

# OPERATIONAL WASTE MANAGEMENT PLAN FOR RESIDENTIAL DEVELOPMENT

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## “KNOCKRABO PHASE 2”

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Report Prepared For

**Knockrabo Investments DAC**

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Report Prepared By

**Chonail Bradley**, Principal Environmental  
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Our Reference

CB/247501.0200WMR01

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Date of Issue


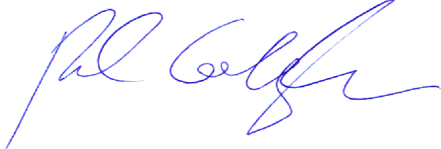
18 October 2024

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**Document History**

| Document Reference  |               | Original Issue Date |                   |
|---------------------|---------------|---------------------|-------------------|
| CB/247501.0200WMR02 |               | 18 October 2024     |                   |
| Revision Level      | Revision Date | Description         | Sections Affected |
|                     |               |                     |                   |
|                     |               |                     |                   |
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**Record of Approval**

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|-----------|--|---|
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| Date      | 18 October 2024  | 18 October 2024   |

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## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Knockrabo Investments DAC. Knockrabo Investments DAC intend to apply for permission for a Large-scale Residential Development ranging from 2- part 8 storeys (for a period of 7 years) with a total application site area of c. 2.54 hectares, at Knockrabo, Mount Anville Road, Goatstown, Dublin 14.

The development will consist of the construction of 158 No. residential units (12 No. houses and 146 No. apartments (35 No. 1 beds, 81 No. 2 beds, 3 No. 3 beds and 27 No. 3 bed duplex units), a childcare facility and Community / Leisure Uses.

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 as amended and associated Regulations <sup>1</sup>, Environmental Protection Agency Act 1992 as amended <sup>2</sup>, Litter Pollution Act 1997 as amended <sup>3</sup>, *the National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024)* <sup>4</sup>, *The Dún Laoghaire Rathdown County Council (Segregation, Storage and Presentation of Household and Commercial) Bye-Laws (2019)* <sup>5</sup> and the *DLRCC Guidance Notes for Waste Management Planning for Residential and Commercial Developments (2022)* <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 national 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.

### 1.1 Experience

This OWMP was prepared by Chonaill Bradley (Bsc ENV,PG Dip Circ Econ, AssocCIWM) of AWN Consulting. Chonaill Bradley is a Principal Environmental Consultant in the Environment Team at AWN. He holds a BSc in Environmental Science from Griffith University, Australia and a Postgraduate Diploma in Circular Economy Leadership for the Built Environment from the Atlantic Technological University, Galway. He is an Associate Member of the Institute of Waste Management (AssocCIWM). Chonaill has over 10 years' experience in the environmental consultancy sector and specialises in sustainability, resource and waste management.

And was approved by Dr Fergal Callaghan BSc (Chem) PhD(ChemEng) MRSC, AMICHEM. Fergal is a Director with AWN, he holds a BSc in Chemistry (Environmental Major) from the University of Limerick and a PhD in Chemical Engineering from the University of Birmingham, UK. He is a Member of the Royal Society of Chemistry and an Associate Member of the Institute of Chemical Engineers, he has over 33 years' experience in the environmental engineering sector, including acting as Environmental Advisor to Boards and multi-national corporations, leading site selection and due diligence teams, EIA Director, Environmental Permit team leader, Environmental Abatement equipment selection adviser, and Environmental compliance lead for sites such as datacentres, pharmaceutical and biopharmaceutical manufacturing plants, semi-conductor facilities and major infrastructure projects.

## 2.0 OVERVIEW OF WASTE MANAGEMENT IN IRELAND

### 2.1 National Level

The Irish 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.

In September 2020, the Irish Government published a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan '*A Waste Action Plan for a Circular Economy*'<sup>11</sup> (WAPCE), was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities, replacing the previous national waste management plan "*A Resource Opportunity*" (2012).

