

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

AT

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Our Reference

CB/17/9909WMR02

Date of Issue

19 December 2018

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Cork Office

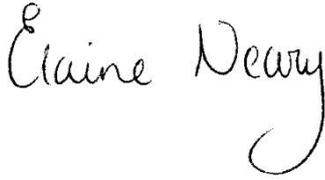
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Document History

Document Reference		Original Issue Date	
CB/17/9909WMR02		19 December 2018	
Revision Level	Revision Date	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
Name	Chonaiil Bradley	Elaine Neary
Title	Environmental Consultant	Associate
Date	19 December 2018	19 December 2018

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1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Atlas GP Ltd., for submission to An Bord Pleanála (ABP) for a proposed development at Belgard Gardens, Belgard Square North, Tallaght, Dublin 24. The site is c. 7.2 ha in extent. The proposed development will comprise of the demolition of all existing buildings on the site and the construction of a mix of residential buildings, student accommodation, retail units, tenant amenities, a child care facility, along with a civic plaza, car and bicycle parking, landscaping, services and amenities.

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 current legal and industry standards including, the *Waste Management Act 1996 – 2011* as amended and associated Regulations ¹, *Protection of the Environment Act 2003* as amended ², *Litter Pollution Act 2003* as amended ³, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' ⁴, the SDCC *South Dublin County Council Household Waste Bye-Laws (2012)* ⁵, the SDCC *South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws (2007)* ⁶ and the draft SDCC '*County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws*' (2018) ⁷. 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*' ⁸ 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 ⁹. 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 Ireland's Development Sustainable – Review, Assessment and Future Action*' ¹⁰. 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*'¹¹. 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*'¹². 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*'¹³ 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 2014 National Waste Statistics, which is the most recent study published, reported the following key statistics for 2014:

- 2,575 kilotonnes of municipal waste was managed in 2014 (4% increase compared to 2012).
- 79% of managed municipal waste was recovered (59% in 2012). Recovery includes treatment processes such as recycling, use as a fuel (incineration and co-incineration) and backfilling.

- 41% of managed municipal waste was recycled (40% in 2012). Recycling includes reprocessing of waste materials into products, composting and anaerobic digestion.
- 21% of managed municipal waste was disposed (41% in 2012).

2.2 Regional Level

The proposed development is located in the Local Authority area of South Dublin County Council (SDCC).

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

The regional plan sets out the following strategic targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
- 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 specified in the *Waste Management (Landfill Levy) Regulations 2015*.

The *South Dublin County Council Development Plan 2016 – 2022*¹⁴ sets out a number of objectives and actions for the South Dublin area in line with the objectives of the waste management plan.

Waste objectives and actions with a particular relevance to the proposed development are as follows:

Objectives:

- **IE5 Objective 1:** To support the implementation of the Eastern–Midlands Region Waste Management Plan 2015-2021 by adhering to overarching performance targets, policies and policy actions.
- **IE5 Objective 2:** To support waste prevention through behavioural change activities to de-couple economic growth and resource use.
- **IE5 Objective 3:** To encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources.
- **IE5 Objective 8:** To secure appropriate provision for the sustainable management of waste within developments, including the provision of facilities for the storage, separation and collection of such waste.

Actions:

- Support and facilitate the separation of waste at source into organic and non-organic streams or other waste management systems that divert waste from landfill and maximise the potential for each waste type to be re-used and recycled or composted and divert organic waste from landfill, in accordance with the National Strategy on Biodegradable Waste (2006).
- Implement the objectives of the National Waste Prevention Programme at a local level with businesses, schools, householders, community groups and within the Council's own activities.

- Promote an increase in the amount of waste re-used and recycled consistent with the Regional Waste Management Plan and Waste Hierarchy and facilitate recycling of waste through adequate provision of facilities and good design in new developments.
- Implement the South Dublin Litter Management Plan 2015 - 2019.

