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APPENDIX 15.1
RESOURCE AND WASTE MANAGEMENT PLAN

City Quay

Resource and Waste Management Plan

Bakkala Consulting Engineers

Report No. B1876-BLP-RP-C-006

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1 Introduction

1.1 Introduction

ByrneLooby have been engaged by Bakkala Consulting Engineers (Bakkala), on behalf of Ventaway Ltd., to complete a Resource and Waste Management Plan (RWMP) for the proposed development at City Quay in Dublin City Centre.

1.2 Report Objectives

The primary objective of this outline plan is to achieve more sustainable waste management practices through increased recycling, use of source separation and use of industry code to regulate collection and treatment of waste. The plan has been prepared in line with '*Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*', published by the EPA in 2021. The plan, as a minimum, shall include a provision for the management of all construction and demolition waste arising on site, shall make provision for the recovery or disposal of this waste to authorized facilities by authorized collectors.

This plan will provide information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with the current legal and industry standards. In particular, this plan aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also seeks to provide 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).

AWN have carried out a separate Operational Waste Management Plan which is included as part of the overall submission.

1.3 Industry Standards, National, Regional and Legislation Requirements

The primary legislation that govern waste management in Ireland and applicable to the development are:

- Waste Management Act 1996 as amended.
- Environmental Protection Agency Act 1992 as amended.
- Litter Pollution Act 1997 as amended.
- Planning and Development Act 2000 (as amended)

Current legislation implies that the waste producer is responsible for waste from the time it is generated to point of legal 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 destination, waste contractors will be employed to physically transport waste to the final destination.

Waste contractors must comply with the Waste Management Act 1996 and associated amendments and subordinate regulations. A permit to transport waste issued by Dublin City Council must be obtained and requires contractor to handle, transport and dispose waste in a manner which ensures no adverse environmental impacts occur as a result of these activities. Likewise, the facilities receiving waste must hold the appropriate licence under Waste Management (Facility Permit & Registration) regulations 2007 or by EPA. This Permit will include information such as type of waste that can be received along with stored, sorted, recycled and or disposal materials at the site.

At Regional level this development is located in the area of Dublin City Council which is covered by the Eastern-Midlands Region Waste Management Plan 2015-2021. Further plans are expected to be published soon.

In addition to the above, the following legal and industry standards are considered relevant and shall be followed:

- Department of Environment, Heritage and Local Government, Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Project (2006).
- FÁS and the Construction Industry Federation (GIF), Construction and Demolition Waste Management - a handbook for Contractors and site Managers (2002)
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)
- Department of Communications, Climate Action and Environment (DCCA), Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025 (Sept 2020).
- DCCA, Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021)
- EPA "Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019

1.4 Waste Management Objectives

The principal objective of sustainable resource and waste management is to use material resources more efficiently, where the value of products, materials and resources are maintained in the economy for as long as possible and the generation of waste is minimised. To achieve resource efficiency there is a need to move from a traditional linear economy to a circular economy. However, where residual waste is generated, it should be dealt with in a way that follows the waste hierarchy and actively contributes to the economic, social and environmental goals of sustainable development, as detailed in the figure below.

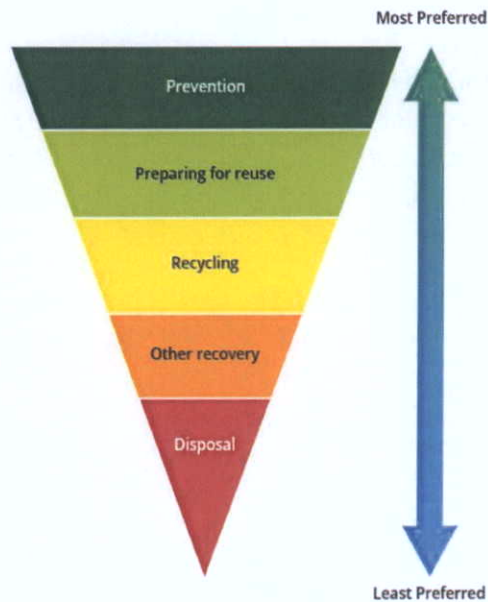


Figure 1.1: Waste Hierarchy (source: EPA)

Ireland's national waste policy was published by the Department of Communications, Climate Action and Environment (DCCA) in September 2020 and was titled 'Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025'. This policy is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling.

By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen. The proposed development will implement the above policy as follows:

- Re-use as much as possible on-site of excavated soils and stones as fill material and as landscaping material.
- The purchase of construction materials as needed to prevent over supply and potential for damage whilst in storage.
- The segregation of construction waste streams into separate storage containers to maximise the potential for the re-use of the materials.
- The import of Article 27 soils instead of virgin soils where possible

1.5 Construction Phase Requirements

The 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects', published by the EPA in 2021 outlines that the Resource & Waste Plan is updated for the construction phase of the project.

The RWMP for the construction phase will be prepared by the Contractor and will include the minimum content requirements as listed in Appendix C of the '*Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*' and specifically address the following aspects:

- Analysis of waste arisings / material surpluses
- Waste Management Responsibilities and Training
- Specific Waste Management
- Objectives for the Project including the potential to re-use existing on-site materials for further use in the construction phase.
- Methods proposed for Prevention, Reuse and Recycling
- Waste Handling Procedures
- Hazardous Waste Handling Procedures
- Waste Storage Procedures
- Waste Disposal Procedures
- Waste Auditing
- Record Keeping

2 Site Description & Proposed Works

2.1 Site Description

The site is located in the Dublin City Centre, at the junction between Moss Street and City Quay, as shown in Figure 2.1. The site is currently made up of a derelict three storey commercial property which borders City Quay and Moss Street in the northwest of the site. The south of the site is made up of hardstanding areas.

The area surrounding the site is generally made up of commercial premises. The River Liffey and Talbot Memorial Bridge are located directly north of the site. Access to the site is currently available from City Quay at the northeast corner of the site, as well as from Moss St., close to the southwest corner of the site.

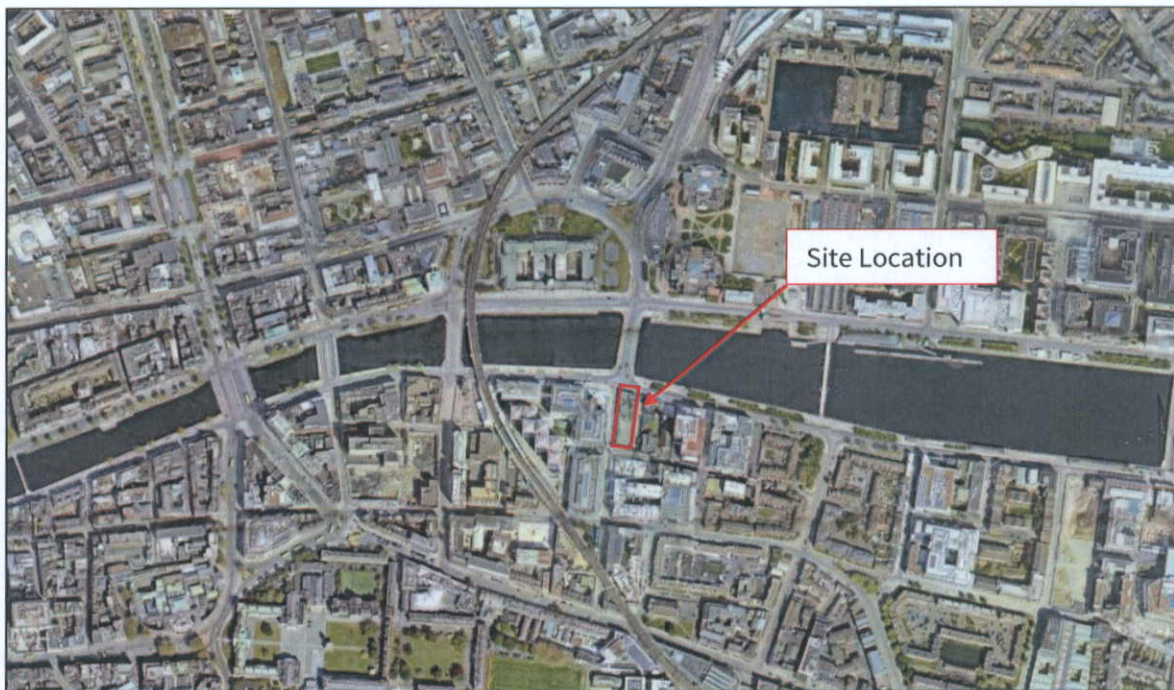


Figure 2.1: Site Location

The site borders City Quay, directly north of the site, Moss Street, directly west of the site, and Gloucester Street South directly south of the site. Park Rite City Quay Car Park and City Quay Covid-19 Test Centre borders the site in the north east of the site, while City Quay National School borders the site along the south east boundary. It is currently understood that these adjacent structures do not have any basements.

2.2 Proposed Works – Demolition & Site Clearance Phase

The proposed demolition and site clearance phase will consist of the following:

- Demolition of existing structures on site, including foundations
- Demolition of boundary walls including foundations and entrance archway
- Installation of new temporary site hoarding
- Removal of slab and foundations of previously demolished structures that are present on site (under archaeological license)

The total site footprint area is circa 2100m². The studio building occupies a footprint of circa 700m². A full description of the works is outlined in the Planning Report prepared by John Spain & Associates which accompanies this submission.

The existing building is an amalgamation of a red bricked 3 storey building with pitched roof and an open plan studio type building with flat roof. The buildings are loadbearing brick masonry construction with timber joist floors. Referring to OS historical mapping, we understand that the property was constructed in the 1850's. Access to the existing building was limited to a visual inspection of one floor in each block.

