

Residential Development
Courtstown, Little Island LRD
Operational Waste Management Plan

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1. INTRODUCTION

The Outline Operational Waste Management Plan (OWMP) has been prepared by Engenuiti Consulting Engineers on behalf of Ruden Homes Ltd. in support of a proposed 172 unit large scale residential development at Courtstown, Little Island, Co. Cork. The proposed development comprises of 146 no. residential dwellings and 26 no. apartments together with a creche unit and 4 commercial units . This OWMP relates to the apartment units, creche and commercial units which will be managed by a management company.

This waste plan has been prepared consistent with the requirements of national and regional waste policy, legislation and other guidelines. This operational waste management plan has been prepared to ensure that the management of waste during the operational phase of development is undertaken in accordance with the current legal and industry standards in particular including the Waste Management Act 1996 (as amended) and the associated Regulations, Protection of the Environment Act 2003 (as amended), Litter Pollution Act 1997 (as amended), the Southern Region Waste Management Plan 2015-2021, Cork County Waste Management Bye-Laws 2019, The Cork County Development Plan 2022 and the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities 2022. This Waste Management Plan has had regard to British Standards BS5906:2005 Waste Management in Buildings – Code of Practice.

This OWMP has been prepared to ensure that the proposed development will achieve maximum levels of waste reduction, reuse and recycling. This plan estimates the type and quantity of waste that will be generated by the proposed development once operational and aims to recommend appropriate collection and transport of waste measures. It is intended that this Plan will be used by the Operator for the proposed apartments to ensure efficient and legally compliant waste management for the apartments.

Accordingly, this OWMP aims to provide a robust strategy for storing, handling, collection and transport of the wastes generated at site.

Residential waste storage allows for a weekly (seven day) storage capacity for MDR, food, glass and residual (i.e. non-recyclable: MNR). Residential bins will be provided within dedicated storage areas for each apartment block. On the day of collection, bins from the waste storage areas will be brought to the collection point where all bins will be emptied by the approved waste collector. Once emptied the bins will be returned to the appropriate waste storage areas.

2. LEGISLATION PLANNING POLICY

2.1. NATIONAL LEGISLATION

Ireland waste policy is based on the EU waste hierarchy and includes a range of measures across all tiers namely, prevention and minimisation, reuse, recycling, recovery and disposal.

The Government policy document “Changing Our Ways” was issued in 1998. This policy document identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The document was focused on reducing reliance on landfill and finding alternative methods for managing waste. One target within the document sought 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. This document proposed several 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’. 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.

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’. Covering the period 1998 – 2003, the aim of this document was to assess progress to date regarding 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.

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’. The policy document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out several 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 that detail estimates for household and commercial waste generation in Ireland and the level of recycling, recovery and disposal of these materials. In the most recent EPA waste data release on 31st October 2018 (latest reference year 2016) the following trends were recorded:

Generated – Ireland produced 2,763 Kilotons of municipal waste in 2016. This is a six percent increase since 2014. This means that each person living in Ireland generated 580kg of municipal waste in 2016.

Managed – Waste collected and treated by the waste industry. In 2016, a total of 2,718 Kilotons of municipal waste was managed.

Unmanaged – Waste that is not collected or brought to a waste facility and is therefore likely to cause pollution in the environment because it is burned, buried or dumped. The EPA estimates that 44.80 Kilotons were unmanaged in 2016.

Recovered – the amount of waste recycled, used as a fuel in incinerators, or used to cover landfill waste. In 2016, almost three quarters (74%) of municipal waste was recovered. This is a decrease from 79% in 2014.

Recycled – the waste broken down and used to make new items. Recycling also includes the breakdown of food and garden waste for compost. The recycling rate in 2016 was 41%, the same as 2014.

Disposed – the waste landfilled or burned in incinerators without energy recovery. Just over a quarter (26%) of municipal waste was landfilled in 2016.

The Sustainable Urban Housing Design Standards for New Apartments 2022 set out guidelines for waste storage in apartment developments. The guidelines state that within apartments there should be adequate provision for the temporary storage of segregated materials prior to deposition in communal waste storage.