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 includes:
 - 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)
- 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 ¹⁵

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, commercial tenants and the proposed facilities 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 South Dublin County Council Waste Bye-Laws

South Dublin County Council Household Waste Bye-Laws 2012 were brought into force by SDCC in 2012 and the *South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws 2007* were brought into force in 2007. These Waste Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the SDCC functional area. Key requirements under these bye-laws are:

- For apartments or combined living/working spaces, the management company must-
Provide appropriate waste containers of adequate size and number for the proper segregation, storage and collection of dry recyclable household waste, organic waste and residual household waste both within the individual apartments and in the designated appropriate waste container storage area.
Ensure that the appropriate waste containers, in the designated appropriate waste container storage area should not be accessible to non-residents of the apartments.
- Appropriate Waste Containers shall be stored in a place within the curtilage of the premises at all times other than during the times of presentation as set out in these bye-laws. The storing of an Appropriate Waste Container on a footway, footpath, road or roadway is prohibited.
- A holder shall separate at source such dry-recyclable, organic, and residual waste as defined in Schedule 1 hereto. The dry recyclable, organic and residual waste fractions shall be stored separately by the holder in Appropriate Waste Containers.

The full text of the SDCC Bye-Laws is available from the SDCC website.

2.3.2 Draft South Dublin County Council Waste Bye-Laws

The Draft SDCC "*County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)*" were released for consultation on the 30th of June 2018. These bye-laws will repeal the previous SDCC bye-laws; *South Dublin County Council Household Waste Bye-Laws 2012* and *South Dublin County Council (Storage, Separation at Source, Presentation and Collection of*

Commercial Waste) Bye-Laws 2007. The Draft Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the SDCC functional area. Key requirements under these bye-laws are:

- Kerbside waste presented for collection shall not be presented for collection earlier than 8.00pm on the day immediately preceding 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 8:00am on the day following the designated waste collection day;
- Neither recyclable household kerbside waste nor food waste arising from households shall be contaminated with any other type of waste before or after it has been segregated; and
- A management company, or another person if there is no such company, who exercises control and supervision of residential and/or commercial activities in multi-unit developments, mixed-use developments, flats or apartment blocks, combined living/working spaces or other similar complexes shall ensure that:
 - separate receptacles of adequate size and number are provided for the proper segregation, storage and collection of recyclable household kerbside waste and residual household kerbside waste;
 - additional receptacles are provided for the segregation, storage and collection of food waste where this practice is a requirement of the national legislation on food waste;
 - the receptacles referred to in paragraphs (a) and (b) are located both within any individual apartment and at the place where waste is stored prior to its collection;
 - any place where waste is to be stored prior to collection is secure, accessible at all times by tenants and other occupiers and is not accessible by any other person other than an authorised waste collector;
 - written information is provided to each tenant or other occupier about the arrangements for waste separation, segregation, storage and presentation prior to collection;
 - an authorised waste collector is engaged to service the receptacles referred to in this section of these bye-laws, with documentary evidence, such as receipts, statements or other proof of payment, demonstrating the existence of this engagement being retained for a period of no less than two years. Such evidence shall be presented to an authorised person within a time specified in a written request from either that person or from another authorised person employed by South Dublin County Council; and
 - receptacles for kerbside waste are presented for collection on the designated waste collection day.

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

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential and commercial sectors in the Dublin 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 bring bank located c. 200m to the south west of the development at the Civic Theatre and a Civic Amenity Centre is located c. 1km to the north east which can be utilised by the residents of the development for other household waste streams.

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

Atlas GP Limited intend to apply for a 10-year Planning Permission for development at Belgard Gardens, Belgard Square North, Tallaght, Dublin 24. The site is c. 7.2 ha. in extent.

The site is currently composed of industrial units (which are unoccupied or partially unoccupied) as well as an unoccupied former halting site. The site is bound to the north by Belgard Retail Park, to the east by Belgard Road, to the south by Belgard Square North and commercial and to the west by the Exchange Hall apartments and Cookstown Industrial Estate.

