OUTLINE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

FOR

PROPOSED INDUSTRIAL DEVELOPMENT

AT

CALMOUNT ROAD & BALLYMOUNT AVENUE

BALLYMOUNT INDUSTRIAL ESTATE,

DUBLIN 12

4th April 2022

ON BEHALF OF

Blackwin Ltd.

Prepared by
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1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as EGC) was retained by Blackwin Ltd. (the Applicant) to prepare the Outline Construction and Demolition Waste Management Plan (CDWMP) for the Construction Phase of a Proposed Development located on lands at located to the north of Calmount Road and west of Ballymount Avenue, Ballymount Industrial Estate, Dublin 12 (hereafter referred to as the Proposed Development Site).

The proposed development comprises the provision of 5 no. warehousing / logistics units including ancillary office floorspace, 3 no. own-door office buildings, 1 no. café / restaurant unit, associated access roads, car and cycle parking, service yards, landscaping, ESB substations and all associated development.

A detailed description of the Proposed Development is provided in Section 3.

1.1 Scope and Purpose of this CDWMP

The purpose of this outline CDWMP is to provide the information necessary to ensure that the management of surplus material including construction and demolition (C&D) waste at the Site is undertaken in accordance with relevant EU, National and Local Waste Management Policies, Waste Legislation, and Best Practice Guidelines, as discussed in Section 2 below.

This outline CDWMP details the legal and policy framework aimed at resource and waste management for C&D projects in Ireland. This CDWMP also includes information on the roles and responsibilities of all parties involved in the Proposed Development; the type and quantity of resources and waste to be generated by the Proposed Development and details the planned approach to the management of resources and waste on-site.

This outline CDWMP relates to the Pre-Construction Phase of the Proposed Development and will be updated by the appointed Contractor in advance of construction works commencing on-site.

As detailed in this document, the exact materials and quantities of construction waste that will be generated from the proposed works will be audited throughout the project roll-out phase. This measure will ensure that waste is prevented in the first place, and to re-use, recycle or recover waste materials where possible.

2 RELEVANT EU, NATIONAL AND LOCAL WASTE POLICY AND LEGISLATION

2.1 National Policy and Best Practice Guidelines

The Irish Government's policy document of 1998, '*Waste Management: Changing our Ways*', represented Ireland's first steps towards identifying objectives for the prevention, minimisation, reuse, recycling, recovery, and disposal of waste, including C&D waste.

The Irish Construction Industry responded to the '*Waste Management: Changing Our Ways*' report by setting up a waste sector task force and released a report entitled '*Recycling of Construction and Demolition Waste*'. The report dealt with the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, and subsequently produced the '*Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects*' in July 2006 in conjunction with the then Department of the Environment, Heritage and Local Government (DoEHLG). The guidelines outlined the issues that needed to be addressed at the pre-planning stage of a development all the way through to its completion. The Best Practice Guidelines also identified development thresholds above which a C&D Waste Management Plan must be prepared. The Best Practice Guidelines noted that arrangements need to be established in a manner which ensures that there is a contractual obligation on the Contractor(s) to prepare a Waste Management Plan in accordance with the above considerations at a minimum.

In 2012, the then Department of the Environment, Community and Local Government (DoECLG) (previously DoEHLG), published '*A Resource Opportunity – Waste Management Policy in Ireland*' which supported the prioritisation of the waste hierarchy and identified specific producer responsibilities for construction and demolition projects (over certain thresholds) as a key area for exploration. In 2015, the EPA's '*Design Out Waste*' report noted that the preparation of a Waste Management Plan within the early design and feasibility phases provides a framework to carry out design reviews, and should be used as an implementation, benchmarking, monitoring and reporting tool throughout the overall construction process.

The Best Practice Guidelines also reflect the current waste legislation and policy including '*A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020-2025*' published in September 2020 by the Department of Communications, Climate Action and Environment (DCCAE) (updated in January 2021). '*A Waste Action Plan for a Circular Economy*' focuses on the prevention of waste disposal by maximising the value of material resources and reducing waste generation and also sets out a number of actions in relation to C&D including updating C&D waste management plan guidelines, putting in place incentives to encourage the use of recycled materials, further develop methods to encourage segregation of waste materials on-site and improve consistency across the waste sector.

In 2021, following a process of public consultation, the Environmental Protection Agency (EPA) produced '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*', which supersedes the DoEHLG Best Practice Guidelines 2006. The EPA's Best Practice Guidelines (2021) set out a practical and informed common approach to preparing C&D Resource and Waste Management Plans (RWMP) prior to construction and during construction. The Best Practice Guidelines recommend that an RWMP shall be submitted for all C&D projects to inform the planning consent process, and that the level of detail presented in the RWMP should be reflective of the scale and complexity of the project. The guidelines provide thresholds for classifying C&D projects into two different tiers with regards to resource and waste management. These thresholds are based on the principle of proportionality to ensure larger projects with larger potential resource footprints are required to more actively manage resources compared to smaller scale projects.

Other guidelines considered in the preparation of this report include '*Construction and Demolition Waste Management – a handbook for Contractors and Site Managers*' published by FÁS and the Construction Industry Federation in 2002.

These policy and guidance documents are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

2.2 Regional Policy

The Proposed Development is located in Co. Dublin and is therefore governed by the Waste Management Plan for the Eastern-Midlands Region (EMR) (2015-2021). The Waste Management Plan for the EMR is a statutory document prepared by the Local Authorities of the EMR which sets out the framework for the prevention and management of wastes in the EMR in a safe and sustainable manner. The Waste Management Plan provides policy direction, setting out what the Local Authorities want to achieve in relation to waste management and actions to achieve their targets. The strategic approach of the plan places a stronger emphasis on preventing wastes and material reuse activities, and it notes that the waste sector has the potential to play a leading role in the development of the circular economy in the EMR, and the policies and actions of the Waste Management Plan are focused on delivering this outcome.

