

**OPERATIONAL WASTE  
MANAGEMENT PLAN FOR A  
PROPOSED MIXED-USE  
DEVELOPMENT**

**AT**

**1-4 EAST ROAD, DUBLIN 3**

The Tecpro Building,  
Clonshaugh Business & Technology Park,  
Dublin 17, Ireland.

T: + 353 1 847 4220  
F: + 353 1 847 4257  
E: [info@awnconsulting.com](mailto:info@awnconsulting.com)  
W: [www.awnconsulting.com](http://www.awnconsulting.com)

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Report Prepared For

**Glenveagh Living Ltd.**

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Report Prepared By

**Chonaiil Bradley, Senior Environmental  
Consultant**

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**Cork Office**

Unit 5, ATS Building,  
Carrigaline Industrial Estate,  
Carrigaline, Co. Cork.  
T: +353 21 438 7400  
F: +353 21 483 4606

AWN Consulting Limited  
Registered in Ireland No. 319812  
Directors: F Callaghan, C Dilworth,  
T Donnelly, E Porter  
Associate Director: D Kelly

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## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Glenveagh Ltd. The development will comprise the demolition of all existing structures on site and the construction of a mixed use development set out in 9 no. blocks, over two separate podium, ranging in height from 3 to 15 storeys to accommodate: 554 no. apartments commercial/enterprise space, 3 no. retail units, foodhub/café/exhibition space, residential amenity services, crèche and men's shed. The site will accommodate car parking spaces, bicycle parking spaces, storage, services and plant areas. Landscaping will include a new central public plaza and residential podium courtyards.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed development is undertaken in accordance with the current legal and industry standards including, the *Waste Management Act 1996 – 2011* as amended and associated Regulations <sup>1</sup>, *Protection of the Environment Act 2003* as amended <sup>2</sup>, *Litter Pollution Act 2003* as amended <sup>3</sup>, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' <sup>4</sup> and Dublin City Council (DCC) *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013)* <sup>5</sup> and the draft DCC '*Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws*' (2018) <sup>6</sup>. In particular, this OWMP aims to provide a robust strategy for storing, handling, collection and transport of the wastes generated at site.

This OWMP aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The plan estimates the type and quantity of waste to be generated from the proposed development during the operational phase and provides a strategy for managing the different waste streams.

At present, there are no specific guidelines in Ireland for the preparation of OWMPs. Therefore, in preparing this document, consideration has been given to the requirements of national and regional waste policy, legislation and other guidelines.

## 2.0 OVERVIEW OF WASTEMANAGEMENT IN IRELAND

### 2.1 National Level

The Government issued a policy statement in September 1998 titled as '*Changing Our Ways*' <sup>7</sup> which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, Changing Our Ways stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document '*Preventing and Recycling Waste – Delivering Change*' was published in 2002 <sup>8</sup>. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled '*Making Irelands Development Sustainable – Review, Assessment and Future Action*' <sup>9</sup>. This document also stressed the need to break the link between economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 entitled '*Taking Stock and Moving Forward*'<sup>10</sup>. Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

The most recent policy document was published in July 2012 titled '*A Resource Opportunity*'<sup>11</sup>. The policy document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out a number of actions, including the following:

- A move away from landfill and replacement through prevention, reuse, recycling and recovery.
- A Brown Bin roll-out diverting 'organic waste' towards more productive uses.
- Introducing a new regulatory regime for the existing side-by-side competition model within the household waste collection market.
- New Service Standards to ensure that consumers receive higher customer service standards from their operator.
- Placing responsibility on householders to prove they use an authorised waste collection service.
- The establishment of a team of Waste Enforcement Officers for cases relating to serious criminal activity will be prioritised.
- Reducing red tape for industry to identify and reduce any unnecessary administrative burdens on the waste management industry.
- A review of the producer responsibility model will be initiated to assess and evaluate the operation of the model in Ireland.
- Significant reduction of Waste Management Planning Regions from ten to three.