2.2. REGIONAL LEVEL

Previously, Waste Management practices were regulated and controlled by several documents that have been published on a local level. This practice has now been superseded by the establishment of the following regional waste management authorities: The Southern Region, Eastern-Midlands Region and Connacht-Ulster Region. The application site is in the Southern Region. In May 2015 the Southern Region Waste Management Plan 2015-2021 was published. The Southern Region Waste Management Plan replaced the Cork County Waste Management Plan 2004-2009.

Southern Region Waste Management Plan 2015-2021

The Waste Management Plan for the Southern Region is the framework for the prevention and management of waste in a safe and sustainable manner. The Southern Region Waste Management Plan (SRWMP) was prepared by the Local Authorities of the Southern Region. The SRWMP provides policy direction and targets to be achieved, as well as a roadmap of actions to be taken. The SRWMP sets out three strategic targets for waste management for 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.

2.3. LOCAL LEVEL CORK COUNTY DEVELOPMENT PLAN 2022

Cork City Council and Cork County Council carried out a joint Waste Management Strategy for Cork in 1995. Following on from this, they then developed their own Waste Management Plans which cover the period from 2004- 2009. Since then, Cork is now considered part of the Southern region as above and the regional waste management plan applies.

2.4. 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 and associated legislation includes:

- Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended by the Protection of the Environment Act 2003 (S.I. No. 27 and S.I. No. 413 of 2003) and amended by the Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended.
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended by the Litter Pollution Regulations 1999 (S.I. No. 359 of 1999) and Protection of the Environment Act 2003.

- European Communities (Trans-frontier Shipment of Waste) Regulations, 1994 (S.I. No. 221 of 1994).
- European Union (Properties of Waste Which Render It Hazardous) Regulations 2015 (S.I.No. 233 of 2015).
- Waste Management (Licensing) Regulations 2000 (S.I No. 185 of 2000) as amended 2004(S.I. No. 395 of 2004) and 2010 (S.I. No. 350 of 2010).
- 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).
- European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended 2011 and 2016 (S.I. No. 323 of 2011).
- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended 2008 (S.I No 87 of 2008) and 2016 (S.I. 24 of 2016).
- Waste Management (Facility Permit and Registration) Regulation 2007 (S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008), 2014 (S.I. No. 310 and S.I. No. 546 of 2014) and 2015 (S.I. No. 198 of 2015).
- Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended 2014 (S.I. No. 349 of 2014) and 2015 (S.I. No. 347 of 2015).
- 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); and
- Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended by European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)

Waste contractors must comply with the provisions of the Waste Management Acts of 1996 – 2001, amendments and associated Regulations, which require that a contractor handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur because of any of these activities.

A permit to transport waste must be held by the relevant contractor and this permit shall be verified with the Permitting Authority.

A contractor shall not be permitted to receive any waste at their site, unless in possession of a waste permit granted by a local authority under the Waste Management (Permit) Regulations, 1998 or a waste licence granted by the EPA. The permit will specify the types of waste a contractor is licensed to receive, store, sort, and recycle on their site. The contractor should also be aware of the relevant Waste Byelaws in force in the functional area.

2.5. CORK COUNTY WASTE MANAGEMENT BYE-LAWS 2019

The Cork County Council Bye Laws for the *Segregation, Storage and Presentation of Household and Commercial Waste 2019* as effective from 1st June 2019 apply to the functional area of Cork County Council and as noted in the Bye Laws includes such other areas, in the future, by means of legislation, become part of the administrative area of the Council. The Bye Laws set out the requirements regarding the maintenance, use and storage of waste containers as well as information on collection including collection times.

2.6. RESPONSIBILITY OF THE WASTE PRODUCER

The waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) Waste contractors will be employed to physically transport waste to the final waste disposal / recovery site.

It is therefore critical that the residents, commercial tenants and the proposed 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 because 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.

2.7. REGIONAL WASTE MANAGEMENT SERVICE PROVIDERS AND FACILITIES

Various contractors offer waste collection services for the residential and commercial sector in Cork City and County. Details of waste collection permits for the region are available from the EPA. As outlined in the new Regional Waste Management Plan and Southern Region Waste Management Plan 2015 - 2021, there is a decreasing number of landfills available in Ireland. Only three municipal solid waste landfills remain operational and are all operated by the private sector. There are several other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. Waste permits issued by the Local Authorities are available from the website and all waste/IED licenses issued are available from the EPA.