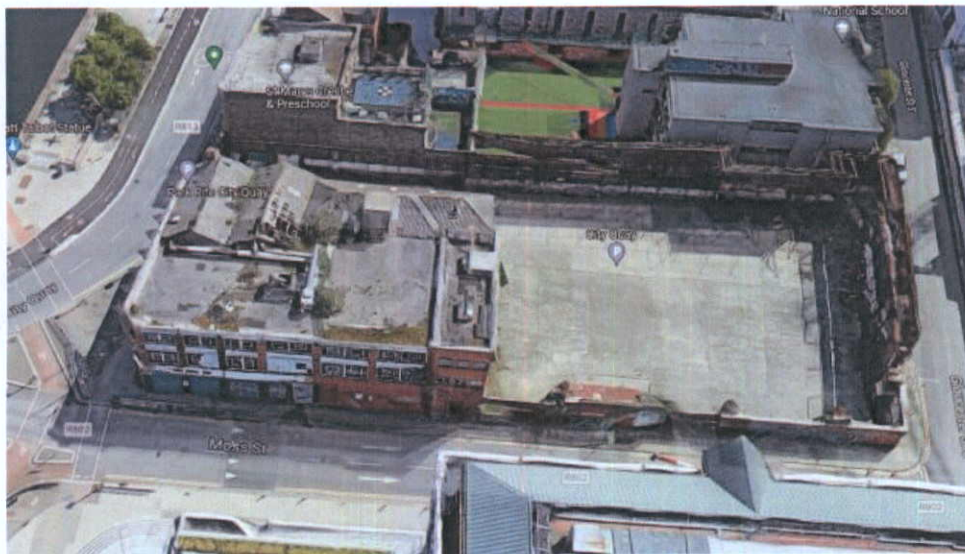


Figure 2.2: Existing site – pre demolition

2.3 Proposed Works – Construction Phase

The proposed construction phase will consist of the following:

- Basement Construction and Excavation Works to include the installation of an embedded retaining wall around the perimeter of the site to allow basement excavation;
- Basement Construction Works of the two-level basement sub-structure and relevant foundations for the superstructure;
- Superstructure Construction of the 24 storey building;
- Service Connections to relevant statutory providers; and
- Fit out and completion of overall finishes

A cross section showing the proposed development is shown as Figure 2.2, with the proposed double level basement footprint shown as Figure 2.3.

The existing road and surface levels around the site boundaries range from approximately 2.95m to 3.15m OD. The ground floor level of the proposed building will vary between street level at the building entrance, rising to 4.000m OD at the lift and stair lobby. The proposed development will have a two-level basement, with the lowest finished basement floor level set at -4.9m OD, a depth of 8.9m below the highest ground floor level.

The site's main vehicular access will be provided from Gloucester St. South, via a car lift to basement -2 level, where vehicle parking spaces will be provided. Pedestrian access will be provided from the respective street frontages. Cyclist access will also be provided from Gloucester St. South, via the car lift and a stair core with wheel ramp to basement -1 level, where cycle parking spaces will be provided.

The approximate floor areas are 32,030m² above ground and 3,880m² below ground, totalling 35,910m².



Figure 2.2: Proposed Development Section

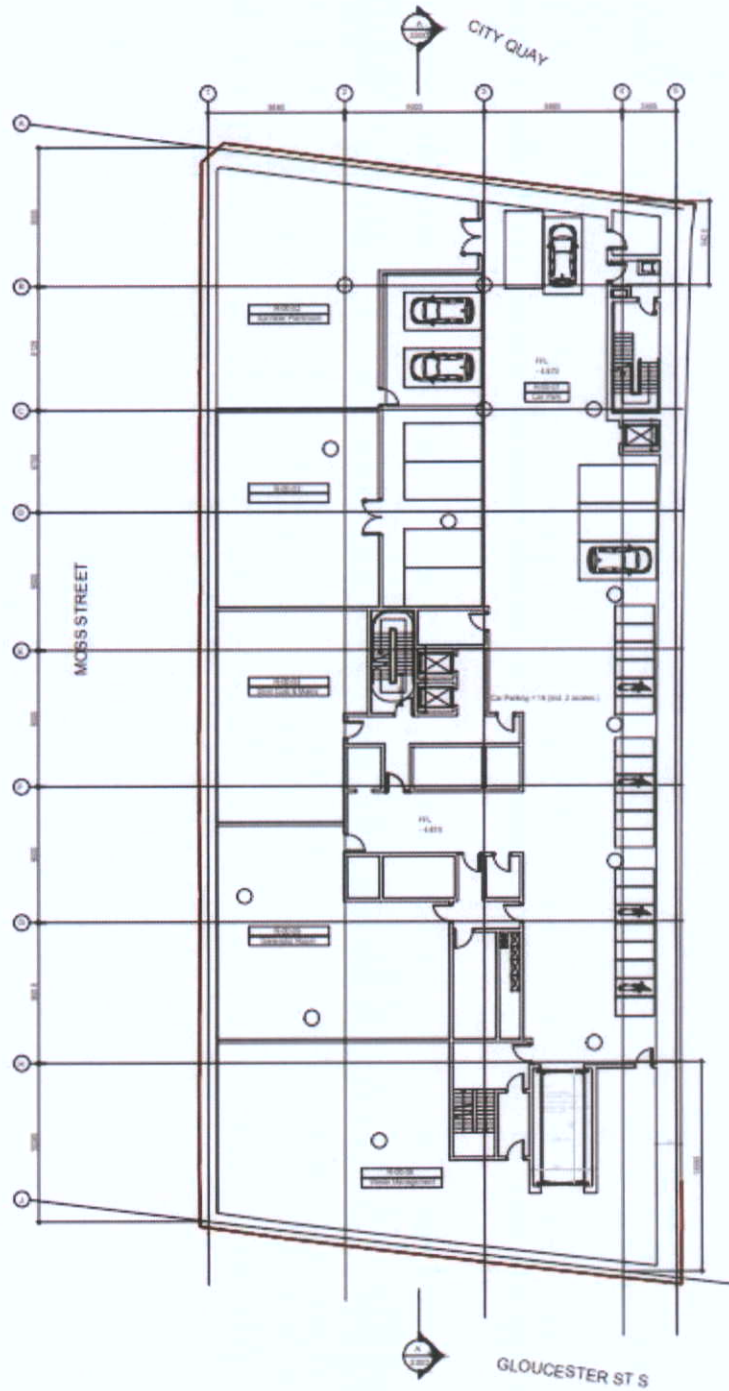


Figure 2.3: Proposed Development Basement -2 Footprint

2.4 Waste Arisings

Surplus materials which will be generated during the construction phase of the project (encompassing the enabling works, basement excavation and construction stages) are described in the sections below.

2.4.1 Construction & Demolition (C&D) Waste

Construction and demolition (C&D) waste is defined as waste which arises from demolition, construction and renovation activities. Also included within the definition are surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities. Construction waste can vary significantly from site to site but typically would include the following waste types:

- Soil and stone; It is expected that the basement excavation process will generate approximately 25,000m³ of soil and stone.
- Concrete, brick, tiles and ceramics;
- Asphalt/tar;
- Metals;
- Wood;
- Glass;
- Plastics;
- Insulation materials and possibly asbestos containing materials;
- Gypsum based construction material;
- Materials containing mercury;
- PCB containing materials (e.g. sealants, resin-based floorings, capacitors etc.);
- Waste electrical and electronic equipment;
- Oil wastes and waste of liquid fuels;
- Batteries and accumulators;
- Waste electrical and electronic equipment (WEEE)
- Packaging (paper/cardboard, plastic, wood, metallic, glass, textile etc.).

Some of the material listed above might be classified as hazardous such as Asbestos, contaminated soils and PCBs in accordance with the List of Wastes (LOW)/European Waste Code (EWC).

2.4.2 Potential for Hazardous Waste Arisings

2.4.2.1 Contaminated Soils

Environmental testing was carried out samples from the initial investigation works for the site. Rilta Suite testing was carried out to determine if the material is hazardous or non-hazardous and then the leachate results were compared with the published waste acceptance limits of BS EN 12457-2 to determine whether the material on the site could be accepted as 'inert material' by an Irish landfill. Initial samples indicate the potential for hazardous soils as is common with Made Ground deposits.

The number of samples were limited to date and as such the soils underneath the site will be tested during further ground investigation and the testing results will determine the reuse / recovery / disposal options for it. Where material cannot be reused off site it will be sent for recovery/disposal at an appropriately permitted / licenced site.

If any potentially contaminated material is encountered, it will need to be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' using the '*HazWasteOnline*' application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC 15, which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with '*S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010*'. All asbestos will be taken to a suitably licensed or permitted facility. In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify DCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

2.4.2.2 Fuels / Oils

Fuels and oils are classed as hazardous materials. Any on-site storage of fuel / oil, and all storage tanks and all draw-off points will be bunded and located in a dedicated, secure area of the site. Provided that these requirements are adhered to and the site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel / oil waste generated at the site.

2.4.2.3 Asbestos

Where encountered, the removal of asbestos or Asbestos Containing Materials (ACMs) will be carried out by a suitably qualified contractor and ACMs will only be removed from site by a suitably permitted / licenced waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and*

Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All material will be taken to a suitably licensed or permitted facility.

An outline Asbestos Demolition Survey was completed by Celtic Asbestos Consultancy Ltd. during October 2021. The survey noted the presence of ACM's within the current building fabric (cement roofing, roofing felt, vinyl floor tiles, mastic seals etc.). The survey did not quantify the amount of asbestos containing materials which are present on site, but shall inform the suitable demolition, segregation and removal of these elements. The expected volumes of ACM's have been estimated as outlined below. This should be readily addressed at the early stages of the demolition by suitably qualified specialists.

2.4.2.4 Other Materials

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor.