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 '*Living More, Using Less*' (2021)<sup>12</sup> to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022<sup>13</sup> was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic '*National Waste (Database) Reports*' which as of 2023 have been renamed *Circular Economy and Waste Statistics Highlight Reports*<sup>15</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 2021 National Circular Economy and Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (November 2023) reported the following key statistics for 2020:

- **Generated** – Ireland produced 3,170,000 t of municipal waste in 2021. This is a 1% decrease since 2020. This means that the average person living in Ireland generated 630 kg of municipal waste in 2021.
- **Managed** – Waste collected and treated by the waste industry. In 2020, a total of 3,137,000 t of municipal waste was managed and treated.
- **Unmanaged** – An estimated 33,000 tonnes of this was unmanaged waste i.e., not disposed of in the correct manner in 2021.
- **Recovered** – The amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In Ireland 42% of Municipal waste was treated by energy recovery through incineration in 2021.
- **Recycled** – Just over 1.3 million tonnes of municipal waste generated in Ireland was recycled in 2021, resulting in a recycling rate of 41 per cent. The recycling rate remains unchanged from 2020 and indicates that we face significant challenges to meet the upcoming EU recycling targets of 55% by 2025 and 65% by 2035.
- **Disposed** – The proportion of municipal waste sent to landfill also remains unchanged at 16% the same as 2020.
- **Reuse** – 54,800 tonnes of second-hand products we estimated by the EPA to have been reused in Ireland in 2021. The average annual Reuse rate per person in Ireland is 10.6 kg per person.

## 2.2 Regional Level

The development is located in the Local Authority area of Dún Laoghaire Rathdown County Council (DLRCC).

The Eastern Midlands Region (EMR) Waste Management Plan 2015 – 2021 has been superseded as of March 2024 by the NWMPCE 2024 - 2030.

The NWMPCE does not dissolve the three regional waste areas. The NWMPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

The national plan sets out the following strategic targets for waste management in the country that are relevant to the development:

### **Proposed National Targets**

1A. (Residual Municipal Waste) 6% Reduction in Residual Municipal Waste per person by 2030

2A. (Contamination of Materials) 90% of Material in Compliance in the Dry Recycling Bin

2B. (Material Compliance Residual) 10% per annum increase in Material Compliance in the residual bin. (90% by the end of 2030)

3A. (Reuse of Materials) 20kg Per person / year – Reuse of materials like cloths or furniture to prevent waste. Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140-160 per tonne of waste, which includes a €85 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2015.

The *Dún Laoghaire-Rathdown County Development Plan 2022 – 2028*<sup>15</sup> sets out a number of policies for the Dún Laoghaire-Rathdown area in line with the objectives of the waste management plan.

Proposed waste policies with a particular relevance to the development are as follows:

#### ***Policy Objective EI11: Resource Management***

*It is a Policy Objective to implement the Eastern-Midlands Region Waste Management Plan 2015-2021 and subsequent plans, in supporting the transition from a waste management economy towards a circular economy, to enhance employment and increase the value recovery and recirculation of resources. Underpinning this objective is the requirement to conform to the European Union and National Waste Management Hierarchy of the most favoured options for waste as illustrated below subject to economic and technical feasibility and Environmental Assessment.*

#### ***Policy Objective EI12: Waste Management Infrastructure, Prevention, Reduction, Reuse and Recycling***

- To support the principles of the circular economy, good waste management and the implementation of best international practice in relation to waste management in order for the County and the Region to become self-sufficient in terms of resource and waste management and to provide a waste management infrastructure that supports this objective.
- To provide for civic amenity facilities and bring centres as part of an integrated waste collection system in accessible locations throughout the County and promote the importance of kerbside source segregated collection of household and commercial waste as the best method to ensure the quality of waste presented for recycling is preserved.
- To ensure any waste amenity facilities adhere to the Waste Regional Offices Waste Management Infrastructure siting guidelines.
- To develop a County wide network of multi material recycling centres, bring centres and a re-use centre and to require the provision of adequately-sized recycling facilities in new commercial and large-scale residential developments, where appropriate.

- To require the inclusion of such centres in all large retail developments to maximise access by the public. To ensure new developments are designed and constructed in line with the Council's Guidelines for Waste Storage Facilities

### ***Policy Objective EI13: Hazardous Waste***

It is a Policy Objective to adhere to the recommendations of the 'National Hazardous Waste Management Plan 2014-2020' and any subsequent plan, and to co-operate with other agencies, to plan, organise, authorise and supervise the disposal of hazardous waste streams, including hazardous waste identified during construction and demolition projects.