The development will consist of a mixed use residential development (total GFA 55,180 sqm) comprising a new urban quarter and streets with 5 no. blocks to provide 438 no. apartment units (including live/work units) and associated amenity facilities, a 403 no. bedspace student accommodation scheme and associated amenity facilities, childcare facility (c.380 sqm), 6 no. retail / commercial units (c.632 sqm in total) and a security room (c.52 sqm). This will comprise phase I of the overall development of the c.7.2 ha. site and will be located on a net site area of 3.45 ha. (excluding proposed temporary car park at grade).

The development will consist of the demolition of all existing buildings on the site ranging from one to three storeys in height and the removal of hardstanding throughout. Proposed buildings for demolition include 2 – 3 storey Belgard Square (c.11,362 sqm) and associated single storey security hut (c.9 sqm); 3 storey Belgard House (c.9,706 sqm) and associated single storey security hut (c.14 sqm); 2 storey former Uniphar factory (c.7,780 sqm), associated 2 storey office building (c.1,033 sqm) and associated single storey security hut (c.14 sqm).

The proposed development will consist of:

- 5 no. blocks ranging from 4 – 10 storeys comprising a new urban quarter and streets to provide 438 no. apartment units consisting of 158 no. 1 beds, 230 no. 2 beds and 50 no. 3 beds (total apartment units include 8 no. live/work units with a total c.509 sqm work areas at ground floor) and c.732 sqm of tenant/resident service amenities, all within Blocks A1, A2, A3 and B1;
- Balconies / winter gardens / terraces to be provided on all elevations at all levels for each residential block;
- Block B2 to comprise a 403 no. bedspace student accommodation scheme and associated student amenity and staff facilities (c.815 sqm);
- Childcare facility (c.380 sqm) and external playing area (c.242sqm);
- 6 no. retail/commercial units (c.632 sqm in total);
- Security room (c.52 sqm);

- 107 no. car parking spaces below podium (a temporary car park at grade will be provided until such time as the completion of the permanent below podium car park);
- 22 no. car parking spaces at surface level;
- 1,227 no. bicycle parking spaces below podium and at surface level;
- 4 no. semi-private courtyards of c.5,516sqm;
- Public plaza (c.2,366 sqm);
- Public realm & landscaping (c.7,442sqm).

The proposed development will include the provision of a new north – south street bisecting the site (to later connect to the planned Airton Road Extension) with 2 no. East – West internal streets proceeding east towards Belgard Road (pedestrian access only onto Belgard Road) and proceeding west (to later connect to lands in ownership of SDCC if required). Works to public roads to include replacement of roundabout with a signalised junction and provision of cycle lanes on Belgard Square North and provision of a pedestrian crossing at Belgard Road.

The proposed development will also include boundary treatments, public lighting, green roofs, solar panels, ESB substations and switch rooms, CHP plant, commercial and residential waste facilities and all ancillary works and services necessary to facilitate construction and operation. The proposed development will also include provision of site boundary protection where required to facilitate development phasing.

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 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 waste may be generated from internal plants and 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.);
- Fluorescent tubes and other mercury containing waste;
- Textiles (rags);
- Waste cooking oil (if any generated by the residents or commercial tenants);
- Grease/waste water from passive grease trap (if one installed);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles. Multiple 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*¹⁶ and *Hazardous Waste List*¹⁷ were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*¹⁸, 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*'¹⁹ 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 25/26*
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, commercial and childcare units is based on waste generation rates per m² floor area for the proposed area uses.

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

Waste type	Waste Volume (m ³ /week)		
	Residential Units (Block A)	Residential Units (Block B)	Student Accommodation (Block B)
Organic Waste	4.94	1.74	2.20
Mixed Dry Recyclables	36.23	12.72	16.55
Glass	0.96	0.34	0.43
Mixed Municipal Waste	20.08	7.05	8.46
Total	62.21	21.84	27.63

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

Waste type	Waste Volume (m ³ /week)	
	Childcare Facility (Block A)	Retail/Commercial Units (Block B)
Organic Waste	0.04	0.21
Mixed Dry Recyclables	1.51	4.18
Glass	0.01	0.12
Mixed Municipal Waste	0.67	1.74
Total	2.23	6.25

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

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 SDCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice ²⁰;
- EMR Waste Management Plan 2015 – 2021;
- SDCC South Dublin County Council Household Waste Bye-Laws (2012);
- SDCC South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws (2007);
- SDCC Draft 'County of South Dublin (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) ²¹.

