



March 8, 2021

Reference Number: 18031

**Tim Jessop**

Vice-President, Development

Nyx Capital Corp

Via email: [tim@nyxcapital.com](mailto:tim@nyxcapital.com)

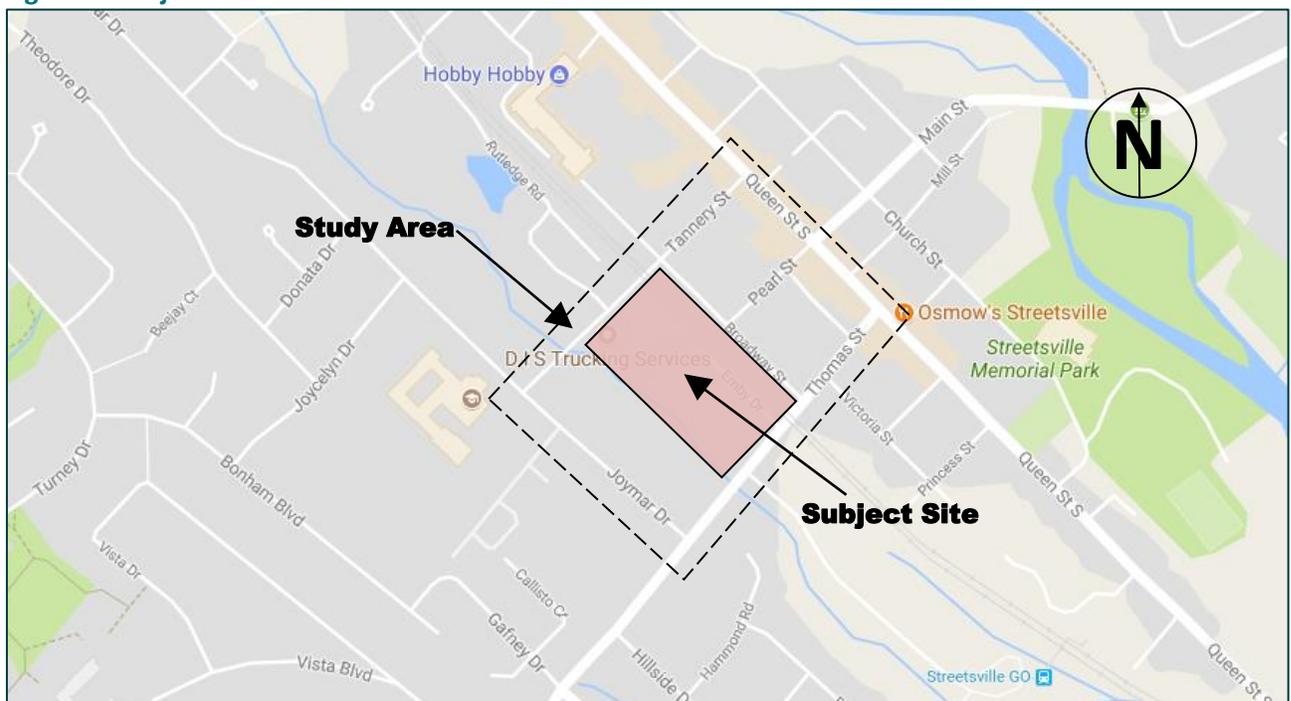
Dear Mr. Jessop,

**RE: Queuing Analysis for the Proposed Townhouse Residential Development Located at 51, 57 Tannery Street and 208 Emby Drive, City of Mississauga, Ontario**

LEA Consulting Ltd. ("LEA") was retained by NYX Capital Corp. to prepare a Transportation Impact Study (TIS) for the proposed townhouse residential development located at 51, 57 Tannery Street and 208 Emby Drive in the City of Mississauga (herein referred to as the "subject site"). The subject site is located between Tannery Street and Thomas Street, west of Broadway Street, as illustrated in **Figure 1**. LEA has provided consulting services for the proposed development since 2018, with the latest TIS Update August 2020 prepared to for the most recent site plan and statistics.

This letter was prepared to address comments on the parking garage access and probability of queues into the garage impacting traffic on the Emby Drive extension.

**Figure 1: Subject Site Location**





## PROPOSED DEVELOPMENT

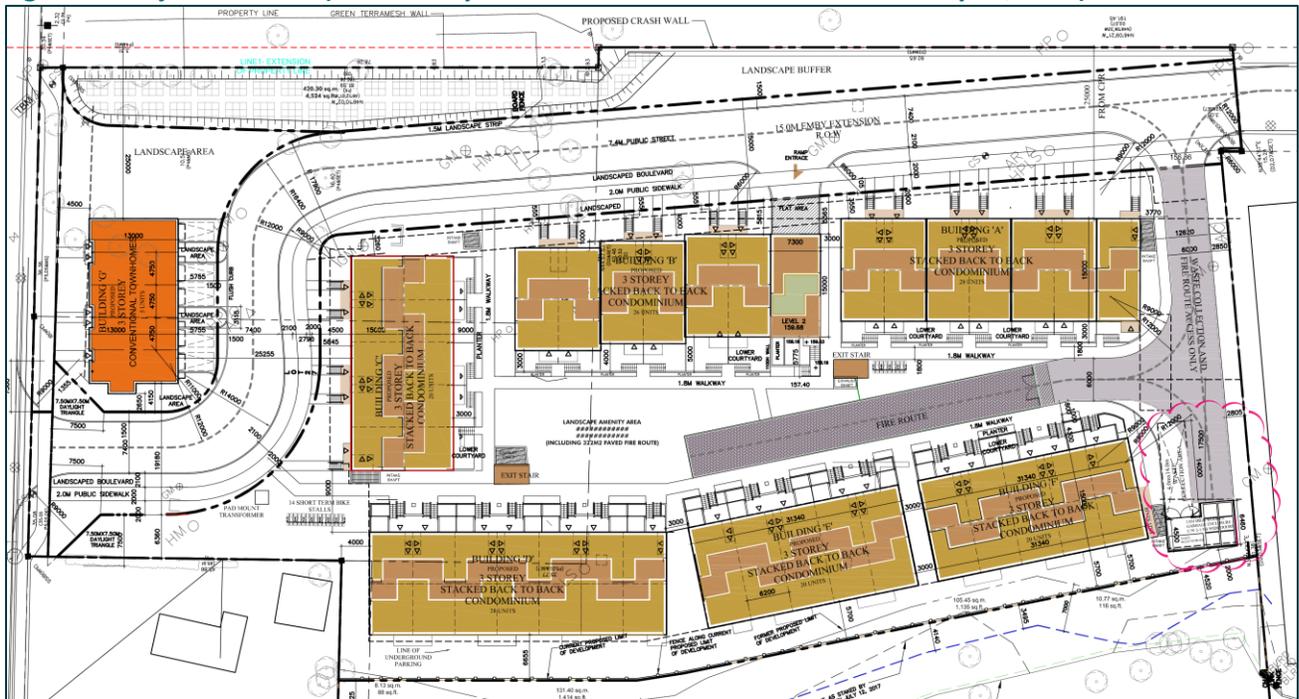
The current development proposal includes a total of 147 townhouse units, consisting of 142 stacked townhouse units and 5 stand-alone street townhouse units. A total of 220 parking spaces, consisting of 195 resident spaces and 28 visitor spaces, are proposed in an underground garage with ramp access proposed via the Emby Drive extension.

