OUTLINE CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN

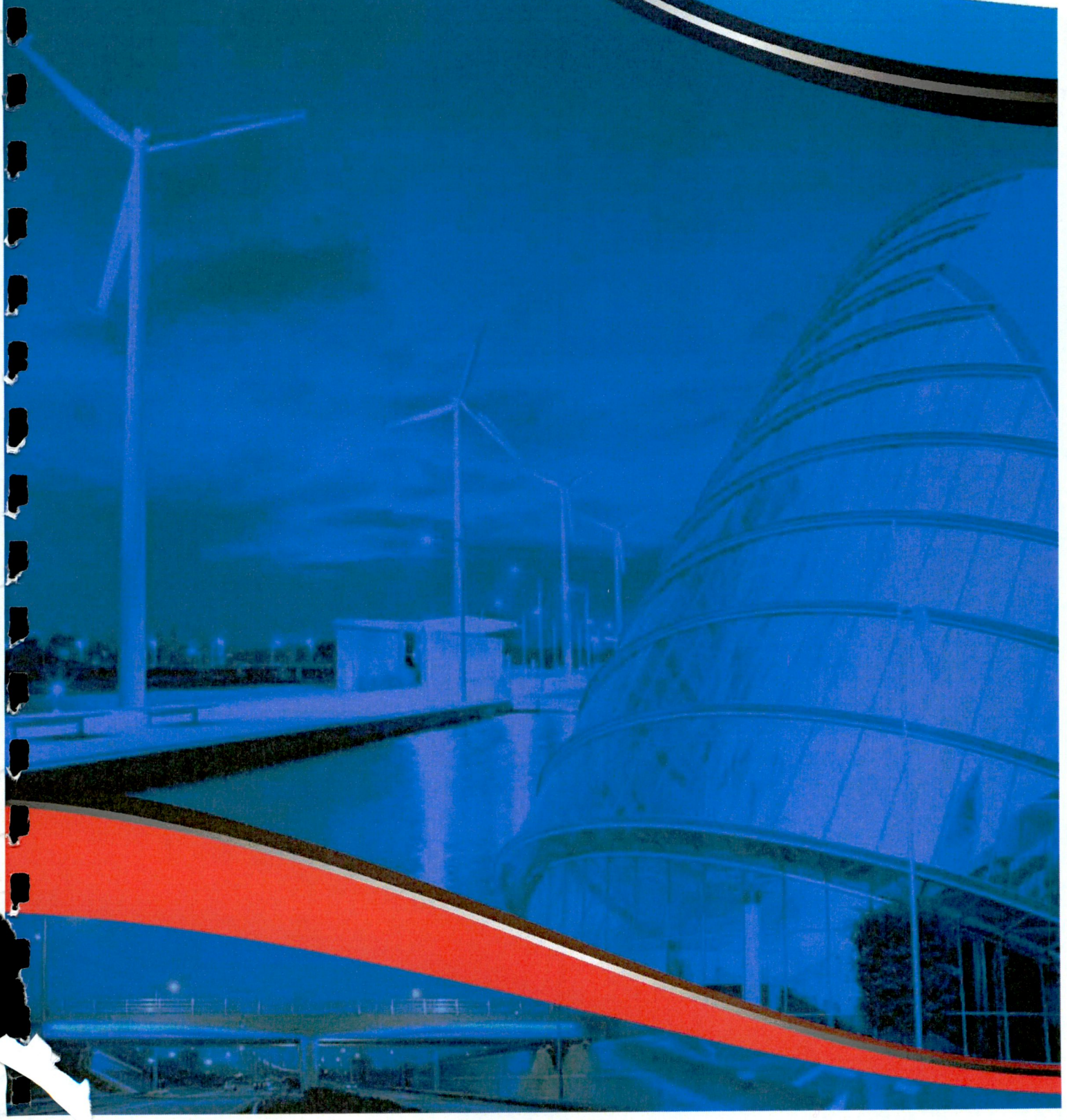
TRANSITIONAL CARE FACILITY AT UNIT 21 FIRST AVENUE, COOKSTOWN INDUSTRIAL ESTATE, DUBLIN 24

Bartra Property Cookstown Limited

Project No. B981

15th September 2022

OCSC
O'CONNOR | SUTTON | CRONIN
Multidisciplinary Consulting Engineers



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NOTICE

DOCUMENT CONTROL & HISTORY

OCSC Job No.:	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
B981	B981	OCSC	XX	XX	RP	C	0016	S4	P01

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P01	S4	COM	DC	AOB	15.09.22
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Contents

1. INTRODUCTION

O'Connor Sutton Cronin & Associates (OCSC) have been commissioned by Bartra Property Cookstown Limited to undertake this Outline Construction Management Plan report with respect to the proposed development at Unit 21, First Avenue, Cookstown Industrial Estate, Dublin 24. The development description is provided below:

The development will consist of the following:

- Demolition of all existing 1-3 storey industrial/commercial structures and small café on site totalling c.5,500sqm in area;
- Construction of a 1-5 storey Transitional Care Facility (step-up/step-down) providing 131 no. bedspaces over partial basement (total floor area c.6,743sqm) with central courtyard (c.519sqm);
- The basement consists of a sprinkler tank and pump rooms, water tank room, plant room and workshop;
- Provision of dining and kitchen areas, siting/family rooms, activity rooms, coffee dock, hair salon, oratory, lobbies/reception areas, ancillary offices and staff areas, stores, toilets, shower/changing facilities, ESB substation, generator, switchroom, service yard and waste areas serving the facility;
- Lobbies, stair/lifts, photovoltaic panels and green roofs throughout;
- Partial provision of the pocket park identified in the Tallaght LAP (c.1,286sqm);
- New vehicular access from First Avenue and egress onto Cookstown Road via a one-way system through the subject site;
- Entrance signage on the eastern elevation of the proposed facility;
- All associated site development works, services provision, connection to the water supply, foul and surface water networks on First Avenue and Cookstown Road, attenuation/bioretention systems, vehicular and pedestrian access including internal road and footpaths, public realm upgrade works, landscape and boundary treatment works, tree removal, bicycle storage (68 no. spaces), car parking (32 no.

spaces), set-down parking spaces, 1 no. ambulance set-down space serving the facility and delivery/loading areas to First Avenue.