5.1.1 Residential Apartments

Residents will be required to segregate their waste into the following waste categories within their own apartment units:

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

As required, the apartment residents will bring segregated DMR, MNR and organic waste to two dedicated residential waste storage areas (WSAs) located on the ground floor level. Residents in Block A will use the WSA located at the northern end of Block A2, while residents in Block B will use the WSA located on the western side, under Block B1.

It is proposed that Block A residents 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 3m³ FIBC (i.e. Flexible Intermediate Bulk Container) 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)

Additional satellite WSAs have been allocated in Block A2 and A3 to accommodate full compactor bags and additional bins. These rooms will be accessible only to facilities management staff and the waste contractor(s) personnel.

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 residential WSAs will be restricted to authorised residents and facilities management by means of a key or electronic fob access.

Glass waste should be brought to the nearest bottle bank or civic amenity centre.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the resident's. 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 5.3

5.1.2 Student Accommodation

Similar to the occupants in the residential apartments, students in the student accommodation building will be required to segregate waste into the following main waste streams:

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

Segregated bins for DMR, MNR and organic waste will be provided within the kitchens of the student cluster units by the facilities management company. Additional bins for segregation of DMR and MNR will also be provided in the common areas, where appropriate. Students will be required to segregate their waste as above into the receptacles provided in accordance with the terms of the letting agreements of the Operator (The Student Housing Company). Similarly, the management personnel will be required to segregate their waste into the above waste streams in the management office areas.

No food macerators will be installed within any area of the student accommodation building.

All bins/containers will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted on or above the bins to show which wastes can be put in each bin.

As required, the students will be required to bring waste from within their clusters to the dedicated Waste Storage Area (WSA) on the northern side of Block B2. Students on the floors above ground level will use the lifts or stairs of their building to bring waste to the ground floor. Students will be provided with access fobs/key/code by the Operator to access the WSA. Building cleaning staff will bring waste from the common areas and offices to the WSA as required.

Larger waste receptacles segregated (as per Table 5.1) will be provided by the facilities management company in the student accommodation WSA. Receptacles here will also be labelled, and colour coded to avoid cross contamination.

Other waste materials such as glass, textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently in the student accommodation areas. Students will be required to identify suitable temporary storage areas for these waste items themselves and dispose of them appropriately. Further details on additional waste types can be found in Section 5.3

5.1.3 Work Live Apartments

Work live residents will be required to segregate their waste into the following waste categories within their own apartment units:

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

Waste will also be required to be separated into commercial and residential waste.

Residents/tenants will bring segregated domestic DMR, MNR and organic waste to the dedicated residential WSA located on the ground floor level located on the western side, under Block B1.

As required, the work live residents/tenants will bring segregated commercial DMR, MNR, organic waste and glass to the dedicated commercial WSA located on the ground floor level located on the western side, under Block B1.

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 residential and commercial WSAs will be restricted to authorised residents/tenants and facilities management by means of a key or electronic fob access.

Domestic glass waste should be brought to the nearest bottle bank or civic amenity centre. Commercial waste will be taken to commercial WSA under Block B1

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents/tenants. Residents/tenants 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 5.3

5.1.4 Retail/Commercial

Retail/commercial tenants will be required to segregate their waste into the following waste categories within their own units:

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

Bins should be strategically located within the units as required by the occupiers to facilitate segregation and temporary storage of waste. The main types generated within the unit are anticipated to be DMR, MNR and organic waste.

As required, the tenants will need to bring segregated DMR, MNR, glass and organic waste to the dedicated WSA located on the ground floor level under Block B1.

If there is a café/restaurant tenant, organic waste from kitchen areas should be collected in bins as close to food preparation as possible.

All bin/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.