The Waste Management Plan reflects the targets set out for C&D waste in the Waste Framework Directive (WFD), which requires a 50% reuse, recycling and materials recovery rate target of non-soil and stone construction and demolition waste to be achieved by 2020.

This CDWMP sets out the waste management objectives for the Proposed Development for waste prevention, maximum recycling, reuse and recovery of resources and waste with diversion from landfill, wherever possible. It also sets out the appropriate measures to be taken regarding the 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).

2.3 Legislative Requirements

The primary piece of legislation governing waste management in Ireland is the Waste Management Act 1996, (as amended) and all associated regulations. Waste management is also regulated by the Environmental Protection Act 1992. (as amended), Litter Pollution Act 1997, (as amended) and the Planning and Development Act 2000, (as amended).

Under the Waste Management Act, 1996, (as amended), the waste producer is responsible for waste from the time it is generated through until its legal recycling, recovery, or disposal (including its method of disposal). This includes transportation by an authorised waste contractor.

2.4 European Communities (Waste Directive) Regulations 2011-2020

The new Waste Framework Directive (WFD) (Directive (EU) 2018/851 of the European Parliament, amending Directive 2008/98/EC on waste) was approved by the EU in July 2018. The WFD requires EU Member States to improve their waste management systems, to improve the efficiency of resource use, and to ensure that waste is valued as a resource. The new WFD was transposed into Irish law in 2020 and the European Union (Waste Directive) Regulations 2020 (S.I. No. 323 of 2020) and the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) are interpreted together as one and are collectively cited as the European Union (Waste Directive) Regulations 2011-2020.

The European Union (Waste Directive) Regulations 2011-2020 supersede a number of provisions of the Irish Waste Management Act 1996 (as amended), and associated regulations. Provisions include extended producer responsibility, the implementation of the Waste Management Hierarchy, and measures to promote the preparation of materials for re-use, recycling, and other material recovery (including beneficial backfilling operations using waste as a substitute). The WFD and the European Union (Waste Directive) Regulations 2011-2020 make specific reference to the reuse and recycling of C&D waste. Regulation 31(1)(d) requires measures to be taken to "*promote selective demolition in order to enable removal and safe handling of hazardous substances and facilitate re-use and high-quality recycling by selective removal of materials, and to ensure the establishment of sorting systems for construction and demolition waste at least for wood, mineral fractions (concrete, bricks, tiles and ceramics, stones), metal, glass, plastic and plaster.*"

The European Communities (Waste Directive) Regulations 2011-2020 also transpose EU waste management targets into Irish law as statutory benchmarks, and a minimum of 70 % by weight of non-hazardous C&D waste must be prepared for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials (excluding naturally occurring material defined in category 17 05 04 in the List of Waste).

2.5 Waste Classification

– List of Waste & Determining if Waste is Hazardous or Non-Hazardous

Correct classification of waste is the foundation for ensuring that the collection, transportation, storage and treatment of waste is carried out in a manner that provides protection for the environment and human health and in compliance with legal requirements.

In 1994, the European Waste Catalogue was published by the European Commission. In 2002, the EPA published a document titled the European Waste Catalogue and Hazardous Waste List. This document has been replaced by the EPA 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' which became valid from the 1stJuly 2018.

The waste classification system applies across the EU and is the basis for all national and international waste reporting obligations such as those associated with waste collection permits, certificates of registration, waste facility permits, EPA Waste and Industrial Emissions licences and the EPA National Waste Database.

The EPA document 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018) consolidates the legislation and allows the generators of waste to classify the waste as hazardous or non-hazardous and in the process to assign the correct List of Waste entry. Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (previously referred to as European Waste Code or EWC).

3 DESCRIPTION OF THE PROJECT

3.1 Site Location, Description and the Proposed Development

The Proposed Development Site is located north of Calmount Road and West of Ballymount Avenue in Ballymount Industrial Estate, Dublin 12. The site location is presented in Figure 3-1.

