647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

landscape:
Studio TLA
20 Champlain Blvd., Suite 102, Toronto, ON, M3H 2Z1, Canada

traffic:
GHD Ltd.
6705 Millcreek Drive, Unit 1, Mississauga, ON L5N 5M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

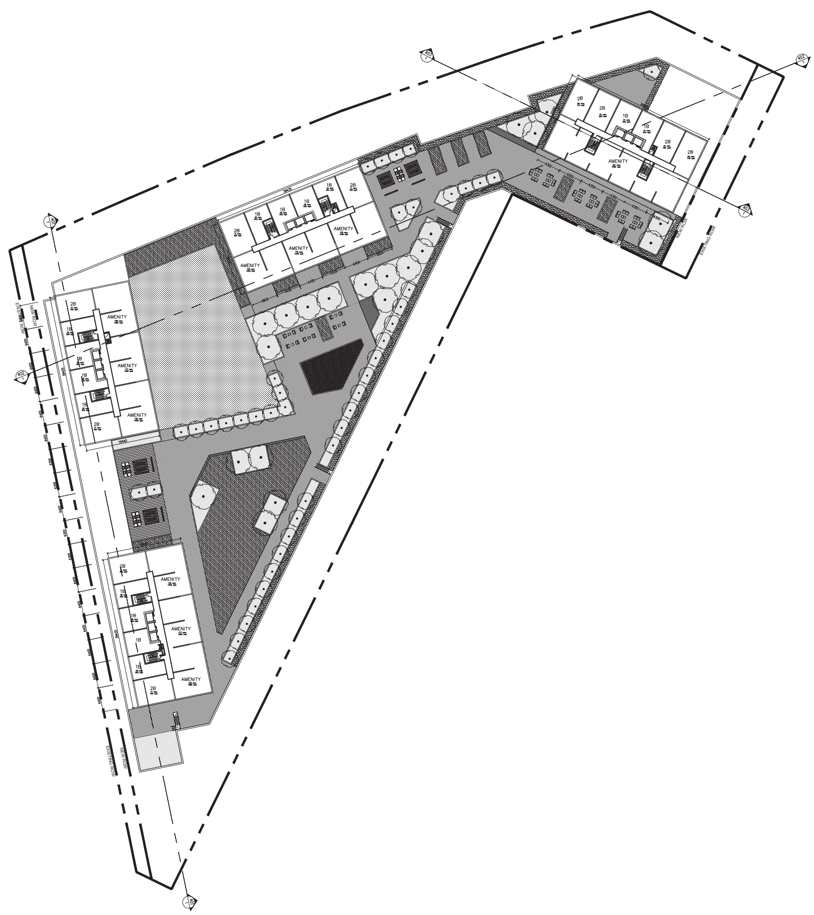
6th floor plan

2020	date:
1:400	scale:
21-04	project:
mz - id	drawn by:

true north / construction north

drawing number:

A304



The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

architectureunfolded

368 dufferin street, toronto, on. m6k 1z8 tel: (416)601.5416 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21

submissions: date

architectural team :

mark zwicker
ihab daakour

planning:
IPS Consulting Inc.
647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

landscape:
Studio TLA
20 Champlain Blvd., Suite 102, Toronto, ON, M3H 2Z1, Canada

traffic:
GHD Ltd.
6705 Millcreek Drive, Unit 1, Mississauga, ON L5N 5M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

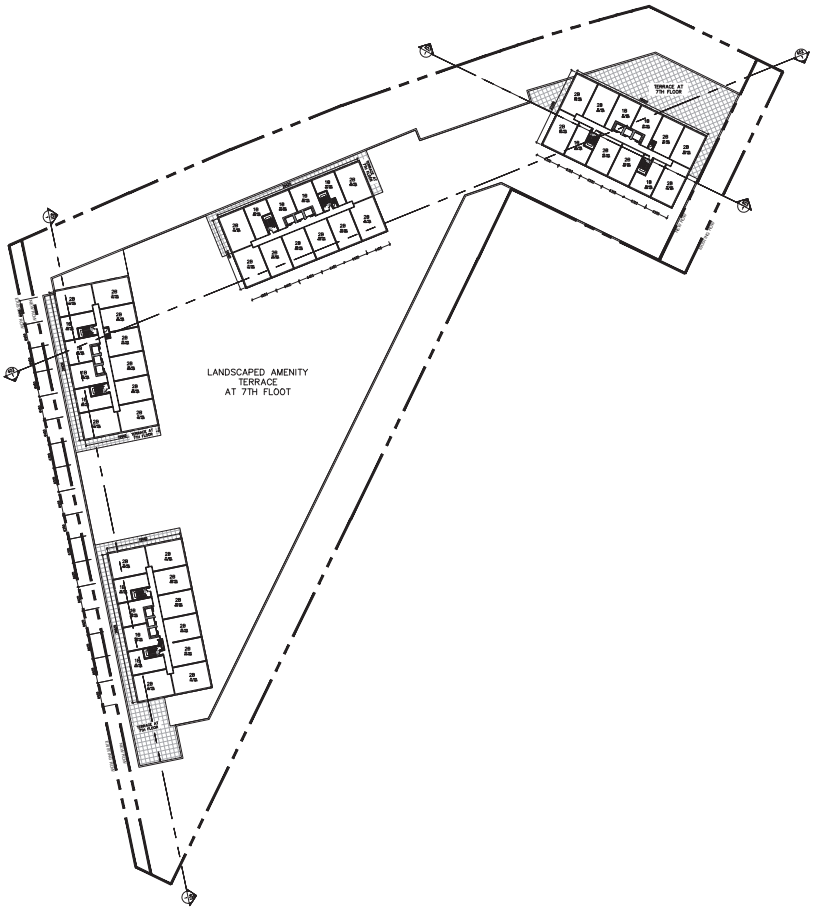
7th floor plan

2020	date:
1:400	scale:
21-04	project:
mz - id	drawn by:

drawing number:

true north · construction north

A305



The drawings are the property of architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the use of these documents in whole or in part in whole & in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and any changes made by the Contractor from the information or clarification or supplementary information regarding the intent of the Contract Documents is the responsibility of the party making changes and the party for whom the changes are made.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are to be confirmed with the architect. Where conflicts occur with the architectural drawings, govern over the mechanical and electrical drawings. Those items not clearly located will be located as directed by the architect.

These Contract Documents are not to be used for construction unless noted items as "Issued for Construction".

All work to be executed out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to the adequacy or sufficiency of the plans and specifications for any purpose whatsoever and disclaims any responsibility therefore. The Owner and Contractor shall satisfy themselves as to the adequacy and sufficiency of all things that they may properly construct the work represented by these plans.

notes:

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dadour

planning:
IBI Group Planning Inc.
[illegible]

landscape:
Studio TLA
[illegible]

traffic:
GHD LTD.
[illegible]

site services:
Tatham Engineering
[illegible]

structural:
Jablonsky, Ast and Partners International
[illegible]

project:
259 Innisfil Street
[illegible]

8th-20th floor
plan

2020 date:
1:400 scale:
21-04 project:
mz - ld drawn by:

drawing number:
A306

architectureunfolded
[illegible]
t: 416.651.3445 info@unfolded.ca
[illegible]

The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The reproduction, publication or use of these documents in any form is prohibited in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the contractor or others and accepts no claims for changes to the contract based on clarification or supplementary information regarding the intent of the Contract Documents unless such clarification or change is given in writing by the Contractor's to design and maintain a site.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and the like are to be determined by the Contractor in co-operation with the architect and drawings govern over the electrical and mechanical drawings. Those items not clearly located will be located as directed by the architect.

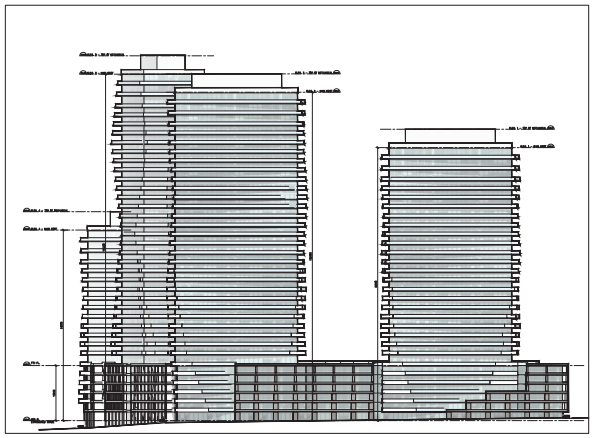
These Contract Documents are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in conformance with the Codes and bylaws of the authorities having jurisdiction.

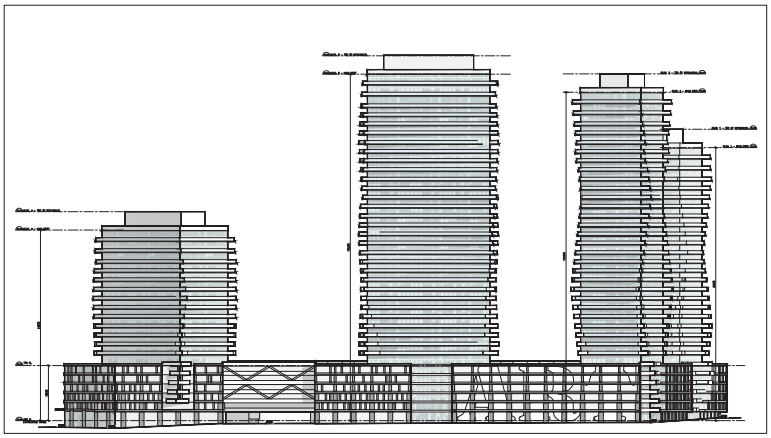
The Designer of these plans and specifications gives no warranty or representation as to the adequacy or sufficiency of the plans and specifications for any purpose, and accepts no duty or responsibility to anyone to determine whether or not they are adequate or sufficient for any purpose. The Owner is hereby advised at all times that they can properly construct the work represented by these plans.

notes:

architectureunfolded
318 dufferin street toronto, on. m6k 1z5 t 416.651.5445 info@unfolded.ca