While *A Resource Opportunity* covers the period to 2020, it is subject to a mid-term review in 2016 to ensure that the measures are set out properly and to provide an opportunity for additional measures to be adopted in the event of inadequate performance. In early 2016, the Department of the Environment, Community and Local Government invited comments from interested parties on the discussion paper '*Exporting a Resource Opportunity*'. While the EPA have issued a response to the consultation, an updated policy document has not yet been published.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic '*National Waste (Database) Reports*'<sup>12</sup> detailing among other things estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials. The 2016 National Waste Statistics, which is the most recent study published, reported the following key statistics for 2016: CB/19/10735WMR01 AWN Consulting Ltd.

- **Generated** – Ireland produced 2,763,166 t of municipal waste in 2016, this is a six percent increase since 2014. This means that each person living in Ireland generated 580kg of municipal waste in 2016;
- **Managed** – Waste collected and treated by the waste industry. In 2016, a total of 2,718,298 t of municipal waste was managed;

- **Unmanaged** –Waste that is not collected or brought to a waste facility and is therefore likely to cause pollution in the environment because it is burned, buried or dumped. The EPA estimates that 44,868 t was unmanaged in 2016;
- **Recovered** – the amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In 2016, almost three quarters (74%) of municipal waste was recovered, this is a decrease from 79% in 2014;
- **Recycled** – the waste broken down and used to make new items. Recycling also includes the breakdown of food and garden waste to make compost. The recycling rate in 2016 was 41%, the same as 2014; and
- **Disposed** – the waste landfilled or burned in incinerators without energy recovery. Just over a quarter (26%) of municipal waste was landfilled in 2016).

## 2.2 Regional Level

The proposed development is located in the Local Authority area of Dublin City Council (DCC).

The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the DCC area which was published in May 2015.

The regional plan sets out the following strategic targets for waste management in the region that are relevant to the proposed development:

- Achieve a recycling rate of 50% of managed municipal waste by 2020; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €130-150 per tonne of waste which includes a €75 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2013*.

The *Dublin City Development Plan 2016 – 2022*<sup>13</sup> sets out a number of policies and objectives for Dublin City in line with the objectives of the regional waste management plan. The plan identifies a need to further reduce the role of landfilling in favour of higher value recovery options.

Waste policies and objectives with a particular relevance to this development are:

### Policies:

- *SI19: To support the principles of good waste management and the implementation of best international practice in relation to waste management in order for Dublin city and the region to become self-reliant in terms of waste management.*
- *SI20: To prevent and minimise waste and to encourage and support material sorting and recycling.*
- *SI21: To minimise the amount of waste which cannot be prevented and ensure it is managed and treated without causing environmental pollution.*
- *SI22: To ensure that effect is given as far as possible to the “polluter pays” principle.*

### Objectives:

- *SIO16: To require the provision of adequately-sized-recycling facilities in new commercial and large-scale residential developments, where appropriate.*
- *SIO18: To implement the current Litter Management Plan through enforcement of the litter laws, street cleaning and education and awareness campaigns.*

- *SIO19: To implement the Eastern-Midlands Waste Management Plan 2015 - 2021 and achieve the plan targets and objectives.*

### 2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the project are:

- Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No. 27 of 2003) and 2011 (No 20 of 2011). Sub-ordinate and associated legislation include:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulation 2007 (S.I No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I No. 185 of 2000) as amended
  - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014) as amended.
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997) as amended
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
  - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended
  - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
  - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
  - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
  - European Union (Properties of Waste Which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended
- Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended;
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended and
- Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended <sup>14</sup>

These Acts and subordinate Regulations enable the transposition of relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996 - 2011* and subsequent Irish legislation, is the principle of “*Duty of Care*”. This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is therefore imperative that the residents and proposed building management company undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended or a waste or IED (Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

### 2.3.1 Dublin City Council Waste Bye-Laws

Bye-Laws for the *Storage, Presentation and Collection of Household and Commercial Waste* were brought into force by DCC in May 2013. The Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DCC functional area. Key requirements under these Bye-Laws of relevance to the proposed development include the following:

- A holder shall maintain all waste containers in such condition and state of repair so that the waste placed therein shall not be a source of nuisance, litter or odours and so that the waste may be conveniently collected;
- A holder shall separate at source such recyclable waste as prescribed by the approved waste collector employed by the holder and this fraction of waste shall be stored separately by the holder in a waste container;
- Within the Central Commercial District (CCD) waste collection is only to take place between 7pm & 12 midnight on collection day. Waste is not to be presented for collection before 5pm. The proposed development is located in the CCD and must comply with these time restrictions.