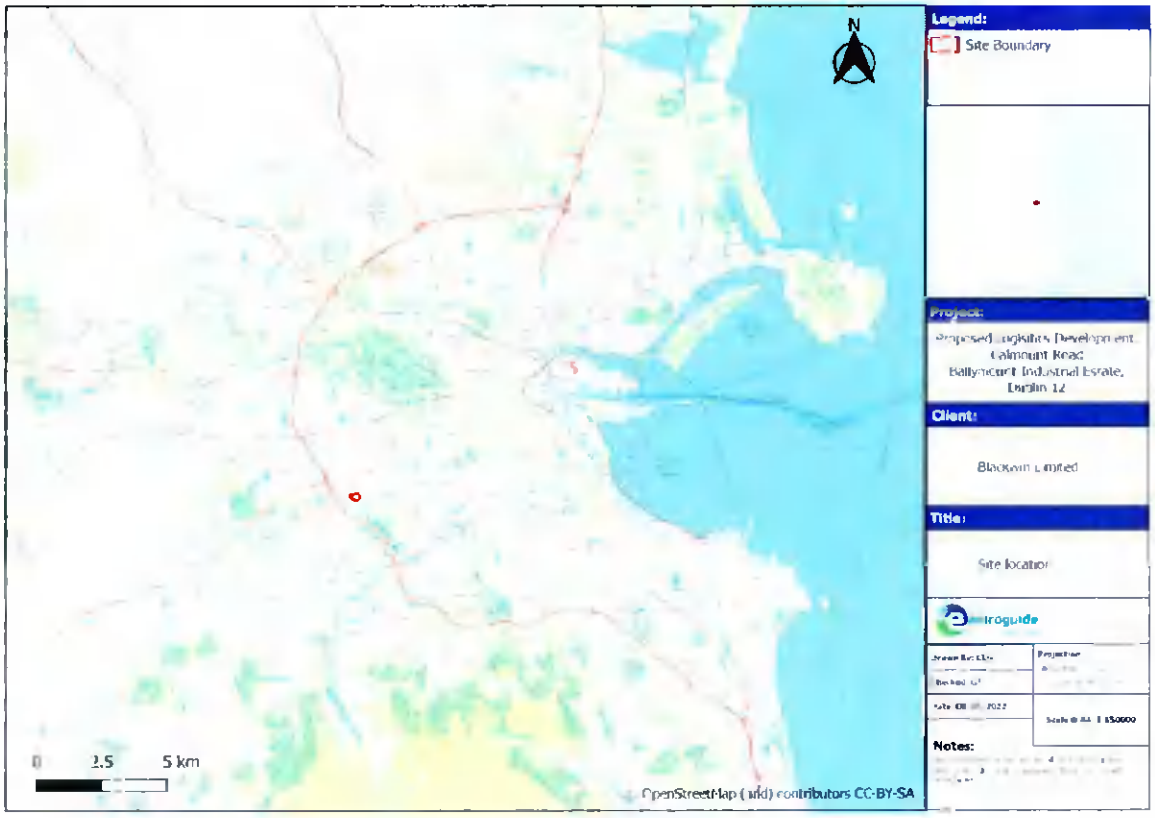

Figure 3-1. Site Location

The proposed development consists of the following:

- Construction of 5 no. warehouse / logistics units (Units 1, 2 3, 4 and 6), including ancillary office use and entrance / reception areas over two levels, with maximum heights of c. 17.09 metres and a combined total gross floor area (GFA) of 20,158 sq.m;
- Each warehouse / logistics unit includes car parking to the front, and service yards. including HGV loading bays, to the rear of each unit. Signage zones are proposed for each unit. A total of 200 no. car parking spaces and 110 no. cycle spaces are provided for the 5 no. warehouse / logistics units;
- Construction of 3 no. 3 storey own-door office buildings (Block 5A, 5B and 5C) with maximum heights of c. 13.45 metres and a combined GFA of 4,194 sq.m. Signage zones are proposed at the entrances to the buildings. A total of 77 no. car parking spaces and 50 no. cycle parking spaces are provided for the proposed office buildings;
- Construction of a café/restaurant unit with a maximum height of c. 6.09m and a GFA of 213 sq.m to be located in the south western section of the site. The proposal includes signage for the unit, associated outdoor seating and a bin store. 14 no. car parking spaces and 10 no. cycle spaces are provided for the café/restaurant unit;
- The proposal includes 5 no. ESB substation buildings;
- The development is to be accessed off Ballymount Avenue and Calmount Road and includes for alterations and upgrades to the public footpaths and road. The development

provides for vehicular and service access points, associated internal access roads, circulation areas and footpaths; and
- The proposal includes landscaping and planting, entrance signage, boundary treatments, lighting, PV panels, green roofs, underground foul and storm water drainage network, including connections to the foul and surface water drainage network on the public roads, attenuation areas and all associated site works and development.

4 WASTE MANAGEMENT TEAM

4.1 Roles and Responsibilities

4.1.1 Waste Officer

A member of the construction team will be appointed as the project "Waste Officer" to ensure commitment, operational efficiency and accountability during the Construction Phase of the Proposed Development.

The appointed Waste Officer will have overall responsibility to oversee and record everyday waste management at the Proposed Development Site.

The Waste Officer will have the authority to select a waste team, if required (i.e., members of the site crew that will aid him/her in the organisation, operation and recording of the waste management system implemented on-site).

The Waste Officer will maintain the record keeping system for waste management on-site including maintaining a log of each load of waste materials being transported off-site and maintain a record of all necessary documentation including waste transfer documents and landfill gate receipts in the waste management file.

Authority will be given to the Waste Officer to delegate responsibility to subcontractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

4.1.2 Environmental Consultant

Guidance and support will be provided to the Waste Officer by the appointed Environmental Consultant to ensure the waste management targets and deliverables are maintained to a high standard.

If required, the Environmental Consultant will also be responsible for completing waste classification of surplus soil and stone materials that may require off-site disposal in compliance with all relevant waste management legislation.

4.2 Training Provisions

4.2.1 Waste Officer Training

The Waste Officer will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on-site. The Waste Officer will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on-site and be knowledgeable in how to implement the project CDWMP.

4.2.2 Site Personnel Training

A basic awareness briefing will be held for all site personnel to outline the CDWMP 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 briefing will describe the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the briefing and the particular dangers of each hazardous waste will be explained.

5 MATERIALS AND WASTE TYPES

5.1 Details of Potential Non-Hazardous Wastes

5.1.1 Non-Hazardous C&D Waste

The Proposed Development Site is on greenfield lands and there will be no demolition works required.

During the Construction Phase of the Proposed Development, while every endeavour will be made to prevent waste at source, it is anticipated that there will some surplus of building materials, such as timber off-cuts, broken concrete blocks, cladding, plastics, metals, and tiles generated. There may also be excess concrete during construction which will need to be appropriately managed. Plastic and cardboard waste from packaging and supply of materials will also be generated.

5.1.2 Inert and Non-Hazardous Soil and Stone

The Proposed Development will involve excavation of topsoil and subsoil during the Construction Phase to depths of up to 0.65 metres below ground level(mbGL) to achieve the proposed Site levels.

