



# TECHNICAL MEMORANDUM

ISSUED FOR USE

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<b>To:</b>	CRW 1 LP and CRW 2 LP	<b>Date:</b>	December 14, 2022
<b>c:</b>		<b>Memo No.:</b>	03
<b>From:</b>	David Walmsley, Walmsley Environmental	<b>File:</b>	WE2022- 4

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**Subject:** Waste Management Plan for the Development at 2105, 2087, 2097, and 2077 Royal Windsor Drive in the City of Mississauga

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Walmsley Environmental consulting services (WE) in collaboration with RWDI Air Inc. (RWDI) is pleased to submit this Technical Memorandum that documents the results of our analysis of the solid waste management system and infrastructure needs of the proposed development. CRW 1 LP and CRW 2 LP are proceeding with the development of a site in the City of Mississauga identified as 2105, 2087, 2097, and 2077 Royal Windsor Drive. The developer is proposing to create a mixed use, high rise complex at the identified address fronting onto Royal Windsor Drive.

Approval of the subject development will require that the Region's Waste Management staff sign off on a Waste Management Plan (WMP) which outlines how the system and infrastructure for the transfer, storage, staging and collection of Blue Box (BB) recyclables and mixed waste will be designed and operated in compliance with Peel's Waste Collection Design Standards Manual, 2020 (WCDSM). In accordance with the Standards Manual, the Region will provide front-end collection of recyclables and garbage subject to the following conditions

- Identified vehicle access and egress routes.
- Minimum turning radius of 13 metres (m) from the centre line of turns in the internal laneways.
- Minimum internal roadway width of 6 m.
- Minimum straight head-on approach to the collection point of 18 m.
- Minimum clear height of 7.5 m from the concrete pad comprising the floor of the collection point which must be clear of sprinkler systems and ducts and should be large enough to accommodate the set-out of the required number of bins without jockeying being required for collection.
- Enough space for the storage of BB recyclables and garbage bins as well as space for the storage of bulky items.

The WMP, outlined herein, presents the calculated waste material quantity and characteristics that are anticipated to be generated from the development and presents a preliminary plan for the storage and collection of the generated waste materials in compliance with the Region's Waste Collection Design Standards.

## 1. Summary Description of Proposed Development

A mixed-use development will be established within the west block consisting of two high-rise residential buildings connected by an eight-storey podium with retail and live/work units located at grade. The east block of the development will consist of two high-rise residential buildings connected by an eight-storey podium with retail and live/work units also located

at grade. There will be about five levels of underground parking within the west block and three levels within the east block. For the purposes of reporting, the Metrolinx easement will remain in situ. As part of the project phasing, it will be relocated to the west. Possible, future internal roadway conveyances are located on the north and west portions of the development site. These will be private roadways that will be designed to municipal standards.

Phase 1 of the development, comprising the west block, will consist of 650 residential units with 987 m<sup>2</sup> of retail space. Phase 2 will comprise the east block and will consist of 587 residential units and 990 m<sup>2</sup> of retail space. This Plan does not include the retail spaces since the Region does not collect waste materials from these commercial uses. This document can be modified to include the waste management requirements for the retail spaces if the developer and the Region reach an agreement for Peel to provide this service.

## 2. Objectives of the Waste Management Plan

The objectives of the WMP are as follows:

- To calculate the volume of BB recyclables and garbage that will be collected from residences in the complex once developed.
- To determine the number of bins required to provide for the storage and collection of wastes from the building.
- To develop a plan, with an accompanying drawing in pdf format, for the receipt, transfer, staging and collection of wastes that provides for the efficient and effective transport of these materials on each collection day. The drawing, included with this report, illustrates the storage, staging and collection of BB recyclables and garbage at the facilities on the ground floor of each building together with the routing for the collection vehicle including direction and turning radii.

The quantity of waste materials, in kg/hh/year, was obtained from the Region of Peel's Waste Management Department. Data. The composition of the waste generated from multi-residential households was obtained from Continuous Improvement Fund (CIF) Project No.872: "Multi-Residential Audits & Superintendent Training, City of Toronto, 2016". These data were used to calculate anticipated volumetric requirements for the storage of generated materials, as well as the requirements for storage and staging prior to collection.