The full text of the Waste Bye-Laws and map showing the CCD area is available from the DCC website.

### 2.3.2 Dublin City Council Draft Waste Bye-Laws

The DCC "*Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)*" were released for consultation on the 30<sup>th</sup> of July 2018. These bye-laws will repeal the current '*Bye-Laws for the Storage, Presentation and Collection of Household and Commercial*'. The Draft Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DCC functional area. Key requirements under these Draft Bye-Laws of relevance to the proposed development include the following

- Kerbside waste presented for collection shall not be presented for collection earlier than 5.00 pm on the day immediately preceding the designated waste collection day;
- In the Central Commercial District, the prescribed time for kerbside waste to be presented shall be not before 5.00 pm on the designated waste collection day;
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other



public place no later than 10:00am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 2.3;

- Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

The full text of the Draft Waste Bye-Laws is available from the DCC website.

## **2.4 Regional Waste Management Service Providers and Facilities**

Various contractors offer waste collection services for the residential and commercial sectors in the DCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and are all operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second facility in Poolbeg in Dublin.

There is a DCC Recycling Centre at Shamrock terrace, located c.890m to the north west of the development, which can be utilised by the residents of the development for certain household waste streams. This centre can accept paper, cans, cardboard, tetra pak, plastics, textiles and glass.

A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all waste/IE licenses issued are available from the EPA.

## **3.0 DESCRIPTION OF THE PROJECT**

### **3.1 Location, Size and Scale of the Development**

The proposed development is located at 1-4 East Road, Dublin 3. The site is bounded by East Road to the West, railway tracks to the South, Merchant's Square to the East and Island Key Apartments to the North. The development will consist of:

1. Demolition of all existing structures on site and the construction of a mixed use development with a gross floor area of c. 49,678.7 sq.m (excluding below podium parking and plant areas) set out in 9 no. blocks, over two separate podium, ranging in height from 3 to 15 storeys to accommodate: 554 no. apartments commercial/enterprise space, 3 no. retail units, foodhub/café/exhibition space, residential amenity services, crèche and men's shed. The site will accommodate 241 no. car parking spaces, 810 no. bicycle parking spaces, storage, services and plant areas. Landscaping will include a new central public plaza and residential podium courtyards.
2. The 9 no. residential buildings range in height from 3 storeys to 15 storeys, (including podium and ground floor uses) a with a total Gross Floor Area of c. 47,077 sq.m (excluding ground floor uses and below podium parking)

accommodating 554 no. apartments comprising 72 studios, 202 no. 1 bed units, 232 no. 2 bed units and 48 no. 3 bed units. The residential buildings are arranged around a central public plaza (at ground level) and raised residential courtyards at podium level over ground level car-parking and other uses. Balconies and terraces to be provided on all elevations at all levels for each block. The breakdown of residential accommodation is as follows:

3. The residential buildings sit at podium level (Level 1) above ground level which contains residential car-parking, cycle parking, plant areas and ground floor uses. These ground floor uses include a crèche of c. 538.1 sq.m and 3 no. retail units with a total floor area of 344.4.m, a foodhub/café/exhibition space of 680.8 sq.m, enterprise space of 2,442.5 sq.m and a men's shed of 91.8 sq.m. Total gross floor area of proposed other uses is 4097.6sq.m.
4. The site is accessed from a relocated entrance off East Rd, and the below podium car parking, split into two areas, accommodates 810 bicycle parking spaces, 241 car parking spaces, plant, ESB sub-stations, storage areas, waste storage areas and other associated facilities. The application includes for alterations to the existing road layout and junction on East Road.
5. The development also includes for a new centrally landscaped public plaza, which also incorporates surface car-parking and cycle parking. The proposed application includes all site landscaping works, green roofs, boundary treatments, lighting, servicing, signage, and associated and ancillary works, including site development works above and below ground.