## **2.3 Legislative Requirements**

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

- Waste Management Act 1996 as amended;
- Environmental Protection Agency Act 1992 as amended;
- Litter Pollution Act 1997 as amended;
- Planning and Development Act 2000 as amended <sup>16</sup>;
- Circular Economy and Miscellaneous Provisions Act 2022.

These Acts and subordinate Regulations transpose the 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 as amended 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, creche tenants and the proposed facilities management company undertake on-site management of waste in accordance with all legal requirements and that the facilities management company 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 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.



## 2.4 Local Authority Guidelines

DLRCC's Waste Management Division have issued *Guidance Notes for Waste Management Planning for Residential and Commercial Developments (2023)*<sup>17</sup> which provide good practice guidance for the storage and collection of waste for new build high density developments. The objective of this advice is to provide good practice guidance for the storage and collection of waste for new build high density developments to allow developers to demonstrate to local planning and waste management authorities that they have considered how the design and operation of waste management services will enable the occupiers and managing agents of new developments to manage waste arising through the lifetime of the development.

The document is designed to assist developers in considering measures required to maximise the reuse, recycling and recovery of waste in the operational lifetime of the development and give specific reference to best practice and associated legislation including minimising the carbon footprint of occupiers and services provided.

The ultimate goal of the guidelines is that the implemented waste strategy will achieve a 70% reuse and recovery target in accordance with the European Commission's proposal to introduce 70% reuse and recycling targets for municipal waste by 2030 and while also providing sufficient flexibility to support future targets and legislative requirements.

Waste storage issues should be considered at the initial apartment design stage, taking full account of this guidance note, to ensure access for all (including people with disabilities) in a brightly lit, safe and well-signed area, spacious enough for easy manoeuvrability, good ventilation and ready access if required for the control of potential vermin.

Where storage is provided in a basement area, sufficient access and egress must be provided to enable receptacles to be moved easily from the storage area to an appropriate bin staging point within the curtilage of the development in accordance with the *Dún Laoghaire-Rathdown County Council (Segregation, Storage And Presentation Of Household And Commercial Waste) Bye-Laws 2019*, Section 9, or any revision thereof.

The guidance notes provide requirements for five main areas of operational waste management:

1. Common Waste Storage Area Design
2. Requirements Within Residential units
3. Initial Waste Management
4. Waste Collection System
5. Requirements for Selection of Separate Staging Area for Bin Collection Where Required.

This OWMP has been prepared to demonstrate exactly that and aims to do that in a comprehensive manner.

The guidelines and form are available on the DLRCC website.

## 2.5 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential sector in the DLRCC 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 all are 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 in Poolbeg in Dublin.

The DLRCC Ballyogan Recycling Park (Recycling Centre) is located approximately 4.5km to the south west, which can be utilised by the residents of the development for other household waste streams. Additionally, glass, cans and textiles can be brought to a smaller bring centre at Sweetmount Avenue, approximately 1.4km to the east of the development.

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 DEVELOPMENT**

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

Knockrabo Investments DAC intend to apply for permission for a Large-scale Residential Development ranging from 2- part 8 storeys (for a period of 7 years) with a total application site area of c. 2.54 hectares, at Knockrabo, Mount Anville Road, Goatstown, Dublin 14.

The development will consist of the construction of 158 No. residential units (12 No. houses and 146 No. apartments (35 No. 1 beds, 81 No. 2 beds, 3 No. 3 beds and 27 No. 3 bed duplex units), a childcare facility and Community / Leisure Uses.

The development will consist of the use of Knockrabo Gate Lodge (West) (a Protected Structure) as a 3-bed residential dwelling; and the use of Cedar Mount (a Protected Structure) to provide: 1 No. Childcare Facility at Lower Ground Floor level, Community / Leisure Uses at Ground Floor Level, and 2 No. 2 bed apartments at 1st floor level.

The development will also provide 130 No. car parking spaces consisting of 117 No. residential spaces (comprising 54 No. at podium level, 63 No. on-street and on curtilage spaces, 6 No. visitor spaces and 2 No. on-street car sharing spaces); and 5 No. non-residential spaces; provision of 366 No. bicycle parking spaces (consisting of: 288 No. residential spaces, 70 No. (residential) visitor spaces, 6 No. (non-residential) spaces and 2 No. visitor (non-residential) spaces); and 9 No. motorcycle parking spaces..