Soil analytical data for samples collected from across the Site are provided in the site investigation report (ECG, 2021) and verify that there are no hazardous compounds in the soil sampled at the Site. This will be verified during the groundworks in accordance with the procedures outlined in Section 6.

In order to minimise the requirement for imported aggregates excavated materials will be re-used on Site where fill is required to achieve proposed Site levels and for landscaping.

The predicted quantities of cut and fill and surplus material from the bulk dig is provided in Table 5-1.

Table 5-1 Cut and Fill Analysis (DBFL, 2022)

Area (m^2)	Cut Required (m^3)	Fill Required (m^3)	Net (m^3)
185,076.02	64,504.73	55,939.43	8,565.30 (Cut)

The overall net volume of 8,565.30m^3 of soil will require removal offsite. The final volume of material removed from Site may vary (typically +/- 20%) where bulking of soils on excavation occurs.

5.1.3 Other Non-Hazardous Wastes

Waste will also be generated from construction workers (e.g., organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on-site during the construction phase. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.

5.2 Hazardous Wastes

5.2.1 Asbestos

The Site is greenfield and has not been previously developed and therefore asbestos containing materials (ACMs) will not be generated during the Construction Phase of the proposed Development.

Soil analytical data for samples collected from across the Site are provided in the site investigation report (ECG, 2021) and verify that there are no ACMs in the soil.

5.2.2 Hazardous Soil and Stone

It is anticipated that there will be no hazardous soil and stone waste requiring off-site disposal generated during the Construction Phase at the Proposed Development. Soil analytical data for samples collected from across the Site are provided in the site investigation report (GII, 2018) and verify that there are no hazardous compounds in the soil sampled at the Site. This will be verified prior to removal of any soil and stone from the Site.

5.2.3 Fuel and Oils

Fuels and oils are classed as hazardous materials. The storage of small quantities of fuel will be required to allow for refuelling of machinery in the site compound and on an impermeable area with appropriate containment in place. All fuels and oils required to be stored at the site will be sealed, bunded and clearly marked. All tank, container and drum storage areas will be rendered impervious to the materials stored therein. Bunds and storage areas will have regard to EPA guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004) and Enterprise Ireland. Best Practice Guide BPGCS005. Oil Storage Guidelines. All tank and drum storage areas shall, as a minimum, be bunded to a volume not less than 110% of the capacity of the largest tank or drum within the bunded area. Provided that these requirements are adhered to, and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

5.2.4 Other Hazardous Substances

Any paints, glues, adhesives, and other known hazardous substances will be stored in designated areas and will be sealed, bunded and clearly marked. They will generally be present in small volumes only, ordered as needed and therefore, associated waste volumes generated will be kept to a minimum.

It is not envisaged that there will be any other hazardous waste generated throughout the construction works however if generated, on-site storage of any hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with compliant removal off-site organised on a regular basis.

It is noted that storage of all hazardous wastes on-site will be undertaken to minimise exposure to on-site personnel and to also minimise potential for environmental impacts. A specialist hazardous waste contactor will be used to remove any hazardous waste arising.

5.3 Main C&D Waste Categories

The main non-hazardous and hazardous waste streams that could be generated by construction activities at a typical site are shown in Table 5-2. The List of Waste (LoW) code for each waste stream is also shown.

Table 5-2 Typical Waste Types Generated and LoW Code

Waste Material	LoW Code
Concrete	17 01 01
Bricks	17 01 02
Tiles and Ceramics	17 01 03
Mixture of concrete, bricks, tiles, and ceramics	17 01 07
Waste C &D materials - Wood, Glass Plastic	17 02 01 17 02 02 17 02 03
Non-hazardous bituminous mixtures	17 03 02
Metals (including their alloys) Copper, bronze, brass Aluminium Lead Zinc Iron and steel Tin Mixed metals	 17 04 01 17 04 02 17 04 03 17 04 04 17 04 05 17 04 06 17 04 07
Non-Hazardous Soil and Stone	17 05 04
Hazardous Soil and Stone	17 05 03*
Insulation materials	17 06 04
Gypsum-based construction material	17 08 02
Non-Hazardous Mixed C&D Wastes	17 09 04
Paper and cardboard packaging	15 01 01
Wooden Packaging (Pallets)	15 01 03
Electrical and electronic components	20 01 35* 20 01 36
Batteries and accumulators	20 01 33* 20 01 34
Wastes of Liquid fuels Fuel oil and diesel Petrol Other fuels (including mixtures)	 13 07 01* 13 07 02* 13 07 03*
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13* 20 01 19* 20 01 27* 20-01 28 20 01 29* 20 01 30

5.4 Quantities of C&D Waste

Table 5-3 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA National Waste Statistics (EPA, December 2021. National Waste Statistics Summary Report for 2019). The waste categories in Table 5-3 will be segregated into general waste and dry recycling categories.

Table 5-3: Quantities of C&D Materials Generated on a Typical Irish Construction Site (source: EPA, 2021)

Waste Types	%
Mixed C&D waste	30
Segregated timber, glass, and plastic	2
Bituminous Mixtures	9
Metals	14
Segregated concrete, brick, tile, and gypsum	45
Total	**100**

As outlined in Section 5.1.2 an overall net volume of 8,565.30m^3 (+/- 20%) of soil will require removal from the Site.

Where possible, surplus soil that is verified to be clean and inert which meets the specifications outlined in the EPA's Guidance on waste acceptance criteria at authorised soil recovery facilities, will be removed from the Site under an Article 27 By-product notification (refer to Section 5.5).

