

Memo

To: Typhon Group Limited
From: Lori Andrews, P. Eng., Waste Management Engineer
Date: April 25, 2022
Subject: Solid Waste Management Planning
272 Innisfil Street, Barrie, Ontario
Our File: 22-3485

Dillon Consulting Limited (Dillon) was retained by Typhon Group Limited in January 2022 to complete a waste management planning review for the 272 Innisfil Street development in Barrie, Ontario. The development includes 333 residential units; 15 townhouse units and 318 condominium units. This Solid Waste Management plan review includes:

- Residential waste storage room (e.g. size, location, access requirements, bin and cart types, number of bins and carts, waste services provided);
- Waste collection vehicle access route, staging and loading areas;
- Features related to waste management storage, loading and access requirements;
- Recommendations; and
- Site plan **A300**, issued by SRN Architects Inc. on **April 19, 2022**, which is included as an **Attachment**.

Solid Waste Collection Method Summary

- The proposed development will include a one-chute system connected to a tri-sorter for residential waste. A designated ground floor waste storage room is allocated for the residential solid waste. Townhouses are not eligible for curbside collection services by the City. Therefore, townhouse units will use the same waste storage room on the ground floor;
- Residential waste will be collected through a vertical chute system on all floors except the ground floor and townhouses. One chute room is proposed on each floor of the building near the elevators with easy access for residents;
- For the condominium residential units, waste will be centrally collected via the chute system into the ground floor waste room. The residential garbage stream will be compacted, while the organics and recycling streams will not be compacted. For townhouse units, one additional dumpster bin for garbage will be provided, non-compacted since townhouse residents will not have access to the chute and garbage compactor system.

- On City collection days, the full bins and wheeled carts (totes) will be moved from the residential waste storage room to the staging area outside. The staging and loading areas are shown on the ground floor site plan, see **Attachment**;
- The site plan identifies the three waste stream bins and wheeled carts attached to the chute system and space for maneuvering the bins and carts in the residential waste room. Double doors in the waste room and the exterior South wall are used when relocating the bins and carts to the staging area for collection loading by the City;
- For bulky items, residents will be required to store their items in the designated bulky waste space, which is proposed on the ground floor within the waste storage room. During bulk collection pickup days, these items shall be brought to the loading area by property staff; and
- For special waste diversion purposes, it is recommended that within the large item bulk area, carts be provided for textiles, electronics, oversized cardboard, MHSW etc. for residents. Residents will be required to bring their special waste types to the bulk waste room.

Waste Storage Facilities

To comply with the City of Barrie's (City) standards, the proposed development stores residential solid waste streams in a designated waste storage room.

- The waste storage room collects three residential waste streams from the chute and tri-sorter system (garbage, organics, recyclable containers). Residents will drop-off their recyclable fibres/paper/cardboard to the waste room and place it in the designated recycling fibre carts;
- The waste storage room provides a minimum capacity of one 360 litre cart for every 7 residential units for recycling fibres and recycling containers streams, one 120 litre cart for every 20 residential units for organics, and 0.1 cubic yards of compacted garbage per residential unit: 24 recycling fibre carts, 24 recycling container carts, 17 organics carts and 4 garbage dumpster bins;
- There are 15 townhouse units proposed for this development. Townhouse units will use the same waste storage room as condominium units. An additional garbage bin (uncompacted) is provided for townhouse residents to drop-off their garbage in the waste room;
- The waste storage room accommodates enough space for a compactor for the garbage stream only. The proposed design exceeds the requirement of a minimum space of 95 m² for 333 residential units. Additional space is available should the City transition to front end loading for recycling and or organics streams as well.
- No residents will have access to the mechanical equipment in the waste room such as the compactor and tri-sorter due to health and safety risks.
- Space in the waste room is allocated for un-compacted waste such as larger bulky waste items (furniture, mattresses, oversized items, etc.) and items eligible for special collection services (textiles, electronic waste, household hazardous waste). The bulky waste storage space is proposed on the ground floor, and provides a square area of 10 m². It is located within the waste storage rooms on the ground floor as identified on the site plan in the **Attachment**; and

- Operationally, enough storage space is available in the waste storage room also for a small pulley, tractor and a trailer to move wheeled carts more efficiently.

Size and Number of Garbage, Recycling and Organics Containers

- This development is seeking collection services provided by the City for garbage, recycling, and organics streams. The City currently accepts front-end bins for garbage and wheeled carts for collection of the organics and recycling (containers and fibres) streams for multi-residential properties;
- Bins and wheeled carts for the residential units are labelled (F- fibres, C- containers, G- garbage, O-organics) to clearly identify each bin/cart and allocated waste stream. Each bin is clearly indicated on the site plan;
- Based on waste collection industry standards, by using standard sized 4 yd³ bins, it is recommended that the compacted garbage stream is assigned 3 bins total, for use one at a time on the tri-sorter system. A waste compacter is used with the chute collection system to compact the garbage waste stream only.
- The containers recycling stream (labelled C) is assigned 24 wheeled carts that are the standard 360 litre size. The fibres recycling stream (labelled F) is assigned 24 wheeled carts of the standard 360 litre size.
- By using 120 litre wheeled carts, it is recommended that the organics waste stream is assigned 17 carts.
- The townhouse units will use the same wheeled carts as the condominium units, and will be provided with one additional 4 yd³ bin, un-compacted, since townhouse residents will not have access to the chute and tri-sorter-compactor system.
- The bins, cart count and waste streams are identified on the site plans, see **Attachment**. The site plans provide adequate storage for waste management for the 333 residential units.