Suppliers for the retail/commercial units 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.

The dedicated retail/commercial WSA will be accessible from the ground floor car park across from the residential WSA and access will be restricted to tenants, facilities management and waste contractors personnel.

Waste materials such as batteries, WEEE and printer toner/cartridges may be generated within the units, but it is anticipated that they will be generated infrequently (if they do arise). Temporary storage areas may be identified within the units for these items pending collection by an authorised waste contractor.

5.1.5 Childcare Facility

Staff will be required to segregate their waste into the following waste categories within their own unit:

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

As required, the staff will need to bring segregated DMR, MNR and organic waste to the dedicated WSA located on ground floor level next to their unit.

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 WSA will be restricted to authorised childcare facility staff, facilities management and waste contractors by means of a key or electronic fob access.

Waste materials such as batteries, WEEE and printer toner/cartridges may be generated within the retail units, but it is anticipated that they will be generated infrequently (if they do arise). Temporary storage areas may be identified within the unit for these items pending collection by an authorised waste contractor.

5.1.6 Waste Storage Areas

The resident's, students, retail/commercial tenants and childcare facility WSAs have been allocated on the ground floor. The WSAs locations have been selected to minimise the required distances the residents and tenants must travel from the building cores and also to make them more accessible to the waste contractors for collection.

It is proposed that all DMR, MNR and organic waste generated by the residents and students will be brought to their WSAs. The additional waste types that should not be brought to the residential WSAs (if generated) include glass, batteries, WEEE, chemicals, waste cooking oil etc. The strategy for managing these wastes is discussed in Section 5.3.

It is proposed that all DMR, MNR, organic waste and glass generated by the retail and crèche tenants will be brought to their WSAs. The additional waste types that should not be brought to the WSA (if generated) include batteries, WEEE, chemicals, waste cooking oil etc. The strategy for managing these wastes is discussed in Section 5.3.

Based on the estimated waste generation volumes detailed in Tables 4.1 & 4.2, the space available and a suitable collection frequency, the recommended bin requirements for the WSAs were calculated and are presented in Tables 5.1 & 5.2.

Area/Use	Bins Required				
	Compactor	Compacted Waste containers (circa 2m ³ each) MNR	Compacted Waste containers (circa 3m ³ each) DMR	Organic	Glass
Residential WSA (Block A2)	1 no. for MNR 1 no. for DMR	-	-	21 x 240L	Bottle Bank
Residential Satellite WSA (Block A2)	-	-	3	-	-
Residential Satellite WSA (Block A3)	-	2	-	-	-

Table 5.1 Residential waste storage requirements for the proposed development

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Childcare Facility WSA (Block A2)	1 x 1100L	2 x 1100L	1 x 120L	1 x 120L
Residential WSA (Block B1)	7 x 1100L	12 x 1100L	8 x 240L	Bottle Bank
Student Accommodation (Block B2)	8 x 1100L	15 x 1100L	9 x 240L	Bottle Bank
Retail/Commercial WSA (Block B1)	2 x 1100L	4 x 1100L	2 x 240L	1 x 240L

Table 5.2 Waste storage requirements for the proposed development

Waste storage receptacles required will vary in size, design and colour depending on the appointed waste contractor. However, examples of typical receptacles to be used in the WSA 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.



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

The WSAs should meet the following requirements:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours (unless external) with a recommended 6-10 air changes per hour for a mechanical system;
- Provide suitable lighting – a minimum Lux rating of 220 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by tenants, facilities management and waste contractors only;
- Be supplied with hot or cold water for washing of bins;
- Be fitted with suitable power supply for a power washer, if required;
- Have a sloped floor to a central foul drain for bin wash water run-off;
- Have appropriate signage placed above and on bins indicating correct use; and
- Have measures for potential control of vermin, if required.

The facilities management company, residents and retail/commercial and childcare facility tenants will be required to maintain the bins and their WSAs in good condition.

All residents and tenants should be made aware of the waste segregation requirements and waste storage arrangements.