The subject site is located at Unit 21 First Avenue, Cookstown, Industrial Estate, Tallaght, Dublin 24, as shown in Figure 1.1 – Site Location. The proposed development site is immediately bound by:

First Avenue, to the north;

- Cookstown Estate Road, to the east;
- Unit 20 Commercial unit, to the west;
- 3nr. commercial units, to the south.

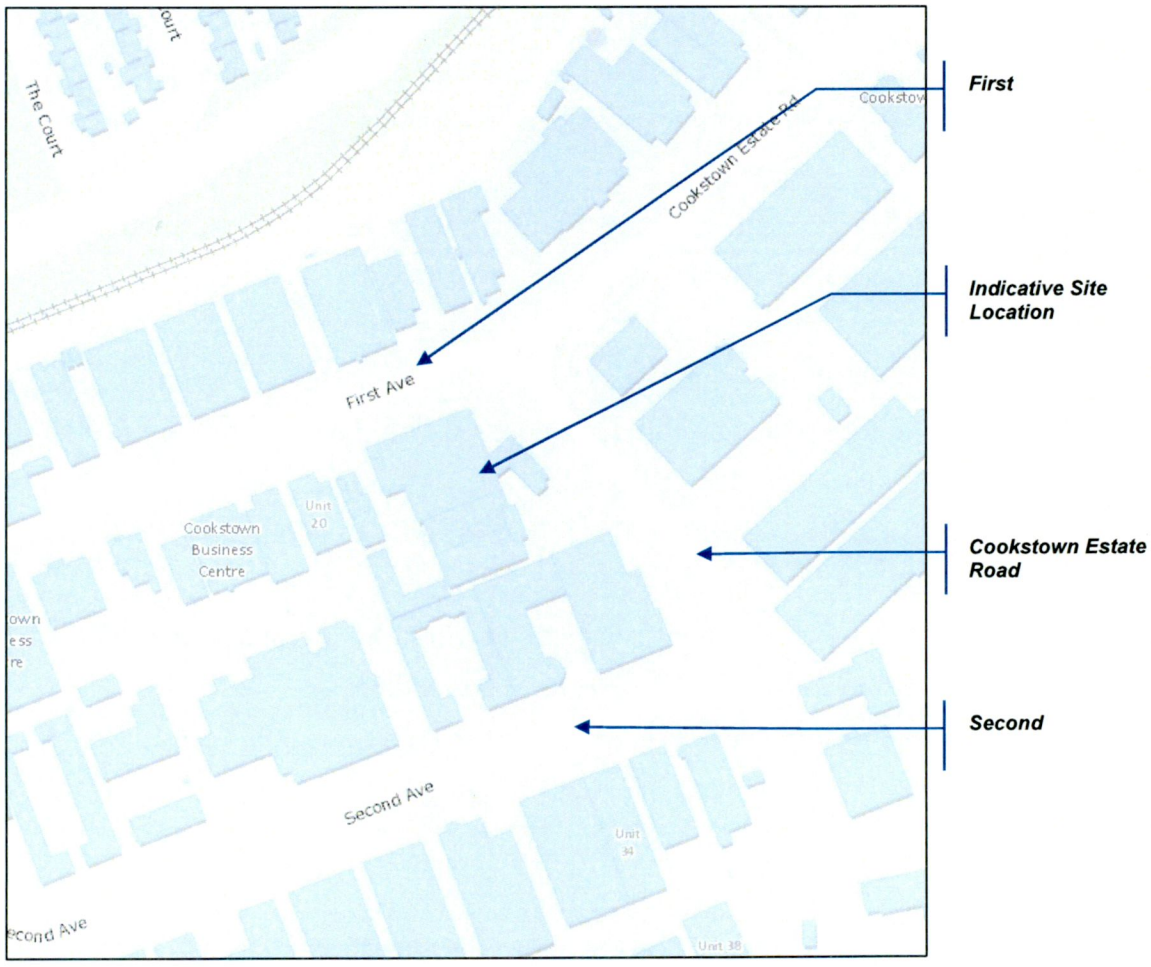


Figure 1.1 – Indicative Site Location (www.myplan.ie)

Plan Purpose

The purpose of this plan is to provide information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with current legal and industry standards including the Waste Management Acts 1996 - 2011 and associated Regulations 1, Protection of the Environment Act 2003 as amended with EPA Acts 1992 to 2013 2, Litter Pollution Act 1997 as amended 3 and the relevant Waste Management Plans and to provide information necessary to ensure that the management of waste produced by the site is carried out in accordance with all current legal and environmental standards. This report has been prepared in accordance with the 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' document produced by the National Construction and Demolition Waste Council (NCDWC) in conjunction with the Department of the Environment, Heritage and Local Government in July 2006.

