



Jameson Gate: Proposed Mixed Use Redevelopment of Park Shopping Centre

Outline Demolition & Construction Waste Management Plan

January 2021

Prepared for:

**Park Shopping Centre
Limited**

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1 INTRODUCTION

1.1 Summary

Park Shopping Centre Limited intend to apply for planning permission for the redevelopment of Park Shopping Centre.

The proposed development shall comprise the following: -

1. *Demolition of the existing Park Shopping Centre and nos. 42-45 Prussia Street, Dublin7 and creation of portal openings in the former boundary wall (Protected Structure);*
2. *(Construction of a new mixed use District Centre, Student Residential Housing and Build-to-Rent Housing development in 2 buildings, a South Building and a North Building, separated by a new pedestrian and bicycle street connecting Prussia Street with the emerging Grangegorman SDZ campus. The buildings will range in height from 3-5 storeys on Prussia Street to 6-storeys (South building) and 8-storeys (North Building) towards to GDA campus.*
3. *(District Centre development accommodating: -*
 - *Part-licensed supermarket, 11 no. retail/non-retail service units and 2 no. licensed café/restaurant units at ground floor;*
 - *Two vehicular entrances from Prussia Street to provide access for deliveries and services (South entrance) and to provide access to undercroft parking and van deliveries (North entrance);*
 - *Standing areas for deliveries and waste collection in designated service yards (South Building) and for car parking for 111 no. cars, light van deliveries and bicycle parking (North Building);*
 - *All associated ancillary facilities, landscaping and boundary treatments including acoustic attenuation measures where required.*
4. *Student residential accommodation overhead the District Centre accommodating 11no. student houses comprising 143 no. apartments (including 28 no. studios), with a total of 584 bedspaces (556 bedrooms) and associated balconies;*
 - *The North Building student residential accommodation has reception and student amenities (conciierge, café, lounge areas) at ground, mezzanine and first floor levels, with access to all levels overhead and a first floor level podium garden from which student apartments and student amenity areas (study centre, a recreation centre and laundry) are accessible; 2 no. amenity terraces with pergola structures at fourth floor.*
 - *The South Building student residential accommodation has ground floor level foyer with access to all levels, staff rooms, fitness centre at ground and mezzanine levels and a first floor level podium garden from which student apartments are directly accessible.*
5. *(5) Build-to-rent residential accommodation overhead the supermarket with lift and stair access from Prussia Street, comprising 29 no. apartments with balconies (28 no. 2 bedroom and 1 no. 3 bedroom units) and 3 no. 2 bedroom townhouses, laundry room, lounge/games room, bicycle store, waste store and podium garden with conservatory allotments.*
6. *6) The proposed new street will connect to the Grangegorman SDZ campus via a portal connection through a former boundary wall*
7. *7) The development includes art display along the new street, landscaping, boundary treatments, signage, plant and substations, and all associated site works and services.*

The purpose of this Outline Construction & Development Waste Management Plan (C&D WMP) is to ensure that waste arisings during the construction and demolition phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts 1996 - 2008 and associated Regulations and the Southern Region Waste Management Plan are complied with. It will also ensure that optimum levels of waste reduction, re-use and recycling are achieved.

1.2 Background

Compliance with this Waste Management Plan will ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible.

This Waste Management Plan also provides guidance on the appropriate collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

This Waste Management Plan will have regard to national guidelines and policies:

- Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects, July 2006
- Construction and Demolition Waste Management – a handbook for Contractors and Site Managers – CIF/FAS (2002)
- CIRIA document 133 Waste Minimisation in Construction
- The Quality Protocol for the Production of Aggregates from Inert Waste
- A Resource Opportunity – Waste Management Policy in Ireland
- The guidelines outline the issues that need to be addressed at the pre-planning stage of a development, through to completion and are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

This CDWMP will include

- Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes.
 - Waste disposal/recycling of C&D wastes at the site.
 - Provision of training for waste manager and site crew.
 - Details of proposed record keeping system.
- Details of waste audit procedures and plan.
 - Details of consultation with relevant bodies i.e. waste recycling companies, Local Councils, etc

2 CONSTRUCTION & DEMOLITION WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Government issued a Policy Statement in September 1998, known as Changing Our Ways, which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this Strategy was to recycle at least 50% of C&D waste within a five-year period (by 2003), with a progressive increase to at least 85% over fifteen years (by 2013).

In response to the “Changing Our Ways” report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report titled ‘Recycling of Construction and Demolition Waste’ concerning the development and implementation of a voluntary construction industry programme to meet the governments objectives for the recovery of construction and demolition waste.