Since the previous TIS document the site has added 10 residential spaces to the garage, as presented in **Table 1**. The most recent site plan is illustrated in **Figure 2**.

**Table 1: Statistics Comparison**

Type	August 2020 Submission	Current Submission	Net Change
Townhouse Units	142 stacked townhouse units; 5 street townhouse units	142 stacked townhouse units; 5 street townhouse units	0
Resident Parking	181 residential spaces	195 residential spaces	+14 spaces
Visitor Parking	29 visitor spaces	28 visitor spaces	-1 space

**Figure 2: Subject Site Plan (Provided by Kirkor Architects + Planners on February 25, 2021)**



## FUTURE TRIP GENERATION

Trip generation for the proposed development is consistent with the results presented in the TIS Update, dated August 2020, as there were no changes to the number of townhouse units since. Trip generation based on ITE Trip Generation Manual 9<sup>th</sup> Edition equation rates (LUC 230 – Residential Condominium / Townhouse) are shown in shown in **Table 2** below. Trip reductions were applied to the generated vehicular trips given the site’s proximity to the Streetsville GO Station. ITE auto mode splits were taken from the ITE Trip Generation



Handbook, 3<sup>rd</sup> edition for residential land use. More applicable mode splits for the area were derived from 2011 Transportation Tomorrow Survey (TTS) data and applied to the auto trip generation to account for higher transit use to/from the site.

**Table 2: Trip Generation Summary**

Use	GFA	Weekday AM Peak			Weekday PM Peak			
		In	Out	Total	In	Out	Total	
<b>Current proposal consistent with the TIS Update, dated August 2020)</b>								
Trip Rate / Unit	147	0.17	0.83	1.00	0.67	0.33	1.00	
Trip Generation		12	58	70	55	27	82	
ITE Auto Mode Split		89%	97%	-	96%	95%	-	
TTS 2011 Mode Splits		Auto Mode	85%	84%		76%	92%	
		Transit Mode	10%	12%		24%	7%	
		Active Mode	5%	4%		0%	1%	
<b>Total New Site Trips</b>			<b>11</b>	<b>50</b>	<b>61</b>	<b>44</b>	<b>26</b>	<b>70</b>

The proposed development is expected to generate 61 two-way trips (11 inbound, 50 outbound) during the weekday AM peak hour and 70 two-way trips (44 inbound, 26 outbound) during the weekday PM peak hour.

## QUEUE ASSESSMENT

As illustrated in **Figure 2**, ramp access is provided to the underground garage via the Emby Drive extension on the north side of the subject site.

A queue assessment analysis was undertaken to investigate the potential for queues to extend past the subject site’s ramp access on to the Emby Drive extension as vehicles wait to be served by the garage door. The following assumptions were used:

- Queuing was estimated based on an M/M/1 model;
- The PM peak hour was found to have the highest one-hour demand for entry into the garage with an average arrival rate of 44 vehicles: and
- While no specific garage door manufacturer has been selected for the proposed development, the time for the garage door to open was estimated to be 20 seconds as a conservative assumption based on typical industry values.

The probability that the queue into the garage will exceed the available space and extend into the Emby Drive extension was calculated, with detailed calculations and assumptions shown in **Attachment A**.

The probability of the queue length exceeding one-vehicle during the anticipated peak one-hour demand was identified as 6%. In our opinion, this represents a low probability of the queue exceeding available space, especially for any time outside of the peak hour. Based on this, it is expected that vehicles entering the garage will seldom exceed one, limiting impacts to the on-street operations of Emby Street.

Given the results of the queuing assessment above based on the anticipated trip generation and the typical opening time of a garage door in a residential application, the access to the underground garage at the subject site is considered acceptable.



## FUNCTIONAL DESIGN REVIEW

### Emby Drive Extension

The site plan shows an extension of Emby Drive through the subject site. This extension provides a public connection between Tannery Street and Thomas Street adjacent to the railway tracks. Currently, Emby Drive terminates just south of the subject site. To ensure Emby Drive would intersect Rutledge Road and the existing Emby Drive, the proposed roadway alignment consist of a modified pavement width to ensure a medium single-unit truck and a passenger vehicle can pass each other concurrently through the reverse curve area. It is our understanding the City of Mississauga has agreed with the proposed pavement width of 7.4m within the proposed 15m right-of-way. A detailed functional review of the proposed Emby Drive extension and proposed pavement marking and signage plan are enclosed in **Attachment B**.

The roadway will have a cross-section of 15.0m, with a pavement of 7.40m and a 2.10m sidewalk. The connection of Emby Drive with Tannery Street is aligned to create a right-angle intersection. The sightline analysis confirms that the extension meets the minimum stopping sight distance (SSD) requirements from Tannery Street and the existing Emby Drive, as outlined in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads. The sightline analysis is enclosed in **Attachment B**.

### Waste Collection Review

Swept path analysis was conducted with a Region of Peel garbage truck and is enclosed in **Attachment B**. The analysis indicates that a Region of Peel garbage truck is able to enter via the Emby Drive extension in a forward operation to access the waste collection area on the southeast portion of the site and turn around within the site to exit in a forward operation.

### Fire Route

The City of Mississauga By-Law 1036-81 Schedule A outlines requirements for a designated fire route, including the following:

- Be connected to a public thoroughfare by an entrance of at least 6 metres in width;
- Be located not less than 3m and not more than 15m, measured horizontally and at right angles, from the face of the building;
- Have a centre line radius of not less than 12m with respect to any change in direction of the access route; and
- Have turnaround facilities for any dead-end portion of the access route exceeding 90m. Such turnaround shall be either a 27m diameter cul-de-sac or a 35m x 6m hammerhead.
- Be designed to provide access to the principal entrance of each building, with direct access to the Central Alarm and Control Facilities (CACF) room.

As demonstrated in the fire route review in **Attachment B**, the proposed fire route can be accommodated and will meet the requirements of this by-law.

We trust that the information provided in this letter is sufficient for your use at this time. Should there be any questions, please do not hesitate to contact me at 905-470-0015 or [kwaugh@lea.ca](mailto:kwaugh@lea.ca).