## 3. Waste Materials Quantities, Composition & Volume

As a first step in the design of the WMP, the quantity of waste materials generated from the residential suites was calculated for BB recyclables and mixed waste. The Region does not require the collection of source-separated organics (SSO) from multi residential developments. Our volumetric calculations, therefore, have been completed for just the BB recyclables and mixed waste (garbage) streams. We have assumed that the garbage stream will be compacted which significantly reduces the volume of these materials and, therefore, the number of bins needed for storage, transfer, and collection.

The proposed development will create a high-density, residential community comprised of apartment residences. The quantity of waste generated by each household in a high-density multi-residential community has been identified by the Region in the most-recent year of its annual waste-generation monitoring program (2021) to be 681 kg/household (hh).

The Region's data has been broken down into total BB recyclables (fibers, containers, etc.) and mixed waste (garbage with co-mingled organics). Over the 10-year period provided by the Region's data, the composition of the materials has been comprised of about 20% BB recyclables and 80% mixed waste including organics. For the purposes of this Plan, we have projected that the diversion of recyclables from the waste stream will increase to 30%.

According to subsection 3.5 (c) of Peel's By-Law to regulate the collection of waste (By-Law 35-2015) the Region collects mixed waste twice per week from multi-residential complexes on the scheduled collection days and according to subsection 3.6 (a) BB recyclables are collected on a weekly basis. The amount of each material type that would be generated on

a weekly basis from each apartment suite or household (hh) in the development was determined by multiplying the annual total (in kg.) by the projected % composition and dividing that by 52 weeks.

The calculations are as follows:

- BB recyclables:  $(681 \times 0.30) / 52 = 4 \text{ kg/hh/weekly collection}$
- Mixed waste:  $(681 \times 0.70) / 52 = 9.2 \text{ kg/hh/week or about } 5 \text{ kg/hh/ twice weekly collection.}$

The quantity of BB recyclables and mixed waste generated per collection from the west block and the east block is as follows:

#### **The West Block:**

- BB recyclables:  $4 \text{ kg/hh/week} \times 650 \text{ hh} = 2,600 \text{ kg/weekly collection.}$
- Mixed waste:  $5 \text{ kg/hh/collection} \times 650 \text{ mhh} = 3,250 \text{ kg/twice-weekly collection.}$

#### **The East Block:**

- BB recyclables:  $4 \text{ kg/hh/week} \times 587 \text{ hh} = 2,348 \text{ kg/weekly collection.}$
- Mixed waste:  $5 \text{ kg/hh/collection} \times 587 \text{ hh} = 2,935 \text{ kg/twice-weekly collection}$

The volume requirements for BB recyclables and mixed waste were determined by dividing the weekly amount for recyclables by a density factor for these materials of  $70 \text{ kg/m}^3$  and the twice-weekly amount for mixed waste by a compacted density factor of  $500 \text{ kg/m}^3$  then multiplying by 1,000 to generate a volume in litres (L) then dividing this value by 765 to convert it to cubic yards (yd). Since recyclables and garbage collection will be provided by way of front-end loaders, bins are the container of choice for the development. The size of front-end loaded containers is typically expressed as “cubic yards” or “yd”. The density factors are based on recently published data. After having calculated the storage requirements for mixed waste, we concluded that compaction would not be required.

The calculations are as follows:

#### **The West Block:**

- BB recyclables:  $(2,600/70) \times 1,000/765 = 48 \text{ yd}^3/\text{weekly collection}$  which requires sixteen, 3-yd bins
- Compacted mixed waste:  $(3,250/500) \times 1000/765 = 8.5 \text{ yd}^3/\text{twice weekly collection}$  which requires three, 3-yd bins.

#### **The East Block:**

- BB recyclables:  $(2,348/70) \times 1,000/765 = 44 \text{ yd}^3/\text{weekly collection}$  which requires fifteen, 3-yd bins
- Compacted mixed waste:  $(2,935/500) \times 1000/765 = 7.7 \text{ yd}^3/\text{twice weekly collection}$  which requires three, 3-yd bins.