In addition, Waste electrical and electronic equipment (WEEE) (containing hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and / or fluorescent tubes and other mercury containing waste may be generated from during C&D activities or temporary site offices. These wastes, if generated, will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

3 Roles & Responsibilities for Waste Management

3.1 Contractor

The Contractor will be responsible for:

- Preparing, implementing and reviewing the CRWMP throughout the demolition and construction phases of the project.
- Identifying a designated and suitably qualified CDRWM who will be responsible for implementing the CRWMP.
- Identifying all hauliers to be engaged to transport each of the resources / wastes off-site.
- Implementing waste management policies whereby waste materials generated on site are to be segregated as far as practicable.
- Operating a crusher to crush concrete for temporary reuse onsite during construction and reduce the amount of HGV loads required to remove material from site.
- Applying for the appropriate waste permits.
- Identifying all destinations for resources taken off-site.
- End-of-waste and by-product notifications addressed with the EPA where required.
- Clarification of any other statutory waste management obligations, which could include on-site processing.
- Full records of all resources should be maintained for the duration of the project

3.2 Construction and Demolition Resource & Waste Manager (CDRWM)

The '*Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*', published by the EPA in 2021 recommends that a Construction and Demolition Resource & Waste Manager (CDRWM) is appointed to the project. A member of the construction team will be appointed as the CDRWM to ensure commitment, operational efficiency and accountability in relation to waste management during the C&D phases of the development.

The nominated CDRWM will be given responsibility and authority to select a waste team if required, however the CDRWM will have overall responsibility to oversee, record and provide feedback to the Client on waste management at the site. Authority will be given to the CDRWM to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The CDRWM is responsible for:

- All aspects of waste and resource management and training throughout the construction phase.
- Assisting the Project Manager on the implementing of the aspects of the Circular Economy as detailed in Section 3 above.
- Recording the volumes and types of construction wastes generated.
- Communicating with DCC on waste related matters and issuing of waste records.
- Management of the waste storage compound to ensure that all construction waste streams are stored separately, and that cross-contamination does not occur.
- Ensuring that all waste loads exiting the site are contained in a vehicle displaying an appropriate permit number.
- Maintaining a receipt of each waste load delivered to acceptance facilities.
- Identifying and reporting on damaged construction materials and identifying how damage to virgin materials shall be prevented.
- Preparation of monthly waste management report detailing waste volumes generated, re-use and recycling rates and details on damaged raw materials and how they can be returned for repair and future re-use.

The name and contact details of the CDRWM shall be forwarded to the Waste Management Section of DCC on appointment.

3.3 Project Manager

The Project Manager will be responsible for the overall implementation of the CRWMP. The Project Manager will ensure that the reporting and recording requirements are met and all necessary resources are in place to support the implementation of the plan. The name and contact details of the Project Manager shall be forwarded to the Waste Management Section of DCC on appointment.

3.4 Site Personnel

All personnel on site will be responsible for the effective implementation of the CRWMP. All staff will receive Tool-Box training on waste prevention, segregation and best practice guidelines

3.5 Gate Person

Gate Person duties will include the inspect all vehicles exiting site with waste to ensure that they have a Waste Collection Permit Number displayed on the side of the vehicle. If the vehicle does not,

the vehicle will be refused exit and the CDRWM will ensure that the waste load is returned to the site area from where it came.

3.6 Training of Personnel

Training of site crew in relation to waste is the responsibility of the CDRWM and, as such, a waste training program should be organised. A basic awareness course will be held for all site crew to outline the RWMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling. This basic course will describe the following:

- Summary of the CRWMP
- Project programme and requirements
- Materials to be segregated and how materials are to be segregated in the waste storage compound
- Arrangement for the storage and handling of reusable materials and recyclables
- Document control requirements
- A zero-tolerance policy for incorrect waste segregation
- Resource (construction materials care) management
- Signage shall be displayed in the waste storage compound clearly indicating what materials are to be placed in each vessel.
- A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

4 Key Materials, Quantities & Cost

4.1 Key Materials

The main non-hazardous and hazardous waste streams that could be generated by the construction activities at a typical site are shown in Table 5.1. The List of Waste (LoW) code (applicable as of 1 June 2015) (also referred to as the European Waste Code (EWC)) for each waste stream is also shown.

Table 1: Typical waste types generated and LoW codes

Waste Material Type	LoW / EWC Code
Concrete, bricks, tiles, ceramics	17 01 01-03 & 07
Wood, glass and plastics	17 02 01-03
Treated wood, glass, plastic, containing hazardous substances	17-02-04*
Bituminous mixtures, coal tar and tarred products	17 03 01*, 02 & 03*
Metals (including their alloys) and cable	17 04 01-11
Soil and stones	17 05 03* & 04
Gypsum based construction materials	17 08 01* & 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Green waste	20 02 01
Electric and electronic components	20 01 35 & 36
Batteries and accumulators	20 01 33 & 34
Liquid fuels	13 07 01-10
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04
Organic (food) waste	20 01 08
Mixed municipal waste	20 03 01

**individual waste type may contain hazardous substances*

4.2 Waste Generation

The table below outlines the typical breakdown of C&D waste types generated on construction sites. This is based on data provided by the Environmental Protection Agency (EPA), National Waste Database Reports (1998- 2012) and the joint EPA and Galway-Mayo Institute of Technology (GMIT) study (EPA Research Report 146 – A Review of Design and Construction Waste Management Practices in Selected Case Studies - Lessons Learned, 2015).

Table 2: Waste materials generated on a typical Irish Construction Site

Waste Types	Percentage (%)
Mixed C&D	33
Wood / Timber	28
Plasterboard	10
Metals	8
Concrete	6
Other	15
Total	100

In addition, it is expected that the basement excavation will generate approximately 25,000m³ of soil and stone.

4.3 Project Resource Targets

Project specific resource and waste management targets for the site have not yet been set and this information should be updated for these targets once these targets have been confirmed by the client. However, it is expected for projects of this nature that a minimum of 70% of waste is fully re-used, recycled or recovered.

Target setting will inform the setting of project-specific benchmarks to track target progress. Typical Key Performance Indicators (KPIs) that may be used to set targets include (as per guidelines):

- Weight (tonnes) or Volume (m3) of waste generated per construction value (€)
- Weight (tonnes) or Volume (m3) of waste generated per construction floor area (m²)
- Fraction of resource reused on site

4.4 Quantities

Table 3 and Table 4 below shows the estimated construction waste generation for the proposed Project based on the existing site condition and on the gross floor area of construction and other information available to date, along with indicative targets for management of the waste streams.

The estimated amounts for the main waste types (with the exception of soils and stones) are based on an average large-scale development waste generation rate per m², using the waste breakdown rates shown in Table 2.

Table 3 outlines approximate waste quantities from the demolition phase.

Table 3: Predicted waste quantities generated (demolition phase)

Waste Type	Tonnes	Reuse/Recycle		Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1277.1	10	127.7	80	1021.7	10	127.7
Timber	1083.6	40	433.4	55	596.0	5	54.2
Plasterboard	387.0	30	116.1	60	232.2	10	38.7
Metals	309.6	5	15.5	90	278.6	5	15.5
Concrete	232.2	30	69.7	65	150.9	5	11.6
Other	580.5	20	116.1	60	348.3	20	116.1
Asbestos	3.1	0	0.0	0	0.0	100	3.1
Total	3873.1		878.5		2627.7		366.9

Table 4 outlines approximate waste generated during construction phase. These have been calculated from the schedule of development areas provided by the architect. When assessing the approximate quantity of waste generated, guidance from the BREEAM (Building Research Establishment Environmental Assessment Methodology) was used where typical KPI's are given per 100m² (gross internal floor area). The median of a 1-credit range was used for initial assessment (7.5t/100m²). The total internal floor area is taken as 35,910m² (above and below ground).

Table 4: Predicted waste quantities generated (construction phase)

Waste Type	Tonnes	Reuse/Recycle		Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	888.8	10	88.9	80	711.0	10	88.9
Timber	754.1	40	301.6	55	414.8	5	37.7
Plasterboard	269.3	30	80.8	60	161.6	10	26.9
Metals	215.5	5	10.8	90	193.9	5	10.8
Concrete	161.6	30	48.5	65	105.0	5	8.1
Other	404.0	20	80.8	60	242.4	20	80.8
Total	2693.3		611.4		1828.7		253.2

In addition to above, it is expected that the basement excavation process will generate approximately 25,000m³ of soil and stone. Any suitable excavated material will be temporarily stockpiled for reuse as fill (although this is considered minimal due to the extents of the development across the site footprint), where possible, with remaining soil to be removed off-site for appropriate reuse, recovery and / or disposal.

It should be noted that until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

4.5 Costing

The total cost of C&D waste management will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

Landfill charges are currently at around €130 - €150 per tonne which includes a €75 per tonne landfill levy. In addition to disposal costs, waste contractors will also charge a collection fee for skips.

Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc., is also used as fill / capping material, wherever possible.

Salvageable metals will earn a rebate, which can be offset against the costs of collection and transportation of the skips. Clean, uncontaminated cardboard and certain hard plastics can also be recycled. Waste contractors will charge considerably less to take segregated wastes, such as recyclable waste, from a site than mixed waste. Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes, such as timber, from a site than mixed waste

By reusing materials on site, there will be a reduction in the transport and recycle / recovery / disposal costs associated with the requirement for a waste contractor to take the material off-site. Clean and inert soils, gravel, stones, etc., which cannot be reused on-site may be used as access roads or capping material for landfill sites, etc. This material is often taken free of charge or at a reduced fee for such purposes, reducing final waste disposal costs.