5.5 Article 27 By-product

Where appropriate the removal of surplus materials (soil and stone) as a by-product of the Proposed Development Construction Phase under an Article 27 By-product notification in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011) will be considered. Material will only be removed under an Article 27 By-product notification when it can be robustly demonstrated that all tests for Article 27 By-product are met.

5.6 Invasive Species

Invasive plant species were not identified during surveys undertaken by Enviroguide Consulting at the Proposed Development Site. If invasive species are identified during construction works an appropriate Invasive Alien Species (IAS) Management Plan will be developed which will identity mitigation measures to prevent uncontrolled transportation and dispersion of invasive species from the Proposed Development Site. All works will be undertaken in accordance the mitigation measures outlined in the IAS Management Plan.

6 WASTE CLASSIFICATION

The Contractor will ensure all materials identified as wastes are classified in compliance with all relevant waste management legislation.

6.1.1 C&D Waste Materials

The waste classification of inert C&D wastes generated throughout the construction phase of the development including structural concrete, metal, timber, cladding, plastics, cardboard, and tiles will be based on visual observations by the Waste Officer or appointed delegate.

It is noted that there will be no crushing of concrete on-site using a mobile crushing plant. Concrete will be segregated for removal off-site to an authorised permitted/licensed waste facility for recovery, recycling.

6.1.2 Soil and Stone

Where sampling and assessment of soil and materials is required to ensure that the materials are managed and removed off-site in accordance with waste management legislation, the waste classification of sample results will be based on the following method:

- Soil sample collection and analysis in accordance with UK Environment Agency, 2021 Version 1.1 GB (EU Exit Update): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.GB) Technical Guidance WM3 (UK EA, WM3 2021) and the Northern Ireland Environment Agency, 2021. Version 1.1 NI (EU Exit): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.NI) Technical Guidance WM3 (NI EA, WM3 2021).
- Assessment of results to determine if the sample is a hazardous or non-hazardous waste using the http://www.hazwasteonline.com application developed by One Touch Data Limited;
- Assigning a List of Waste (LoW) Code to the sampled material in accordance with EPA guidance 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018);
- Screening the sample analytical results against the waste acceptance criteria (landfill WAC) set out in the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002);
- Screening the sample analytical results against the Maximum Concentrations and/or Soil Trigger Levels set out in the EPA "Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities" (SRF WAC) (EPA, 2020); and
- Assigning a waste category for each sample based on the methods outlined above.

7 MATERIALS AND WASTE MANAGEMENT

7.1 Opportunities for Prevention and Reduction

Opportunities for the prevention and reduction of waste will be considered throughout all stages of the Proposed Development Construction Phase. The Contractor will plan the construction process to eliminate/reduce waste; specifically, careful planning will minimise the volume arising on-site, facilitate the use of reclaimed materials in the works, and influence wastage caused by poor materials handling.

Table 7-1 shows the targets for recovery during the Construction Phase of the Proposed Development based on data from the EPA National Waste Statistics (EPA, December 2021, National Waste Statistics Summary report for 2019).

Table 7-1 Predicted Quantities of Materials and Targets for Recovery

Waste Type	Quantity from Proposed Development	Recycling	Energy Recovery	Backfilling	Landfill Disposal
	m^3	%	%	%	%
Mixed C&D waste	*	13%	1	60%	26%
Segregated wood, glass, and plastic	*	39%	54%	7%	0%
Bituminous Mixtures	*	64%	0%	36%	0%
Metals	*	100%	0%	0%	0%
Segregated concrete, brick, tile, and gypsum	*	46%	0%	52%	2%
Soil and Stone	8,565.30m^3	0%	0%	91%	9%
Total	*	44%	9%	41%	6%
	Notes: Quantity denoted * will be determined at detailed design stage.				

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.

The predicted recovery targets will be reviewed and updated by the appointed Contractor in advance of construction works commencing onsite when the final materials and detailed construction methodologies have been confirmed. The waste management objective will be to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible. A policy of 'as needed' ordering and strict purchasing procedures will also prevent waste arisings as far as possible.

7.2 Article 27 By-product

Where appropriate the removal of surplus materials as a by-product of the Proposed Development Construction Phase under an Article 27 By-product notification in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011) will be considered. Material will only be removed under an Article 27 By-product notification when it can be robustly demonstrated that all tests for Article 27 By-product are met.

7.3 Construction Waste Management

The management of the main waste streams are detailed in the following sections,

A policy of 'as needed' ordering and strict purchasing procedures will also prevent waste arisings as far as possible and as there is no demolition phase it is anticipated that there will be minimal surplus quantities of the following materials generated.

7.3.1 Concrete

The vast majority of concrete generated as part of the construction works is expected to be clean, non-hazardous material. There will be no crushing of concrete on-site using a mobile crushing plant. Concrete will be segregated for removal off-site to an authorised permitted/licensed waste facility for recovery and/ or recycling. As there is no demolition, significant volumes of waste concrete will not arise.

7.3.2 Tarmacadam

Where possible it is anticipated that any tarmacadam generated during site clearance works will be reused onsite (e.g., capping layer below access roads) subject to assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. However, where the removal offsite of tarmacadam is required, it will be segregated pending removal to an authorised permitted/licensed waste facility for recovery and/ or recycling.

7.3.3 Tiles, Ceramics and Gypsum

Tiles, ceramics and gypsum wastes generated as part of the construction works will be segregated into dedicated skips/receptacles and recycled off-site at an authorised recycling facility. Under no circumstances, will gypsum containing materials (e.g., plasterboard) be stored with mixed waste. The appointed Waste Officer or delegate will ensure that supply of new plasterboard is carefully monitored to minimise waste.