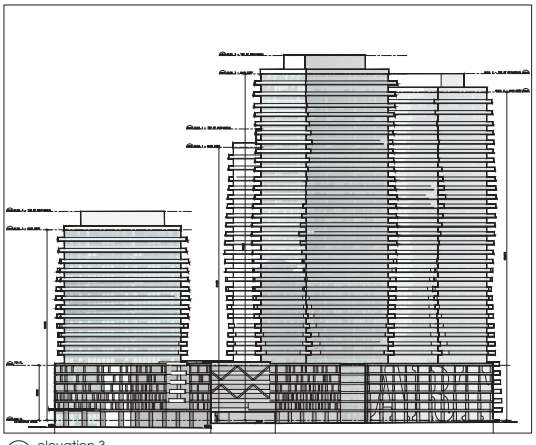


1 elevation 1

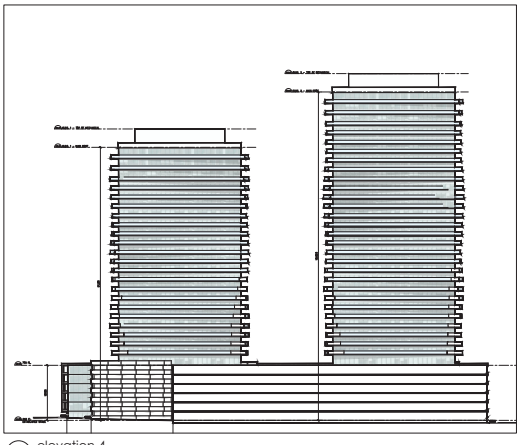


2 elevation 2

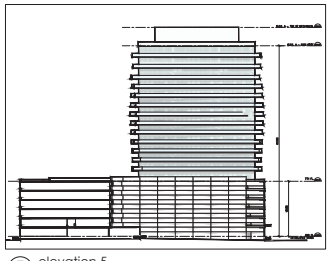
revisions: date



3 elevation 3



4 elevation 4



5 elevation 5

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dadour

planning:
bousfields inc.
3 church street, suite 200, toronto, on, m5c 2g2

landscape:
studio tla
41 cumberland street, suite 100, toronto, ON, M4W 1J1 (416)925-9096

traffic:
GHD LTD.
445 wilbrod street, ottawa, ON K1R 6M6

site services:
turkstra (engineering)
216 st.patrick street, toronto, ON, m5t 3a3

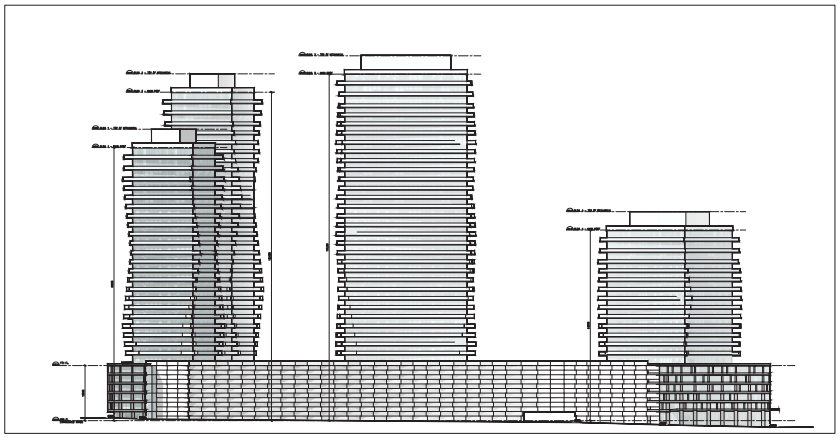
structural:
jablonsky, ast and partners international
401 newkirk road, toronto, ON, m1c 3z7

project:
259 Innisfil Street
toronto, ontario

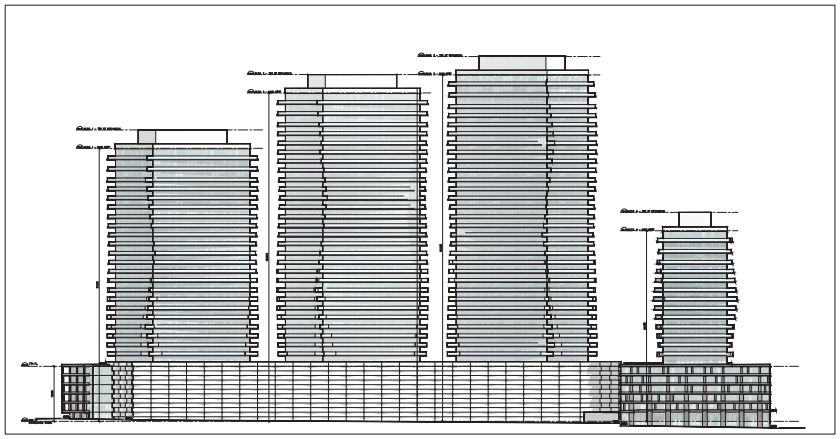
elevation

2020 date:
1:500 scale:
21-04 project:
mz - ld drawn by:

drawing number:
A401



1 elevation 6



2 elevation 7

The drawings are the property of architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the use of these documents in whole or in part in whole in in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and accepts no claims for changes to the Contract Documents modification or supplementary information regarding the intent of the Contract Documents must be obtained from the Consultant through submissions by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are to be confirmed with the architect. Where not dimensioned on the architectural drawings govern over the electrical and electrical drawings. Those items not clearly located will be located as directed by the architect.