5 Site Management of Waste

5.1 Waste Minimisation and Mitigation Measures

All waste arisings requiring disposal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required. The following general mitigation measures will be implemented during the construction phase:

- Source Segregation: all recyclable and un-recyclable material will be segregated during works. Waste stream colour coding and photographs will be used to facilitate segregation.
- The construction will be carefully planned to ensure only material required to be excavated will be excavated with as much material left in situ as possible.
- All diesel-powered generators shall be inspected on at least a weekly basis by a delegate of the project manager to ensure it is not leaking diesel or oils.
- Material Management: 'Just-in-time' delivery will be used so far as is reasonably practicable to minimise material wastage.
- Materials will be ordered on an 'as needed' basis to prevent over supply
- Waste auditing will be completed (see Section 5.6).
- Fuels/oils that will be required for use by equipment on site during construction may be considered hazardous. Such materials will be stored in a secure, bunded area on site.
- Materials shall be correctly stored and handled to minimise the generation of damaged materials
- All staff and Sub contractors shall be advised through tool box talks on how to dispose of their waste correctly on-site.
- All waste receptacles leaving the site will be covered or enclosed.
- The appointed waste contractor will collect and transfer the wastes as receptacles are filled. All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. There are numerous waste contractors in the Dublin region that provide this service.
- It is the responsibility of the CDRWM that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:
 - Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)

- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)
- Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007
- Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008

5.2 Management of Waste Stream

The anticipated management of the waste stream is outlined as follows

5.2.1 Asbestos or Asbestos Containing Materials (ACMs)

Where encountered, the removal of asbestos or Asbestos Containing Materials (ACMs) will be carried out by a suitably qualified contractor and ACMs will only be removed from site by a suitably permitted / licenced waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010*. All material will be taken to a suitably licensed or permitted facility.

5.2.2 Concrete & Bricks

Construction waste material such as damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse on the project site for ground-fill material will be processed, if necessary, by onsite mobile crushing plant. This initiative shall provide a positive environmental impact to the construction phase as follows:

- Reduction in the requirement for virgin aggregate materials from quarries
- Reduction in energy required to extract, process and transport virgin aggregates
- Reduced HGV movements associated with the delivery of imported aggregates to the site
- Reduced noise levels associated with reduced HGV movements
- Reduction in the amount of landfill space required to accept C&D waste

Surplus material shall be recycled.

5.2.3 Wood / Timber

Excess wood that is uncontaminated (i.e. free from paints, preservatives, glues, etc.), will be segregated in separate skips and sent for recycling. The site management will police to make sure that the segregation of the wood skip is kept exclusively for wood.

5.2.4 Glass

Excess glass will be segregated in separate skips and sent for recycling. The site management will police to make sure that the segregation of the glass skip is kept exclusively for glass.

5.2.5 Plastics

Plastic arising from general waste or packaging will be segregated and stored in separate skips. The CDRWM will ensure that there is no contamination of the segregated skips on site.

5.2.6 Plasterboard

There are currently a number of recycling services for plasterboard in Ireland. Plasterboard from the construction phases will be stored in a separate skip, pending collection for recycling. The CDRWM will ensure that oversupply of new plasterboard is carefully monitored to minimise waste,

5.2.7 Metals

Any excess metal generated on site from reinforcement steel and from the demolition element of the project will be kept in the one area and removed off site to a licenced metal recycling facility. The CDRWM will keep certification of this on file on site.

5.2.8 Soil & Stones

Uncontaminated excavated material (soil, stones and bedrock) will be reused on site in preference to importation of clean fill. Surplus soils and stones shall be removed off-site throughout the development and exported by an appropriately permitted haulage contractor to an appropriately permitted/licenced waste acceptance facility. Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material.

All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

5.2.9 Contaminated Soils

Where contaminated soils/materials are discovered or occur as a result of accidental spillages of oils or fuels during the construction phase, these areas of ground will be isolated and tested in accordance with the 2002 Landfill Directive (2003/33/EC) for contamination, and pending the results of laboratory WAC testing, will be excavated and exported off-site by an appropriately Permitted Waste Contractor holding an appropriate Waste Collection permit and that this hazardous material will be sent for appropriate treatment / disposal to an appropriately Permitted / Licenced Waste Facility.

5.2.10 Welfare Facilities

Temporary toilets and wash facilities will also be provided for construction workers. These facilities will require periodic waste pumping and waste offsite haulage. This will be carried out by an authorised sanitary waste contractor.

5.2.11 Hazardous Wastes

The management of all hazardous waste arisings if they occur, shall be coordinated by the CDRWM. Hazardous wastes such as waste oils and construction liquids shall be stored in dedicated clearly labelled impermeable containers in the waste compound prior to removal off-site. On-site storage of any hazardous wastes produced (i.e. contaminated soil if encountered and / or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify DCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

5.2.12 Waste Electrical & Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages / receptacles / pallets pending collection for recycling.

5.2.13 Non-recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles.

Prior to removal from site, the non-recyclable waste skip / receptacle will be examined by the CDRWM or nominated member of the waste team to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

5.2.14 Burning of Waste

The burning of waste on-site is prohibited. This will be communicated to all site personnel during site inductions.

5.3 Site Infrastructure

It is proposed that from the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by

construction site activities, will be established within the active construction phase of the development site. Basic site infrastructure that will be supplied on site are as follows:

- It is proposed that waste materials will be collected and stored in separate clearly labelled skips in a predefined waste storage area in the site compound and that these materials will be collected by a Permitted Waste Contractor holding an appropriate Waste Collection permit and that they will be sent for disposal or further processing to appropriately Permitted / Licensed Waste Facilities in compliance with regulations.



Figure 5.1: Waste segregation skips

- Spill kits shall be located within the site compound with clearly labelled instructions on how they shall be used to clean up fuel / oil spills. A typical spill kit is shown in the figure below.



Figure 5.2: Typical spill kit

- All vehicle and plant oils and liquid construction materials shall be stored in impermeable storage units, a typical example of which is shown below.
- All empty containers containing residual quantities of oils, greases and hydrocarbon based liquids shall be stored in a dedicated bunded receptacle



Figure 5.3: Bund for waste oil container storage



Figure 5.4: Secure bunded container for waste oil storage

- Clear signage will be provided in order to ensure that the construction contractor correctly segregate waste materials and to ensure site housekeeping and the proper segregation of construction waste materials is completed.

5.4 Waste Transportation

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by a weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project CDRWM (see Section below on record keeping requirements).

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Management Act 1996 as amended, Waste Management (Collection Permit) Regulations 2007 as amended and Waste Management (Facility Permit & Registration) Regulations 2007 and

amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project CDRWM will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR / permit or EPA Waste / Industrial Emissions Licence for that site will be provided to the nominated project CDRWM. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from DCC and kept on-site along with details of the final destination (COR, permits, licences, etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records. All information will be entered in a waste management recording system to be maintained on-site.

See Section below on record keeping requirements.

5.5 Record Keeping

It is the responsibility of the Construction and Demolition Resource & Waste Manager (CDRWM) that a written record of all quantities and natures of all wastes reused / recycled and exported off-site during the project are maintained in a Waste File at the Project office.

A waste tracking log should be used to track each waste movement from the site. On exit from the site, the waste collection vehicle driver should stop at the site office and sign out as a visitor and provide the security personnel or CDRWM with a waste docket for the waste load collected. At this time, the security personnel should complete and sign the Waste Tracking Register with the following information:

- Date and time
- Waste Type, LoW Code, description and volume of waste collected.
- Waste Contractor
- Collection Permit Number
- Collection receipt
- Drivers name and vehicle registration number.
- Destination of waste load including Waste Permit / Licence number of facility.

The waste vehicle will be checked by security personal or the CDRWM to ensure it has the waste collection permit number displayed and a copy of the waste collection permit in the vehicle before they are allowed to remove the waste from the site. All waste records shall be recorded in electronic format and maintained on site at all times for inspection and shall be issued to DCC as requested.

Waste receipts from the receiving waste facility will also be obtained by the site contractors (both main contractors and subcontractors) and retained. A copy of all permits will be maintained on site

at all times. Each subcontractor that has engaged their own waste contractor will be required to maintain a similar waste tracking log with the log maintained on file and available for inspection on site by the main contractor as required.

Thus, each consignment of C&D waste taken from site will be subject to documentation and recording to ensure that full traceability of materials to its final destination. Verifiable and validated tracking and authorisation documentation will be maintained for all wastes destined for re-use, recovery, recycling or disposal. Justification will also be provided where a disposal option had been employed. In addition, a record will be kept of all materials as they arrive on site detailing the assignment of specific uses within the works. This will enable the monitoring of the quantity and type of waste produced at various stages throughout the project.

5.6 Auditing Procedures

The effectiveness of the CWMP and its implementation, will be assessed by conducting routine audits by the Construction and Demolition Resource & Waste Manager (CDRWM) throughout the duration of the project. Contact details for the nominated CDRWM will be provided to the DCC Waste Regulation Unit after the main contractor is appointed and prior to any material being removed from site. The audits will focus on the following:

- Materials inputs to the project and the waste outputs for each operation identifying additional opportunities for waste reduction, re-use and recycling.
- Investigate the operational factors and management policies that contribute to the generation of waste and identify appropriate corrective actions, where necessary.
- Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.
- Performance targets will be developed, and successes and failures will be recorded, and Action Plans will be developed to address any issue which arise.
- Inspections of stored construction materials and damage/potential for damage and the operation of the waste storage area will be undertaken on a daily basis, issues relating to housekeeping, inappropriate storage and / or segregation will be actioned at the earliest practicable opportunity.

A review of all waste management costs and the records for the waste generated and transported off-site should be undertaken mid-way through the demolition and construction phase of the proposed Project. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained.