Waste Collection Route

- The development is designed to accommodate the size of the City's collection vehicles per City standards. The loading area is 15m x 6m to accommodate front end loading, rear loading and side loading waste collection vehicles.
- Collection vehicles shall collect residential waste bins and wheeled carts in the designated loading area on the south end of the site. On collection days, property management staff shall maneuver each bin and cart to place them on the staging pads for access by the collection vehicles;
- The loading area will be on a reinforced concrete pad to sustain 35,000 tonne vehicles. The staging areas consists of two parts; one for front-end garbage bins (4.2 m x 3.3m), and one for wheeled carts for organics and recycling streams (18m x 2m).
- Once the bins and carts are emptied by the collection vehicle, they will be brought back into the residential waste storage room after the collection vehicle exits the property. The loading area has enough space for collection of all residential waste bins and recycling carts at the same time.

- Organics carts can be staged in the same area as the recycling carts. Organics carts can be staged at a different time of day or immediately upon collection of recycling carts to accommodate the City's collection schedule and routing;
- Vehicles enter and exit the loading area through the same entrance on Innisfil Street. There is a turnaround bay on the South wall of the building. This prevents the collection vehicle from backing onto the public street to exit the site; and
 - The CAD auto-turn drawing is included in the site plan in **Attachment** to demonstrate access entry and exit for waste collection vehicles to and from the loading area. This is based on a 12.8 m outside vehicle turning radius, 11.5 m length and 2.6 m wide collection vehicle.

Commercial Waste Management

- It is understood that this development does not have commercial space. Commercial waste management needs are therefore not required for this site.

Recommendations

The following recommendations are proposed from a waste management perspective. These can be considered during the detailed design stage.

- Clearly identify the door sizes in waste collection areas and doors used for waste flow in and out of the building;
- Clearly identify the ventilation system in the waste rooms. These rooms must be ventilated, rodent-proof and separated from the living space in accordance with local By-laws, buildings and fire codes;
- Develop a cross-section of the chute room design, which includes position of intake doors and an 11" x 17" frame mounted above each intake door designed to post a waste sorting guide information material to inform all residents on each floor. This includes the waste room and the bulky waste space;
- Proper protection will need to be placed on the elevator interior walls to prevent any damage from moving bulky items to the waste room; and
- Provide waste information and collection procedure signs in appropriate locations to ensure a safe and clean environmental around the waste collection areas and access routes.

Additional Design Features and Assumptions:

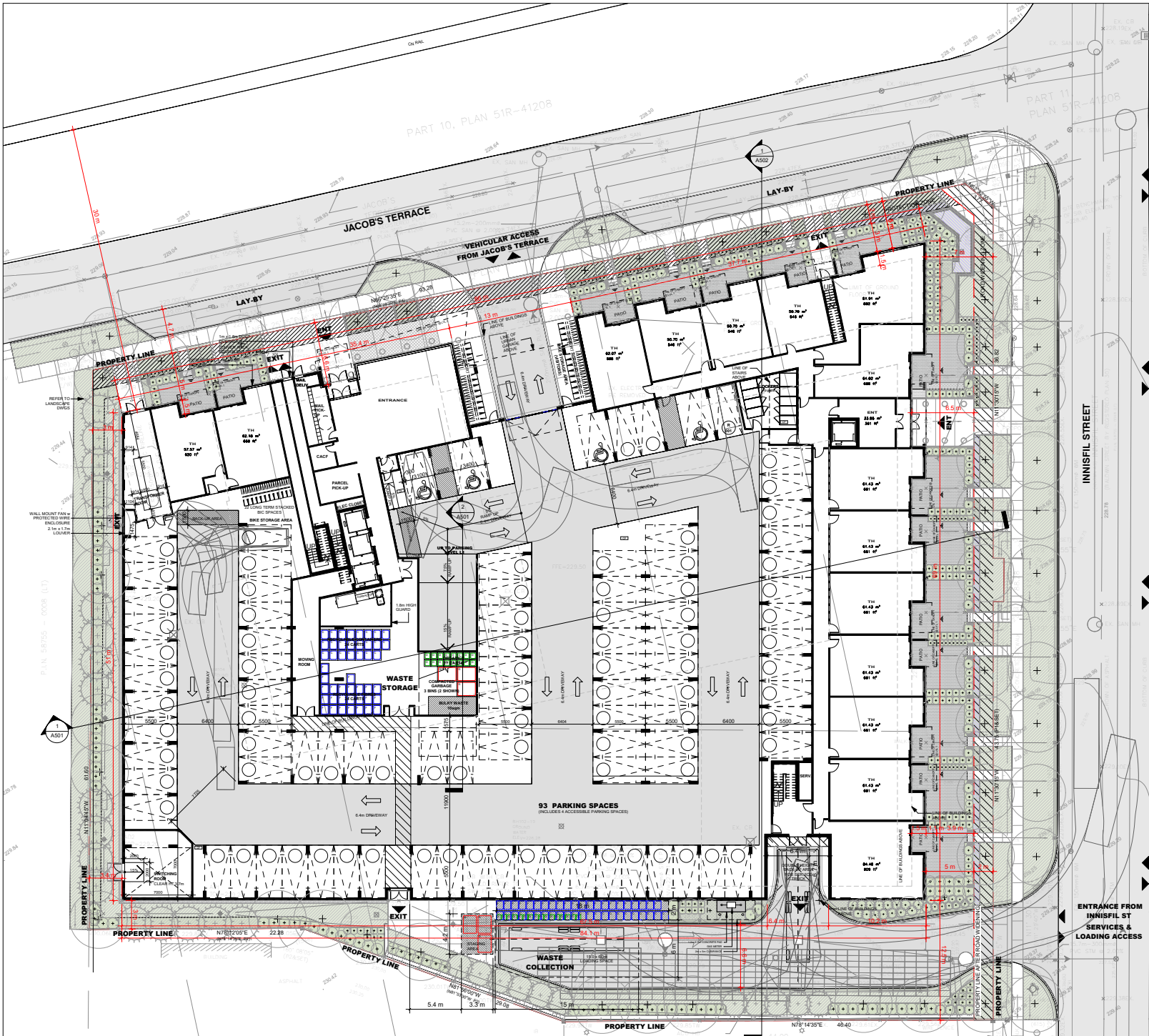
The following design features and assumptions were documented during Dillon's waste management assessment of the proposed development:

- The residential waste room could require a FOB or key controlled access to only allow residents to access the area;
- A washing area in the waste and recycling collection area allows staff to clean bins after collection, or when necessary; and

- Bins are clearly marked and labeled to identify residential and sorted waste streams by the collector. Bins are only used for its specified waste stream.

Attachment

Site Plan Drawing
A300- Level 1 Floor Plan
Issued April 19, 2022

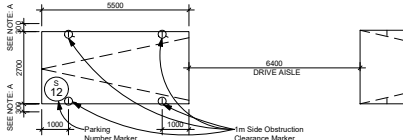


LEVEL 1 - FLOOR PLAN
Scale: 1 : 200

1
A300

TYPICAL PARKING SPACE:

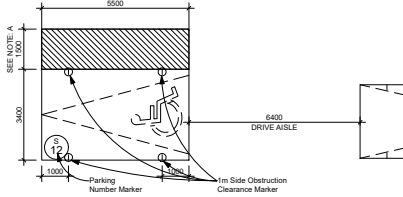
Drive Aisle @ 6.4m min.



NOTE: A: PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

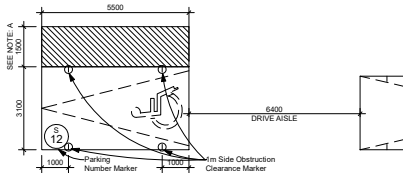
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



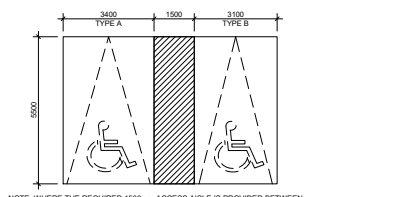
NOTE: A: PROVIDE AN ADDITIONAL 150mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A: PROVIDE AN ADDITIONAL 150mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

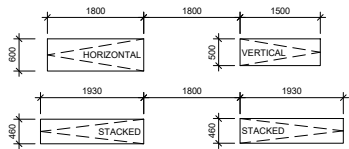
BARRIER-FREE PARKING SPACE TYPE A & B:



NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

TYPICAL BICYCLE PARKING SPACE:

WALKWAY: MINIMUM 1800mm
VERTICAL PARKING SPACE: 1500mm (L) x 500mm (W)
HORIZONTAL PARKING SPACE: 1800mm (L) x 600mm (W)
STACKED PARKING SPACE: 1800mm (L) x 400mm (W)



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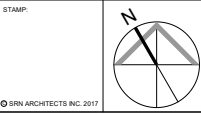
- BUILDING LEVEL 1 FFE = 229.50 GEODETIC
ELEVATION
- BUILDING LEVEL 1 TOP = 229.45 GEODETIC
ELEVATION

NO.	DATE	REVISION COMMENT

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CLIENT:
TYPHON GROUP LTD.
PROJECT:
RESIDENTIAL DEVELOPMENT
272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:
LEVEL 1 FLOOR PLAN

DATE: SCALE: **As indicated**
DRAWN BY: **Author** CHECKED BY: **Checker**
PROJECT NUMBER: DRAWING NUMBER:

S21028 A300