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

- Waste Management Act 1996 (No. 10 of 1996) as amended. Sub-ordinate legislation include European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended;
- Waste Management (Collection Permit) Regulations (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 2004 (S.I. No. 395 of 2004) as amended;
- Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended;
- Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997);
- Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015);

- European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014);
- European Union (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended;
- Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009), as amended;
- European Union (Household Food Waste and Bio-waste) Regulation 2015 (S.I. No. 191 of 2015);
- Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended;
- Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419 of 2007) as amended;
- Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998);
- 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) as amended;
- Environmental Protection Act 1992 (No. 7 of 1992) as amended.
- Litter Pollution Act 1997 (No. 12 of 1997) as amended;
- Planning and Development Act 2000 (No. 30 of 2000) as amended.

One priority of the Waste Management plan shall be to promote recycling, reuse and recovery of waste and diversion from landfill wherever possible. Guidance will also be given to ensure appropriate method of transportation of waste is used to prevent littering or other serious environmental pollution. 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). In preparation of the CDWMP, the following publications have been used as references:

- Best Practice Guidelines on the preparation of Waste Management plans for Construction and Demolition Projects, Department of the Environment and Local Government, June 2006;
- Construction and Demolition Waste Management - A handbook for contractors and site managers, FAS and the Construction Industry Federation, 2002;
- In tandem with the launch of the National Construction and Demolition waste council, the Department of the Environment, Heritage and Local Government published the *'Guidelines for preparation of Waste Management Plans for Construction and Demolition projects;'*
- BS 10175:2011+A2:2017, Investigation of potentially contaminated sites, Code of Practice;
- EPA, 2015, Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-hazardous;
- EPA 2013, Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites;
- EPA 2007, Code of Practice, Environmental Risk Assessment for Unregulated Waste Disposal Sites;
- EA, 2015, Guidance on the classification and assessment of waste, Technical Guidance WM3;
- EA, 2019, Land Contamination: Risk Management (CLRM).

These guidelines cover issues to be addressed at the preplanning stage right through to completion. These include:

- Predicted Construction and demolition wastes;
- Classification of material;
- Waste disposal/recycling of C&D wastes at the site;
- List of sequence of operations to be followed;
- Provision of training for waste managers and site crew;
- Details of proposed record keeping system;
- Details of waste audit procedures and plans;
- Details of consultation with relevant stakeholders.

- **Section 3 of the guidelines outline the threshold to which the plans are prepared.**

2. PREDICTED WASTE ARISINGS

WASTE CATEGORISATION

Typical non-hazardous and hazardous waste streams generated by construction and demolition at typical sites are shown below along with their accompanying European Waste Code (EWC) Classification.

CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 06*	Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 01	Wood
17 02 02	Glass
17 02 03	Plastic
17 02 04*	Glass, plastic and wood containing or contaminated with hazardous substances
17 05 03*	Soil and stones containing hazardous substances
17 05 04	Soil and stones other than those mentioned in 17 05 03*
17 06 01*	Insulation materials containing asbestos
17 06 03*	Other insulation materials consisting of or containing hazardous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01* and 17 06 03*
17 06 05*	Construction materials containing asbestos
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

Table 1: C&D Waste Categories

NON HAZARDOUS ARISINGS

Demolition of the existing structures and excavation will take place at the site for the provision of building foundations and for the installation of piles. There will in addition be the normal construction waste arisings that would be expected on any construction site. This will include excess ready mix concrete and mortars, timber off-cuts, damaged concrete blocks, plastics, metals off-cuts, cladding off-cuts and tiles. There may also be excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and oversupply of materials will also be generated.

The classification of waste soil material as non-hazardous and/or hazardous will be based on the www.hazwasteonline.com web based tool. This tool is recognised by the EPA as an acceptable method for classifying material in accordance with the Waste Directive Regulations and Waste Packaging Regulations (see Section 4). Waste soil will be further classified using Waste Acceptance Criteria as set out in the European Communities (EC) Council Decision 2003/33/EC, in addition to Waste Receiver's licence specific acceptance criteria.

HAZARDOUS ARISINGS

Contaminated Soil

The removal of existing made ground will be required for foundation and basement construction. In addition, pile arisings will result in the generation of some soils waste on the site. As the Cookstown site is a brownfield site with a history of various uses, there is a possibility that there were historical releases of hazardous materials on the site which may have impacted on the ground conditions.

IGSL completed a site investigation in June of 2019 which comprised of trial pits, boreholes and window sampling. A Waste Characterisation Assessment has been carried out by O'Callaghan Moran (OCM) based on the material gathered and testing completed by IGSL.

This assessment characterised all samples as non-hazardous and suitable for retention on site, or recovery at permitted waste recovery facility subject to the approval of the facility operator.

In the event that 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' 13 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 14, which establishes the criteria for the acceptance of waste at landfills.

Fuels/Oils

As fuels and oils are classed as hazardous materials, if there is any onsite storage of fuel/oil, all storage tanks and draw-off points will be bunded and located in a dedicated, secure area of the site. 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.

Other Hazardous Substances

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.