#### **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 less frequently / in smaller quantities which will need to be managed separately including:

- Green / garden waste may be generated from, gardens, internal plans and 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;
- Textiles;
- Waste cooking oil (if any generated by the residents and tenants);
- Furniture (and, from time to time, other bulky wastes); and
- Abandoned bicycles.

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 List of Waste Codes

In 1994, the *European Waste Catalogue*<sup>17</sup> and *Hazardous Waste List*<sup>18</sup> were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*<sup>19</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>20</sup> 2018. 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 for typical waste materials expected to be generated during the operation of the proposed development are provided in Table 3.1 below.

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

| 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

#### 4.0 ESTIMATED WASTE ARISING

A waste generation model (WGM) developed by AWN has been used to predict waste types, weights and volumes expected to arise 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. While the floor area usage (m<sup>2</sup>) has been used to estimate the waste arising from the crèche unit.

The estimated waste generation for the proposed Development for the main waste types is presented in Tables 4.1 – 4.3.

**Table 4.1** *Estimated Waste Generation for Residential Units*

| Waste Type            | Waste Volume (m <sup>3</sup> / week) |                   |                   |                  |
|-----------------------|--------------------------------------|-------------------|-------------------|------------------|
|                       | Apartment Block E                    | Apartment Block F | Apartment Block G | Cedarmount House |
| Organic Waste         | 0.13                                 | 1.26              | 0.33              | 0.03             |
| Dry Mixed Recyclables | 0.97                                 | 9.51              | 2.47              | 0.25             |
| Glass                 | 0.02                                 | 0.24              | 0.06              | 0.01             |
| Mixed Non-Recyclables | 0.50                                 | 4.86              | 1.26              | 0.12             |
| <b>Total</b>          | <b>1.62</b>                          | <b>15.88</b>      | <b>4.12</b>       | <b>0.40</b>      |

**Table 4.2** *Estimated Waste Generation for Residential Units*

| Waste Type            | Waste Volume (m <sup>3</sup> / week) |                |             |             |
|-----------------------|--------------------------------------|----------------|-------------|-------------|
|                       | Gate Lodge                           | New Gate House | Coach House | House       |
| Organic Waste         | 0.02                                 | 0.02           | 0.02        | 0.02        |
| Dry Mixed Recyclables | 0.14                                 | 0.14           | 0.12        | 0.18        |
| Glass                 | <0.01                                | <0.01          | <0.01       | <0.01       |
| Mixed Non-Recyclables | 0.07                                 | 0.07           | 0.06        | 0.09        |
| <b>Total</b>          | <b>0.23</b>                          | <b>0.23</b>    | <b>0.20</b> | <b>0.29</b> |

**Table 4.3** *Estimated Waste Generation for Residential and Creche Units*

| Waste Type            | Waste Volume (m <sup>3</sup> / week) |                |             |             |
|-----------------------|--------------------------------------|----------------|-------------|-------------|
|                       | Duplex (3 Bed)                       | Duplex (2 Bed) | Simplex     | Creche      |
| Organic Waste         | 0.02                                 | 0.02           | 0.02        | 0.05        |
| Dry Mixed Recyclables | 0.14                                 | 0.12           | 0.12        | 2.09        |
| Glass                 | <0.01                                | <0.01          | <0.01       | 0.01        |
| Mixed Non-Recyclables | 0.07                                 | 0.06           | 0.06        | 0.92        |
| <b>Total</b>          | <b>0.23</b>                          | <b>0.20</b>    | <b>0.20</b> | <b>3.07</b> |

BS5906:2005 *Waste Management in Buildings – Code of Practice*<sup>18</sup> has been considered in the calculations of waste estimates. AWN's modelling methodology is based on recently published data and data from numerous other similar developments in Ireland and is based on AWN's experience, it provides a more representative estimate of the likely waste arisings from the proposed Development.