3. DESCRIPTION OF THE PROJECT

3.1. SCALE OF THE DEVELOPMENT

The proposed development consists of 146 no. residential dwellings and 26 no. apartments. The mix of apartment units are summarized as follows:

- 12 no. 1 bedroom apartments
- 5 no. 2 bedroom apartments
- 3 no. 3 bedroom apartments
- 6 no 2 bedroom duplex apartments

The development also includes residential amenity, surface car parking, bicycle parking; storm water attenuation, landscaping and all associated site development works on lands comprising 4.35 hectares (**net site area**)

SUMMARY OF APARTMENT MIX AND COMPLIANCE VALUES		
No. of Units	Type	Description
3	Apt 1	3 Bedroom (5p)
10	Apt 2	1 Bedroom (2p)
5	Apt 3	2 Bedroom (4 p)
2	Apt 4	1 Bedroom (2p)
3	E1	1 Storey-2 Bedroom
3	E2	2 Storey-2 Bedroom
26 TOTAL UNIT NUMBER		

Table 1.0 – Apartment Summary Area Schedule

Percentage Apartment Mix			
No.	Type		Percentage
12	1 Bedroom Units		46.15 %
5	2 Bedroom Units		19.23 %
3	3 Bedroom Units		11.54 %
0	4 Bedroom Units		0.00 %
3	Duplex -1 Storey -2 Bedroom		11.54 %
3	Duplex-2 Storey -2 Bedroom		11.54 %
26	Apartment Units in Total		100 %

Table 1.1 – Apartment Development Unit Mix

3.2. TYPICAL WASTE CATEGORIES

The predicted waste types that will be generated at the proposed development include the following:

- Mixed Dry Recyclables (MDR) – includes Newspaper / General paper Magazines, Cardboard Packaging, Drink (Aluminium) Cans, Washed Food (Steel/Tin) Cans, Washed Milk & Juice Cartons, Plastic Bottles, Rigid Plastics.
- Mixed Non-Recyclables (MNR) / All General Waste – Nappies, soiled food, packaging, old candles, plasters, vacuum cleaner contents, contaminated plastics.
- Organic (food) Waste – Leaves, weeds and mosses, dead plants, grass, bread, pasta and rice, meat, fish, poultry bones, out of date food, tea bags, coffee and paper filters. Fruit and vegetables (cooked and uncooked). Food soiled cardboard or paper, eggs and dairy products, paper napkin and paper towels.
- Glass

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

- Textiles
- Household hazardous waste (chemicals)
- Batteries
- Waste electrical and electronic equipment.
- Fluorescent tubes and other mercury containing waste.
- Furniture (and from time-to-time other bulky wastes)
- Kitchen appliances
- Aerosols and health care 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* and *Hazardous Waste List* were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*, which was a condensed version of the original two documents and their subsequent amendments. This document has been replaced by the EPA 'Waste Classification - List of Waste & Determining if Waste is Hazardous or Non-Hazardous' 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 the Table 2 below.

WASTE MATERIAL	LoW CODE
Paper and Cardboard	20 01 01
Plastic	20 01 39
Metals	20 01 40
Mixed Municipal Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25/26
Biodegradable garden and park waste	20 02 01
Textiles	20 01 11
Batteries and accumulators	20 01 33-34
Printer Toner / Cartridges	20 01 27-28
Green Waste	20 02 01
Waste electrical and electronic equipment	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

Table 2.0 - Low Codes

3.4. ESTIMATED WASTE ARISING

3.4.1. APARTMENT WASTE ESTIMATION

Waste arisings were calculated in accordance with BS 5906:2005 and included a provision of 5 litres(L) of food waste per residential unit per week. These guidelines determine the minimum capacity for waste storage space to be allocated and are as follows:

- 30 litres (L) per unit + 70L per bedroom (see Table 4 for further details).
- Split 50/50 between MNR (residual waste) and DMR (recycling), (based on floor areas and occupancy model).
- 5L per residential unit for food waste.

The estimated waste generated for the apartments are set out in Table 3 and 4.

Number of Bedrooms	Weekly Waste Arisings per Unit (Litres)			
	DMR (Recycling)	Food Waste (Organic)	MNR (Residual)	Total
1 Bedroom	45	5	45	95
2 Bedrooms	85	5	85	175
3 Bedrooms	120	5	120	245

Table 3.0 - Weekly Waste Arising

3.4.2. Apartment | Creche | Commercial Unit Waste Estimation

A waste generation model (WGM) was developed and 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. Applying the numerical factors to the proposed development, estimated waste arising results are set out in Table 4 below.