Contract Documents are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to their fitness for any application not disclosed by the Designer and accepts no duty or responsibility to anyone other than the Owner in relation to and to the extent that they can properly construct the work represented by these plans.

notes:

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
ihab dadour

planning:
MHBC Planning Inc.
200 Galloway Road, Unit 101, Bradford, ON, L3Z 3G6

landscape:
Studio TLA
410 Horner Ave., Suite 100, Toronto, ON, M8W 4X2 (Canada)

traffic:
GHD LTD.
245 Consumers Road, 2007, Willowdale, ON M2J 4G8 Canada

site services:
Valcom Engineering
4 King Street West, Suite 1010, Toronto, ON, M5H 1A1

structural:
Jablonsky, Ast and Partners International
365 Bloor Street East, Toronto, ON, M4W 3L4

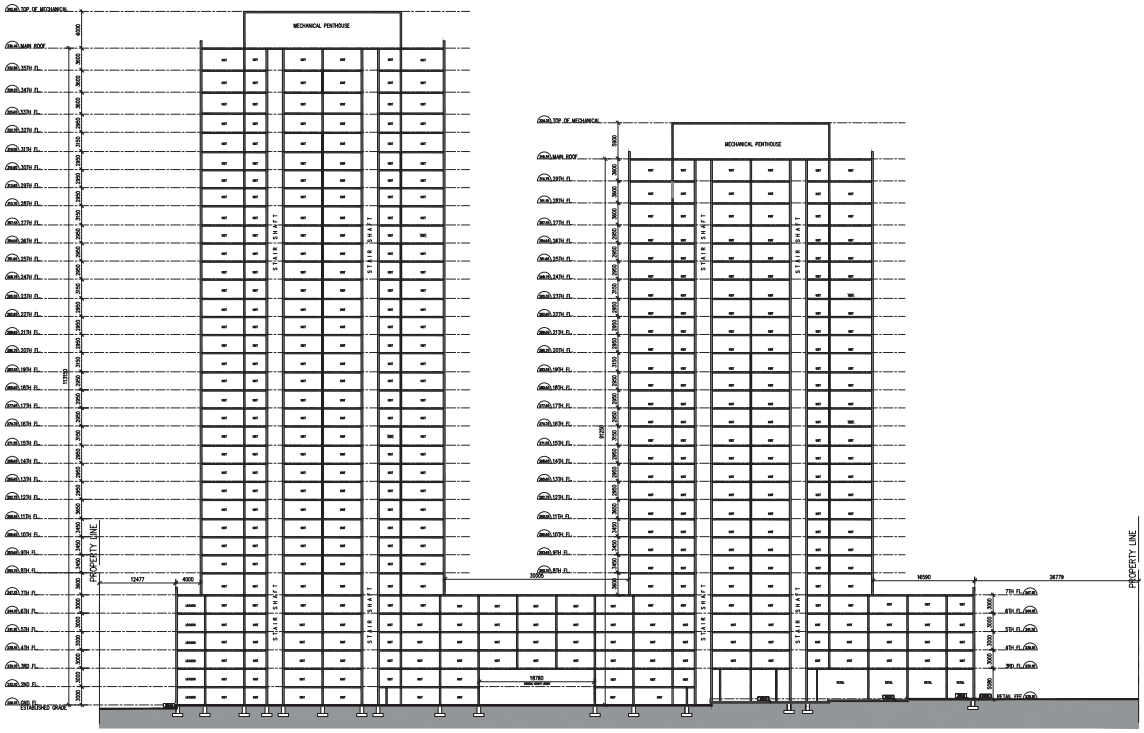
architecture unfolded
tel 647.669.5445 info@unfolded.ca
328 dufferin street toronto, on m6k 1z5

project:
259 Innisfil Street
Innisfil, Ontario

elevation

2020 date:
1:500 scale:
21-04 project:
mz - id drawn by:

drawing number:
A402



The drawings are the property of architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the use of these documents in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and any changes made to the drawings or the issuance of clarification or supplementary information regarding the intent of the Contract Documents by anyone other than the architect following a contract award. Contractors to design and maintain a safe

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Executive to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are not necessarily shown on these drawings. Refer to mechanical and architectural drawings govern over the electrical and architectural drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to the adequacy or sufficiency of the plans and specifications for any purpose and accepts no responsibility whatsoever where the plans are used by anyone at all times than they can properly construct the work represented by these plans.

notes:

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
iñaki dzakour

planning:
MHBC Planning Inc.

landscape:
Studio TLA

traffic:
GHD LTD.