5.2 Waste Collection

There are numerous private contractors that provide waste collection services in the Dublin 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/permited/licensed facilities only.

All waste requiring collection by the appointed waste contractor will be collected from the WSAs by nominated waste contractors or facilities management depending on the agreement and will be brought to the temporary waste marshalling/collection areas. The empty bins will be promptly returned to the appropriate WSAs. Block A1, A2 & A3 waste receptacles will be collected from the northern side of the block. Parking spaces 16 & 17 will be signed to be kept clear on the designated days and times that collection will be taking place. Block B1 & B2 waste receptacles will be collected from the northern side of the block on the opposing side of the road. Three carparks will be signed to be kept clear on the designated collection days and times. Bins will be temporarily stored in these three carparks prior to collection.

This waste from the Block A residential units will be stored onsite in FIBC bags referred to in Section 5.1. FIBC bags can be collected directly from the communal WSA and FIBC storage areas by a Moffit pallet truck which the waste contractor has on their waste collection truck. The FIBC bags will be brought to the temporary collection area

at parking spaces 16 & 17 by the waste contractor at the time of collection (and not before) and will be loaded directly onto a curtained sided waste vehicle. Based on the estimated DMR and MNR wastes arisings detailed in Table 4.1 and the average compaction rate of the Epac compactor, the FIBC bags will only require one collection per week.

(Note: If the alternative compactors referred to in Section 5.1 are used, these would be brought to ground level by the waste contractor at the time of collection (and not before) using a suitable towing device. Once the compactors are emptied, the empty compactors would be promptly returned to the WSA.

All waste receptacles presented for collection will be clearly identified as required by waste legislation and the requirements of the SDCC Waste Bye-Laws. Also, 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 envisaged that MNR, DMR, organic and glass waste from all the WSAs will be collected on a weekly basis.

5.3 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.

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 internal plants/flowers can be placed in the organic waste bins in the WSAs.

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 retail/commercial establishments 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.

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, retail/commercial establishments 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.

Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided in the commercial units, where appropriate. 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 retail/commercial units and in the childcare facility that are classed as hazardous (if they arise) will be appropriately stored within the tenants own space. Commercial tenants will be required to store products within the cleaning storage areas, and arrange for collection by an authorised waste contractor, as required.

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.

Fluorescent Tubes (and other mercury containing waste)

Fluorescent tubes (and other mercury containing waste) will typically be generated by external electrical/maintenance contractors servicing the public areas of the apartment/duplex blocks and childcare facility. However it is noted that modern light fittings are moving away from these types. Nonetheless, where waste light bulbs are generated, it is anticipated that maintenance contractors will be responsible for the off-site removal and appropriate recovery/disposal of these wastes.

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

It is assumed light bulbs from the retail/commercial units and childcare facility will be removed by external electrical/maintenance contractors. Otherwise they should be stored appropriately within the units pending collection by a suitably permitted/licenced waste contractor.

Textiles

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

Waste Cooking Oil

If the retail/commercial or childcare facility units use cooking oil, waste cooking oil will need to be stored within the tenants unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required. Waste cooking oil generated by the retail/retail services/offices tenants must be collected from the unit by an authorised waste contractor.

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

Waste Sludge

If a passive grease separator is required in any of the retail/commercial units, waste sludge/wash-water from the grease separators will need to be pumped from the grease separators by vacuum tanker as required by the manufacturer's instructions and trade effluent discharge licence conditions.

Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the retail/commercial and childcare facility tenants. The collection of bulky waste will be arranged as required by the tenants. 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, tenants sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity, where possible, if they arise.

6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that complies with 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 *SDCC Waste Bye-Laws*, *Draft SDCC Waste Bye-Laws Waste Management (Food Waste) Amendment Regulations 2015 (S.I. No. 190 of 2015)* and the *European Union (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 191 of 2015)*.

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.

REFERENCES

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 - 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;
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14. DCC, *Dublin City Development Plan 2016 – 2022* (2016)
15. 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).
16. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).

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20. BS 5906:2005 Waste Management in Buildings – Code of Practice.
21. DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2018).