## 5.0 WASTE STORAGE AND COLLECTION

This section provides information on how waste generated within the Site will be stored and collected. 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 DLRCC. In particular, consideration has been given to the following documents:

- *BS 5906:2005 Waste Management in Buildings – Code of Practice,*
- DLRCC Guidance Notes for Waste Management Planning for Residential and Commercial Developments (2023);
- DLRCC, Dún Laoghaire Rathdown County Council Segregation, Storage and Presentation of Household and Commercial Waste) Bye-laws (2019).
- The NWMPCE 2024 - 2030; and
- DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2023) <sup>22</sup>.

### Waste Storage Areas

Locations of all Waste Storage Areas (WSAs) can be viewed on the drawings submitted with the planning application under separate cover and the appendices of this report.

### Residential Block E, F & G

Three (3 no.) shared communal WSAs have been allocated within the development design for the residential apartment blocks. These have been strategically located on the ground floor level, in close proximity to cores.

### Creche

One (1 no.) commercial WSA has been allocated within the development design for the creche unit. This has been strategically located at ground floor level, in an external location on the eastern side of the building.

### Waste Storage Areas Individual Houses, Duplexes, Simplexes, Gate Lodge, New gate House, Coach House and Cedar Mount House

Residents in these units will have their own individual WSAs allocated in their rear garden where external access is available. Where external access to the rear yard is not available a shielded bin store will be allocated at the front of the house.

Using the estimated waste generation volumes in Tables 4.1 – 4.3, above, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the WSAs. It is envisaged that all waste types will be collected on a weekly basis.

## Waste Storage Requirements

Estimated waste storage requirements for the operational phase of the proposed Development are detailed in Table 5.1, below.

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

| Area/Use         | Bins Required              |                            |             |             |
|------------------|----------------------------|----------------------------|-------------|-------------|
|                  | MNR <sup>1</sup>           | DMR <sup>2</sup>           | Glass       | Organic     |
| Block E (Shared) | 1 no. 1100 L               | 1 no. 1100 L               | 1 no. 120 L | 1 no. 240 L |
| Block F (Shared) | 5 no. 1100 L               | 9 no. 1100 L               | 1 no. 240 L | 6 no. 240 L |
| Block G (Shared) | 1 no. 1100 L<br>1 no. 240L | 2 no. 1100 L<br>1 no. 240L | 1 no. 120 L | 2 no. 240 L |
| Creche           | 1 no. 1100 L               | 2 no. 1100 L               | 1 no. 120 L | 1 no. 120 L |
| Individual WSAs  | 1 x 240 L                  | 1 x 240 L                  | Bottle Bank | 1 x 240L    |

Note: 1 = Mixed Non-Recyclables  
2 = Dry Mixed Recyclables

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 shared WSAs and commercial WSA.

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 SIST EN 840-1:2020 and SIST EN 840-2:2020 as the standards for performance requirements of mobile waste containers, where appropriate.



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

Receptacles for organic, mixed dry recyclable, glass and mixed non-recyclable waste will be provided in the shared residential and creche WSAs prior to first occupation of the development i.e. prior to the first residential or commercial unit being occupied.

This Plan will be provided to each resident and creche tenant from first occupation of the development i.e. once the first residential unit or the creche unit is occupied. This Plan will be supplemented, as required, by the facilities management company with

any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

## 5.1 Waste Storage – Residential Units

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

- DMR;
- MNR;
- Glass; and
- Organic waste.

Residents will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins. The location of the WSAs are illustrated in the drawings submitted with the planning application under separate cover.

Provision will be made in all residential units to accommodate 3 no. bin types to facilitate waste segregation at source. An example of a potential 3 bin storage system is provided in Figure 5.2 below.



**Figure 5.2** Example three bin storage system to be provided within the unit design

Each bin / container in the WSAs 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 shared WSAs will be restricted to authorised residents, facilities management and waste contractors by means of a key or electronic fob access.

Other waste materials such as textiles, batteries, printer toner / cartridges, light bulbs 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 – Creche

Staff at the creche will be required to segregate their waste into the following waste categories within their own units:

- DMR;

- MNR;
- Glass; and
- Organic waste.

As required, the staff will need to take segregated DMR, MNR, glass and organic waste to their allocated creche WSA.

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.

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

### 5.3 Waste Collection

There are numerous private contractors that provide waste collection services in the DL RCC 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.