7.3.4 Timber Glass and Hard Plastic

Glass, hard plastic (e.g., material cut offs) and timber that is uncontaminated (i.e., free from paints, preservatives, glues etc.) will be segregated into dedicated skips/receptacles and recycled off-site at an authorised recycling facility, where possible.

7.3.5 Metal

Metals will be segregated into mixed ferrous, aluminium cladding, high grade stainless steel, low grade stainless steel etc., where practical and stored in skips and recycled off site at an authorised recycling facility.

7.3.6 Waste Electrical and Electronic Equipment (WEEE)

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

7.3.7 Other Recyclables

Where any other recyclable wastes such as cardboard and soft plastic are generated, these will be segregated at source into dedicated skips and removed off-site.

7.3.8 Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some contaminated 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 appointed Waste Officer or delegate 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.

7.3.9 Hazardous Wastes

Storage of all hazardous wastes on-site will be undertaken to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately. Hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with removal off-site organised on a regular basis by an appointed specialist hazardous waste contactor.

As the Site is greenfield, hazardous soil and stone is not expected to be encountered.

7.3.10 Inert / Non-hazardous Soil and Stone

It is estimated that approximately 8,565.30m^3 (+/- 20%) of excavated inert and non-hazardous soil and stone will be generated during the Construction Phase of the Proposed Development.

The removal of soils and materials off-site for disposal will be undertaken in accordance with the soil waste classification presented in the Enviroguide Consulting, December2021 waste classification report and all relevant waste management legislation.

If any surplus soil that is verified to be clean inert soil is to be removed from the Site under an Article 27 By-product notification to the EPA. All statutory requirements of Article 27 By-product under the Waste Directive Regulations must be demonstrated to the satisfaction of the EPA. A separate assessment would be required to verify that the any surplus material meets the four conditions of Article 27 by-product prior to notifying the EPA or moving material off-site. It should be noted that the EPA advises that material should not be moved off-site until a determination has been made by the EPA regarding the notified material.

Where the material cannot be re-used as a by-product and is deemed to be a waste it will be consigned to an authorised facility which is permitted to accept it in accordance with all relevant waste management legislation.

7.4 Segregation of Waste On-Site

Material will be segregated on-site for the appropriate waste stream and disposal destination. The Waste Officer or appointed delegate will ensure waste streams are adequately identified. The segregation and management of waste storage and stockpiling will be routinely inspected and audited by the Waste Officer and audit findings recorded in the CDWMP records.

There will be no crushing of concrete on-site using a mobile crushing plant. Concrete will be segregated for removal off-site to an authorised permitted/licensed waste facility for recovery, recycling.

C&D waste will be segregated on-site into labelled dedicated skips / receptacles. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out an authorised waste recovery facility.

Dedicated bunded storage containers will be provided for hazardous wastes which may arise such as batteries, paints, oils, chemicals etc., if required.

Waste materials generated from site office and canteen will be segregated into biodegradable/food waste, dry mixed recyclables and general (residual) waste, and stored in appropriate refuse bins in a dedicated storage area on-site for collection by an authorised waste collector.

In the event of material being temporarily stockpiled on-site for reuse in the proposed development or in the event of material excavated pending waste classification for removal off-site, the material will be temporarily stockpiled on-site in a designated area. Stockpiles of different waste materials will be located, maintained, and separated by a sufficient distance to prevent any inadvertent mixing of excavated material. All stockpiles will be clearly identified (e.g., signage) and recorded on a site map. Additional details on the management of stockpiles and procedures to prevent environmental and nuisance issues will be documented in the Construction and Environmental Management Plan (CEMP) which will be developed by the appointed Contractor in advance of construction works commencing on-site.

Any heavily contaminated material/soil that may be encountered will need to be segregated in accordance with the measures outlined in the CEMP for appropriate sampling, waste classification and authorised removal off-site.

The Construction Environmental Site Manager will ensure that site personnel involved in the excavation and removal of waste soil materials at the site are informed of and can identify the different waste types and categories of waste soil materials encountered on-site.

7.5 Waste Storage Policy

Waste storage, fuel storage and stockpiling and movement are to be undertaken with a view to protecting the underlying soils and groundwater. Waste will be stored on-site, including non-hazardous soil and stone and inert C&D wastes, in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required);
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery; and

- Prevent hazards to site workers and the public during construction phase (largely noise, vibration and dust).
- Prevent risks to sensitive receptors including environmental, human health and archaeological sites within the Site (refer to CEMP).

8 Estimated Cost of Waste Management

An outline of the costs associated with different aspects of waste management is provided below.

The total cost of C&D waste management will be measured in conjunction with the projected quantities of materials requiring removal offsite and will consider handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

8.1 Waste Prevention

Waste from Construction and Demolition (C&D) activities is the largest waste stream in the European Union (EU) and represents one third of all waste produced within the EU (EPA, 2021). The Applicant is committed to incorporating sustainability and resource efficient measures into the proposed development.

In line with the above approach, prior to the quantification and estimation of materials for recovery and disposal offsite, it is necessary to consider measures that could be taken at design stage to prevent waste generation during the lifetime of the project from design stage through to completion.

Waste Prevention design measures include:

Green procurement in purchasing
Use of Modular buildings

8.2 Reuse

Reuse of materials on site will reduce transport and recycling/recovery/disposal costs associated with the requirement for a waste contractor to take the material off-site.

Surplus clean and inert soils, gravel, stones etc. which cannot be reused on site may be used as capping material for landfill sites, or for the reinstatement of quarries etc. This material is often taken free of charge or a reduced fee for such purposes, reducing final waste disposal costs.