### 3.2 Typical Waste Categories

The typical non-hazardous and hazardous wastes that will be generated at the proposed development will include the following:

- Dry Mixed Recyclables (DMR) - includes waste paper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste – food waste and green waste generated from internal plants/flowers;
- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

In addition to the typical waste materials that will be generated at the development on a daily basis, there will be some additional waste types generated in small quantities which will need to be managed separately including:

- Green/garden waste may be generated from internal plants or external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges/toners;
- Chemicals (paints, adhesives, resins, detergents, etc.) ;
- Light bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs);
- Textiles (rags);
- Waste cooking oil (if any generated by the residents or commercial tenants);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles. Bicycle parking areas are planned for the development. As happens in other developments, residents and tenants sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership.

However, it is proposed that these bicycles would be donated to charity so they are unlikely to become a waste

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

### 3.3 European Waste Codes

In 1994, the *European Waste Catalogue* <sup>15</sup> and *Hazardous Waste List* <sup>16</sup> were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* <sup>17</sup>, which was a condensed version of the original two documents and their subsequent amendments. This document has recently been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' <sup>18</sup> which became valid from the 1st June 2015. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database.

Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (also referred to as European Waste Code or EWC) for typical waste materials expected to be generated during the operation of the proposed development are provided in Table 3.1 below

Waste Material	LoW/EWC Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed Non-Recyclable Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators *	20 01 33* - 34
Printer Toner/Cartridges*	20 01 27* - 28
Green Waste	20 02 01
WEEE *	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste *	20 01 21*
Bulky Wastes	20 03 07

\* Individual waste type may contain hazardous materials

**Table 3.1** Typical Waste Types Generated and LoW Codes

### 4.0 ESTIMATED WASTE ARISING

A waste generation model (WGM) developed by AWN, has been used to predict waste types, weights and volumes arising from operations within the proposed development. The WGM incorporates building area and use and combines these with other data including Irish and US EPA waste generation rates.

The estimated quantum/volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units.

The waste generation for the retail, food hub, café, exhibition space, men's shed and enterprise units is based on waste generation rates per m<sup>2</sup> floor area for the proposed area uses.

The estimated waste generation for the development for the main waste types is presented in Table 4.1 and 4.2.

Waste type	Waste Volume (m <sup>3</sup> /week)			
	Residential (Combined)	Retail Units (3 no. Combined)	Food hub/Cafe/ Exhibition Space/ Men's Shed Units (Combined)	Crèche
Organic Waste	8.05	0.11	0.71	0.05
DMR	58.99	2.17	1.67	1.96
Glass	1.56	0.06	0.03	0.01
MNR	32.69	0.90	1.86	0.87
<b>Total</b>	<b>101.29</b>	<b>3.24</b>	<b>4.26</b>	<b>2.89</b>

**Table 4.1** Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m <sup>3</sup> /week)
	Enterprise Units - Offices (Combined)
Organic Waste	0.27
Paper (Confidential)	2.41
DMR	5.90
Glass	0.05
MNR	2.56
<b>Total</b>	<b>11.19</b>

**Table 4.2** Estimated waste generation for the proposed development for the main waste types

The BS5906:2005 Waste Management in Buildings – Code of Practice <sup>19</sup> was considered in the estimations of the waste arising. It has been assumed that the retail, food hub, café, exhibition space, men's shed and residential units will generate similar waste volumes over a seven-day period, while the enterprise offices will operate over a five-day period. It is anticipated that the conservative estimation of waste quantities from the residents will be sufficient to cover the small quantities likely to be generated in the community facilities on a weekly basis.

## 5.0 WASTE STORAGE AND COLLECTION

This section provides information on how waste generated within the development will be stored and how the waste will be collected from the development. This has been prepared with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of DCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- EMR Waste Management Plan 2015 – 2021;
- Dublin City Council Development Plan 2016 – 2022 (Appendix 10);
- DCC, Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013);
- Draft DCC Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018); *and*
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018) <sup>20</sup>.

Two dedicated communal Waste Storage Area (WSA) have been allocated within the development design for the residential units. These shared WSAs are located on ground level of the development. Four WSAs have been allocated for the commercial units of the development and can be viewed on the drawings submitted with the planning application.

Using the estimated waste generation volumes in Table 4.1 and 4.2, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the WSAs. These are presented in Table 5.1.