site services:
forfum Engineering

structural:
Jablonsky, Ast and Partners International

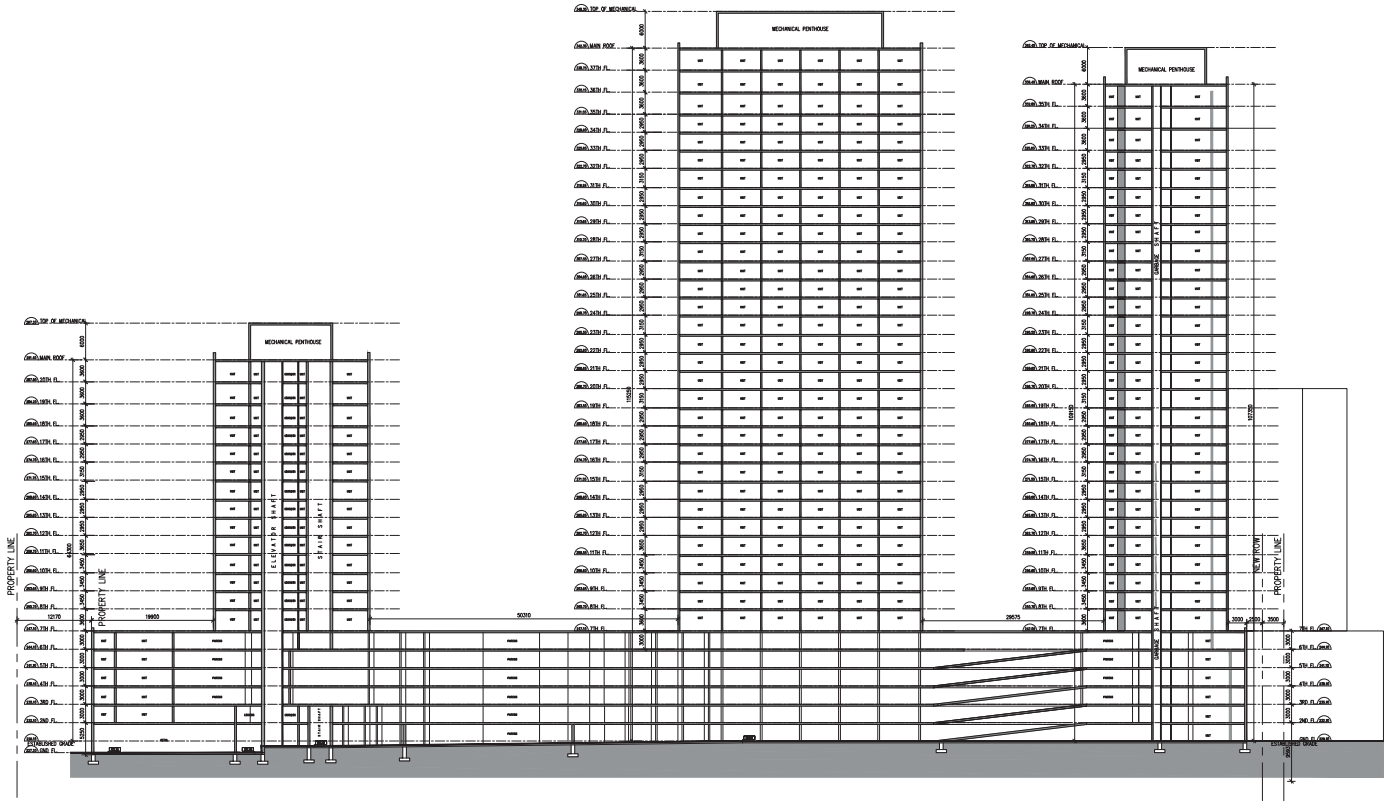
project:
259 Innisfil Street

section 1-1

2020 date:
1:250 scale:
21-04 project:
mz - id drawn by:

drawing number:
A501

architectureunfolded
info@unfolded.ca
t 416.651.5416
318 dufferin street toronto, on m6k 1z5



The drawings are the property of architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the use of the drawings and documents in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and any changes made to the drawings or the issuance of clarification or supplementary information regarding the intent of the Contract Documents by anyone other than the Designer is done at the sole discretion of the Contractor's or design and insurance risk.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are to be approved by the architect before rough-in. Refer to reflected ceiling plans and interior elevations where the mechanical and electrical drawings. Those items not clearly located will be located as directed by the architect.

Shop drawings are not to be used for construction unless noted items as "Issued for Construction".

All work to be carried out in conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation that the work detailed in these plans will be constructed by Owner, contractors, or subcontractors in accordance with these plans. Owner is solely and at all times their duty can properly construct the work represented by these plans.

notes:

architectureunfolded
318 dufferin street toronto, on. m6k 1z5
t: 416.651.5445 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dadaour

planning:
MHBC Planning Inc.

landscape:
Studio TLA

traffic:
GHD LTD.

site services:
forfum Engineering

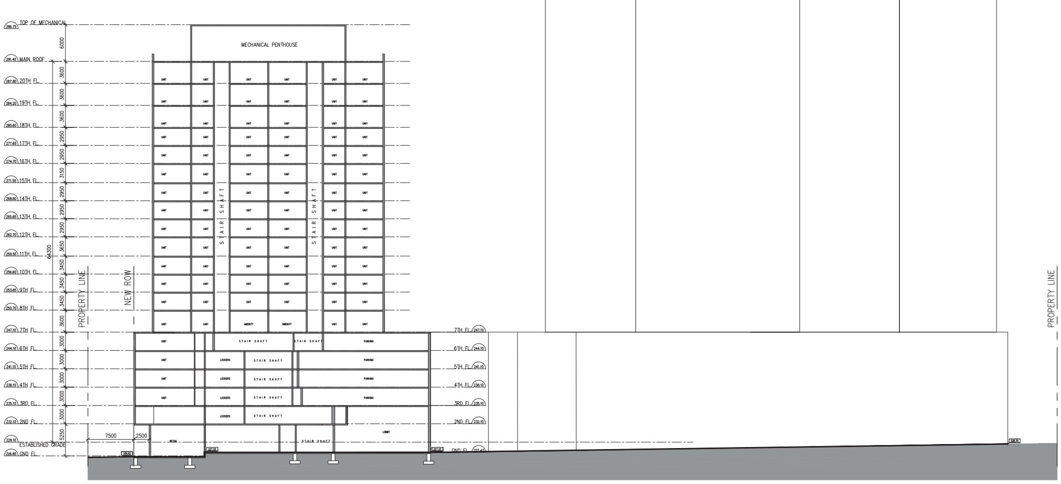
structural:
Jablonsky, Ast and Partners International

project:
259 Innisfil Street

section 2-2

2020 date:
1:250 scale:
21-04 project:
mz - ld drawn by:

drawing number:
A502



The drawings are the property of Architecture Unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

architecture**unfolded**

368 dufferin street, toronto, on, m6k 1z8 tel: (416)601.5416 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21

submissions: date

architectural team :

mark zwicker
ihab daakour

planning:
IPS Consulting Inc.
647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

landscape:
Studio TLA
20 Champlain Blvd., Suite 102, Toronto, ON, M3H 2Z1, Canada

traffic:
GHD Ltd.
6705 Millcreek Drive, Unit 1, Mississauga, ON L5N 5M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:

259 Innisfil Street
barrie, ontario

section 3-3

2020	date:
1:250	scale:
21-04	project:
mz - id	drawn by:

drawing number:

A503

Street View Looking West

View Looking South East

Aerial View Looking North

The drawings are the property of architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The Designer reserves all rights to the use of these documents in whole or in part without prior written permission of the designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor or others and accepts no claim for any deviation from the Contract Documents unless written authorization or supplementary information regarding the intent of the Contract Documents is issued by the architect through a prime bearing his seal.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies to the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and outlets are to be confirmed with the architect. Where not dimensioned on the architectural drawings, govern over the electrical and architectural drawings. Those items not clearly located will be located as directed by the architect.

These Contract Documents are not to be used for construction unless noted below as "Issued for Construction".

All work to be executed out to conformance with the Codes and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation as to their fitness for any purpose. The Owner is cautioned that the Designer will not be liable for any deficiencies that may arise from construction that varies materially from all of these that they can properly construct the work represented by these plans.

notes:

architectureunfolded
318 dufferin street toronto, on. m6k 1z5 t 416.651.5445 info@unfolded.ca

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
thab dzakour

planning:
JKO Consulting Inc.

landscape:
Studio TLA

traffic:
GHD LTD.

site services:
forfum Engineering

structural:
Jablonsky, Ast and Partners International

project
259 Innisfil Street

renderings

2020 date:
NTS scale:
21-04 project:
mz - id drawn by:

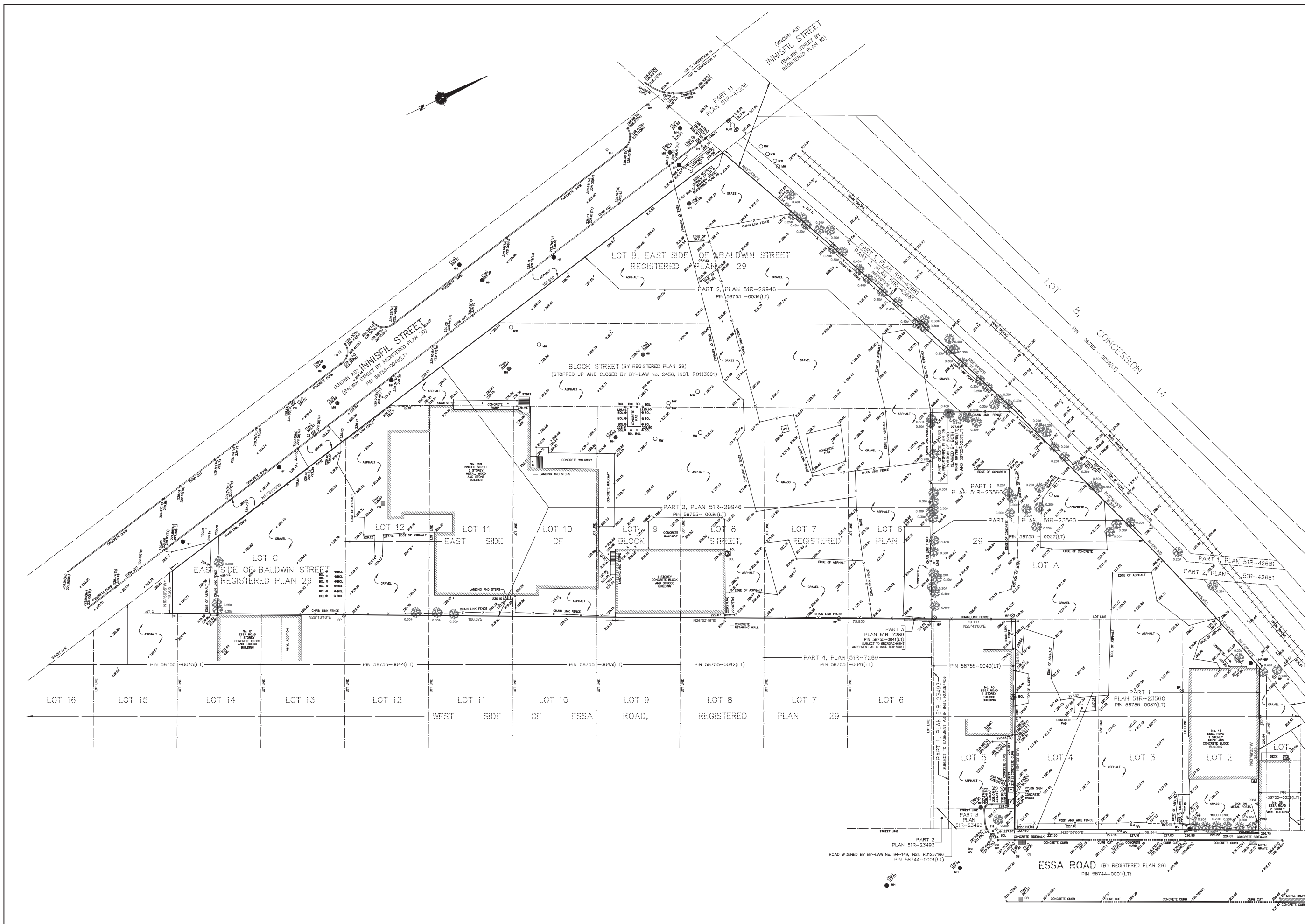
drawing number:
A701

TOPOGRAPHY OF
ALL OF LOTS 3 AND 4 AND PART OF LOT 2 WEST SIDE OF ESSA ROAD
AND
LOT B AND PART OF LOT C EAST SIDE OF BALDWIN STREET
AND
ALL OF LOTS A, 6 TO 12 (INCLUSIVE) EAST SIDE OF BLOCK STREET
AND
BLOCK STREET (CLOSED BY BY-LAW No. 2456, INST. RO113001)
REGISTERED PLAN 29
CITY OF BARRIE
COUNTY OF SIMCOE