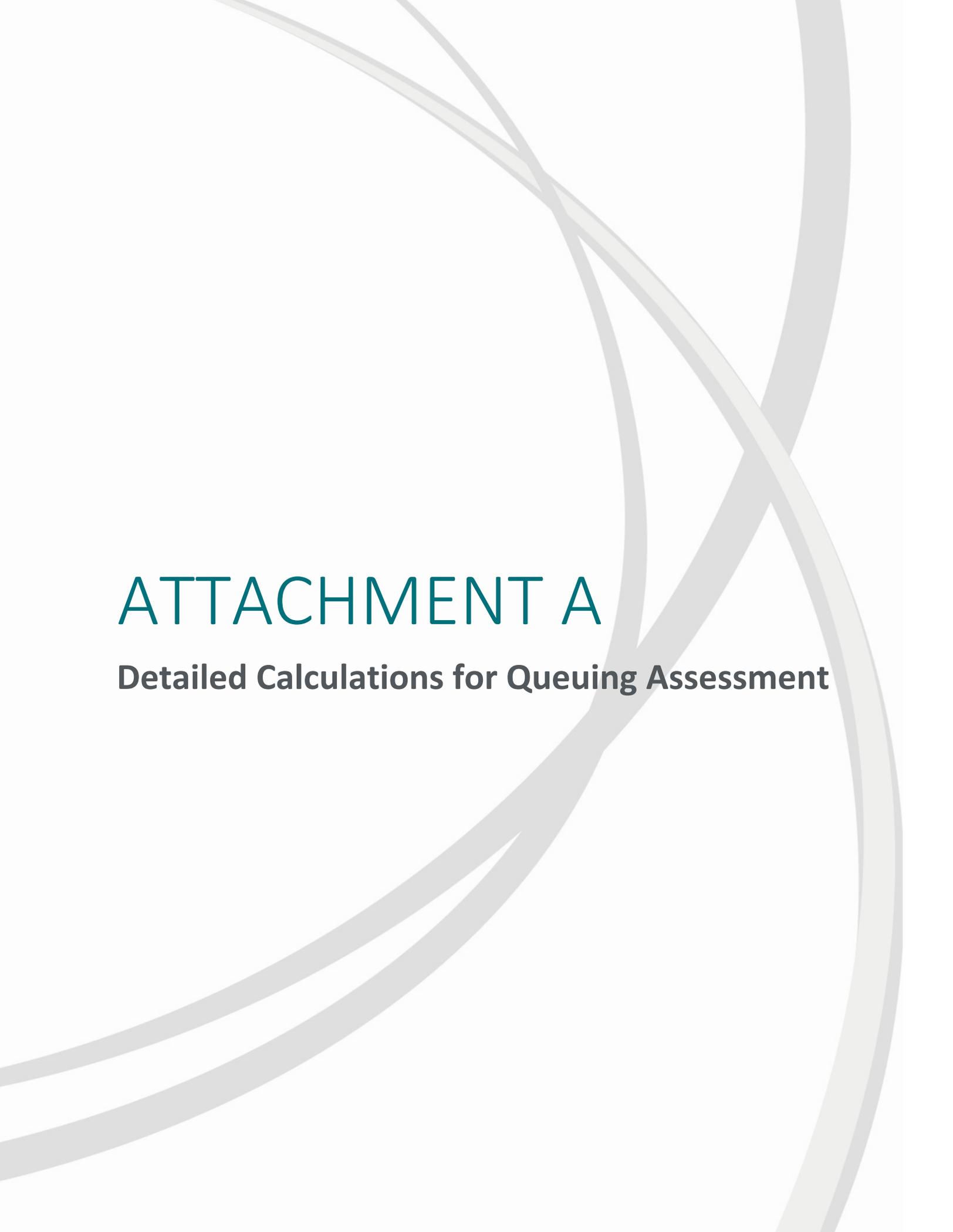
Yours truly,

**LEA CONSULTING LTD.**

A handwritten signature in black ink, appearing to read 'K. Waugh', is positioned below the company name.

Kelsey Waugh, P.Eng., RSP1  
Transportation Engineer

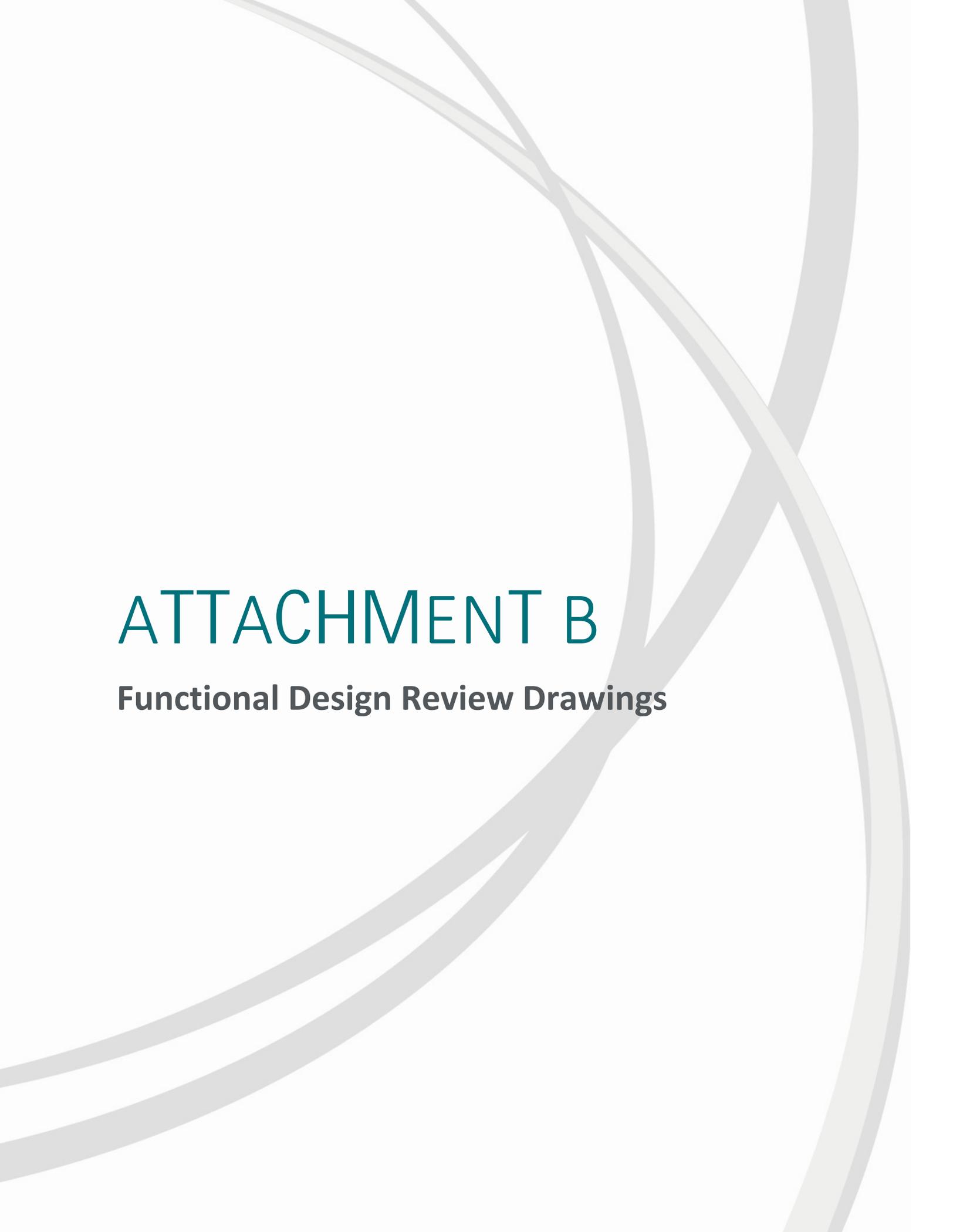
Encl: Attachment A – Detailed Calculations for Queuing Assessment  
Attachment B – Functional Design Review Drawings