3. WASTE MANAGEMENT IN IRELAND: NATIONAL & LEGISLATIVE REQUIREMENTS

OVERARCHING LEGISLATION

The overarching legislative instruments governing waste management in Ireland are as follows:

- Waste Management Act 1996 (S. I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001;
- Sub-ordinate legislation includes:
    - European Communities (Waste Directive) Regulations 2011 (S. I. 126 of 2011) as amended 2011 (S. I. No. 323 of 2011);
    - EC Commission Decision (2014/955/EC) and associated Commission Regulation No. 1357/2014 as detailed in the EPA document List of Waste & Determining if Waste is Hazardous or Non-Hazardous;
    - European Union (Properties of Waste which render it Hazardous) Regulations 2015;
    - EC Classification, Labelling & Packaging Regulations (No. 1272/2008);
    - Waste Management (Collection Permit) Regulations S. I. No. 820 of 2007 as amended 2008 (S. I. No. 87 of 2008);
    - Waste Management (Facility Permit and Registration) Regulations, 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 2000 (S. I. No. 185 of 2000) as amended 2004 (S. I. No. 395 of 2004), 2010 and (S. I. No. 350 of 2010);
    - Waste Management (Packaging) Regulations 2003 (S. I. No. 61 of 2003) as amended 2004 (S. I. No. 871 of 2004), 2006 (S. I. No. 308 of 2006) and 2007 (S. I. No. 798 of 2007);
    - 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 2011;
- Waste Management (Registration of Brokers and Dealers) Regulations 2008 (S. I. No. 113 of 2008);
- 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);
- Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S. I. No. 147 of 1998);
- The European Communities (Transfrontier Shipment of Hazardous Waste) Regulations, 1988 (S. I. No. 248 of 1988);
- European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S. I. No. 324 of 2011).

- Planning and Development Act 2000 as amended (S. I. No. 30 of 2010) as amended (S. I. No. 310 of 2015);
- Protection of Environment Act 1992 as amended (S. I. No. 413 of 2003) as amended by the Planning and Development Act 2000 (S. I. No. 30 of 2000) as amended;
- Litter Pollution Act 1997 (S. I. No. 12 of 1997) as amended by Protection of the Environment (amendment) Act 2003 as amended.

The above Acts and Regulations transpose European Union policy and Directives into Irish law. The over-riding 'Duty of Care' principle implies that the 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 transport waste to the final waste disposal site. In addition, the 'Polluter Pays' principle means that the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (for transportation and disposal/recovery/recycling of waste).

It is imperative that the developer ensures that waste companies engaged by construction contractors are legally compliant with respect to waste transport and disposal/recovery/recycling. This includes the requirement that a contractor handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities. In this regard, a waste collection permit, issued by the National Waste Collection Permit Office (NWCPO), must be held by every waste contractor engaged on the project. Waste receiving facilities must also be appropriately permitted or licensed to accept waste. Operators of such facilities cannot receive any waste, unless in possession of a waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments or a waste licence granted by the Environmental Protection Agency (EPA). The permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specified site.

Where waste is to be transported out of the state it must be done in accordance with the Transfrontier Shipment of Waste (TFS) Regulations and must meet the approval of the National TFS office operated by Dublin City Council.

NATIONAL WASTE MANAGEMENT POLICY

The 1998 '*Changing Our Ways*' policy document by the Irish Government identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within an initial five year period with incremental increases to at least 85% by 2013. A waste industry task force of the *Forum for the Construction Industry* released '*Recycling of Construction and Demolition Waste*' recommending the development of a voluntary construction industry programme to meet Government objectives for the recovery of C&D waste. '*A Resource Opportunity - Waste Management Policy in Ireland*' published in 2012 stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. In respect of C&D waste, the report commits to

undertaking a review of specific producer responsibility requirements for C&D projects above a certain threshold.

The National Construction and Demolition Waste Council (NCDWC) published *'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects'* in 2006 in conjunction with the Department of the Environment, Heritage and Local Government (DoEHLG). The Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These Guidelines have been followed in the preparation of this document and include the following elements:

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

Section 3 of the Best Practice Guidelines identifies thresholds above which there is a requirement for the preparation of a C&D Waste Management Plan. The proposed project requires a CDWMP under the following criterion:

- New residential development of 10 houses or more;
- Demolition/renovation/refurbishment projects generating in excess of 100m^3 in volume, of waste.

Other guidelines followed 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 guidance documents are considered to define best practice for construction and demolition projects in Ireland and describe how construction and demolition projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

REGIONAL WASTE MANAGEMENT PLANS

The proposed development is located within the South Dublin County Council administrative area. The *'Eastern Midlands Region Waste Management Plan 2015-2021'* (EMRWMP) currently applies to this area. This Regional Waste Management Plan for the Eastern Midland Region covers the four Dublin Councils (DCC, FCC, DRCC & SDCC) as well as Kildare, Laois, Longford, Louth, Meath. Offaly, Wicklow and Westmeath.

The EMRWMP 2015 – 2021 was adopted in May 2015. The overall vision of the Plan is to rethink the approach taken towards managing waste and that waste should be seen as a valuable material resource. The Plan also supports a move towards achieving a circular economy which is essential if the region is to make better use of resources and become more resource efficient. In the global economy, the demand and competition for finite and sometimes scarce resources will continue to increase, and pressure on resources is causing greater environmental degradation and fragility. Making better uses of these resources and reducing the leakage of materials from our economies, will deliver benefits economically and environmentally. The move to a circular economy replacing outdated industrial take-make-consume and dispose models, is essential to deliver the resource efficiency ambition of the Europe 2020 Strategy.

The Plan contains three targets:

- 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;

- 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.

The Plan states that Construction and Demolition Waste (C&D) consists of all wastes that arises from C&D activities which includes excavated soil from contaminated sites. This type of waste is generally collected by authorised collectors and its recovery is managed by placing it in a variety of land uses such as backfilling. Sites chosen for backfilling are generally considered to be of marginal agricultural land, but these can include wetlands and associated habitats. The Regional Waste Management Plan recognises that at many of these sites it is deposition rather than improvement that is the primary activity, and this can have complications for habitats. Also given the move away from landfill which is a significant outlet for C&D waste, alternative recovery options will be required to facilitate C&D Waste in future years.