SCALE 1:300

KRCMAR SURVEYORS LTD. 2021

METRIC: DISTANCES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048



THE FIELD WORK WAS COMPLETED ON THE 10th DAY OF MAY, 2021

DATE MAY 11, 2021

BEARING
BEARINGS AND DISTANCE SHOWN HEREON ARE IN ACCORDANCE WITH PLAN OF SURVEY BY KRCMAR SURVEYORS LTD., O.L.S., DATED MAY 11, 2021.

ELEVATION
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF BARRIE BENCH MARK No. 03120080023, HAVING AN ELEVATION OF 226.540 METRES.

LEGEND
DSE DENOTES DOOR SILL ELEVATION
GSE DENOTES GARAGE SILL ELEVATION
HV DENOTES HYDRO VAULT
PWF DENOTES POST & WIRE FENCE
WF DENOTES WOODEN FENCE
(Tc) DENOTES TOP OF CURB
(Bc) DENOTES BOTTOM OF CURB
(Tw) DENOTES TOP OF WALL
—x— DENOTES FENCE
DENOTES TRAIN TRACK
123.45 DENOTES EXISTING GRADE ELEVATION
BP DENOTES BELL POLE
BOL DENOTES BOLLARD
CB DENOTES CATCH BASIN
0.1ø DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
DENOTES DOWN GUY ANCHOR
FH DENOTES FIRE HYDRANT
GM DENOTES GAS METER
HP DENOTES HYDRO POLE
HP/BP DENOTES HYDRO POLE AND BELL POLE
MH DENOTES MANHOLE
MW DENOTES MONITORING WELL
POST DENOTES POST
R/R DENOTES RAILROAD CROSSING ARM
SIAMESE DENOTES SIAMESE CONNECTION
SN DENOTES SIGN
WV DENOTES WATER VALVE

MUNICIPAL ADDRESS: No. 41 ESSA ROAD AND No. 259 INNISFIL STREET, BARRIE.							
FIELD:	R.L.	DRAWN:	C.L.	CHECKED:	S.N.R.	JOB NO:	21-036
DWG NAME:	21-036TP01	PLOT INFO:	10:34 11/May/2021	WORK ORDER NO:	34414		
1137 Centre Street Thornhill ON L4J 3M6 905.738.0053 F 905.738.9221 www.krcmar.ca							
PLAN AVAILABLE AT www.ProtectYourBoundaries.ca							

KRCMAR

Appendix B STRUCTURAL CALCULATION FOR 41 ESSA RD & 259 INNISFIL ST.

JABLONSKY, AST AND PARTNERS
Consulting Engineers

400 - 3 Concorde Gate
Toronto, ON M3C 3N7
Telephone (416) 447-7405
Fax (416) 447-2771
www.astint.on.ca
Email jap@astint.on.ca

August 11, 2021

Tonlu Holdings Limited
111 Strada Drive
Vaughan, ON L4L 5V9

Attn: Ms. Isabel Bercasio

Re: 259 Innisfil St., Barrie, ON
Structural Train Derailment Review
Our Project No. 21113

Dear Ms. Bercasio,

As per your recent request, we are providing the following design brief regarding the structural impact of a train derailment, on the site of 259 Innisfil St., adjacent to the Barrie line. The proposed development consists of an above grade, reinforced cast-in-place concrete structure with a 6-storey podium and 4 towers which are proposed to be 29, 35, 37 and 20 stories. The development is located adjacent to the Barrie Rail Line.

The approach typically taken to design a crash barrier is to equate the momentum of the moving body to the work done or energy absorbed in reducing the momentum of that moving body to zero. Current guidelines produced by AECOM (last amended in 2014) provide information with respect to train mass, direction and impact and train velocity. As well, recommendations are made with respect to how much energy is absorbed by the plastic deformation of the locomotives and rail cars. This site is unique in that the rail speeds are quite low and so the potential impact of a derailment is significantly reduced. Based on the track speeds of this line, we have chosen to use Method Two in which the following four cases are to be considered:

1. Freight Train Glancing Blow: nine cars weighing 143 tons (129,700 kg) each, impacting the wall at an angle, θ_G. The angle of impact will be a function of track curvature, and for tangent track may be taken as 3.5 degrees.
2. Freight Train Single Car Impact: a single car weighing 143 tons (129,700kg) impacting the wall as it undergoes rotation about its center. The angle of rotation at impact is θ_F.
3. Passenger Train Glancing Blow: eight cars weighing 74 tons (67,120kg) each impacting the wall at an angle, θ_G. The angle of impact will be a function of track curvature and for a tangent track may be taken as 3.5 degrees.
4. Passenger Train Single Car Impact: a single car weighing 74 tons (67,120kg) impacting the wall as it undergoes rotation about its center. The angle of rotation at impact is θ_F.