8.3 Recycling

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.

8.4 Disposal

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 introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2012. In addition to disposal costs, waste contractors will also charge a collection fee for skips/waste receptacles.

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.

9 OFF-SITE REMOVAL OF WASTE

9.1 Removal and Disposal of Surplus and Waste Materials

Removal and recovery/recycling/disposal of all waste materials will be carried out in accordance with the Waste Management Act 1996 and as amended, S.I. No. 820/2007 - Waste Management (Collection Permit) Regulations 2007 and as amended and S.I. No. 821/2007 - Waste Management (Facility Permit and Registration) Regulations 2007 and as amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO.

9.2 Waste Management Procedure

All waste will be documented prior to leaving the site. Waste will be weighed or logged 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 Waste Officer.

Prior to any removal of waste from the site, written confirmation will be obtained from the receiving waste facility, that acceptance of the waste will be in accordance with all waste management legislation and the conditions of the receiving waste facility licence or permit. A copy of the applicable licences and permits will be obtained and retained on-site.

If the waste is being transported to another site, a copy of the Local Authority waste Certificate of Registration (COR) or permit, or EPA Licence for that site will be provided to the Waste Officer.

If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from the National Transfrontier Shipment of Waste Office (NTFSO) (as the relevant authority on behalf of all local authorities in Ireland) and kept on-site along with details of the final destination. A receipt from the final destination facility of the material will be kept as part of the on-site waste management records. The Waste Officer will undertake regular audits of waste paperwork to ensure traceability of all loads off site to the final authorised destination facility.

To control off-site movements of waste a comprehensive docketing / waste tracking system will be implemented on-site. A daily record (including preparing and reconciling waste transfer note) of excavation at, and dispatch from the site will be maintained on-site.

All material excavated or segregated for off-site disposal will be transferred from site under chain of custody or waste dispatch dockets that will record:

- Date and time of transfer;
- Name of Carrier;
- National Waste Collection Permit Number and details
- Vehicle Registration and Name of Driver;
- List of Waste (LOW) Code;
- Waste Classification and origin of material at the site;
- Details of waste including quantity (tonnes/litres as appropriate)
- Details of proposed treatment (Reuse/Recycling/Disposal) including appropriate disposal/recovery code;
- Destination of load (receiving facility);

- Destination facility Waste Licence or Waste Permit number and details;
- Confirmation of receipt and acceptance at the final designated waste facility.

Chain of custody / waste dispatch dockets will be issued in triplicate. On dispatch the docket will be signed by the issuing operative and one copy retained on-site. The remaining two copies will accompany the load and be signed or stamped by the receiving facility.

To ensure complete site records are maintained on-site, a copy of the completed chain of custody / waste dispatch docket will have a copy of the weighbridge docket from the receiving facility attached and retained with the waste management records for the site. The completed chain of custody / waste dispatch docket will be maintained in the waste management file.

All loads will be checked prior to exiting the site. In addition to logging the trucks of waste materials, all trucks will be visually inspected to ensure the loads are within the permissible haulage limits. All trucks and skips will be covered, and any loose debris removed prior to leaving the Proposed Development Site.

All necessary documentation requirements will be fulfilled prior to transfer of material. A log of each load of waste materials being transported off-site will be compiled and will include details of the waste collection permit, skip operator licence, load of materials, name of the destination facility and serial number on the accompanying waste docket. In addition, the stamped dockets and gate receipts will be cross checked against details of the outgoing load and details entered on the log sheet. A record of all necessary documentation including waste transfer documents and landfill gate receipts will be stored in the waste management file.

Some of the sub-contractors on-site will generate waste in relatively low quantities which is ancillary to their own work on site. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (Ref. Article 30 (1) (b) of the Waste Collection Permit Regulations 2007 as amended). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste off-site in their work vehicles (which are not designed for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence and the waste generated must be ancillary to their own activities.

9.3 Off-Site Destinations for Waste Materials

All waste materials that will be transported off-site for further treatment or disposal will be undertaken in compliance with all Waste Management Legislation and all waste materials will only be transferred to appropriately permitted or licensed waste management facilities.

Details of the nominated waste facilities proposed for each specified waste type will be provided by the appointed Contractor in advance of construction works commencing on-site. A template *Nominated Waste Facility* list is provided in Appendix A.

The Waste Officer will maintain a detailed register of the nominated waste facilities (i.e., facility location, waste facility permit / licence number and expiry / renewal date) proposed for each specified waste type and to obtain a copy of all waste facility licences/permits which will be retained within the waste management file.

The expiry dates on all licences and permits will be reviewed routinely by the Waste Officer as part of the waste audits. The Waste Officer will ensure that only facilities with a valid permit or licence a will be retained for off-site management of waste.

9.4 Waste Collection and Transport

Only carriers/hauliers with a valid Waste Collection Permit (WCP) issued by the National Waste Collection Permit Office (NWCPO) which authorises the transport of the applicable List of Waste (LoW) Code and delivery to the receiving facility will be appointed to transport the waste from the Proposed Development Site.

Details of the nominated carriers/hauliers proposed for each specified waste type will be provided by the appointed Contractor in advance of construction works commencing on-site. an Example template is provided in Appendix A.

The Waste Officer will be required to maintain a detailed register of the waste haulage contractors (i.e., haulage contractor name, address, waste collection permit and, where applicable, skip operator licence number and expiry date) proposed for each specified waste type and to obtain a copy of all the applicable permits / licences which will be retained within the waste management file.

The expiry dates on all permits will be reviewed routinely as part of the waste audits. Only haulage contractors with a valid permit will be retained for off-site removal of waste.

10 Record Keeping

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling, recovery or disposal.