The bulk of the C&D waste collected is waste materials such as rubble, metals, timber, plastic, glass, wood, contaminated soils and mixed C&D waste, accounting for approximately 59% of all C&D waste collected with the remaining 41% consisting of soil and stones. The soil and stone waste collected within the Eastern & Midlands Region is primarily managed at Local Authority permitted infill sites, with the other C&D waste types primarily managed at EPA licensed activities. Contaminated soils are treated at appropriately licensed hazardous waste sites in the region.

The EC (Waste Directive) Regulations 2011, sets a 70% target for the re-use, recycling and recovery of man-made C&D waste in Ireland by 2020. The EPA reported that Ireland has achieved this target, with a recovery rate of 97% being reported. Backfilling activities account for a significant portion of the recovery rate, with recycling of C&D wastes not as prevalent. The quantification of the different treatment options for C&D wastes is important to show if higher recovery activities, i.e. preparing for reuse and recycling, are growing.

The *South Dublin County Council Development Plan 2022 – 2028* outlines a number of policies and objectives, the most relevant of which, in the context in C&D waste are:

- IE7 Objective 1: To encourage a just transition from a waste management economy to a green circular economy to enhance employment and increase the value, recovery and recirculation of resources through compliance with the provisions of the Waste Action Plan for a Circular Economy 2020-2025 and to promote the use of, but not limited to, reverse vending machines and deposit return schemes or similar to ensure a wider and varying ways of recycling.
- IE7 Objective 2: To support the implementation of the Eastern Midlands Region Waste Management Plan 2015-2021 or as amended by adhering to overarching performance targets, policies and policy actions.
- IE7 Objective 3: To provide for, promote and facilitate high quality sustainable waste recovery and disposal infrastructure / technology in keeping with the EU waste hierarchy and to adequately cater for a growing residential population and business sector.
- IE7 Objective 7: To require the appropriate provision for the sustainable management of waste within all developments, ensuring it is suitably designed into the development, including the provision of facilities for the storage, separation and collection of such waste.
- IE7 Objective 8: To adhere to the recommendations of the National Hazardous Waste Management Plan 2014-2020 and any subsequent plan, and to co-operate with other agencies including the EPA in the planning, organisation and supervision of the disposal of hazardous waste streams, including hazardous waste identified during construction and demolition projects.

Plan Objectives:

- Support and facilitate the separation of waste at source into organic and non-organic streams or other waste management systems that divert waste from landfill and maximise the potential for each waste type to be re-used and recycled or composted and divert organic waste from

landfill, in accordance with the National Strategy on Biodegradable Waste (2006).

- Implement the objectives of the National Waste Prevention Programme at a local level with businesses, schools, householders, community groups and within the Council's own activities.
- Promote an increase in the amount of waste re-used and recycled consistent with the Regional Waste Management Plan and Waste Hierarchy and facilitate recycling of waste through adequate provision of facilities and good design in new developments.
- Implement the South Dublin Litter Management Plan 2015 - 2019

4. PROPOSED SITE WASTE MANAGEMENT PLAN

DEMOLITION WASTE

There will be demolition materials from the site as part of the development. The site contains several existing low-rise industrial buildings. There are four distinct structures as indicated in Figure 4.1 - Building Layout. The remainder of the site is typically covered with a concrete or tarmac surface.

Building 1(B1) is a steel portal frame with masonry infill walls and reinforced concrete windposts. The building is currently not in use. Building 2 is a reinforced concrete portal frame approximately 11m high. The reinforced concrete frame is infilled with masonry walls. An additional mezzanine has been constructed in part of the building with a steel frame and timber floor. Building 2 was formerly used for glass manufacturing and associated office.

Building 3(B3) is a two storey office formed of masonry and concrete floors. B4 covers the perimeter single storey warehouses which are constructed of steel portal frames with mono pitch roofs and masonry infill walls.