# ATTACHMENT A

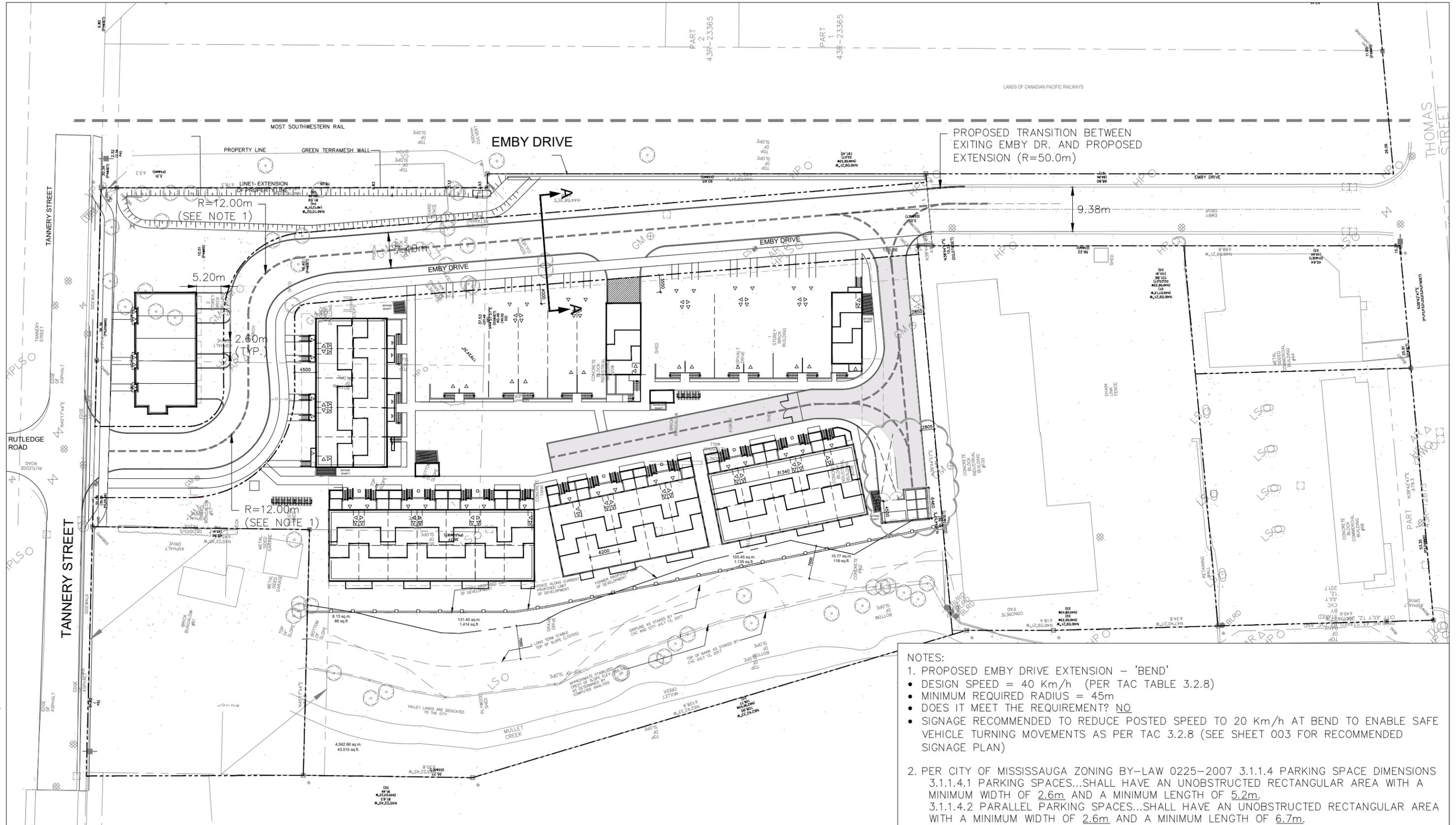
**Detailed Calculations for Queuing Assessment**





# ATTACHMENT B

**Functional Design Review Drawings**



- NOTES:**
- PROPOSED EMBY DRIVE EXTENSION – 'BEND'
    - DESIGN SPEED = 40 Km/h (PER TAC TABLE 3.2.8)
    - MINIMUM REQUIRED RADIUS = 45m
    - DOES IT MEET THE REQUIREMENT? **NO**
    - SIGNAGE RECOMMENDED TO REDUCE POSTED SPEED TO 20 Km/h AT BEND TO ENABLE SAFE VEHICLE TURNING MOVEMENTS AS PER TAC 3.2.8 (SEE SHEET 003 FOR RECOMMENDED SIGNAGE PLAN)
  - PER CITY OF MISSISSAUGA ZONING BY-LAW 0225-2007 3.1.1.4 PARKING SPACE DIMENSIONS
    - 3.1.1.4.1 PARKING SPACES...SHALL HAVE AN UNOBSTRUCTED RECTANGULAR AREA WITH A MINIMUM WIDTH OF 2.6m AND A MINIMUM LENGTH OF 5.2m.
    - 3.1.1.4.2 PARALLEL PARKING SPACES...SHALL HAVE AN UNOBSTRUCTED RECTANGULAR AREA WITH A MINIMUM WIDTH OF 2.6m AND A MINIMUM LENGTH OF 6.7m.