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, as one of the recommendations of the Forum for the Construction Industry, in the Task Force B4 final report. The NCDWC subsequently produced Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects in July 2006 in conjunction with the Department of the Environment, Heritage and Local Government. There are threshold criteria set out in the Guidelines to determine whether a C&D WMP is required. The development requires a C&D WMP under the following criterion:

- New developments with an aggregate floor area in excess of 1,250 m²;
- Demolition/renovation/refurbishment projects generating in excess of 100m³ in volume, of C&D waste

The Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These Guidelines have been followed in the preparation of this document and include the following elements:

- Predicted demolition & construction wastes and procedures to prevent, minimise, recycle and reuse wastes;
- Waste disposal/recycling of C&D wastes at the site;
- Provision of training for waste manager and site crew;
- Details of proposed record keeping system;
- Details of waste audit procedures and plan;
- Details of consultation with relevant bodies, i.e. waste recycling companies; and
- Dublin City Council, etc.

Other guidelines followed in the preparation of this report include the “Construction and Demolition Waste Management – a handbook for Contractors and Site Managers” published by FÁS and the Construction Industry Federation (2002).

Comprehensive reports regarding the quantities of C&D waste produced in Ireland have been compiled by the Environmental Protection Agency (EPA). National Waste (Database) Reports detailing, among

other things, C&D generation and the level of recycling, recovery and disposal of this material, provide estimates based on information from waste companies and contractors.

2.2 Regional Level

The proposed development is located in the Eastern Midlands Waste Region which covers the following councils:-

- Dublin City Council;
- Dun Laoghaire Rathdown County Council;
- Fingal County Council;
- South Dublin County Council;
- Kildare County Council;
- Louth County Council;
- Laois County Council;
- Longford County Council;
- Offaly County Council;
- Westmeath County Council;
- Meath County Council; and
- Wicklow County Council.

The Eastern Midlands Region Waste Management plan was published in 2015 and covers the period 2015-2021.

2.3 Legislative Requirements

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 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 until its legal disposal (including its method of disposal). Following on from this is the concept of “polluter pays” whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g. for collection and transport of waste).

It is therefore imperative that the owners/managers of the site and any contractors engaged, undertake on and off-site management of waste in accordance with all legal requirements.

Waste contractors are typically engaged to transport waste off-site. Each contractor must comply with the provisions of the Waste Management Act 1996 (amended 2001) and associated Regulations. This includes the requirement that a contractor handle, transport and 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 the relevant contractor, which is typically issued by the local authority where the majority of the contractors business takes place.

Waste receiving facilities must also be appropriately licensed/permitted. Operators of such facilities cannot legally receive any waste, unless in possession of a waste permit granted by the relevant local authority under the Waste Management (Facility Permit & Registration) Regulations 2007 or a waste

licence granted by the EPA. The permit/licence held will specify the type and quantity of waste that can be received, stored, sorted, recycled and/or disposed of at the specified site.

2.4 Regional Waste Management Service Providers and Facilities

Various private waste contractors offer waste collection services across the Eastern Midlands Waste Region. Details of waste collection permits (granted, pending and withdrawn) for the Region are contained within the Eastern Midlands Region Waste Management Plan.

The Eastern Midlands Region Waste Management Plan also sets out licensed waste management facilities and landfill sites across the region

3 DESCRIPTION OF PROJECT

3.1 Development Description

The proposed development shall comprise the following: -

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8. *Demolition of the existing Park Shopping Centre and nos. 42-45 Prussia Street, Dublin7 and creation of portal openings in the former boundary wall (Protected Structure);*
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 - *The North Building student residential accommodation has reception and student amenities (conciierge, café, lounge areas) at ground, mezzanine and first floor levels, with access to all levels overhead and a first floor level podium garden from which student apartments and student amenity areas (study centre, a recreation centre and laundry) are accessible; 2 no. amenity terraces with pergola structures at fourth floor.*
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13. *6) The proposed new street will connect to the Grangegorman SDZ campus via a portal connection through a former boundary wall*
14. *7) The development includes art display along the new street, landscaping, boundary treatments, signage, plant and substations, and all associated site works and services.*

The proposed schedule of accommodation is outlined in Table 1.

Proposed Land Uses	
Land Use	Size
District Centre – Anchor Retail	2,653 sq. m GFA
District Centre – Ancillary Retail Units	1,132 sq. m GFA
Purpose Built Student Accommodation	584 bed spaces
Build-To-Rent Apartment Accommodation	130 bed spaces

Table 1 Proposed Land Uses

3.2 Project Scope

Nature of Project: The demolition of the existing district centre and associated structures on site, the excavation for the installation of new services and forming a undercroft car park and the construction of a new district centre in two buildings, a North Building and a South Building, separated by a new street to comprise part-licensed supermarket, retail/non-retail service units and licensed restaurants.

Scope of Project:

- Demolition of existing structures
- Underground drainage;
- Excavation for the installation of new services and forming undercroft car park;
- Pouring of concrete structural elements;
- Blockwork rising walls;
- Cast insitu ground floor slabs and rising elements;
- Blockwork and brickwork rising elements;
- Pre-cast floors stairs and balconies;
- Aluminium windows and curtain walling; and
- Fit out of units

Contract Period: To be confirmed

Recycling Co-Ordinators: To be confirmed on appointment of main contractor

Recycling Contractor: A nominated and licenced recycling contractor.