The CDRWM will record the findings of the audits, including waste types identified, quantities of waste arising, final treatments and cost, in a report to be available to DCC as required during the course of the works. Details of the inputs of materials to the construction site and the outputs of

waste arising from the project will be investigated and recorded in the Final Waste Audit, which will identify the amount, nature and composition of the waste generated on the site and summarise the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the development.

5.7 Consultation with DCC

Prior to the works and prior to the removal of any C&D waste materials off-site, the proposed destination of each waste stream will be provided to the DCC Waste Regulation Unit. The Contractor will be required to have appointed their specialist waste contractor prior to this.

DCC will also be consulted and kept informed, as required, throughout the demolition, excavation and construction phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

6 Predicted Impacts of the Proposed Development

Waste materials will be generated during the construction of the proposed development, including the initial site clearance and excavation, Careful management of these, including segregation at source, will help to ensure maximum recycling, reuse and recovery is achieved in accordance with current local and national waste targets. It is expected however, that a certain amount of waste will still need to be disposed of at landfill.

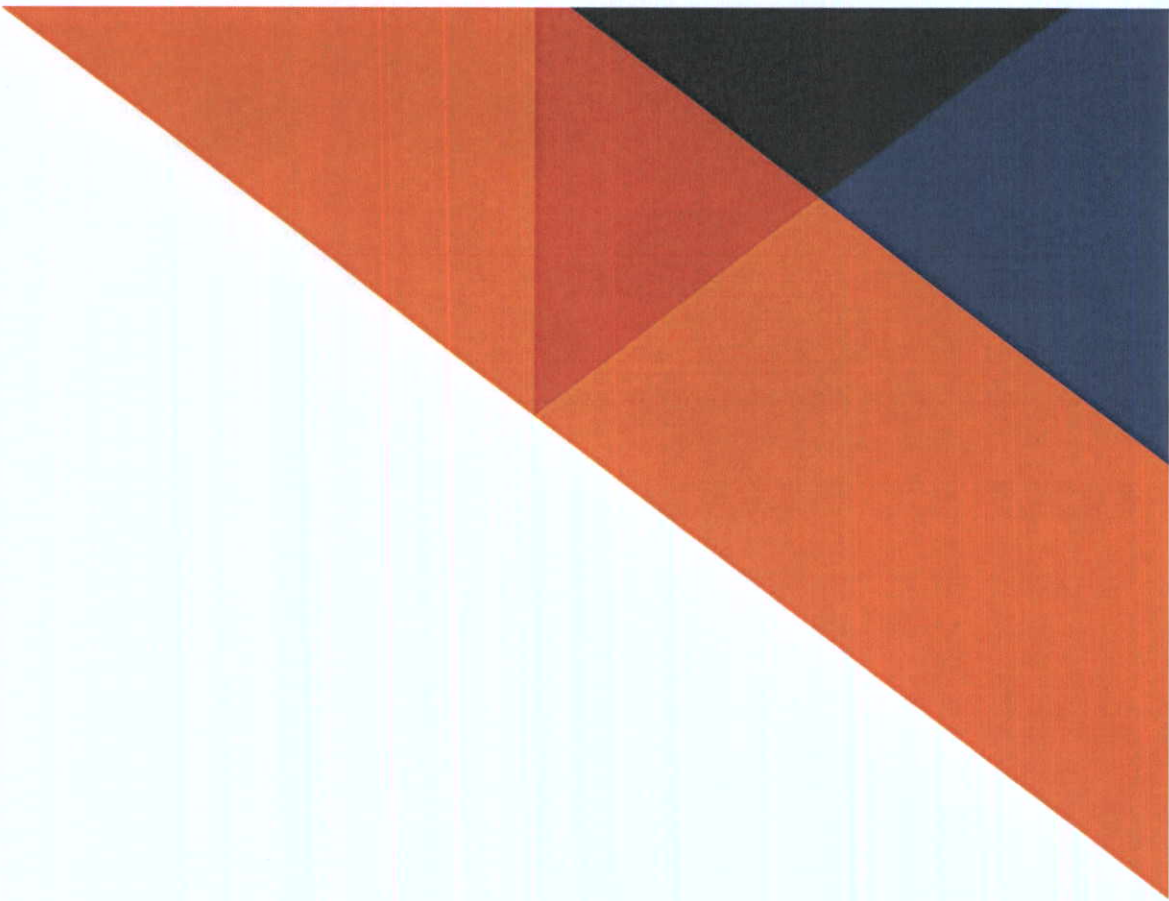
Given the provision of appropriate facilities, environmental impact (e.g. litter, contamination of soil or water etc.) arising from waste storage are expected to be minimal. Particular attention must be given to the appropriate management of any construction waste containing contamination or hazardous materials. The use of suitably licensed waste contractors will ensure compliance with relevant legal requirements and appropriate off-site management of waste.

In summary, with a high level of due diligence carried out on site, it is envisaged that the environmental impact of the construction phase of the proposed development will be of small scale and short duration with respect to waste management.

7 References

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APPENDIX 15.2
OPERATIONAL WASTE MANAGEMENT PLAN

**OPERATIONAL WASTE
MANAGEMENT PLAN FOR
A PROPOSED OFFICE
DEVELOPMENT**

AT

**CITY QUAY, DUBLIN
DOCKLANDS, DUBLIN 2**

Report Prepared For

Ventaway Limited

Report Prepared By

David Doran
Environmental Consultant

Our Reference

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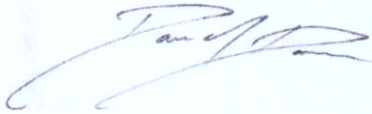

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1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Ventaway Limited. The proposed office development will comprise of building up to 24 storeys over a double basement including arts centre (c. 1,404 sq. m.), offices (c. 22,587 sq. m.), gym and ancillary uses at a site bound by City Quay to the north, Moss Street to the west and Gloucester Street South to the south, Dublin 2.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the commercial development is undertaken in accordance with current legal and industry standards including, the *Waste Management Act 1996* as amended and associated Regulations ¹, *Environmental Protection Agency Act 1992* as amended ², *Litter Pollution Act 1997* as amended ³, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' ⁴, Dublin City Council (DCC) *Dublin City Development Plan 2016 – 2022* ⁵, DCC '*Draft Dublin City Development Plan 2022 – 2028*' ⁶, and DCC '*Dublin City Council (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 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 WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Irish 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.

In September 2020, the Irish Government published a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan 'A Waste Action Plan for a Circular Economy'¹² (WAPCE), was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities, replacing the previous national waste management plan "A Resource Opportunity" (2012).

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

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

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021)¹³ to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic 'National Waste (Database) Reports'¹⁴ 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 2019 National Waste Statistics, which is the most recent study published, along with the national waste statistics web resource (November 2021) reported the following key statistics for 2019:

- **Generated** – Ireland produced 3,085,652 t of municipal waste in 2019. This is almost a 6% increase since 2018. This means that the average person living in Ireland generated 628 kg of municipal waste in 2019.
- **Managed** – Waste collected and treated by the waste industry. In 2019, a total of 3,036,991 t of municipal waste was managed and treated.
- **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 48,660 t was unmanaged in 2019.
- **Recovered** – The amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In 2019, around 83% of municipal waste was recovered – a decrease from 84% in 2018.
- **Recycled** – The waste broken down and used to make new items. Recycling also includes the breakdown of food and garden waste to make compost. The recycling rate in 2019 was 37%, which is down from 38% in 2018.

- **Disposed** – Less than a sixth (15%) of municipal waste was landfilled in 2019. This is an increase from 14% in 2018.

2.2 Regional Level

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

The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the DCC area published in May 2015. A new *National Waste Management Plan for a Circular Economy* is expected to be published in early 2022 and will supersede the three current regional waste management plans in Ireland.

The current 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 2012*.

The *Dublin City Development Plan 2016 – 2022* sets out a number of policies and objectives for Dublin City in line with the objectives of the regional waste management plan. The plan identifies a need to further reduce the role of landfilling in favour of higher value recovery options. Waste policies and objectives with a particular relevance to this proposed Development are as follows:

Policies:

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

Objectives:

- *SIO16: To require the provision of adequately-sized-recycling facilities in new commercial and large scale residential developments, where appropriate.*
- *SIO18: To implement the current Litter Management Plan through enforcement of the litter laws, street cleaning and education and awareness campaigns.*
- *SIO19: To implement the Eastern-Midlands Waste Management Plan 2015 - 2021 and achieve the plan targets and objectives.*

The Draft *Dublin City Development Plan 2022 – 2028* sets out a number of policies and objectives for Dublin City in line with the objectives of the National climate action policy and emphasises the need to take action to address climate action across all

sectors of society and the economy. In the waste sector, policy on climate action is focused on a shift towards a 'circular economy' encompassing three core principles: designing out waste and pollution; keeping products and material in use; and regenerating natural systems. Further policies and objectives can be found within the draft development plan.