DRAWN BY: A.T. PLOT DATE: March 08, 2021

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Project No.  
18031-240

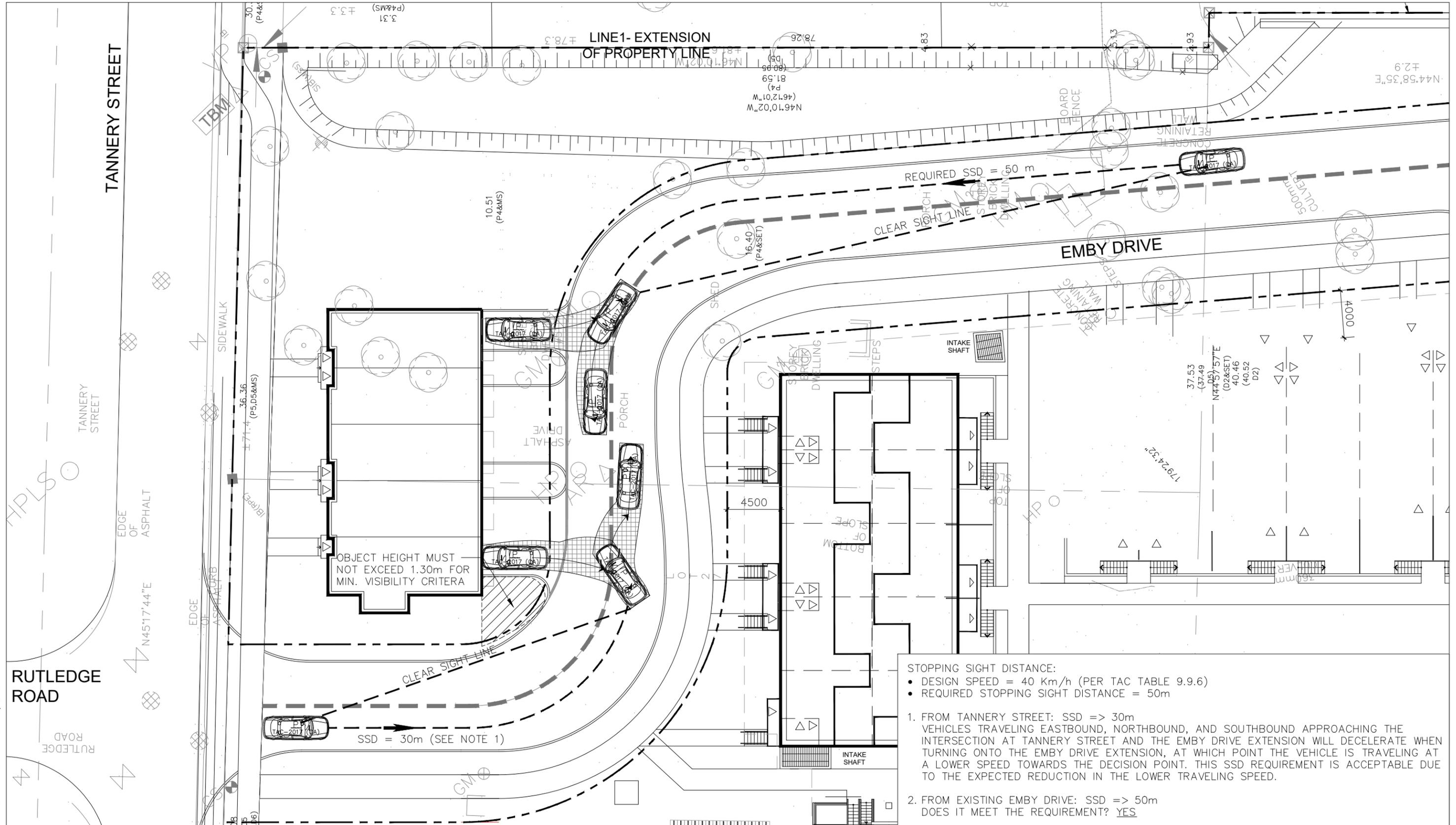
Date  
MAR. 08, 2021

TANNERY TOWNHOMES (208 EMBY DR.)  
 MISSISSAUGA ONTARIO

1:750

EMBY DRIVE EXTENSION  
 GENERAL REVIEW AND NOTES

Drawing No.  
001



STOPPING SIGHT DISTANCE:

- DESIGN SPEED = 40 Km/h (PER TAC TABLE 9.9.6)
- REQUIRED STOPPING SIGHT DISTANCE = 50m

1. FROM TANNERY STREET: SSD => 30m  
VEHICLES TRAVELING EASTBOUND, NORTHBOUND, AND SOUTHBOUND APPROACHING THE INTERSECTION AT TANNERY STREET AND THE EMBY DRIVE EXTENSION WILL DECELERATE WHEN TURNING ONTO THE EMBY DRIVE EXTENSION, AT WHICH POINT THE VEHICLE IS TRAVELING AT A LOWER SPEED TOWARDS THE DECISION POINT. THIS SSD REQUIREMENT IS ACCEPTABLE DUE TO THE EXPECTED REDUCTION IN THE LOWER TRAVELING SPEED.
2. FROM EXISTING EMBY DRIVE: SSD => 50m  
DOES IT MEET THE REQUIREMENT? YES

DRAWN BY: A.T. PLOT DATE: March 08, 2021

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**18031-240**

Date  
**MAR. 08, 2021**

TANNERY TOWNHOMES (208 EMBY DR.)  
MISSISSAUGA ONTARIO



1:300

EMBY DRIVE EXTENSION  
SIGHTLINE ANALYSIS  
STOPPING SIGHT DISTANCE

Drawing No.  
**002**

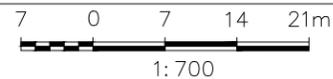
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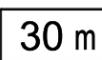