Based on information provided to us, the track design speed for freight trains is 10 mph (4.47m/s) and there is no passenger traffic. Based on these speeds, we can report the following (see enclosed diagram and calculations):

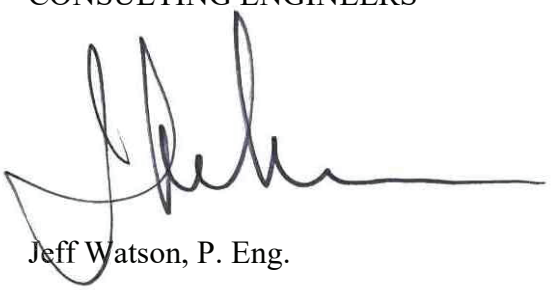
1. Based on the deceleration parameters included in the guidelines, beyond 1.4m from the centerline of track, the train will have reached zero velocity and therefore would impose no load.
2. Based on the guidelines, this load case does not need to be considered where the distance from the centerline of track is greater than 8.5m.
3. As there is no passenger traffic, this load case does not apply.
4. As there is no passenger traffic, this load case does not apply.

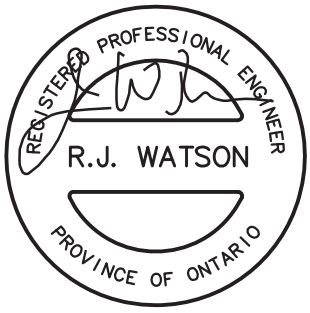
As the subject site is greater 8.5m from the centerline of track, any crash barrier required would not experience any loading associated with a potential derailment and would be of no benefit structurally.

We trust the foregoing will be sufficient, however, should you have any further questions, please do not hesitate to contact our office.

Yours very truly,

JABLONSKY, AST AND PARTNERS
CONSULTING ENGINEERS

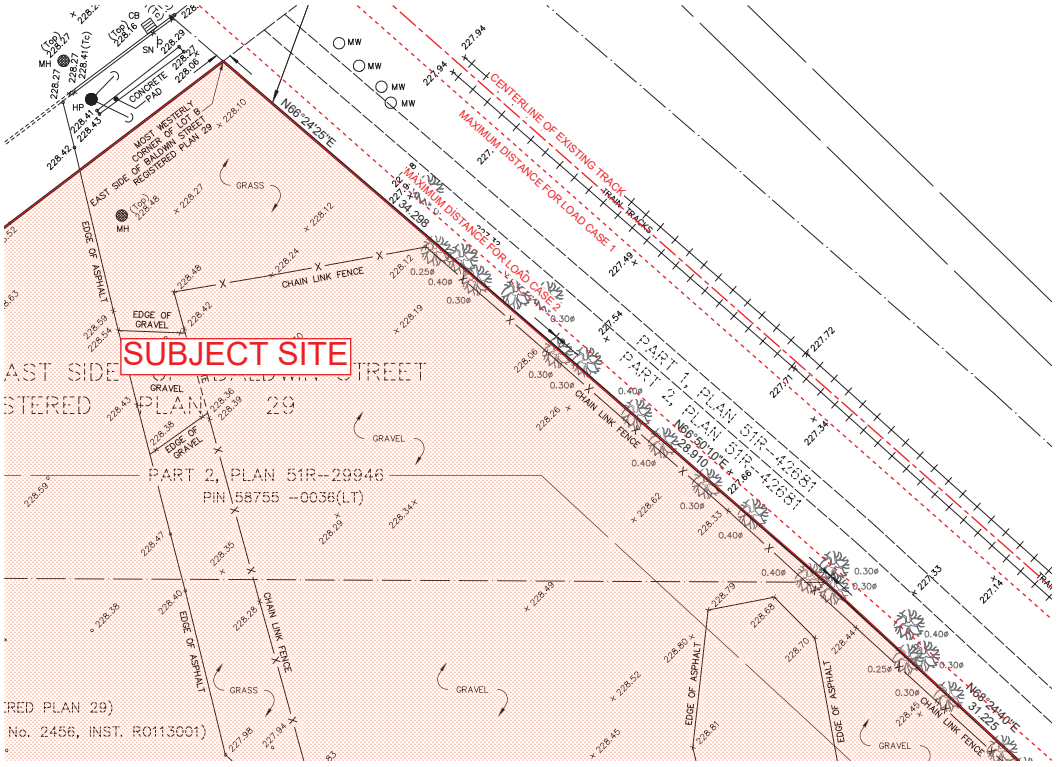




Jeff Watson, P. Eng.

Enclosure

cc: Gordon Tattle, JAP



G = (228.06-227.94)/(10 / sin3.5)
= -0.00

a = -9.8(0.25 - 0.00)
= -2.45 m/s2

CASE 1:
x1 = 1.1625 + (4.47^2)*sin3.5/(2*2.45)
= 1.41m

CASE 2:
x2 = 8.5m (GUIDELINES)

CASE 3:
x3 = N/A (FREIGHT ONLY)

CASE 4:
x3 = N/A (FREIGHT ONLY)

LICENSED PROFESSIONAL ENGINEER
R.J. WATSON
PROVINCE OF ONTARIO

Jablonsky, Ast and Partners
CONSULTING ENGINEERS
400-3 CONCORDE GATE
TORONTO, ON., M3C 3N7
TEL. 416-447 7605 FAX
416-447 2771

PROJECT/DWG. TITLE
259 INNISFIL ST.

JOB NUMBER	21113
DRAWN G.T.	DATE 2021-08-11
SCALE N.T.S.	SKETCH No. SK-1