Waste Handling Facility: Concrete, Soil and C& D general waste- A nominated and licenced waste handling facility.

Position	Name	Contract Details
Client	Park Shopping Centre Limited.	To be confirmed
Contractors Manager	To be confirmed on appointment of main contractor	To be confirmed
Waster Manager on Site	To be confirmed on appointment of main contractor	To be confirmed
Site Manager	To be confirmed on appointment of main contractor	To be confirmed

Table 2 Key Contacts

3.3 Waste Management Goal

This project aims to recycle, reuse or salvage the maximum as practically possible.

3.4 Diversion and Waste Prevention

Waste Materials fall into three categories for management, these are:

- Reduce
- Reuse
- Recycle

If surplus materials can be used in the permanent works they are classified as materials, which have been re-used. If they are surplus to requirements and need to be removed from site and they can be removed and used in their present form, they can be removed from site for re-use.

3.5 Recycling

If the surplus material cannot be re-used in its present form but could be used in a different form, it is sent for recycling such as 50x50 timber to make chipboard.

Waste will be minimized on-site by careful ordering of materials and scheduling of deliveries as required for use.

Any surplus materials which can be re-used will be stacked and stored for removal from site and re-use on other projects in their current form including undamaged timbers, clean unbroken blocks etc.

Some segregation of material will be carried out on site:

An area for skips will be formed and separate skips for the following will be provided

- Timber
- Metals
- Mixed waste
- Canteen waste – general and recyclable

Waste plastics and packaging compacting baler (owned by the Applicant or their agent) used for final segregation and baling of waste to allow for better utilization of skips.

Recycling and waste bins are to be kept clean and clearly marked in order to avoid contamination of materials.

As subcontractors commence works on site their waste will be reviewed and a separate skip will be provided should it be deemed appropriate e.g. Drylining plasterboard

All waste will be removed from site by an approved waste management contractor and brought to the nearest waste facility.

All C & D waste will be segregated at the waste facility for recycling and a breakdown of this waste will be provided from each company.

3.6 Contamination Prevention

A designated storage & waste area will be established on site where the skips will be located and a clear area provided for storage of materials suitable for re-use.

Skips will be clearly labelled to prevent cross contamination of waste. Applicant or their agent will have a colour coded skip management system for skips, e.g. yellow for plastics/packaging. red for timber, Blue for plasterboard etc.

Appropriately sized portable skips will be positioned in work areas for removal to the large skips. These skips will be clearly labelled to prevent cross contamination of waste

Canteens complete with bins for general waste and recyclable waste will be established on-site. Eating elsewhere will be prohibited in all other areas to prevent generation of food waste in other areas of the site.

3.7 Communication Measures

Pre-contract meetings will be held with subcontractors. As part of the agenda of these meetings project goals and requirements will be explained to ensure subcontractors fully understand their role in the achieving the least waste from the site. Waste prevention and recycling measures and expected waste materials for each individual contractor will be discussed and methodology of waste segregation and disposal agreed.

A copy of the construction waste management plan will be issued to all subcontractors.

Site Management will provide on-site briefing via induction on appropriate separation, handling, recycling, re-use and return methods to be used by all parties and at appropriate stages of the project where applicable. Toolbox talks will be carried out regularly on waste issues and all subcontractors will

be expected to attend. This will ensure that everyone feels they are included and that their participation is meaningful.

Clear signage will be provided on skips indicating the type of waste permitted.

Site Management will monitor the effectiveness and accuracy during the routine site inspections.

4 WASTE ARISING AND PROPOSALS FOR MANAGING WASTE

4.1 Introduction

Waste will be segregated on site. The C&D WSA will have skips and receptacles for all recyclable wastes. The appointed waste contractor will collect and transfer the recyclable wastes as the receptacles are filled. The non-recyclable waste will be transferred to landfill. Numerous waste contractors in the Eastern Midlands Region are licenced to carry out this operation.

4.2 Bedrock, Blocks and Concrete

The majority of the waste C&D material will be clean, inert material and it is proposed to reuse it for construction purposes where possible.

Following desktop studies, it is unlikely that bedrock will be encountered during excavations. Any quantity generated will be re used on site where permissible.

4.3 Topsoil/ Subsoil

Topsoil and subsoil will be excavated to facilitate construction of the foundations and installation of underground services for the new build. Excess inert soils and subsoils excavated that are not required for use as fill on site will be disposed of or re-used offsite.

If the total amount of soil to be removed from the site will exceed 1,000 tonnes, the soil will be removed and disposed of by contractors licensed under the Waste Management Act of 1996 (as amended 2001), the Waste Management (Facility Permit & Registration) Regulations of 2007 and the Waste Management (Collection Permit) Regulations of 2007. The issuing of such a permit to contractors allows the contractor to use such fill material for landscaping and land reclamation, subject to conditions defined in the Permit.

The site manager will investigate whether nearby construction sites may require fill material, to both minimise the costs of transport and to reuse as much material as possible.