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MAR. 08, 2021

TANNERY TOWNHOMES (208 EMBY DR.)  
MISSISSAUGA ONTARIO

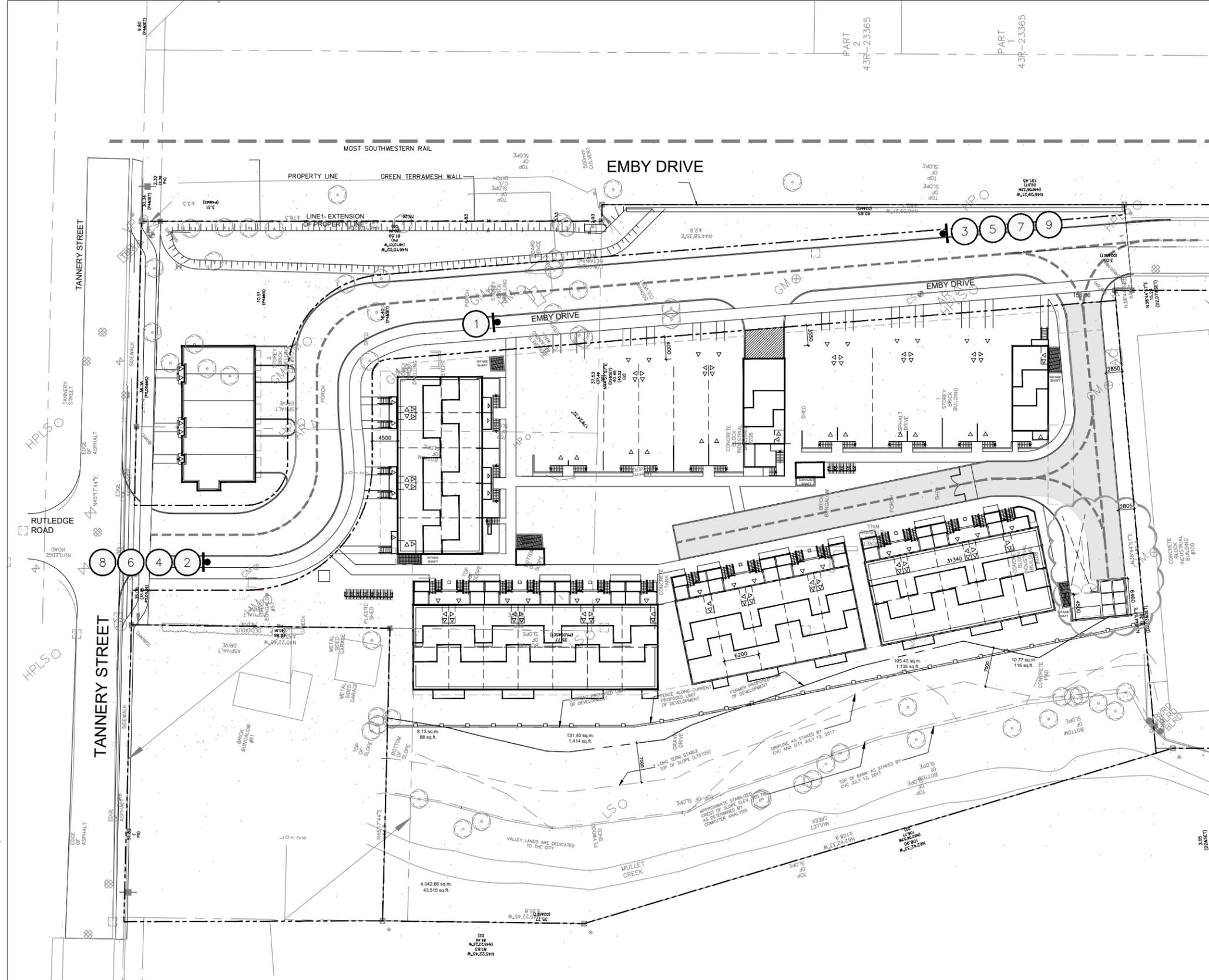


TRAFFIC SIGNS SCHEDULE

SIGN/ID	LOCATION	NEW QUANTITY REQUIRED	COLOUR
	1	1	Rb-1 MAXIMUM SPEED (60X75cm) LEGEND & BORDER - BLACK BACKGROUND - WHITE REFL.
	2-3	2	Wa-4L SHARP REVERSE CURVE (60X60cm) LEGEND & BORDER - BLACK BACKGROUND - YELLOW REFL.
	4-5	2	Wa-7t ADVISORY SPEED (45X45cm) LEGEND & BORDER - BLACK BACKGROUND - YELLOW REFL.
	6-7	2	Wa-11 MOD. HIDDEN DRIVEWAY (60X60cm) LEGEND & BORDER - BLACK BACKGROUND - YELLOW REFL.
	8	1	Wa-23t DISTANCE (30X60cm) LEGEND & BORDER - BLACK BACKGROUND - YELLOW REFL.
	9	1	Wa-23t DISTANCE (30X60cm) LEGEND & BORDER - BLACK BACKGROUND - YELLOW REFL.

SIGNAGE LEGEND:

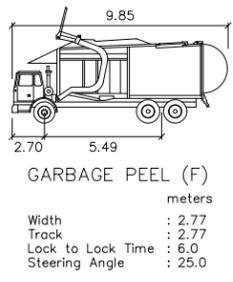
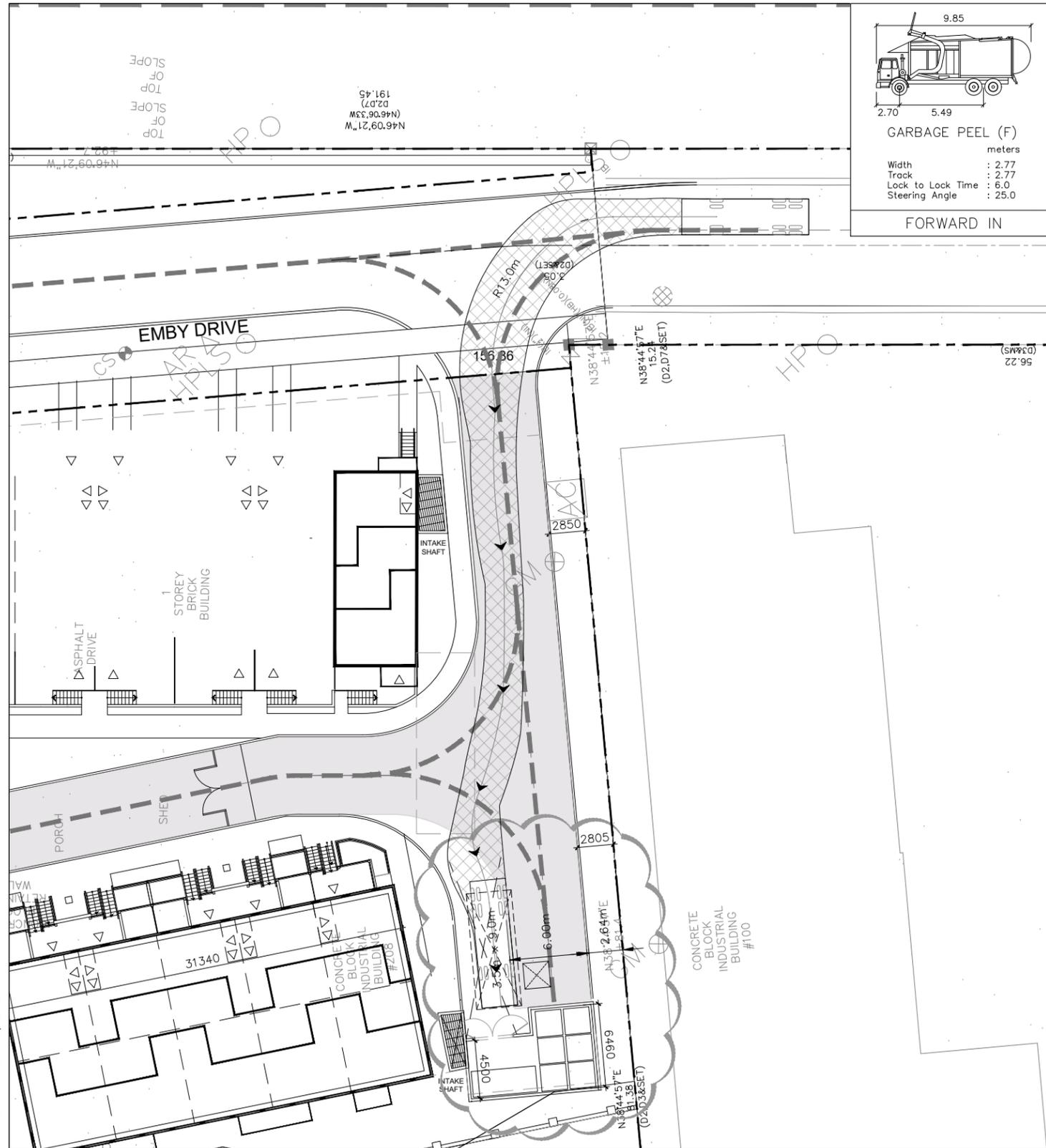
-  POLE MOUNTED SIGN
-  SIGN NUMBER