Waste Type	Waste Volume (L/week)		
	Apartments	Creche/Commercial	Totals (L)
Organic Waste	100	35	135
Mixed Dry Recyclables	1325	533	1858
Glass	300	106	406
Mixed Municipal Waste	1325	533	1858
Total	3050	1207	4257

Table 4.0 - Residential Waste Volume (L/per week)

4. WASTE STORAGE AND COLLECTION

It is required that space be provided for recycling bins to accommodate 50% of the total weekly volume. This is in line with the BS5906:2005 requirements. Residual waste (MNR) is required for 87.5% of the total weekly arising. For the purpose of the strategy Glass and Organic Waste is required for 87.5% of the total weekly arising.

4.1. WASTE STORAGE AREAS

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

- BS 5906:2005 Waste Management in Buildings – Code of Practice
- Southern Region Waste Management Plan 2015 – 2021; and
- Cork County Council Byelaws (2019)
- DoEHLG Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities 2022

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

- Organic waste
- Dry mixed recyclables
- Glass and
- Mixed non recyclables.

Bin storage to all houses and will be provided either to the rear or front of the units. (See drg no 10277-PL-041) for further details.

Secure refuse and recycling stores are proposed at ground floor level adjacent to the apartment block. All residential waste generated within individual apartments will be brought by residents to the shared bin store area. This area will be easily accessible to residents. Residents will be required to segregate their waste beforehand and then use the appropriate bins provided.

Bins from the communal waste storage area will be removed by the appointed waste contractors. Set down areas for refuse collection are conveniently proposed close to the waste storage areas. All bins will comply with BS EN 840 2012.

Bins within the storage area will be colour coded and labelled so that they are easily identifiable and to avoid cross contamination between the different waste streams.



Figure 1 Proposed shared bin stores Indicated by "B" above.

The waste storage areas throughout the proposed development will be designed to meet the following minimum requirements:

- Easily accessible to users and collector.
- Sufficient communal storage area to satisfy the three-bin system for the collection of mixed dry recyclables, organic waste and residual waste.
- Provision of separate facilities for glass and plastics.
- The waste storage area will be adequately ventilated.
- The waste storage area will be well lit.
- The waste storage area will not be accessible by the public.
- Waste storage area will have capacity for a washed down area.

Bin storage requirements are set out in Table 5.

4.2. BIN STORAGE REQUIREMENTS

Area/Block	Number of Bins Required for a Weekly Collection				
	MNR (Residual)	Organic	DMR (Recycling)	Glass	Total
Residential	1 x 1100L	1 X 240L	1 x 1100L	1 X 240L	2 X 240L 2 X 1100L
Commercial	1 x 1100L	1 X 240L	1 x 1100L	1 X 240L	2X 240L 2 X 1100L

Table 5.0 - Apartment | Creche | Commercial Storage Requirements

4.3. WASTE RECEPTACLES

Waste storage receptacles will vary in size and colour dependent on the waste contractor to be used. All waste receptacles used will comply with the BS EN 840 2012 standard for performance requirements of mobile waste containers.



Figure 2 Typical Waste Receptacles

4.4. WASTE COLLECTION

All waste contractors serving the proposed development must hold a valid waste collection permit for the types of waste being collected and all waste must be transferred to licenced facilities only. Waste shall be collected weekly.

Waste will be collected at agreed times on agreed days by the waste contractors. Waste will be presented for collection in a manner that will not endanger health, harm the environment or create a nuisance through odours or litter.

Written information will be provided to tenants about the arrangements for waste separation, segregation, storage and presentation prior to collection in accordance with the relevant Byelaws.

4.5. OTHER TYPES OF WASTE GENERATED

In addition to the typical waste materials that are generated daily, there will be some additional waste types generated from time to time that will need to be managed separately as discussed below.

Green waste

Green waste may be generated from gardening including grass mowing by individual house owners and by landscaping of shared external amenity. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens can be placed in the organic waste bins.