A site investigation will be carried out to determine the state of the soil/subsoil. If the site investigation establishes that some soil/subsoil excavated at the site was deemed to be contaminated appropriate measures will be taken to manage its excavation and removal as necessary.

During the construction phase the contaminated soil/subsoil (i.e. non- hazardous or hazardous) will be stored separately to the inert soil/subsoil, sampled and tested. The material will be appropriately classified as non-hazardous or hazardous in accordance with Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills, prior to being transported to an appropriately licensed facility by permitted contractors.

4.4 Soil & Stone – By Products

Classification of soil and stone, where appropriate, as a by- product, brings significant economic benefits as the material can be appropriately handled outside of waste legislation. The environmental benefits are also considerable, as the process facilitates the circular economy.

All such classification will be carried out in accordance with the EPA issued 'Guidance on Soil and Stone By-Products in the Context of Article 27 of the European Communities (Waste Directive) Regulations 2011' (June 2019)

Such notifications must be by the material producer or one who makes the notification with the express written consent of the material producer. The guidance calls for all notifications to ensure each and all by-product conditions are met, namely:

- Further use of the soil and stone is certain;
- The soil and stone can be used directly without any further processing other than normal industrial practice;
- The soil and stone are produced as an integral part of a production process; and,
- Further use is lawful in that the soil and stone fulfil all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health

By-product decisions must be notified to the Agency using the online notification form.

Any article 27 notifications being notified to the Agency that relate to soil and stone material are required to have the following three templates signed and uploaded to the online notification form prior to notification:

1. Material Producer's Declaration;
2. Declaration of Soil and Stone Suitability - Civil, and
3. Declaration of Soil and Stone Suitability - Environmental.

4.5 Plastic

As plastic is now considered a highly recyclable material, much of the plastic generated during construction, primarily from packaging and material off-cuts, will be diverted from landfill and recycled. All recyclable plastic will be segregated at source and stored in a dedicated skip.

4.6 Cardboard

Cardboard packaging can also be recycled. Cardboard will be flattened and placed in a covered skip, to prevent it getting wet.

4.7 Timber

It is expected there will be timber waste generated from demolition activities, material off-cuts, damaged pieces and wooden pallets used for deliveries to site. Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be stored on site in a designated area for collection and recycling by a nominated waste contractor.

4.8 Metal

Steel is highly recyclable; there are numerous companies that will accept these materials. A segregated skip will be available for storage of metals on site pending recycling.

4.9 Plasterboard

There are currently a number of recycling services for plasterboard in Ireland. The Waste Manager will ensure that oversupply of plasterboard in the material deliveries is kept to a minimum. Excess plasterboard will be stored in a separate skip, pending collection for recycling.

4.10 Glass

A designated skip will be provided for any broken or other waste glass, which can then be recycled. The Waste Manager will liaise with the nominated waste contractor to establish any specific segregation requirements for waste glass (e.g. by colour or type).

4.11 Hazardous Materials

During actual construction activities, on-site storage of any hazardous wastes produced will be minimised, with off-site removal organised on a regular basis. Storage of all hazardous wastes on site will be undertaken so as to minimise exposure to on-site personnel (and the public) and to also minimise potential for environmental impacts. Hazardous wastes will be recovered wherever possible and failing this, disposed of appropriately and measures put in place to stop it occurring again.

4.12 Non-Recyclable Waste

There will be a general skip or other receptacle provided for non-hazardous C&D waste not suitable for reuse or recycling. This skip will include general wet waste (mixed food waste and food packaging), polystyrene, contaminated cardboard, contaminated plastic etc. Prior to removal, the receptacle will be examined by the Waste Manager (or delegate) to determine that recyclable materials have not been placed in there. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly.

4.13 Waste Management System

All information will be entered in a waste management system to be maintained on site. The main waste stream arisings, including surplus materials, which are likely to be generated during the project are illustrated in Table 2.

Waste Type	European Waste Classification Code	Waste Classification
Concrete, bricks, tiles, ceramics	17 01	
Concrete [Foundations, floor slabs (in-situ & hollowcore), beams & columns]	17 01 01	Non-hazardous
Concrete (blocks / bricks)	17 01 01	Non-hazardous
Clay Bricks (walls)	17 01 02	Non-hazardous
Mixtures of, or separate fractions of concrete, bricks and	17 01 07	Non-hazardous

ceramics (other than those mentioned in 17 01 06) (toilets / bathrooms)		
Wood, Glass, Plastic	17 02	
Wood	17 02 01	Non-hazardous
Glass	17 02 02	Non-hazardous
Plastic	17 02 03	Non-hazardous
Metals (Including Their Alloys)	17 04	
Copper, bronze, brass (sheeting, pipes, handles)	17 04 01	Non-hazardous
Aluminium (roller shutters, flashings)	17 04 02	Non-hazardous
Lead (flashings)	17 04 03	Non-hazardous
Iron & steel (reinforcement, roof beams, roof trusses, radiators, pipes)	17 04 05	Non-hazardous
Cables other than those mentioned in 17 04 10	17 04 11	Non-hazardous
Soil (including excavated soil from contaminated sites), stones and dredged spoil	17 05	
Soil and Stones other than those mentioned in 17 05 03	17 05 04	Non-hazardous
Insulation Materials and Asbestos-Containing Construction Materials	17 06	
Insulation materials containing asbestos*	17 06 01*	Hazardous*
Insulation materials other than those mentioned in 17 06 01 and 17 06 03 (underfloor, cavity & roof insulation)	17 06 04	Non-hazardous
Construction materials containing asbestos*	17 06 05*	Hazardous*
Gypsum-Based Construction Material	17 08	