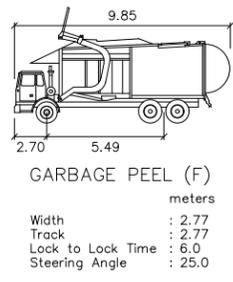
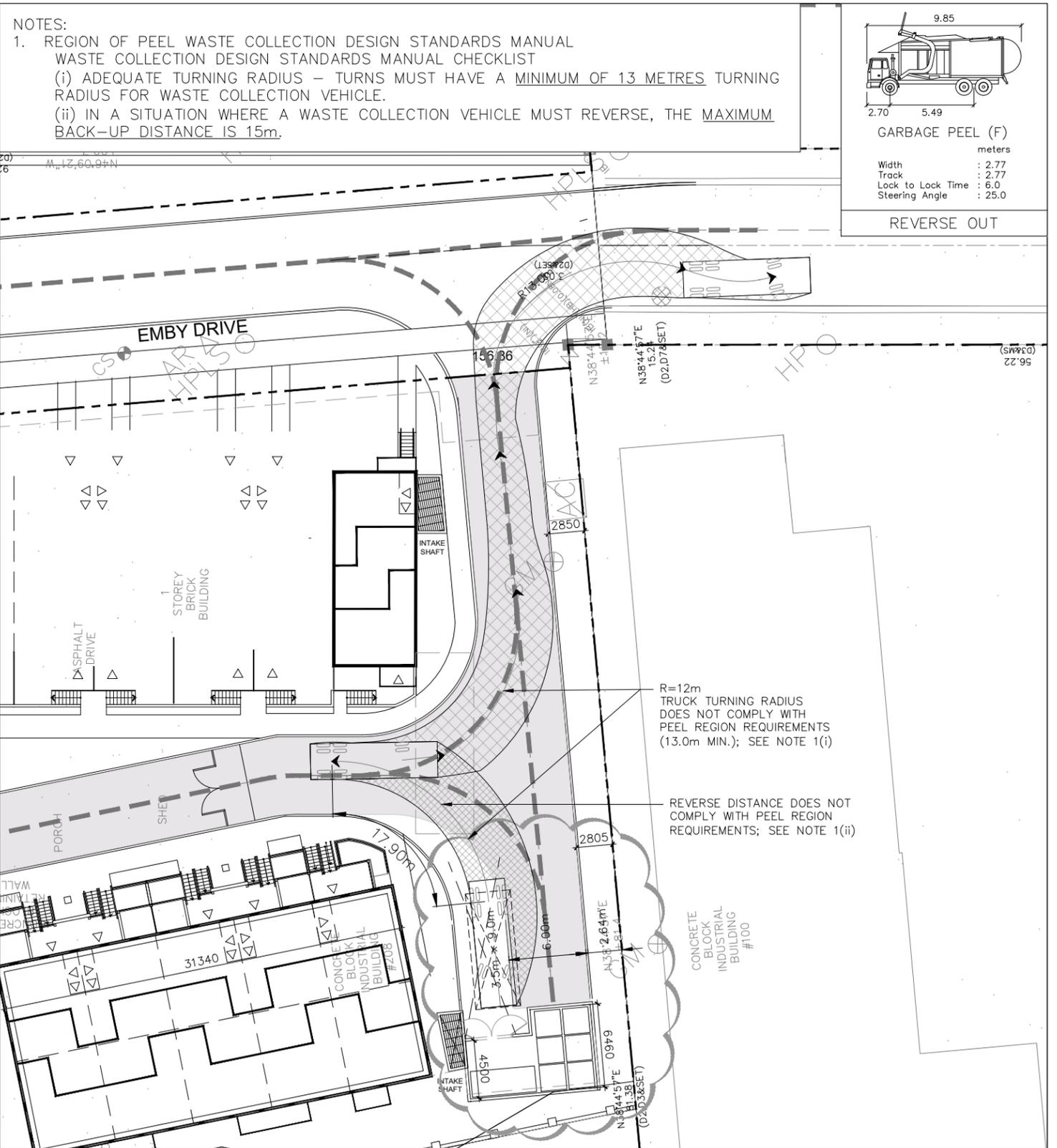
EMBY DRIVE EXTENSION  
PAVEMENT MARKINGS  
AND SIGNAGE PLAN

Drawing No.  
003





FORWARD IN



REVERSE OUT

NOTES:  
1. REGION OF PEEL WASTE COLLECTION DESIGN STANDARDS MANUAL WASTE COLLECTION DESIGN STANDARDS MANUAL CHECKLIST  
(i) ADEQUATE TURNING RADIUS – TURNS MUST HAVE A MINIMUM OF 13 METRES TURNING RADIUS FOR WASTE COLLECTION VEHICLE.  
(ii) IN A SITUATION WHERE A WASTE COLLECTION VEHICLE MUST REVERSE, THE MAXIMUM BACK-UP DISTANCE IS 15m.