Batteries

In accordance with Cork County Council waste byelaws, it will be prohibited for residents to place batteries in the waste bins provided on site. A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place to comply with the Waste Management Batteries and Accumulators Regulations 2014 as amended. In accordance with these regulations' consumers can 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 the batteries were purchased at the retail outlet and regardless of whether the person depositing the waste battery purchases any product or products from the retail outlet.

Waste Electrical and Electronic Equipment (WEEE)

The 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.

Printer Cartridge/Toners

Waste printer cartridge/toners generated by residents can be returned to the supplier free of charge or can be brought to the East Cork Civic Amenity Site, Carrigtwohill dedicated facility.

Chemicals (paints, adhesives, detergents etc)

Chemicals (such as 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 disposal.

5. SUMMARY & CONCLUSIONS

The Proposed Development will be sustainable with high standards of waste management performance, with due consideration given to waste which will be generated by the Proposed Development during its operation. Waste management within the Proposed Development has the following aims:

- Maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection/waste management information to the residents.
- To allow that all legal requirements for the handling and management of waste during the operation of the Proposed Development are complied with; and
- To provide tenants with convenient, clean and efficient waste management systems that enhance the operation of the buildings and promote high levels of recycling.

Separate storage will be provided for commercial DMR, glass, food waste and residual waste MNR within the curtilage of each unit and within dedicated combined bin stores. Additional capacity will also be provided to consider missed collections due to bank holidays, industrial action, vehicle failure and adverse weather conditions. All waste arisings will be stored in bins proportionate to the volume of waste produced.

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.



APPENDIX A

Residential Development
Courtstown, Little Island LRD
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Plan

Table 1 — Typical weekly waste arisings and subsequent storage requirements

Building	Equation for weekly waste arisings litres	Typical example of the size of concern	Weekly waste arisings litres	80 l bin/bag/box equivalent	120 l bin equivalent	240 l bin equivalent	660 l bin equivalent	720 l bin equivalent	1 100 l bin equivalent	7.6 m ³ compactor equivalent (ratio 3:1)
Domestic	number of dwellings × (volume arising per bedroom [70 l] × average number of bedrooms) + 30}	number of dwellings = 1, average number of bedrooms = 3	240	3.0	2.0	1.0	0.36	0.33	0.22	0.01
Office	volume arising per employee [50 l] × number of employees	number of employees = 40	2 000	25.0	16.67	8.33	3.03	2.78	1.82	0.09
Shopping centre	volume arising per m ² of sales area [10 l] × square meterage	sales area = 25 000 m ²	250 000	3125.0	2083.3	1041.7	378.8	247.22	227.3	11.11
Fast food outlet	volume per sale [5 l] × number of sales	number of sales = 45 000	225 000	2812.5	1875.0	937.5	340.9	312.5	204.6	10.0
Department store	volume per m ² of sales area [10 l] × sales area	sales area = 3 700 m ²	37 000	462.5	308.3	154.2	56.1	51.4	33.6	1.64
Restaurant	volume per number of covers [75 l]	number of covers (i.e. dining space) = 8	600	7.5	5.0	2.5	0.91	0.83	0.55	0.03
4/5 star hotel	volume per bedroom [350 l] × number of bedrooms	number of bedrooms = 370	129 500	1618.8	1079.2	539.6	196.2	179.9	117.7	5.76
2/3 star hotel	volume per bedroom [250 l] × number of bedrooms	number of bedrooms = 100	25 000	312.5	208.3	104.2	37.9	34.7	22.7	1.11
1 star hotel/B&B	volume per bedroom [150 l] × number of bedrooms	number of bedrooms = 5	750	9.38	6.25	3.13	1.14	1.04	0.68	0.03
Supermarket (small)	volume per m ² of sales area [100 l] × sales area	sales area = 800 m ²	8 000	100.0	66.7	33.3	12.1	11.1	7.3	0.36
Supermarket (large)	volume per m ² of sales area [150 l] × sales area	sales area = 2 000 m ²	30 000	375.0	250.0	125.0	45.4	41.7	27.3	1.33
Industrial unit	volume per m ² of floor area [5 l] × floor area	floor area = 2 000 m ²	10 000	125.0	83.3	41.7	15.1	13.9	9.1	0.44
Entertainment complex/leisure centre	volume per m ² of floor area [100 l] × floor area	floor area = 3 500 m ²	17 500	218.8	145.8	72.9	26.5	24.3	15.9	0.78

a Based on average household occupancy.