## **4. Material Handling & Design Considerations**

The waste material handling for the proposed development was evaluated based on the material volume calculations outlined in Section 2.2 of this report as well as the associated requirements set forth in the Region’s WCDSM.

#### 4.1. Applicable Waste Collection Standards

The design standards applicable to the subject development are outlined in Section 4 of the Region's WCDSM, which applies to multi-residential complexes, as follows:

- Solid waste from the apartments will be collected in dedicated room(s) and transferred to a designated garbage staging, loading and pickup area.
- BB recyclables will not be compacted after having been received via the materials chutes.
- Separate chutes will be provided for BB recyclables and garbage unless a single chute can be equipped with an automated mechanical separation system to direct materials into respective front-end bins. These materials will be received in front-end bins in the dedicated "garbage" room located on Level 1 in each tower of the development.
- A concealed collection area will be provided on the development property which will be designed and constructed in compliance with the following requirements:
  - A minimum width of 3 m for each front-end bin is required and a minimum depth of 3 m is required for 4 and 6 cubic yard bins.
  - A minimum of 10 m<sup>2</sup> is required for the set out of bulky items.

#### 4.2. Material Staging & Collection

The residents of each of the apartment suites will dispose of their BB recyclables and garbage via a chute-based system. As the materials are received in the garbage room, located on the Ground Level of each building, they will be directed to either the recycling or mixed waste front-end bins. There is sufficient space provided for the storage of recyclables and compacted mixed waste between collections, The bins will be moved to the storage/staging area in the garbage room as required between collection days. On each collection day, the bins will be transported, by building management staff, from the storage room to the staging/collection room (refer to Figure 1 "Waste Materials Storage and Collection Plan" accompanying this report).

The waste materials from the residences will be placed at the designated waste staging area as identified on Figure 1, before 7:30 a.m. on the designated waste collection day. Waste materials will be set out in the staging area where the bins will have to be jockeyed for collection. The staging area identified on the accompanying Collection Plan provides enough space for the bins as well as room for jockeying the bins into position for collection. The materials would be transferred from the identified storage areas in each building to the staging and collection facilities. This would be accomplished by using, for example, a tow motor. There is also enough space to accommodate the 10 m<sup>2</sup> area needed to set out bulky items as required by the Region for collection on a Thursday as required. Bulky or oversize materials will be transferred to the respective storage room by residents in the multi-storey buildings where maintenance staff will transfer the materials to the designated area in the storage room for each building.

There are two conditions to note that will be addressed before the design of the development is finalized. Firstly, one of the storage rooms in one of the buildings in Phase 2 will be redesigned to fit the compactor at the terminus of the bin sorter; secondly, two options are being considered at this time to improve the staging area and to provide better access for the collection vehicle:

- The waste staging area will most likely be enlarged to the south, reducing the size of the retail (deeper to the west). This will not change the proposed GFA.
- Alternatively, the stair can also be moved to the west slightly

Please refer to the accompanying Figure 1.

The routing of the collection vehicle has been depicted on Figure 1. Once the “phase 1” component of the development is completed, the collection vehicle would enter this western portion of the site along an internal roadway extending from Royal Windsor Drive to the staging/collection facility. It would then reverse back onto the roadway and exit the site back onto Royal Windsor Drive. The routing for the collection vehicle upon full buildout of the development is also depicted on Figure 1. The vehicle will enter the site as described above and proceed along the internal roadway to service both collection facilities and then exit back onto Royal Windsor Drive along the internal roadway. A similar pattern would be followed for the collection of bulky items.

## In Closing

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,  
Walmsley Environmental



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**Waste Materials Storage and Collection Plan**  
 Solid Waste Management Strategy  
 Clarkson GO

**DRAFT**

**Note:**  
 1. Base plan provided by Gensler (2022).

True North

Drawn by: AUV | Figure: 1

Approx. Scale: 1:500

Date Revised: Dec. 13, 2022