The waste receptacles from the shared WSAs will be collected by facilities management, immediately prior to collection and brought to where the bins will be staged temporarily awaiting collection. The staging area is such that it will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the *Design Manual for Urban Roads and Streets* (2019)<sup>23</sup>. All locations for collection can be viewed on the drawings submitted with the planning application under separate cover and in the appendix of this report.

A trolley / tug or suitable vehicle may be required to convey the bins to and from the collection area. The facilities management or waste contractor will ensure that empty bins are promptly returned to the WSAs after collection / emptying.

Suitable access and egress has been provided to enable the bins to be moved easily from the temporary staging area to the waste collection vehicles on the appropriate days. Waste will be collected at agreed days and times by the nominated waste contractors.

All waste receptacles should be clearly identified as required by waste legislation and the requirements of the DL RCC *Waste Bye-Laws*. Waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

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

### 5.4 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.



### Deposit Return Scheme

Most drinks containers can be recycled via the deposit return scheme, such as bottles, cans and tins made from plastic, aluminium or steel can be returned once they are between 150ml and 3 litres in size and have the Re-turn logo on them.

At the shops you can either return the containers:

- Using a Reverse Vending Machine (RVM)
- Manually in the shop

If a shop does not have a RVM but they sell containers with the Re-turn logo, the shop may allow you to manually return containers in store, unless they have a take back exemption.

Locations of RVM machines can be found via the Re-turn website ([www.re-turn.ie](http://www.re-turn.ie))

### Green Waste

Green waste may be generated from gardens, 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 S.I. No. 283/2014 - European Union (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 creche tenant 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 (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 creche tenant 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 creche unit, where appropriate. The creche tenant 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

Chemicals (such as solvents, paints, adhesives, resins, detergents, 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 creche tenant 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

Waste light bulbs (fluorescent, incandescent and LED) may be generated by lighting at the creche unit. It is anticipated that creche tenant 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. Creche and residential tenants will be responsible for disposing of waste textiles appropriately.

#### Waste Cooking Oil

If the creche tenant 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. Under sink grease traps will be installed in any cooking space.

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

#### Furniture & Other Bulky Waste Items

Furniture and other bulky waste items (such as carpet, etc.) may occasionally be generated by the creche tenant. 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 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 or Facilities management will may arrange collection by a licensed waste contractor.

## 5.5 Waste Storage Area Design

The shared and creche 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 400 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 management company, tenants and residents will be required to maintain the resident bins and storage areas in good condition as required by the DLRCC Waste Bye-Laws.

## 5.6 Facility Management Responsibilities

It shall be the responsibility of the Facilities Management Company to ensure that all waste generated by residential and creche units is managed to ensure correct storage prior to collection by an appropriately permitted waste management company.

Facilities Management should provide the following items in accordance with the DLRCC *Guidance Notes for Waste Management Planning for Residential and Commercial Developments*:

- Provision of a Waste Management Plan document, prepared by the Facilities Management Company to all residents and creche tenants, which shall clearly state the methods of source waste segregation, storage, reuse and recycling initiatives that shall apply to the management of the development;
- Provision and maintenance of appropriate graphical signage to inform residents of their obligation to reduce waste, segregate waste and in the correct bin;
- Preparation of an annual waste management report for all units;
- Designation of access routes to common waste storage areas to ensure safe access from the apartment units by mobility impaired persons;
- Provision of an appropriately qualified and experienced staff member, who will be responsible for all aspects of waste management at the development;
- Daily inspection of waste storage areas and signing of a daily check list, which shall be displayed within the area; and
- Maintenance of a weekly register, detailing the quantities and breakdown of wastes collected from the development and provision of supporting documentation by the waste collector to allow tracking of waste recycling rates.

## 5.7 Pest Management

A pest control operator will be appointed as required to manage pests onsite during the operational phase of this development. All waste generated within the development will be stored in closed waste receptacles both within units and within the shared WSAs. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

All shared and creche WSAs will have access for potential control of vermin, if required, be supplied with hot or cold water, drainage point and will be regularly inspected by facilities management to deter pests.

## 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 proposed 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 contributing to the targets set out in the *and the NWMPCE 2024 – 2030*.