Policies:

- CA7 F: *minimising the generation of site and construction waste and maximising reuse or recycling.*
- CA22: *The Circular economy: To support the shift towards the circular economy approach as set out in 'a Waste Action Plan for a Circular Economy 2020 to 2025, Ireland's National Waste Policy, or as updated.*
- CA23: *To have regard to existing Best Practice Guidance on Waste Management Plans for Construction and Demolition Projects as well as any future updates to these guidelines in order to ensure the consistent application of planning requirements.*
- SI27: *Sustainable Waste Management: To support the principles of the circular economy, good waste management and the implementation of best practice in relation to waste management in order for Dublin City and the Region to become self-sufficient in terms of resource and waste management and to provide a waste management infrastructure that supports this objective.*
- SI30: *To require that the storage and collection of mixed dry recyclables, organic and residual waste materials within proposed apartment schemes have regard to the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities 2018 (or and any future updated versions of these guidelines produced during the lifetime of this plan).*

Objectives:

- SIO14 *Local Recycling Infrastructure: To provide for a citywide network of municipal civic amenity facilities/ multi-material public recycling and reuse facilities in accessible locations throughout the city in line with the objectives of the circular economy and 15 minute city.*
- SIO16 *Eastern-Midlands Region Waste Management Plan: To support the implementation of the Eastern-Midlands Regional Waste Management Plan 2015–2021 and any subsequent plans in order to facilitate the transition from a waste management economy towards a circular economy.*

2.3 Legislative Requirements

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

- Waste Management Act 1996 as amended, along with sub-ordinate and associated legislation.
- Environmental Protection Agency Act 1992 as amended;
- Litter Pollution Act 1997 as amended and
- Planning and Development Act 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* as amended and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) As it is not practical in most cases for the waste

producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is therefore imperative that the 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 Dublin City Council Waste Management Bye-Laws

The DCC "Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)" were brought into force in May 2019. These bye-laws repeal the previous Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste. The bye-laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DCC administrative area. Key requirements under these bye-laws of relevance to the operational phase of the Development include the following:

- Kerbside waste presented for collection shall not be presented for collection earlier than 5.00 pm on the day immediately preceding the designated waste collection day;
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 10:00 am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 2.3;
- Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

The full text of the bye-laws is available from the DCC website.

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

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

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

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

Ventaway Limited intend to apply for planning permission for development at a site bound by City Quay to the north, Moss Street to the west and Gloucester Street South to the south, Dublin 2. The site includes 1-4 City Quay (D02 KT32), 5 City Quay (D02 PC03), and 23-25 Moss Street (D02 F854). The proposed development comprises:

- Demolition of the existing buildings and structures;
- Construction of a building up to 24 storeys in height over a double basement including arts centre, offices, gym and ancillary uses;
- The arts centre is contained at basement -1, ground and first floor level
- The gym is proposed at ground level onto Moss Street;
- The offices are proposed from ground to 23rd floor (24th storey) with terraces to all elevations;
- The double basement provides for 11 carparking spaces and 424 bicycle spaces
- The overall gross floor area of the development comprises 35,910 sq.m. including 1,404 sq.m. arts centre, 22,587 sq.m. offices and 244 sq.m. gym
- All ancillary and associated works and development including plant, temporary construction works, public realm, landscaping, utilities connections and infrastructure. An Environmental Impact Assessment Report and Natura Impact Statement have been prepared in respect of the proposed development and have been submitted with the planning application

3.2 Typical Waste Categories

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

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

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

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

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

3.3 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 development are provided in Table 3.1 below.

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

* Individual waste type may contain hazardous materials.

Table 3.1 Typical Waste Types Generated and LoW Codes

4.0 ESTIMATED WASTE ARISING

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

The modelling methodology used to determine waste generation rates is based on waste production rates per m² floor area for the proposed area uses for the office and arts centre.

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

Waste type	Waste Volume (m ³ /week)	
	Office	Arts Centre
Organics	1.24	0.02
Paper (Confidential)	11.14	-
Paper & Cardboard	18.89	0.41
Plastics	16.13	0.22
Glass	0.45	0.01
Dry mixed recyclables	9.09	0.27
Mixed non-recyclables	11.85	0.16
Total	68.79	1.09

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

The BS5906:2005 Waste Management in Buildings – Code of Practice ²⁰ was considered in the estimations of the waste arising. It has been assumed the office unit(s) will operate over a five-day period, while the arts centre will be operating over a 7-day period.

5.0 WASTE STORAGE AND COLLECTION

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

- *BS 5906:2005 Waste Management in Buildings – Code of Practice,*
- *EMR Waste Management Plan 2015 – 2021;*
- *Dublin City Council Development Plan 2016 – 2022 (Appendix 10);*
- *DCC, Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018); and*
- *DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2020) ²¹.*

One Waste Storage Area (WSA) has been allocated within the development design. The WSA is located at basement -2 level. The location of the WSA can be seen in Figure 5.1 below and on the drawings submitted with the planning application.

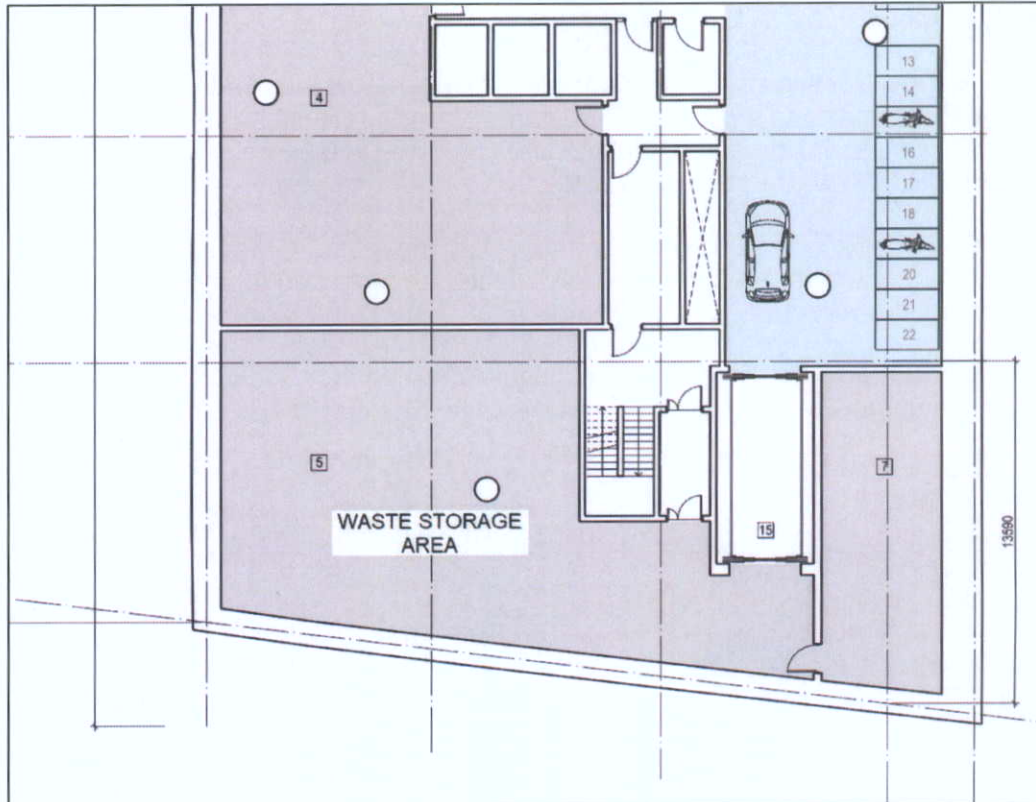


Figure 5.1 Waste Storage Area located at Basement Level -2.

Prior to collection, the bins/bales of segregated waste/recyclables will be conveyed by the waste contractor or facilities management via the car lift adjacent the WSA to the designated staging area at ground floor level. The staging area will be located adjacent to the loading bay.

From the staging area the bins will be collected/emptied on Gloucester Street South by the nominated waste contractor(s). The location of the staging area can be viewed on drawings submitted with the planning application and are such that they will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the Design Manual for Urban Roads and Streets (2019) ²².

Further information on waste collection can be found in Section 5.3.

Using the estimated waste generation volumes in Table 4.1, the waste receptacle requirements for MNR, DMR and organic waste along with cardboard and plastic bale production have been established for the developments WSA based on a *twice weekly* collection, while glass receptacles has been established for the developments WSA based on a *weekly* collection. These are presented in Table 5.1.

Area/Use	Bins Required					Equipment
	MNR*	DMR**	Organic	Glass	Bales (Plastic & Carboard)	
Office and Arts Centre WSA	11 x 1100L	9 x 1100L	6 x 240L	2 x 240L	14	Bramidan B3 Baler 2 no. Roll Cages

Note: * = Mixed Non-Recyclables

** = Dry Mixed Recyclables

Table 5.1 Waste storage requirements for the development

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

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

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSA are shown in Figure 5.2. All waste receptacles used will comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers, where appropriate.



Figure 5.2 Typical waste receptacles of varying size (240L and 1100L)

5.1 Waste Storage – Office

The office tenants will segregate waste into the following main waste streams:

- DMR;
- MNR;
- Organic waste;
- Glass;
- Cardboard (for baling);
- Plastic packaging (for baling); and
- Confidential Paper

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

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

It is proposed to bale suitable cardboard and plastic packaging using a small baler located in the WSA. Cages or bins should be used to temporarily store and segregate suitable cardboard and plastic, mainly generated from incoming deliveries, for baling.

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

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

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

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

Personnel nominated by the office tenants will empty the bins in the AWSs, as required, and bring the segregated waste using trolleys/carts/bins via lifts to the WSA located at basement -2 level.

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

Other waste materials such as textiles, batteries, lightbulbs, WEEE and printer toner / cartridges will be generated less frequently. Space has been allocated within the WSA for the storage of these items. Collections of these items will be arranged as required by the tenant or facilities management depending on the agreement. Further details on additional waste types can be found in Section 5.4.

5.2 Waste Storage – Arts Centre

The arts centre tenant will be required to segregate waste within their own unit into the following main waste types:

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

The arts centre tenant will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins. The location of the WSA is illustrated in the drawings submitted with the planning application.

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

All bins / containers in the arts centre tenants' areas as well as in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste

streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, WEEE and printer toner / cartridges will be generated less frequently. Space has been allocated within the WSA for the storage of these items. Facilities management may arrange collection, depending on the agreement. Further details on additional waste types can be found in Section 5.4.

5.3 Waste Collection

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

Prior to collection, the waste receptacles/bales of segregated waste/recyclables will be conveyed by the waste contractor or facilities management via the car lift adjacent to the WSA, to the designated staging area at ground floor level. The staging area will be located adjacent to the loading bay. The location of the staging area can be seen below in Figure 5.3.