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Residential WSA 1 (Block A3)	2 no. Compacted Waste containers (circa 2m <sup>3</sup> each)	2 no. Compacted Waste containers (circa 3m <sup>3</sup> each) DMR	17 x 240L	4 x 240L
Office WSA 2 (Block C2)	2 no. Compacted Waste containers (circa 2m <sup>3</sup> each)	2 no. Compacted Waste containers (circa 3m <sup>3</sup> each) DMR	17 x 240L	4 x 240L
Food hub/Cafe/ Exhibition Space/ Men's Shed Units (Block D1)	2 x 1100L	2 x 1100L	3 x 240L	1 x 240L
Retail (Block A1)	2 x 1100L	1 x 1100L	1 x 240L	1 x 120L
Enterprise Units - Offices (Block C1)	3 x 1100L	6 x 1100L	2 x 240L	1 x 120L
Crèche (Block C1)	1 x 1100L	2 x 1100L	1 x 120L	1 x 120L

Note: \* = Mixed Non-Recyclables

\*\* = Dry Mixed Recyclables

**Table 5.1** Waste storage requirements for the proposed development

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

Waste storage receptacles as per Table 5.1 above (or similar appropriate approved containers) will be provided by the facilities management company in the residential WSAs.

As outlined in the current Dublin City Development Plan, it is preferable to use 1,100 litre wheelie bins for waste storage, where practical. However, in the case of organic and glass waste, it is considered more suitable to use smaller waste receptacles due to the weight of bins when filled with organic and glass waste. The use of 240 & 120 litre bins as recommended in Table 5.1 will reduce the manual handling impacts on the facilities management personnel and waste contractor employees.

It is proposed that building management will avail of one of two commercially available mini compactors for the dry mixed recyclable and mixed non-recyclable waste streams – one referred to as an Epac Lodestone compactor and the other an LSM WR350H Mini compactor.

Both options will significantly reduce the volume of waste and as such the number of bins stored on site and the number of bins that will need to be transported to ground level for collection. The Epac Lodestone compactor option will take up slightly more

space. It compresses/compacts the waste into 2 and 3m<sup>3</sup> bags. These will require storage pending collection, so this adds to the storage space required but this compactor option results in a lower collection frequency than the alternative compactor.

Both options can be considered by the building management company. Solely for the purpose of ensuring the WSA is sufficiently sized, this plan assumes that the Epac option will be used (as this requires more space). If required, bins can be used for the storage of waste with an increase to a twice weekly collection frequency of MNR and DMR.

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSAs are shown in Figure 5.1. All waste receptacles used will comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers, where appropriate.



**Figure 5.1** Typical waste receptacles of varying size (240L and 1100L)

The Epac Lodestone compactor referred to in the list of bins/equipment in the residential basement WSA is a compactor that compresses/compacts the waste into 2 and 3m<sup>3</sup> skip bags (also called Flexible Intermediate Bulk Containers or FIBCs). A photo of the Epac Lodestone compactor is provided as Figure 5.2.



**Figure 5.2** Photo of Epac Lodestone Compactor (Source: AES Bord na Móna Website)

## 5.1 Waste Storage – Residential Units

Residents will be required to segregate waste into the following main waste streams:

- Dry Mixed Recyclables (DMR);
- Mixed Non-Recyclables (MNR);
- Organic waste; and
- Glass;

Residents will be required to take their segregated waste materials to one of the two designated residential WSAs and dispose of their segregated waste into the appropriate bins. Residents in blocks A1, A2, A3 and B1 will have access to the WSA in block A3. Residents in blocks B2, C1, C2, D1 and D2 will have access to the WSA in block C2.

Each bin/container in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin.

Access to the residential WSAs will be restricted to authorised residents, facilities management and waste contractors by means of a key or electronic fob access. Using the estimated figures in Table 4.1, DMR, MNR, organic waste and glass will be collected on a weekly basis. Bins will be taken from the WSA in block C2 directly to the collection point, at the loading bay parallel to block D1, within the redline boundary of the development site. Waste receptacles from the WSA in block A3 will be taken to the temporary waste storage area in Block A1, from here they will be taken to the collection point adjacent to block D1.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.4.