Gypsum-based construction materials other than those mentioned in 17 08 01	17 08 02	Non-hazardous
Insulation materials containing asbestos*	17 06 01*	Hazardous*
Insulation materials other than those mentioned in 17 06 01 and 17 06 03 (underfloor, cavity & roof insulation)	17 06 04	Non-hazardous
Construction materials containing asbestos*	17 06 05*	Hazardous*

Table 3 Main Waste Types and Associated EWC Code

Note:

- 1 The selected European Waste Classification (EWC) codes provided are provisional only. In a number of instances more than one EWC may be considered appropriate. Care should be taken to ensure that the waste collectors permit includes all EWC codes specified in the appropriate documentation. In addition, there will be a requirement for a technically competent person to assess waste as it arises and to decide as to the classification of the material in accordance with the Hazardous Waste List.
- 2 For the purposes of this plan it is assumed that all of the soil and stone waste arising from the project will be categorised as inert. Analysis may be required prior to acceptance at certain facilities to demonstrate this assessment.

* Waste marked with an asterisk is considered as a hazardous waste pursuant to Directive 91/689/EEC on Hazardous Waste, European Waste Catalogue and Hazardous Waste List (Valid from 01/01/20002) EPA, Ireland.

4.14 Demolition Area

The demolition stage will involve the removal of existing buildings and structures on site. A formal Demolition Plan may be prepared for the site; however in general, the following sequence of works should be followed during the demolition stage:

- Buildings (Red Area) c. 3,605 sq. m
- Car Park (Blue Area) c. 6,314 sq. m

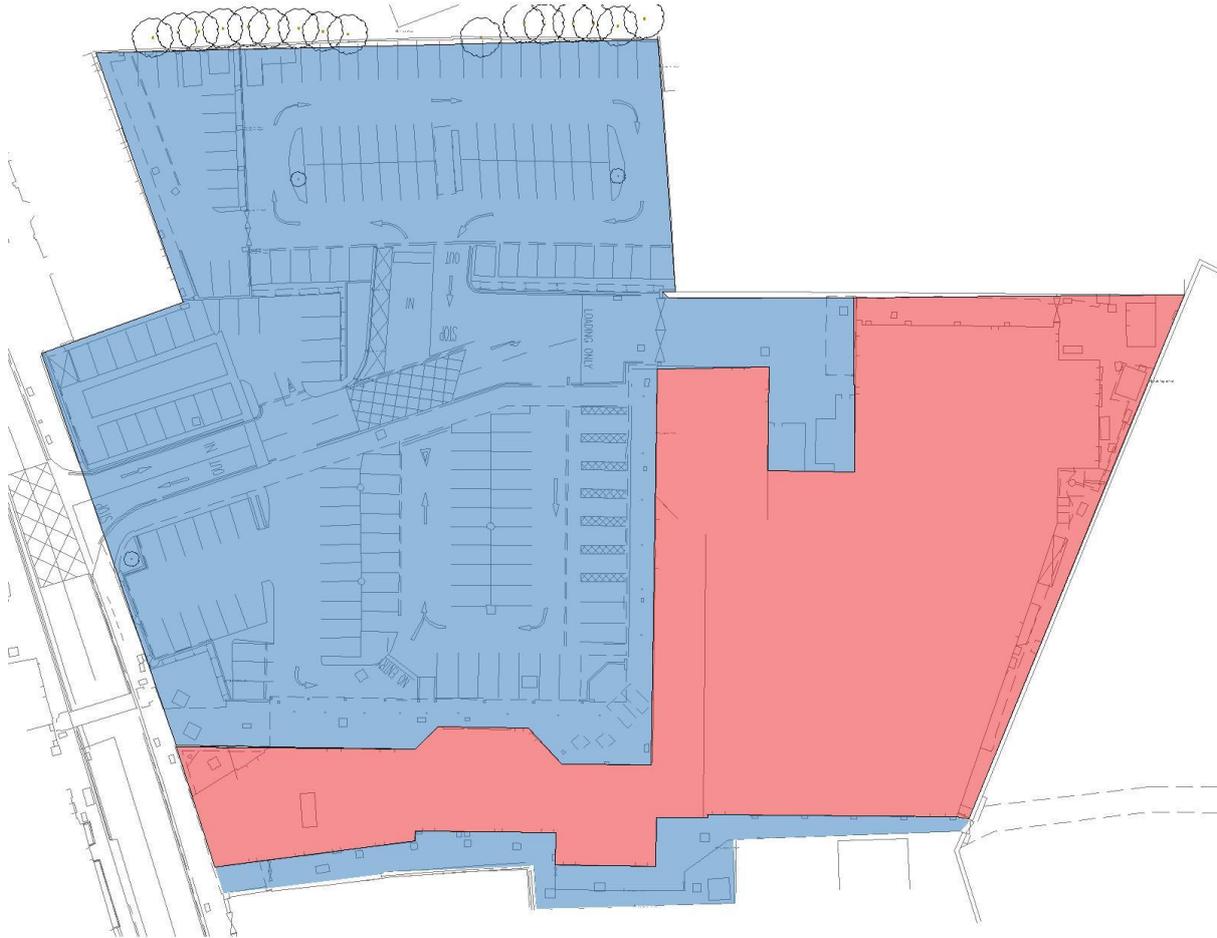


Figure 1 Demolition Area

4.15 Predicted Waste Arising

At this stage of the development the figures provided should be considered as provisional only; however, they do provide an indication as to achievable recycling rates. At a minimum, the contractor will be obliged to aim for an overall recycling rate of 83%, in accordance with the Waste Management Plan for the Dublin Region, 2005 - 2010.

During the construction phase, it is estimated that the quantities of C&D wastes/material surpluses will arise as in Table 3. The tonnage figures provided are indicative and based on conversion factors (subject to revision) presented in Table 3 as follows:

4.16 Demolition Waste

Table 3 shows the breakdown of demolition waste produced on a typical construction site.

Waste Type	%
Glass	3%
Concrete, Bricks, Tiles, Ceramics	64%
Plasterboard	4%
Asphalt, Tar and Tar products	6%
Metals	2%
Slate	8%
Timber	13%
Total Waste	100%

Table 4 Demolition Waste Generated on a Typical Irish Construction Site

Waste Type	Waste Tonnes	Reuse/Offsite		Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	64.9	0%	0.0	85%	55.1	15%	9.7
Concrete, Bricks, Tiles, Ceramics	1383.6	85%	1176.0	5%	69.2	10%	138.4
Plasterboard	86.5	0%	0.0	0%	0.0	10%	8.6
Asphalt, Tar and Tar products	129.7	0%	0.0	25%	32.4	75%	97.3
Metals	43.2	5%	2.2	80%	34.6	15%	6.5
Slate	172.9	0%	0.0	85%	147.0	15%	25.9
Timber	281.0	10%	28.1	40%	112.4	50%	140.5
Total	2161.8		1206.3		450.7		427.0

Table 3 - On and Off-Site Reuse, Recycle and Recovery Target Rates for Demolition Waste

Actual demolition waste production figures will be calculated prior to work commencing based on survey information for the site, including material types, wall thickness, building heights and depth of foundations.

The volume of the recycling produced through demolition will be used in the construction of the basement.

4.17 Soil Removal

Based on the levels of the proposed development there will be c. 11,000 m³ of cut from the proposed development.

4.18 Construction Waste Generation

The EPA has produced figures for the C&D waste recorded in the National Waste Database. This included a percentage breakdown of waste showing the percentage of each waste type in the C&D stream.

The US EPA has also produced figures for the characterisation of building-related C&D waste. Figures for the C&D waste generated per m² in the building industry, for mixed use developments from this study have been used as a waste range per m² for this site.

Table 4 shows the breakdown of the C&D waste types (from Irish EPA figures) produced on a typical site.

Waste Type	%
Soil & Stones	83%
Concrete, Bricks, Tiles, Ceramics, Plasterboard	13%
Asphalt, Tar and Tar products	1%
Metals	1%
Other	2%
Total Waste	100%

Table 5 Construction Waste Generated on a Typical Irish Construction Site

Waste Type	Waste Tonnes
Soil & Stones	3109.3
Concrete, Bricks, Tiles, Ceramics, Plasterboard	487.0
Asphalt, Tar and Tar products	37.5
Metals	37.5
Other	74.9
Total Waste	3746.2

Table 6 Total Waste*

*Excludes cut/fill and estimated topsoil

Waste Type	Waste	Reuse/Offsite		Recycle		Disposal	
		%	tonnes	%	tonnes	%	tonnes
Waste Types	tonnes	%	tonnes	%	tonnes	%	tonnes
Soil & Stones*	21809.3	85%	18537.94	0%	0.0	15%	3271.4
Concrete, Bricks, Tiles, Ceramics, Plasterboard	487.0	20%	97.40	75%	365.3	5%	24.4
Asphalt, Tar and Tar products	37.5	0%	0.00	25%	9.4	75%	28.1
Metals	37.5	5%	1.87	80%	30.0	15%	5.6
Other	74.9	10%	7.49	40%	30.0	50%	37.5
Total	22446.2		18644.70		434.6		3366.9

Table 7 On and Off-Site Reuse, Recycle and Recovery Target Rates for Construction Waste

Any potentially contaminated material encountered will be classified and disposed of in accordance with Council Decision 2003/33/EC 10, which establishes criteria for the acceptance of waste at landfills. This is carried out by sampling and analysing the excavated material for a full waste acceptance criteria suite.