All necessary documentation requirements will be fulfilled prior to transfer of material.

A copy of the receiving waste facility permits and licences with all appendices will be retained onsite.

A copy of the NWCPO waste collection permit with all appendices will also be retained on-site.

It will be the responsibility of the Waste Officer to record the following:

- Waste removed for reuse off-site;
- Waste removed for recycling;
- Waste removed for disposal; and
- Reclaimed waste materials brought to site for reuse (if required).

All waste will be documented prior to leaving the site. These waste records will be provided and maintained on site by the Waste Officer.

For each movement of waste on-site or off-site, a signed docket will be obtained by the Waste Officer or delegate from the contractor, detailing the date, vehicle registration, driver name and signature weight and type of the material and the source and destination of the material. This will be carried out for each material type. This system will also be linked with the delivery

records. In this way, the percentage of construction waste generated for each material can be determined. The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of construction waste and to highlight the successes or failures against these targets. Certificates of recycling/recovery will be obtained from the facility to which the waste has been consigned, in order to confirm receipt and trace the waste to end destination. This documentation will be cross checked with removal dockets to ensure that all waste removed from the site has been accounted for and accepted at end destinations.

Where additional sampling and assessment of soil and materials is required to ensure that the materials are managed and removed off-site in accordance with waste management legislation, the designated Environmental Consultant will produce waste classification reports detailing the findings of any additional assessment required. All existing and future waste classification report(s) will be maintained in the waste management file.

The waste register and recording templates are included in Appendix A.

10.1 Register of Documents

A live register of documents will be maintained digitally as part of this waste management plan is outlined below. It will be the responsibility of the appointed Waste Officer to ensure that the register of documents is updated as appropriate.

1. Waste Facility Acceptance Letters.
2. Approved Receiving Waste Facility Permits and Licences.
3. Approved NWCPO Permits.
4. Waste Management Log Sheet – Digital Log to be Maintained On-Site.
5. Chain of Custody / Waste Dispatch Dockets
6. Landfill Gate Receipts.
7. Waste Classification Reports
8. Invasive Species Survey Reports

11 Audit and Inspection

The Waste Officer or delegate will be responsible for conducting waste inspections at the site during the construction phase of the development to ensure the compliance with waste management procedures as outlined above to ensure that all procedures are strictly adhered to.

Waste skips/receptacles and stockpiles (if required) will be inspected daily by the Waste Officer to ensure materials are segregated on-site for the appropriate waste stream and disposal destination.

Regular audits will be undertaken by the Waste Officer or designate which shall include checking the following in relation to waste management on-site:

- Segregation and storage practices;
- Recycling rates;
- Litter prevention practices;
- Documentation for waste removed;
- Documentation for waste received at destination facilities;
- Centrally recorded waste data;

- Waste collection permits for all waste hauliers used; and
- Waste management facility permits/licences for all waste management facilities used.
- A review of all waste facility and collection permits/licences being used for waste from the site will be carried out routinely to ensure that all permits and licences are not within 6 months of expiration. Any permits/licences within 6 months of the expiry date will be reviewed in detail.

Daily site inspections shall be carried out to check for housekeeping, litter, and correct segregation. More detailed waste audits shall be carried out on a bi-weekly basis. Where poor segregation practices are observed, littering is apparent or housekeeping falls below standard, a non-conformance shall be raised with the Site Manager for corrective action.

Regular checks shall be carried out to ensure that all waste is accounted for, and full load traceability exists. Where gaps are identified in the records available, a root cause analysis shall be carried out and a preventive measure put in place to ensure that this does not happen in future. Any missing documentation will be sought from the waste haulier and the waste destination if it is not presented for audit and inspection.

12 Consultation With Relevant Bodies

12.1 Local Authority

The local authority (South Dublin County Council) will be consulted as required.

All waste management documentation and records maintained digitally on site will be made available to South Dublin County Council or other relevant statutory bodies authorities as requested.

13 REFERENCES

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Waste Management (Facility Permit and Registration) Regulations 2007,(S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008) as amended 2014 (S.I No. 320 and No. 546 of 2014) and as amended 2015 (S.I. No. 198 of 2015).

Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010).

Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended 2015 (S.I No 542 of 2015).

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Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998).

APPENDIX A

Waste Management Forms and Registers

Table 1: Nominated Waste Facility Details

Waste Type	Facility Location	Waste Facility Permit / No./ Licence No.	Expiry/Renewal Date
Concrete			
Bricks			
Mixture of concrete, bricks, tiles, and ceramics			
Timber			
Plastic			
Bituminous Mixtures			
Mixed metals			
Non-Hazardous Soil and Stone			
ACMs and Insulation materials containing asbestos			
Construction materials containing asbestos			

Table 2: Waste Haulage Contractor Details

Waste Type	Haulage Contractor Name, Address	Waste Collection Permit/Skip Operator Licence No.	Expiry Date
Concrete			
Bricks			
Mixture of concrete, bricks, tiles, and ceramics			
Timber			
Plastic			
Bituminous Mixtures			
Mixed metals			
Non-Hazardous Soil and Stone			
ACMs /Insulation materials containing asbestos			
Construction materials containing asbestos			

Date of Issue:		
PROJECT	**Blackwin Ltd, Calmount Road, Ballymount Dublin 12**	
SITE RECORD OF OFF-SITE RECOVERY/DISPOSALS		

Disposal Type:	
LoW Code	
Site:	
Project No.	

Date	Time	Site Area/ Location	HDL Ticket No	Carriers Ticket No	Haulage Company/WCP	Vehicle Registration No.	Skip Size	Waste Type	Waste Facilty Destina-tion	Net Weight/