## **5.2 Waste Storage – Enterprise Units - Offices**

The office tenants will be required to segregate waste within the development into the following main waste types:

- Dry Mixed Recyclables (DMR);
- Mixed Non-Recyclables (MNR).
- Carboard;
- Paper (confidential);
- Organic waste; and
- Glass.

Personnel nominated by the office tenants will empty the bins in the Area Waste Station (AWS), as required, and bring the segregated waste using trolleys/carts/bins to the dedicated office WSA located on ground level, in block C1.

The offices will be occupied by multiple tenants. It is recommended that the office tenants implement the 'binless office' concept where employees do not have bins located under desks and instead bring their waste to AWSs located strategically on the office floors, at print stations/rooms and at any micro kitchens or tea stations which may be provided within the tenants office space. Experience has shown that the maximum travel distance should be no more than 15m from the employee's desk to the AWS. This 'best in class' concept achieves maximum segregation of waste in an office setting.

Typically, an AWS would include a bin for DMR and a bin for MNR. It is recommended that a confidential paper bin with a locked lid/door should also be provided for at each AWS and/or adjacent to photocopy/printing stations, as required. In addition, it is

recommended that organic and glass bins should be provided at any micro kitchens or tea stations, where appropriate.

A printer cartridge/toner bin should be provided at the print/copy stations, where appropriate.

It is recommended that all bins/containers should be clearly labelled, and colour coded to avoid cross contamination of the different waste streams. Signage should be posted on or above the bins to show which wastes can be put in each bin.

The binless office concept, in addition to assisting in maximising recycling rates and minimising associated landfill disposal costs, also has the advantage of substantially reducing cleaning costs, as cleaners visit only the AWSs on each floor, as opposed to each desk.

If a canteen/restaurant is provided within any of the office spaces or for the office spaces, this will generate additional waste volumes on a daily basis, primarily organic waste from food preparation/leftovers and possibly waste cooking oil and waste sludge from grease traps. A kitchen is also likely to generate extra packaging waste material such as cardboard and plastic from decanting of goods received. The waste figures in Table 4.1 do not include an allowance for a canteen in either office.

Suppliers for the tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging and/or to remove any packaging after delivery where possible, to reduce waste generated by the development.

It is proposed that confidential paper waste will be managed separately to non-confidential paper waste. Tenants will be required to engage with an appropriately permitted/licenced confidential waste management contractor for collection and shredding of confidential paper. It is anticipated that tenants will place locked confidential waste paper bins as required throughout their office areas. The confidential waste company will typically collect bins directly from the office areas, under agreement with the tenant, and bring the locked bin or bags of confidential waste via the lifts to their collection truck. It is envisaged that confidential paper waste will be shredded on-site in the dedicated collection truck.

Access to the office WSA will be restricted to authorised tenants, facilities management and waste contractors by means of a key or electronic fob access. Using the estimated figures in Table 4.1, DMR, MNR and organic waste, glass will be collected on a weekly basis. Bins will be taken from the WSA to the temporary waste storage area in block A1, from here they will be taken to the collection point adjacent to block D1.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE will be generated less frequently. An area has been allocated in the tower block WSA for temporary storage of these items pending collection by a suitable waste contractor. The office tenants nominated personnel will be required to bring these waste types from the office areas to the WSAs as required. Block B office tenants will have to store these items within their own unit space and arrange collection with a suitable waste contractor. Facilities management may arrange collection depending on the agreement.

### **5.3 Waste Storage – Food Hub/Café/ Exhibition Space/ Men’s Shed Units/ Crèche**

The food hub/cafe/exhibition space/men’s shed/crèche units will be required to segregate waste within the development into the following main waste types:

- Dry Mixed Recyclables (DMR);
- Mixed Non-Recyclables (MNR).



- Organic waste; and
- Glass.

The staff will bring the segregated waste materials to their allocated WSAs located on ground floor level.

Suppliers for the tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging or to remove any packaging after delivery where possible, to reduce waste generated by the development.

Any kitchens in the units will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to the WSA.

It is anticipated that waste will be generated in kitchens throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area;
- Dish-wash and Glass-wash Area; and
- Bar Area.