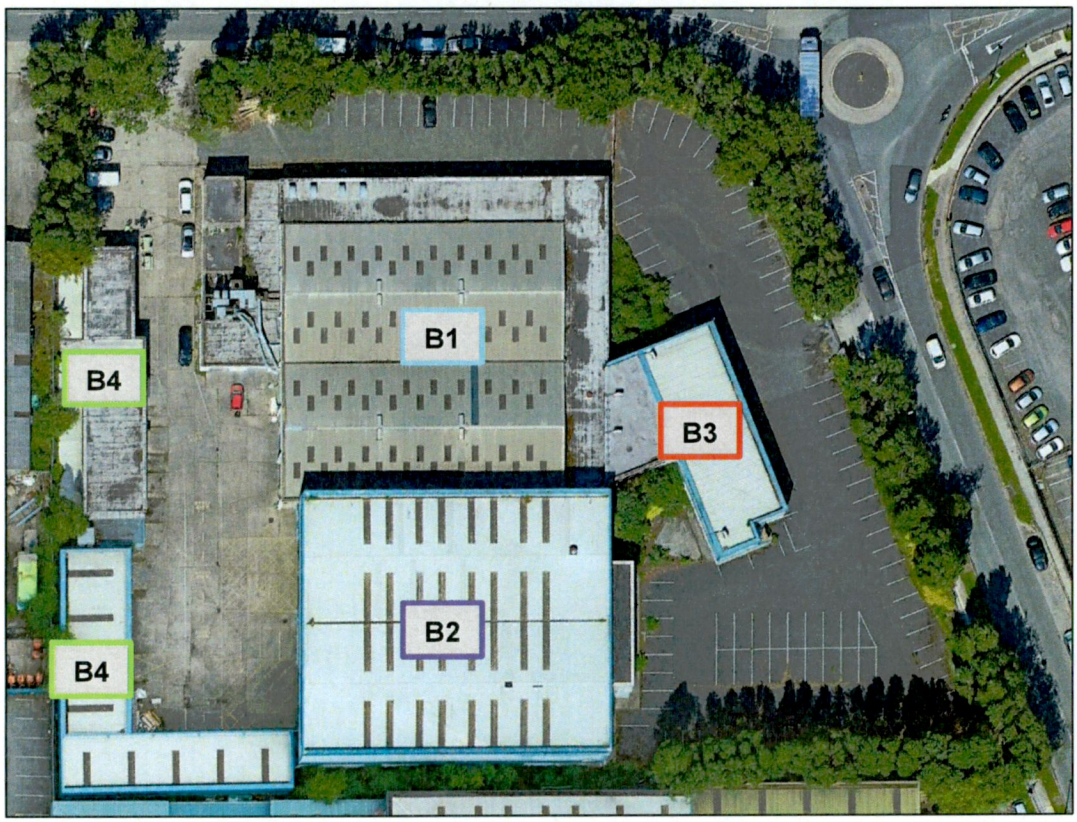


Figure 4.1 – Building Layout (Google Maps)

Site demolition works are estimated to give rise to a total of C.7,388 tonnes of mixed waste as set out in Table 4. Reuse of materials on site will be encouraged on site where it meets the required regulatory and engineering requirements (e.g. crushed concrete for fill or piling mat etc. The below quantities for reuse, re-cycling and disposal are to be confirmed in conjunction with the relevant recipient outlets once the contractor has completed their site appraisal.

Demolition Waste: Reuse, Recovery, Recycle & Disposal							
Waste Type	Qty (tonnes)	Reuse/Recover		Recycle		Disposal	
		%	tonnes	%	tonnes	%	tonnes
Glass	22	70	0	95	20.9	05	1.1
Concrete, Brick, Tiles, Ceramics	6,112	20	≈1,222	50	3,056	30	≈1,834
Metals	457	0	0	85	≈388	15	≈69
Asphalt	704	0	0	15	≈106	85	≈598
Timber	43	10	≈4	40	≈17	50	≈22
Total	7,338		≈1,226		≈3,588		≈2,524

Table 4: Demolition Waste Reuse, Recycle & Disposal Target Amounts

It should be noted that until final materials and methods of construction have been determined it is not possible to predict with a high level of accuracy the details and volume of construction waste that will be generated. A detailed demolition management plan including construction waste volumes will be prepared by the demolition contractor.

CONSTRUCTION WASTE

Bulk excavation and pile arisings from the subject application are expected to total 4,618 m^3 as detailed below. Using a conversion factor of 1.7 tonnes/m3 equates to 7,851 tonnes of material. The total volume is to be confirmed by the main contractor as it will be impacted by chosen foundation construction methodology.

The Environmental Protection Agency (EPA) produce figures on the amounts of waste generated by various developments. These figures are contained in EPA databases. The split between individual C&D waste categories is shown in Table 5.

Waste Types	%
Soil & Stones	77.8
Concrete, Bricks, Tiles, Ceramics, Plasterboard	19.9
Asphalt, Tar and Tar products	0.1
Metals	0.2
Other	2.0
Total Waste	100

Table 5: Breakdown of C&D Waste Materials at a Typical Site

By using the EPA category split figures and industry standard overall waste generation figures, coupled finally with site specific information, the C&D waste arising's for the subject site can be estimated – Table 6.

Construction Waste: Reuse, Recovery, Recycle & Disposal							
Waste Type	tonnes	Reuse/Recover		Recycle		Disposal	
		%	tonnes	%	tonnes	%	tonnes
Soil & Stones	7,851	5	≈393	0	0	95	≈7,458
Concrete, brick, tiles, plasterboard	2008	80	≈1,607	15	≈301	5	≈100
Asphalt, tars	10	0	0	50	5	50	5
Metals	20.2	0	0	85	≈17.2	15	≈3.0
Other	202	0	0	50	101	50	101
Total:	10,091.2	-	2,000	-	424.2	-	7,667

Table 6: Construction Waste Reuse, Recycle & Disposal Target Amounts

It is assumed for now that the majority of soils/stones excavated will go offsite for disposal with none of the soils/stones suitable for on or offsite

reuse/recovery. Therefore, the quantity of soils/stones for disposal shown in the table is a worst case scenario.

It should be noted that, until final materials and methods of construction have been decided, it is not possible to predict with a high level of accuracy the construction waste that will be generated the above figures are preliminary and the figures will be confirmed by the building contractor on appointment.

Re-use of Building Materials & Recycling of Demolition Material

The previous sections have detailed the estimated demolition and construction waste. Where possible, demolition waste and building materials will be re-used. However, as noted there has been extensive fire damage to the structures on-site.

Any suitable non-contaminated excavated material or existing hardstanding will be temporarily stockpiled for reuse as fill, where possible. In addition, the site manager will investigate whether nearby construction sites may require clean fill material, to both minimise the costs of transport and to reuse as much material as possible. Any material used on another site will be done under Article 27 of the European Communities (Waste Directive) Regulations 2011.

Initiatives to reduce other waste streams will include as far as practically possible:

- Minimising raw material waste through analysing design and construction techniques where possible.
- Liaison with suppliers to enable packaging materials to be sent back for reuse, the use of off-cuts where possible and the recycling of off-cut materials by suppliers.
- Engaging contractors in the process of maximising the use of recycled aggregates for hardcore.

SITE WASTE MANAGEMENT OPERATIONS

Waste materials generated will be segregated on site where it is practical. A Layout Plan for a site-based waste segregation compound is shown in Figure 2 over. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving 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. All waste arisings requiring disposal off-site will be disposed of at a facility holding the appropriate licence or permit, as required.