4.19 Proforma

The following proforma will be used to manage, motivate and reward the full adoption of the details outlined in the Construction & Waste Management Plan

RECYCLING OPERATIONS

Action ***

WHO

WHEN

- Choose bins/collection methods _____
- Order bins - oversee delivery _____
- Site bins/collection sites for optimum convenience _____
- Sort or process wood _____
- Sort or process metal _____
- Sort or process cardboard _____
- Sort or process drywall _____
- Sort or process _____ (material) _____
- Schedule material pickups/drop-offs _____
- Protect materials from contamination _____
- Document material pickups/drop-offs _____

*** Depending on the service option chosen, these may be the responsibility of the field personnel, the hauler, a full-service recycling contractor, or the subcontractors.

COMMUNICATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Complete Construction Waste Mgmt. Plan*			
<input type="checkbox"/> Hold Orientation/Kick-off Meeting*			
<input type="checkbox"/> Progress Update in Weekly Job-Site Meetings*			
<input type="checkbox"/> Encourage Just-In-Time Deliveries			
<input type="checkbox"/> Post Targeted Materials (Signage)			
<input type="checkbox"/> Distribute Tip Sheets for Job-Site Personnel			
<input type="checkbox"/> Post Goals/Progress (Signage)			

MOTIVATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Use formal agreements committing Subs to program	_____	_____	_____
<input type="checkbox"/> Require Mis-Sorters to Re-Sort Bin	_____	_____	_____
<input type="checkbox"/> Provide Stickers, T-Shirts, or Hats	_____	_____	_____
<input type="checkbox"/> Public Recognition of Participating Subs	_____	_____	_____
<input type="checkbox"/> Letters of Recognition	_____	_____	_____

<input type="checkbox"/> Awards Luncheon	_____	_____	_____

EVALUATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Perform Short Form Waste Audit	_____	_____	_____
<input type="checkbox"/> Perform Full Waste Audit	_____	_____	_____
<input type="checkbox"/> Perform Mid-Course Assessment	_____	_____	_____
<input type="checkbox"/> Perform Monthly Cost and Materials Tracking*	_____	_____	_____
<input type="checkbox"/> Perform Final Evaluation*	_____	_____	_____

4.20 Waste Management Packages

The following table outlines the material type, its disposal method and handling procedure. Quantity of materials will be updated upon appointment of a Main Contractor.

Material	Quantity	Disposal Method	Handling Procedure
Planter clearing debris		Keep separate for reuse and/or wood sale	Keep separated in designated areas on site
Clean dimensional and palette wood		Keep separate for reuse in onsite Demolition, or by site employees for either heating stoves or reuse in home projects.	Keep separated in designated areas on site. Place in "Clean Wood" container.
Plywood, OSB, particle board		Reuse Recycle	Reuse portion: Keep separated in designated areas on site. Landfill portion: Place in "Trash" container.
Painted or treated wood		Reuse Recycle	Reuse portion: Keep separated in designated areas on site. Landfill portion: Place in "Trash" skips.
Metals		Recycle at: Hammond lane Recycling	Keep separated in designated areas onsite. Place in "Metals" container.
Gypsum drywall		Recycle at: Panda Recycling Facility	Keep separate all demolished walls in a designated area.
Insulation		landfill	Keep separated in designated areas on site.
Flooring		landfill	Keep separated in designated areas on site.
Carpet and pad		Reuse or recycle with carpet manufacturer	
Glass		Glass Bottles: Recycle at: Panda Recycling Facility	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Plastics		Plastic Bottles: Recycle at: Panda Recycling Facility Plastic bags:	Keep separated in designated areas on site. Place in "Glass/Plastic

		Reuse, landfill	bottles/Metal Cans/Mixed Paper/ Cardboard” container
Beverage Containers		Recycle at: Panda Recycling Facility	Keep separated in designated areas on site. Place in “Glass/Plastic bottles/Metal Cans/Mixed Paper/ Cardboard” container
Cardboard		Recycle at: Panda Recycling Facility	Keep separated in designated areas on site. Place in “Glass/Plastic bottles/Metal Cans/Mixed Paper/ Cardboard” container

Table 8 Waste Management Packages

4.21 Tracking and Documentation Procedures for Off Site Waste

At the time of writing, the Main Contractor is yet to be appointment. Therefore, the waste stream destinations illustrated below is for information only. Upon appointment of the Main Contractor, the final destination of the Waste Stream Destinations will be confirmed with Dublin City Council.

All waste will be weighed and documented. Waste will be weighed on a site weighbridge if available and also independently by the contractor (either by weighing mechanism on the truck or at the receiving facility). These records will be kept on site (both hard and soft copies).