ENTRY PATH

EXIT PATH

DRAWN BY: A.T. PLOT DATE: March 08, 2021

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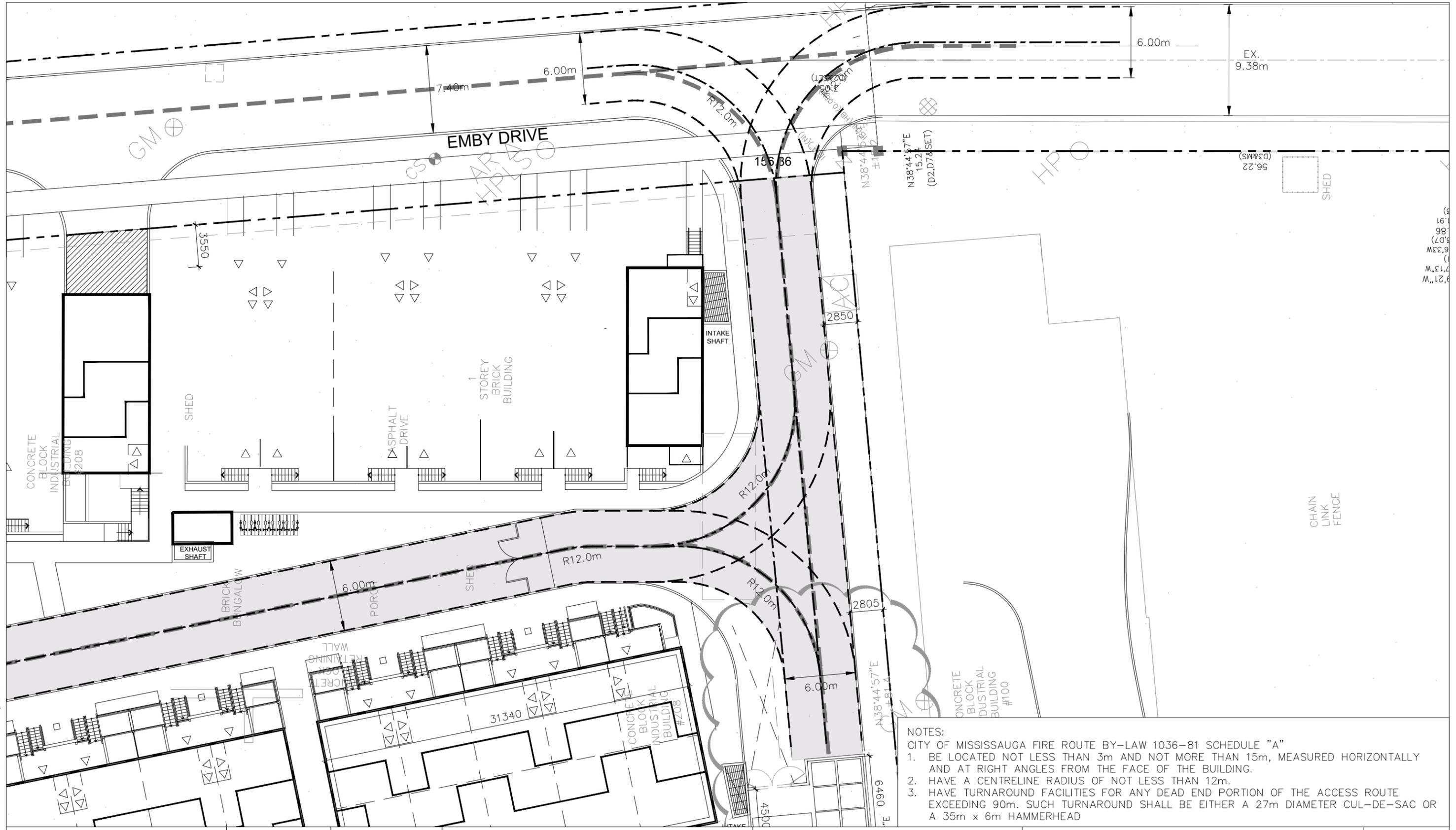
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Date  
MAR. 08, 2021

TANNERY TOWNHOMES (208 EMBY DR.)  
MISSISSAUGA ONTARIO

1:400

SITE PLAN – WASTE COLLECTION REVIEW  
GARBAGE TRUCK (FRONT END LOADING)  
ENTRY & EXIT PATHS

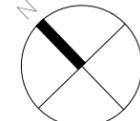
Drawing No.  
005



- NOTES:  
 CITY OF MISSISSAUGA FIRE ROUTE BY-LAW 1036-81 SCHEDULE "A"
1. BE LOCATED NOT LESS THAN 3m AND NOT MORE THAN 15m, MEASURED HORIZONTALLY AND AT RIGHT ANGLES FROM THE FACE OF THE BUILDING.
  2. HAVE A CENTRELINE RADIUS OF NOT LESS THAN 12m.
  3. HAVE TURNAROUND FACILITIES FOR ANY DEAD END PORTION OF THE ACCESS ROUTE EXCEEDING 90m. SUCH TURNAROUND SHALL BE EITHER A 27m DIAMETER CUL-DE-SAC OR A 35m x 6m HAMMERHEAD

DRAWN BY: A.T. PLOT DATE: March 08, 2021

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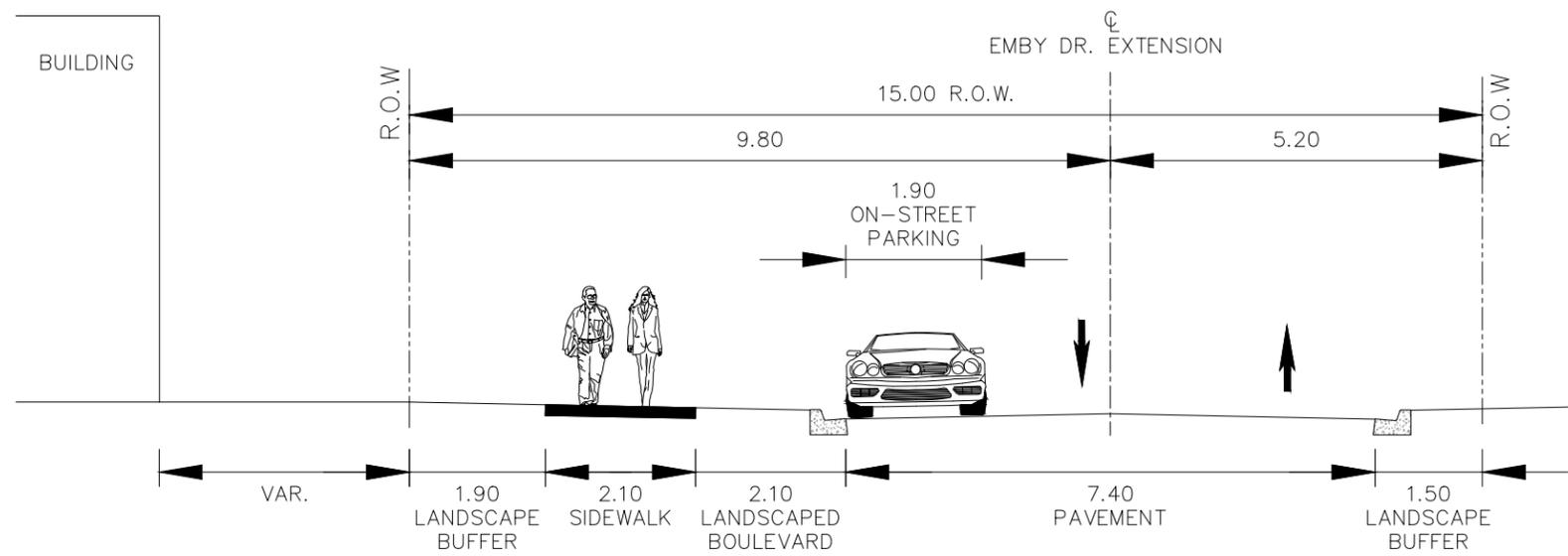
TANNERY TOWNHOMES (208 EMBY DR.)  
 MISSISSAUGA ONTARIO



1:300

SITE PLAN  
 FIRE ROUTE REVIEW

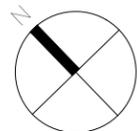
Drawing No.  
 006



SECTION A-A  
 EMBY DRIVE EXTENSION  
 SCALE: 1:100

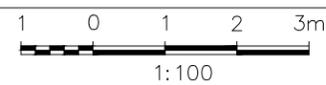
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 MAR. 08, 2021

TANNERY TOWNHOMES (208 EMBY DR.)  
 MISSISSAUGA ONTARIO



EMBY DRIVE EXTENSION  
 ROAD CROSS-SECTION

Drawing No.

007