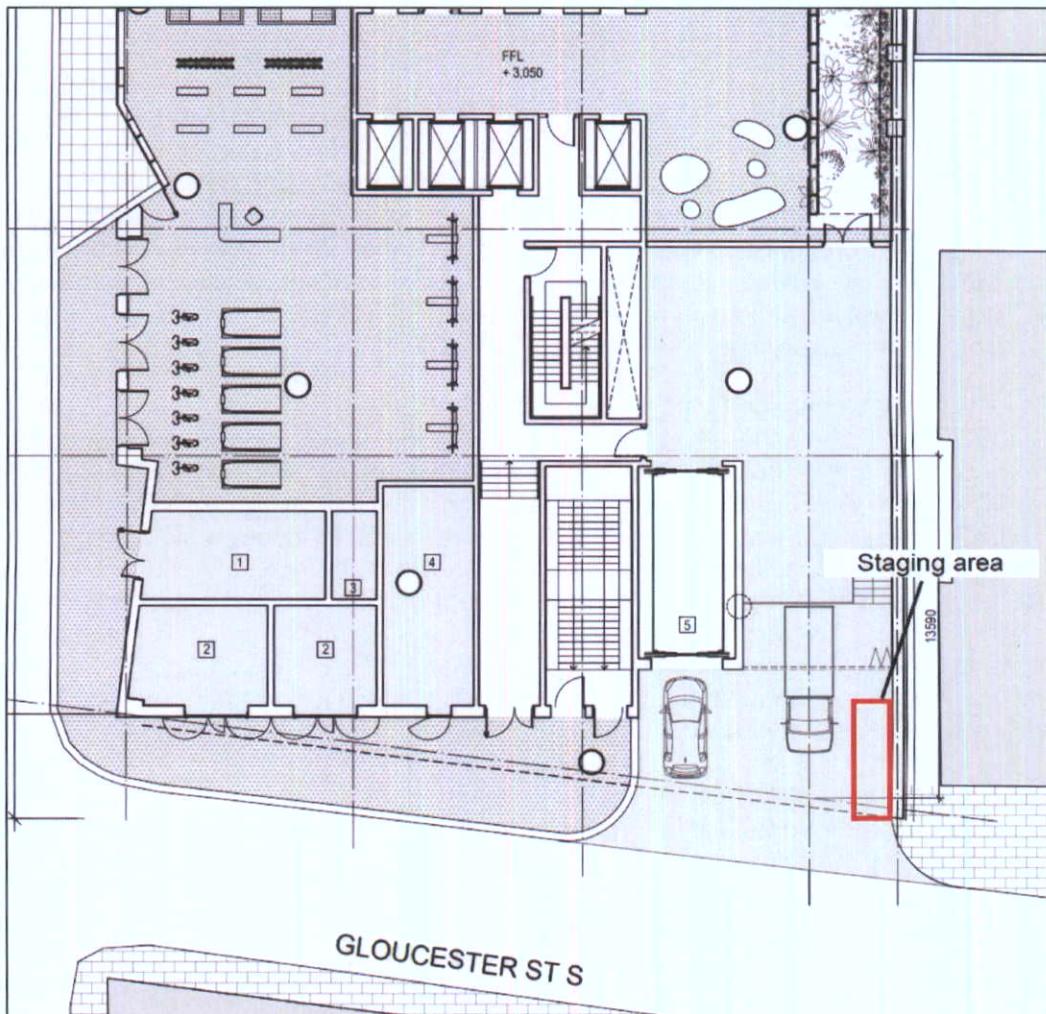


Figure 5.3 Bin staging area.

From the staging area the bins will be collected/emptied on Gloucester Street South by the nominated waste contractor(s). The location of the staging area can be viewed

on drawings submitted with the planning application and are such that they will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the Design Manual for Urban Roads and Streets (2019).

Following emptying by the waste contractor, waste receptacles will be promptly removed from the staging areas and returned to the WSA.

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

5.4 Additional Waste Materials

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

Green waste

Green waste may be generated from internal plants/flowers. If any green waste is generated from landscaping of external areas, this will be removed by external landscape contractors.

Batteries

Waste batteries must be separately stored and returned to retailer or collected for recycling and recovery of resources and the tenant(s) are responsible for arranging this. Waste batteries generated from the office and arts centre units may be returned to any retail outlet where similar batteries are sold, regardless of whether they were originally purchased in that outlet. Office and arts centre tenants will be required to store batteries within the WSA or within their own unit. Facilities management or tenants will arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste Electrical and Electronic Equipment (WEEE)

WEEE must be separately stored and returned to manufacturer/retailer or collected for recycling and recovery of resources and the tenant(s) are responsible for arranging this. The *WEEE Directive 2002/96/EC* and associated *European Union (WEEE) Regulations 2014* as amended have been enacted to ensure a high level of recycling of electronic and electrical equipment. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased. Office and arts centre tenants will be required to store WEEE within the WSA or their own unit, facilities management or the tenants will arrange for return to retailers or collection by an authorised waste contractor, as required.

Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided at the print/copy stations in the office, where appropriate. Tenants will be required to store this waste within the WSA or their own unit. Facilities management or tenants will arrange for this waste to be returned to retailers or collected by an authorised waste contractor, as required.

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 office and arts centre units that is classed as hazardous (if they arise) will be appropriately stored within the tenants own space. Facilities management or tenants will arrange for collection of this waste as required.

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

Waste light bulbs may be generated by lighting in the office and arts centre tenants units. It is anticipated that the tenants will be responsible for the off-site removal and appropriate recovery/disposal of these wastes. Facilities management or tenants will arrange for collection of this waste as required.

Textiles

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

Waste Cooking Oil

If the tenants use cooking oil, waste cooking oil will need to be stored within the unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required.

Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the tenants. The collection of bulky waste will be arranged as required by the tenant. These collections will be subject to approval with facilities management.

Abandoned Bicycles

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

COVID-19 Waste

Any waste generated within the units generated by individuals who have tested positive for COVID-19 should be managed in accordance with the current COVID-19 HSE Guidelines at the time that that waste arises. At the time this report was prepared, the HSE Guidelines require the following procedure for any waste from a person that tests positive for COVID-19:

- Put all waste (gloves, tissues, wipes, masks) from that person in a bin bag and tie when almost full;
- Put this bin bag into a second bin bag and tie a knot;
- Store this bag safely for 3 days, then put the bag into the non-recyclable waste / general waste wheelie bin for collection / emptying.

Please note that this guidance is likely to be updated by the time the proposed development is open and occupied and the relevant guidance at the time will need to be reviewed.

5.5 Waste Storage Area Design

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

- Be fitted with a non-slip floor surface;

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

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

6.0 CONCLUSIONS

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

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

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

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

7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended. 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) 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 Agency Act 1992 (S.I. No. 7 of 1992) as amended.
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended.
4. Southern Waste Region, *Southern Region Waste Management Plan 2015 – 2021* (2015).
5. Dublin City Council (DCC), *Dublin City Development Plan 2016 – 2022* (2016)
6. DCC, *Draft Dublin City Development Plan (2022-2028)*
7. DCC, *Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws* (2018).
8. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998).
9. Department of Environment, Heritage and Local Government (DoEHLG), *Preventing and Recycling Waste - Delivering Change* (2002).
10. Department of the Environment and Local Government (DoELG), *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002).
11. Department of the Environment, Heritage and Local Government (DoEHLG), *Taking Stock and Moving Forward* (2004) .
12. Department of the Environment, Climate and Communications (DoECC), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (2020).
13. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021)
14. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2017*.
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).
17. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
18. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
19. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015).
20. BS 5906:2005 Waste Management in Buildings – Code of Practice.
21. DoHLGH, *Sustainable Urban Housing: Design Standards for New Apartments*, Guidelines for Planning Authorities (2020)
22. Department of Transport, Tourism and Sport and Department of Housing, Planning and Local Government, *Design Manual for Urban Roads and Streets* (2019).



CHAPTER 16
INTERACTIONS



16.0 INTERACTIONS

16.1 INTRODUCTION

- 16.1 This chapter of the EIA Report addresses potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the demolition/construction and operational phase of the proposed development.
- 16.2 This chapter has been produced following the guidance within, the EIA Directive, the *Planning and Development Act 2000* (as amended), the *EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports 2022* and *EPA Draft Advice Notes for Preparing Environmental Impact Statements 2015*.
- 16.3 In accordance with the guidance not only are the individual significant impacts required to be considered when assessing the impact of a development on the environment, but so must the interrelationships between these factors be identified and assessed.
- 16.4 The majority of the EIA Report chapters have already included and described assessments of potential interactions between aspects, considered by the various specialists contributing to this impact assessment as inherent aspects of their methodology. The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the EPA 2022 Guidance as outlined in Chapter 1. This section of the assessment presents a summary and assessment of the identified interactions.
- 16.5 Section 171A of the Planning and Development Act requires that the interactions between the following be assessed:
- population and human health;
 - biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive;
 - land, soil, water, air and climate; and
 - material assets, cultural heritage and the landscape;

16.2 DISCUSSION – POSITIVE IMPACTS

- 16.6 The reasoning behind the interactions that are considered to have a positive effect (i.e. a change which improves the quality of the environment) is outlined in this section.

Planning and Alternatives on:

Population and Human Health

- 16.7 The proposed development will create significant temporary direct and indirect employment during the demolition and construction phase, additionally, in the longer term the proposed development will provide positive, significant permanent direct and indirect employment. This will support economic development within the hinterland in which the development is located.
- 16.8 The proposed development will also provide a cultural arts resource for the local and wider community which is regarded as a significant positive impact.