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Management Act 1996, Waste Management (Facility Permit & Registration) Regulations 2007, and the Waste Management (Collection Permit) Regulations 2007. This includes the requirement for all waste contractors to have a waste collection permit issued by local authority where the majority of the contractors business takes place. The Waste Manager will maintain a copy of all waste collection permits.

If the waste is being transported to another site, a copy of the waste permit or EPA Waste Licence for that site must be provided to the waste manager. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) document must be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on site along with details of the final destination (permits, licences, etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

In all instances, the contractor will look for proof from the waste facility that they have received it. Where loads are taken off by individual waste disposal contractors, the Main Contractor will record each license plate and load type. Before payment is made to the wate contractor proof of disposal from the receiving recovery facility will be required. No payment will be made until this proof is provided.

Waste destination streams are for information only and subject to review upon appointment of Main Contractor. Permit/licence numbers to be checked prior to appointment of waste contractor. Recover facilities are for reference only.

Waste	EWC Code	Collected by	Sorting Facility	Recovery Facility	
MSW Municipal Waste	20 03 01	Panda Waste Permit NWCPO- 14-11193-05	Panda Transfer Station, Ballymount Licence W0039-02	Panda, Beauparc Site W0140-04	Licence
			Panda Baling Station, Ballymount Licence W0003-03	Panda, Beauparc Site W0140-04	Licence
Mixed Dry Recyclables	20 03 01	Panda Waste Permit NWCPO- 14-11193-05	Panda Materials Recovery Facility Licence W0238-01	Panda, Beauparc Site W0140-04	Licence
				Panda Materials Recovery Facility Licence W0238-01	
Compost / Organic	20 01 08	Panda Waste Permit NWCPO- 14-11193-05	Panda Baling Station, Ballymount Licence W0003-03	Panda, Beauparc Site W0140-04	Licence
Glass	20 01 02	Panda Waste Permit NWCPO- 14-11193-05	Rehab Enterprises, Naas, Co. Kildare Licence W0279-02	Rehab Enterprises, Naas, Co. Kildare Licence W0279-02	
		Batt Enterprises Permit NWCPO- 14-11315-01	Batt Enterprises, Garristown, Dublin Permit WFP-FG-13- 0001-01	Batt Enterprises, Garristown, Dublin Permit WFP-FG-13-0001-01	
		Rehab Enterprises Permit WCP-DC- 10-1257-01	Rehab Enterprises, Naas, Co. Kildare Licence W0279-02	Rehab Enterprises, Naas, Co. Kildare Licence W0279-02	
Bulky Waste	20 03 07	Panda Waste Permit NWCPO- 14-11193-05	Panda Transfer Station, Ballymount Licence W0039-02	Panda, Beauparc Site W0140-04	Licence
			Panda Cappagh Site Licence W0261-02	Panda, Beauparc Site W0140-04	Licence
Timber	17 02 01	Panda Waste Permit NWCPO-14- 11193-05	Panda Transfer Station, Ballymount Licence W0039-02	Panda, Beauparc Site W0140-04	Licence
			Panda Cappagh Site Licence W0261-02	Panda, Beauparc Site W0140-04	Licence
			Irish Packaging Recycling, Ballymount Licence W0263-01	Export	
C&D Waste	17 09 04	Panda Waste Permit NWCPO-14- 11193-05	Panda Transfer Station, Ballymount Licence W0039-02	Panda, Beauparc Site W0140-04	Licence

Table 9 Waste Stream Destinations

REFERENCES

Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001 and associated regulations:

Waste Management (Facility Permit and Registration) Regulations, S.I No. 821 of 2007 as amended 2008 (S.I No. 86 of 2008).

Waste Management (Collection Permit) Regulations S.I No. 820 of 2007 as amended 2008 (S.I No 87 of 2008).

Waste Management (Packaging) Regulations 2003 (S.I. No. 61 of 2003)

Waste Management (Licensing) Regulations 2000 (S.I 185 of 2000) as amended 2002 (S.I 336 of 2002)

Waste Management (Planning) Regulations 1997 (S.I. 137 of 1997)

Waste Management (Landfill Levy) Regulations 2002 (S.I 86 of 2002)

Eastern Midlands Region Waste Management Plan 2015-2021.

Waste Management – Changing Our Ways, A Policy Statement, Department of Environment and Local Government, 1998.

“Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects”, Department of the Environment, Heritage and Local Government, 2006.

“Construction and Demolition Waste Management – a handbook for Contractors and Site Managers”, FÁS and the Construction Industry Federation, 2002.

Characterisation of Building-Related Construction and Demolition Debris in the United States, US EPA, June 1998.

Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

Council Directive 1999/31/EC, on the landfill of waste

Notification of by-product decisions by economic operators under Article 27 of the European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011

Guidelines for Construction Management 5.0 -DLRCC

Guidelines for Waste Storage Facilities 1.1 – DLRCC

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