Written records will be maintained by the contractor(s) detailing the waste arising throughout the construction and demolition phases, the classification of each waste type, the contact details and waste collection permit number of all waste contactors who collect waste from the site and the end destination and waste facility permit or licence number for all waste removed and disposed off-site. Dedicated bunded storage containers will be provided for hazardous wastes such as batteries, paints, oils, chemicals etc., if required.


Plastics
Cardboard
Metals
Concrete & Blocks
Timber
Blacktop
GLASS
Soil, Stones & Rock
Truck Collection Access Area
O'Connor Sutton Cronin
Consulting Engineers
Proposed Development at Cookstown
Figure 2:
Proposed C & D Waste Storage Area - Layout Plan
Scale: NTS

The management of the main waste streams are detailed as follows:

Soil/Subsoil:

Made ground/subsoil will be excavated to facilitate construction of piling, foundations and the installation of underground services. Any soil removed off-site will be carried by contractors licensed under the Waste Management Acts 1996 - 2008, the Waste Management (Collection Permit) Regulations 2007 and Amendments and the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments. If any of the excavated spoil is found to be clean/inert, the site manager will investigate whether nearby construction sites may require clean fill material, to both minimise the costs of transport and to reuse as much material as possible.

Any soil/subsoil deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately classified as non-hazardous or hazardous in accordance with the www.hazwasteonline.com application and EC Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills, before being transported to an appropriately permitted/licensed facility by permitted contractors.

Bedrock:

Based on the site investigations carried out at the site, bedrock is 15m below ground level. Piles will be founded in the rock with minimal rock arisings.

Concrete, Bricks, Tiles & Ceramics:

The majority of concrete, bricks, tiles and ceramics generated as part of the construction works is expected to be clean, inert material and should be recycled, where possible.

Hard Plastic:

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. It will be diverted from landfill and

recycled. All recyclable plastic will be segregated and recycled, where possible.

Timber:

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be segregated and stored in skips.

Metal:

Metals will be segregated into mixed ferrous, cladding, aluminium, high grade stainless steel, low grade stainless steel etc. categories, where practical. Metal is highly recyclable and there are numerous companies that will accept these materials. Metals will be segregated and stored in skips.

Plasterboard:

There are currently a number of recycling services for plasterboard in Ireland. Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling.

Glass:

Glass materials will be segregated for recycling, where possible.

Organic (Food) Waste:

An on-site canteen will be provided to allow workers to prepare and eat food. This facility will incorporate provisions so that organic waste will be segregated for separate collection. Segregation at source and separate collection of organic waste is required in accordance with the Waste Management (Food Waste) Regulations 2009 (if food is prepared on site).

Waste Electrical and Electronic Equipment (WEEE):

WEEE that does not contain hazardous components will be stored in dedicated covered cages/receptacles/pallets pending collection for recycling. There is not expected to be any significant amounts of such materials as there are little by way of existing buildings on the subject site.

Non-Recyclable Waste:

C&D waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard and plastic which are deemed unsuitable for recycling.

Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if recyclable materials have been misplaced. 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.

Hazardous Wastes:

On-site storage of any hazardous wastes produced (i.e. contaminated soil and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts

Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately. It should be noted that until a construction contractor is appointed it is not possible to provide information on the specific destinations of each construction waste stream. Prior to commencement of construction and removal of any construction waste offsite, details of the proposed destination of each waste stream will be provided to DCC. Where required a specialist contractor will be employed to carry out environmental clean-up to remove traces of contaminated materials from the site. These should be licensed under Waste Management (Collection Permit) regulations 2007 as amended. This will be disposed of in a facility licensed under the Waste Management Act 1996 -2011 as amended and waste management (Facility Permit) regulations of 2007 as amended.

MANAGEMENT & CONTROL SYSTEMS

It will be the role of an appointed Waste Manager by the contractor to try to find alternative options for demolition waste before sending it to landfill. Waste materials will be stored in the specifically designated compound. All waste collected from the site will be by a permitted waste contractor, under the Waste Management (Collection Permit) Regulations 2001. The contractor will provide the Waste Manager on site with documentation of the waste to be removed and a copy of the waste collection permit. Prior to the waste leaving the site, the Waste Manager will have documentation to show where the waste is being taken to, and that the facility is licensed to accept the particular waste. A receipt will be issued for each load that leaves the site.

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site in both digital and physical formats by the Contractor. All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Management Acts 1996 - 2008, Waste Management (Collection Permit) Regulations 2007 and Amendments and Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project Waste Manager will maintain a copy of all waste collection permits.

Some wastes may be transported to another site for reuse on that site. The Waste Manager will be in contact with other sites to ensure that as much waste is reused as possible, such as concrete for fill purposes etc. All wastes leaving the site will be placed in appropriate containers. Any concrete, soil, gravel, or broken stone transported off site will be covered to prevent dust or particle emissions from the load.

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

All information will be entered in a waste management recording system to be maintained on site.

5. FINANCIAL ISSUES OF WASTE

An outline of the costs associated with different aspects of waste management is provided below. The total cost of implementation of this CDWMP will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

REUSE/RECOVERY

By reusing materials on site, there will be a reduction in the transport and disposal costs associated with the requirement for a waste contractor to take the material away to landfill. 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 for such purposes, reducing final waste disposal costs.

RECYCLING

Salvageable metals will earn a rebate which can be offset against the cost of collection and transportation of the skips. Clean uncontaminated cardboard and certain hard plastics can 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.

DISPOSAL

Landfill charges in the Leinster region are currently at around €160/tonne (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. 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.