Small bins will be placed adjacent to each of these areas for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the appropriate WSA and placed into the segregated bins as detailed in Table 5.1.

All bins/containers in the tenant's areas as well as in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

The retail WSA is located in block A1 adjacent to the temporary waste storage area, while the crèche WSA is located in block C1, and the food hub/cafe/ exhibition space/ men's shed units will share the WSA located in block D2.

Using the receptacles outlined in Table 5.1, it is anticipated that DMR, MNR, organic waste and glass will be collected on a weekly basis.

Other waste materials such as batteries, WEEE and printer toner/cartridges will be generated less frequently. An area has been allocated in the WSA for temporary storage of these items pending collection by a suitable waste contractor. The tenants nominated personnel will be required to bring these waste types from their units to the WSAs as required. Facilities management may arrange collection depending on the agreement.

#### **5.4 Waste Collection**

There are numerous private contractors that provide waste collection services in the Dublin City area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permitted/licensed facilities only.

All waste requiring collection by the appointed waste contractor will be collected from the WSAs by facility management or the waste contractor (depending on the agreement) and taken to the designated collection point adjacent to block D1.

The facility management or waste contractor will ensure that empty bins are promptly returned to the WSAs after collection/emptying.

It is recommended that bin collection times/days are staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is onsite. This will be determined during the process of appointment of a waste contractor.

## 5.5 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

### Green waste

Green waste may be generated from external landscaping and internal plants/flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants/flowers can be placed in the organic waste bins.

### Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the Waste Management Batteries and Accumulators Regulations 2014 as amended. In accordance with these regulations consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

The commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling/recovery of their waste batteries by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

### Waste Electrical and Electronic Equipment (WEEE)

The *WEEE Directive 2002/96/EC* and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

As noted above, the commercial tenants cannot use the civic amenity centre. They must segregate their WEEE and either avail of the take-back/collection service provided by retailers or arrange for recycling/recovery of their WEEE by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

### Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided in the commercial units, where appropriate. The commercial tenants tenants will be required to store this waste

within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste printer cartridge/toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

#### Chemicals (solvents, paints, adhesives, resins, detergents etc)

Chemicals (such as solvents, paints etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery/recycling/disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that is classed as hazardous (if they arise) will be appropriately stored within the tenants own space. Facilities management may arrange collection depending on the agreement.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

#### Light Bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs)

Waste light bulbs may be generated by lighting at the commercial tenants. It is anticipated that commercial tenants will be responsible for the off-site removal and appropriate recovery/disposal of these wastes. Facilities management may arrange collection depending on the agreement.

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery/disposal.

#### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse.

#### Waste Cooking Oil

If the commercial tenants use cooking oil, waste cooking oil will need to be stored within the unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required. It is envisaged that canteen/restaurant units in the tower block offices and some retail units will generate waste cooking oil.

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

#### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the commercial tenants. The collection of bulky waste will be arranged as required by the tenant. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

#### Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents and tenants sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise

## 5.6 Waste Storage Area Design

The WSAs should be designed and fitted-out to meet the requirements of relevant design standards, including:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 220 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The facilities company(s) will be required to maintain the waste storage areas in good condition as required by the DCC Waste Bye-Laws.

## 6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the *EMR Waste Management Plan 2015 – 2021*.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *DCC Waste Bye-Laws and Draft DCC Waste Bye-Laws*.

The waste strategy presented in this document will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated area for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.

## 7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended 2001 (S.I. No. 36 of 2001), 2003 (S.I. No. 27 of 2003) and 2011 (S.I. No. 20 of 2011). Sub-ordinate and associated legislation include:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
  - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
  - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
  - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
  - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000)
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
  - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015)
2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
4. Eastern-Midlands Waste Region, *Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021* (2015)
5. Dublin City Council (DCC) *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013)*
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9. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
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11. DoECLG, *A Resource Opportunity - Waste Management Policy in Ireland* (2012)
12. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2012*.
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14. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended 2010 (S.I. No. 30 of 2010) and 2015 (S.I. No. 310 of 2015).
15. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
16. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).

17. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
18. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015)
19. BS 5906:2005 *Waste Management in Buildings – Code of Practice*.
20. DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2018).