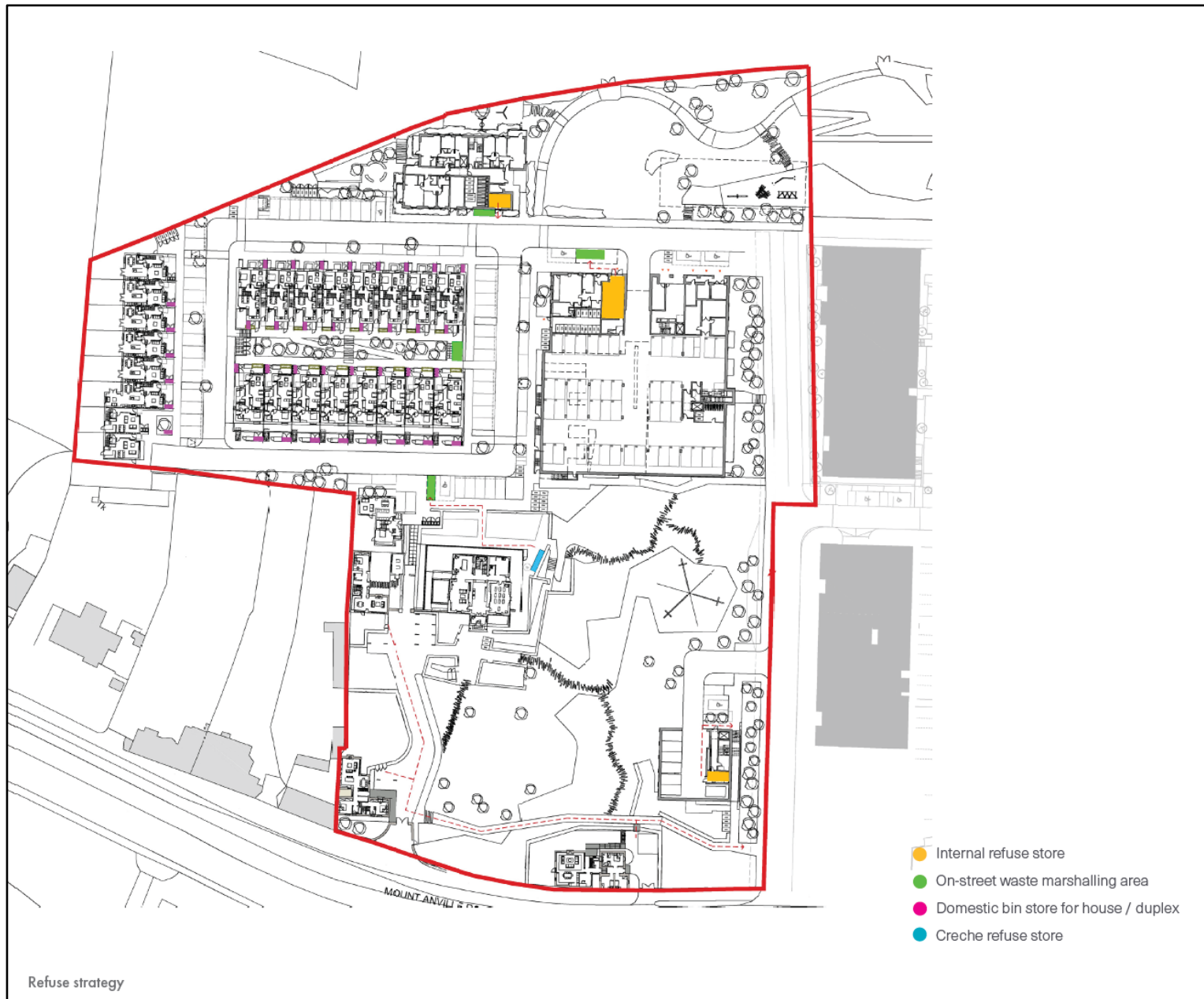
Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements outlined in the DLRCC Guidance Notes for Waste Management Planning for Residential and Commercial Developments and the *DLRCC Waste Bye-Laws*.

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

## 7.0 REFERENCES

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## **APPENDIX 1: WASTE STORAGE AREAS**



## APPENDIX 2: ROAD SWEEP ANALYSIS FOR REFUSE TRUCK