6. TRAINING PROVISIONS

Training Provisions for Waste Manager and Site Crew

One of the construction team or the foreperson will be appointed as a Waste Manager to ensure commitment, operational efficiency and accountability. The Waste Manager will be given responsibility and 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 on the site. The Waste Manager will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the waste manager to delegate responsibility to sub-contractors where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and salvage on site.

The Waste Manager 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 the waste management on site. He/she will be also trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and know how to implement the CDWMP.

Training of the site crew is the responsibility of the Waste Manager. A waste training program will be organised. A basic awareness course will be held for all site crew to outline the CDWMP and to detail the segregation of waste materials at source. This may be incorporated into the induction course or the safety-training course. This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

7. RECORD KEEPING, AUDITING & CONSULTATION

RECORD KEEPING

Records will be kept for each waste material, which leaves the site, either for reuse on another site, recycling or disposal. A system will be put in place to record the construction waste arisings on site.

The Waste Manager or a member of his team will record the following:

- Waste taken for Reuse off-site (i.e. for capping of landfill cells or at another site);
- Waste taken for Recycling;
- Waste taken for Disposal;
- Reclaimed waste materials brought on-site for reuse.

For each movement of waste on- or off-site, the Waste Manager will obtain a signed docket from the contractor, detailing the 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.

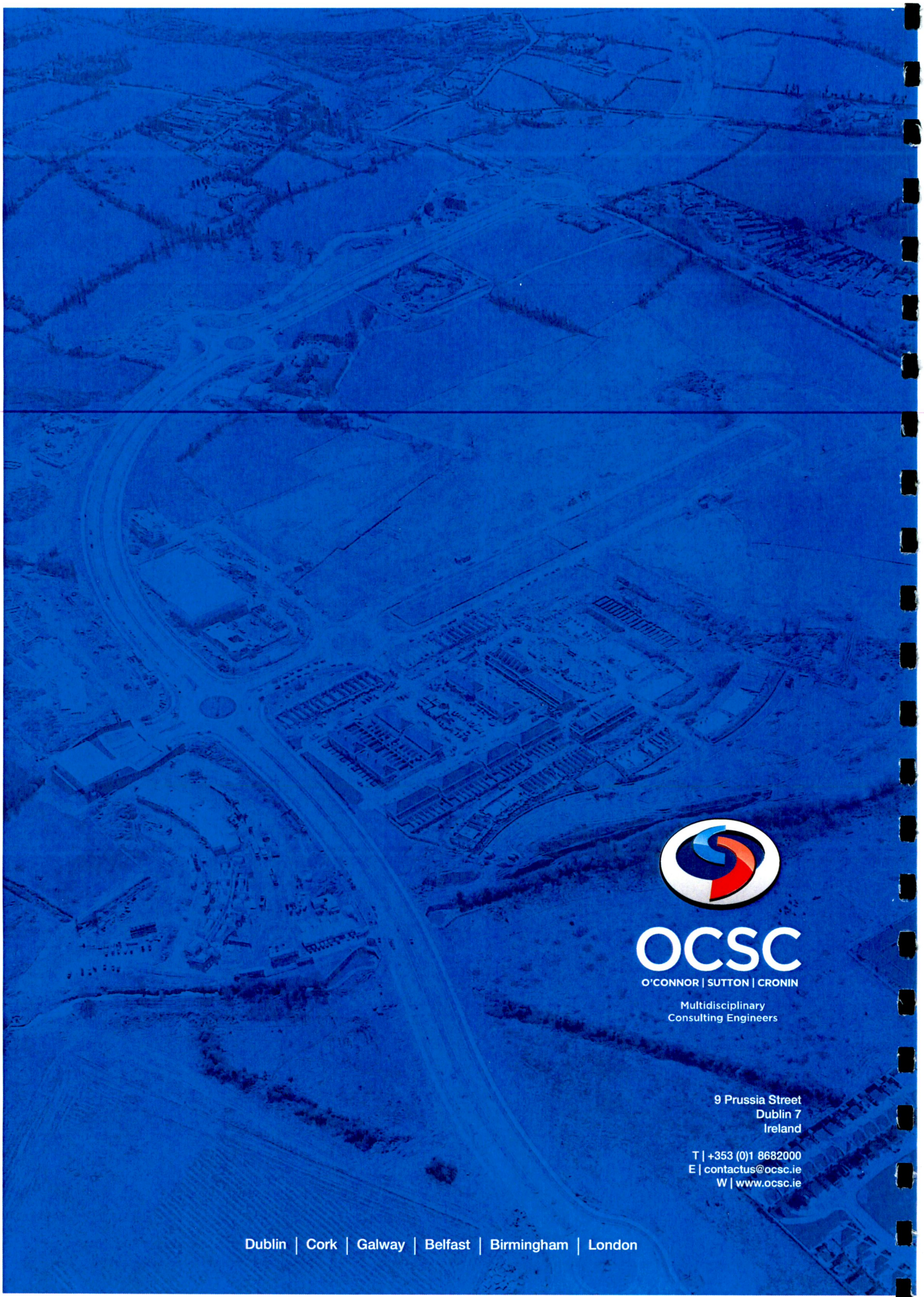
OUTLINE WASTE AUDIT PROCEDURE

The appointed Waste Manager on site will be responsible for conducting a waste audit at the site. A review of all the records for the waste generated and transported on- or off-site will be undertaken. 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.

A Summary Report will be prepared and compared with the established recovery/reuse/recycling targets for the site. 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. Waste management costs will also be reviewed.

CONSULTATION

Ongoing consultation with waste contractors and the Local Authority will be pursued in order to ensure that the best practicable option is being followed for waste management on site.



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