Landscape and Visual Impact

- 16.9 The existing site currently offers no landscape value. The proposed development will significantly and positively directly increase the visual landscape value of the subject site and will also provide indirect positive visual landscape impacts to the neighbouring lands and the people who use them.

Landscape on:

Population and Human Health

- 11.1 In general, the proposed development will represent an intensification of the built urban landscape that will be consistent with the emerging trend in the locality and with the land use zoning for the area. For a landmark building of this stature the visual envelope for visual impact is broad and varied encompassing many different types of population receptors i.e. resident, student, commuter, worker, tourist etc.. A detailed analysis of the visual impact from an extensive range of vantage points encompassing the full range of visual and townscape receptors has been conducted. It has been assessed that the cumulative townscape and visual effects of the proposed development in combination with the AquaVetro and College Square developments – and considering also a trend towards high density/tall developments around the city - would be positive.

Biodiversity

- 16.10 The proposed garden terraces allow for the introduction of some small localised biodiversity to an area that is currently lacking in localised biodiversity. The landscaping plan does not contain any invasive species. The long-term effects of the proposed development will have a positive effect on the local area through the increase of tree canopy and vegetation.

Material Assets on:

Hydrology

- 16.11 The use of SuDS during operations will mean that the development will result in significantly improved water impacts in the operational phase with regard to runoff rates and flooding risk. This impact will be viewed as long-term, moderate and positive.

16.3 DISCUSSION – NEUTRAL IMPACTS

- 16.12 The reasoning behind the interactions that are considered to have a neutral effect (i.e. no effects or effects that are imperceptible, within the normal bounds of variation or within the margin of forecasting error) is outlined in this section.

Planning and Alternatives on:

Population and Human Health

- 16.13 Careful consideration of alternative building designs has resulted in no alteration to the current daylight levels experienced in the City Quay National School playground, and the provision of a green wall and fenestration treatments has negated any concerns regarding overlooking into the school.

Landscape and Visual Impact

- 16 14 The alternative designs considered has resulted in a six-storey plinth to the proposed development with significant setbacks occurring above that level via terraced roof gardens and an overall reduction in floor area, such that the overall height of the building beyond the six storey plinth is not evident to those using the City Quay National School or the grounds of the Immaculate Heart of Mary Catholic Church.

Archaeological, Architectural and Cultural Heritage

- 16 15 The demolition/construction and operational phase of the proposed development will not impact directly on any known archaeological, architectural or cultural heritage sites or features.

Hydrology on:

Population and Human Health

- 16 16 The operational development will impact on stormwater and foul wastewater which have the potential to impact on human health if not adequately managed. Stormwater generated on site will be discharged at controlled rates through the use of sustainable urban drainage systems (SuDS) which will reduce the risk of flooding and management of water quality as a result of the development. The foul sewer will discharge to the wastewater treatment plant at Ringsend. The Ringsend treatment plant is licenced by Irish Water and is soon to be upgraded and will provide appropriate treatment for wastewater emissions.
- 16 17 The potential risk of flooding on the site was also assessed. A site-specific flood risk assessment (FRA) was carried out by Byrne Looby (submitted as part of this planning application) and it was concluded that there is a low risk of coastal, fluvial, ground water and public sewer flooding.

Biodiversity

- 16 18 There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the surface water system and the foul water provision discharges to Ringsend WWTP which has an indirect hydrological connection with a number of nationally and internationally important habitats. The use of demolition and construction control mitigation measures as provided in the outline CEMP and the sustainable urban drainage systems, along with the water treatment processes and monitoring of treated effluent at Ringsend will result in no potential for impact on biodiversity downstream of Ringsend WWTP. The impact upon biodiversity from hydrological impacts would be long-term and neutral.

Land, Soils, Geology and Hydrogeology on:

Population and Human Health

- 16 19 There will be a loss of surface car parking for economic use due to the development. However, within the overall context of Dublin's available parking provisions, and the strategic decision to open these lands to alternative uses other than car parking during the last and draft development plan re-zoning, the loss is considered negligible. In addition, the employment created by the demolition/construction and operation of the proposed development counterbalances this economic loss and so the impact is long-term, imperceptible and neutral.

Hydrology

- 16.20 Demolition and construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between water quality (hydrology) and land and soils in the form of surface water runoff. The use of SuDS and attenuation will mean that the development will result in neutral water impacts in the operational phase with regard to runoff rates and flooding risk.

Air Quality

- 16.21 Demolition and construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that interactions between air quality and land and soils and hydrology will be short-term and imperceptible.

Air Quality and Climate on:

Biodiversity

- 16.22 Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised and the effect on biodiversity will be short term, imperceptible and neutral.

Population and Human Health

- 16.23 An adverse impact due to air quality in either the demolition/construction or operational phase has the potential to cause health and dust nuisance issues. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term, negative and imperceptible with respect to the demolition/construction phase and long-term, neutral and imperceptible with respect to the operational phase in terms of human health impacts.

Noise on:

Population and Human Health

- 16.24 The noise-related impacts associated with the operation of the proposed development has been modelled and shown to have a long-term, imperceptible and neutral effect on the nearby sensitive receptors.

Biodiversity

- 16.25 The noise-related impacts associated with the operation of the proposed development has been shown to have a long-term, imperceptible and neutral effect on the nearby Natura 2000 sites and any avifauna associated with the adjacent habitats.

Major Accidents on:Population and Human Health

- 16.26 The proposed development site is not located within the consultation distance of any COMAH establishment that is notified to the HSA (Health and Safety Authority) and is not considered to be a COMAH establishment.

Traffic on:Air Quality

- 16.27 Interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

Noise

- 16.28 Based on the proposed scale of the demolition and construction activity, the number of workers on site each day and the existing level of traffic on Moss Street, City Quay and Gloucester Street South, the additional traffic introduced onto the local road network due to the construction phase of the proposed development will not result in sufficient enough changes in traffic to generate a perceptible noise impact. An increase in noise level of less than 3 dB is considered negligible or not significant (DMRB and EPA). It is therefore considered that increased traffic during the construction phase will not result in a significant noise impact.

Material Assets & Waste on:Population and Human Health

- 16.29 The proposed development will have an impact on material assets such as surface water drainage, water supply, wastewater drainage, power supply and road infrastructure. Chapters 14 and 15 (Material Assets and Waste) have reviewed the capacities of the available infrastructure to accommodate the proposed development and the implementation of the mitigation measures proposed in these chapters will ensure there are no residual negative impacts on the local population. The predicted effect is therefore imperceptible and neutral.

Hydrology

- 16.30 As a part of the SuDS features, it is anticipated that small amounts of hydrocarbon sludge waste and debris may be generated in the hydrocarbon interceptors which will treat the surface water run-off. This waste stream will be managed in accordance with the relevant legislation identified in Chapter 15 such that the effect of the waste generation will be long-term, imperceptible and neutral.

16.4 DISCUSSION – NEGATIVE IMPACTS

- 16.31 The reasoning behind the interactions that are considered to have a negative effect (i.e. a change which reduces the quality of the environment) is outlined in this section.

Planning and Alternatives on:

Population and Human Health

While there will be no decrease in sunlight in the playground during school hours there will however be a loss of daylight to some of the classroom windows on the courtyard side of the school during school hours. This reduction is however within BER VSC (vertical sky component) targets resulting in an overall negative, slight, long-term impact to the school.

Land, Soils, Geology and Hydrogeology on:

Noise

- 16.32 There is potential for residual demolition/construction noise levels to be up to 5 dB above the lower construction noise threshold (CNT) of 70 dB $L_{Aeq,T}$ during intrusive activities close to the eastern site boundary for intermittent periods of time. As a result of this there is potential for a residual, negative, moderate to significant and temporary impact at noise sensitive receptors (City Quay National School) along this boundary at upper floor levels above the existing dividing wall. The majority of residual construction noise impacts during the remaining work phases, are however expected to be controlled to within the CNT, thus resulting in a negative, moderate, short term impact.
- 16.33 There are no residual significant vibration impacts associated with the demolition/construction phase.

Landscape and Visual on:

Archaeology

- 11.2 The proposed development will comprise the construction of a landmark multi-storey structure. With the exception of the protected structures to the east, the remaining immediate development fronting onto City Quay is modern in nature. Indirect negative moderate impacts have been identified in relation to the Presbytery and Church of the Immaculate Heart of Mary and the Custom House. The remaining identified impacts are slight and in many instances impacts do not occur due to the developed nature of the landscape between the proposed development area and the structures under assessment.

Architecture

- 11.3 The proposed development is located within the River Liffey Conservation Area and will see the introduction of a landmark modern structure, which by its very design is highly visible. A number of surrounding multi-storey structures exist in this environment, with a further two land mark structures under construction at Tara Street. When considering the nature of the existing receiving environment, the operation of the development will have an indirect negative effect on the overall Conservation Area, which will be moderate in significance.

16.5 SUMMARY

- 16.34 In summary, the interactions between the environmental factors and impacts discussed in this EIAR have been assessed and the majority of interactions are neutral. While there will be moderate to significant demolition/construction noise impacts to the upper floors of City Quay National School this will be short-term and temporary. Also

while the extensive re-designs of the proposed development have minimised to a substantial degree the impact of shading on City Quay National School there will be a moderate reduction in available light at some windows on the courtyard side of the school; however this reduction is within BRE guidelines as acceptable. By the very design of this proposed landmark building there will be some indirect negative impacts of moderate significance to the Presbytery and Church of the Immaculate Heart of Mary, the Custom House, and the River Liffey Conservation Area. The proposed development will however result in a landmark building in a well-suited location (in terms of public infrastructure, prominence within the city centre and need) delivering high-density office employment and cultural arts resources which will have a positive benefit within the hinterland in which the development is located.

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