

**OUTLINE CONSTRUCTION and DEMOLITION
WASTE MANAGEMENT PLAN**

for

A PROPOSED STRATEGIC HOUSING DEVELOPMENT

at

ST MICHAELS HOSPITAL CAR PARK, DÚN LAOGHAIRE

for

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1. INTRODUCTION

This Construction and Demolition Waste Management Plan (CDWMP) has been prepared by Muir Associates Limited to accompany a planning application for a proposed Strategic Housing Development located at St Michaels Hospital Car Park, Dún Laoghaire. This document should be read in conjunction with the Outline Construction Management Plan submitted as part of this application.

This Plan has been prepared with the primary objective of ensuring that all construction and demolition wastes arising from the works are dealt with from generation to disposal in a systematic way and in accordance with the current legal and industry standards including the Waste Management Acts 1996 - 2011 and associated Regulations, Protection of the Environment Act 2003 as amended, Litter Pollution Act 1997 as amended and the Eastern-Midlands Region Waste Management Plan 2015 — 2021. In particular, this Plan aims to ensure maximum recycling, reuse, and recovery of waste with diversion from landfill, where feasible. The Plan also seeks to provide guidance on the appropriate collection and transport of waste from the site to reduce environmental pollution.

A more detailed quantitative Waste Management Plan for the works will be produced following the appointment of a main contractor for the works.

This CDWMP has been prepared for the provision of waste management for the construction phase of the works taking cognisance of the many guidance documents on the management and minimisation of construction and demolition waste including the following documents:

- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (published by the Department of Environment Heritage and Local Government in conjunction with the National Construction and Demolition Waste Council, July 2006). The Guidelines promote an integrated approach to the management of this waste stream. They are designed to promote sustainable development, environmental protection, and the optimum use of resources. The Guidelines introduce the concept of integrated waste management planning for construction projects above certain thresholds.
- CIRIA document 133 Waste Minimisation in Construction

The details presented in this document are based on the available preliminary design information at the date of production of this document. Final arrangements for the disposal of waste will be subject to commercial considerations and the possession by each such site/facility of the necessary regulatory permissions to accept that particular waste type.

1.1 Proposed Development Description

The proposed development will consist of the demolition of an existing 2 No storey house on the site and the construction of 102 No build-to-rent residential apartments (80 No 1-bed and 22 No 2-bed units) across 2 No buildings (Building 01 and Building 02), along with

ancillary residential amenities and a publicly accessible café on a c. 0.42ha site. Building 01 to the north extends to part 5, part 6, part 8 and part 13 No storeys in height. Building 02 to the south extends to part 8, part 9 No storeys in height, with a setback 9th storey.

Residential amenity space in the form of a reception, coworking/study space, gym, games area, lounge/kitchen area, and multi-purpose recreational space is provided at ground floor level of Building 01, alongside a reception and postal storage area. External roof terraces are included at storeys 6 and 9 at Building 01, with an enclosed glazed amenity space at 13th storey level, with external terrace. An external roof terrace is provided at 9th storey level at Building 02.

The development includes a vehicle right of way providing access to St. Michael's Hospital along the western perimeter of the site, accessed from Crofton Road. This provides access to 3 No car parking spaces (including 1 No disabled space) located between the two buildings. A secondary right of way is provided via a landscaped pedestrian route along the eastern perimeter of the site providing access to St. Michael's Hospital. A total of 150 No bicycle parking spaces are provided at the ground floor level of Building 02 (alongside a bicycle repair area), 26 No within the central courtyard and 8 No adjacent to the café at the northern perimeter.

The development also includes an ESB substation, bin store, services and drainage infrastructure, boundary treatments, access provision at Crofton and all ancillary development works necessary to facilitate the development.

2. CONSTRUCTION and DEMOLITION WASTE MANAGEMENT POLICY

2.1 National Level

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

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, on foot of one of the recommendations of the Forum for the Construction Industry. The NCDWC subsequently produced "Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects" in conjunction with the Department of Environment Heritage and Local Government. These guidelines outline the issues that need to be addressed at the pre-planning stage of a development through to its completion. These guidelines have informed the preparation of this Plan.

2.2 Regional Level

The proposed development is located in the administrative area of Dún Laoghaire–Rathdown County Council (DLRCC).

The Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021 provides a framework for the prevention and management of waste in a sustainable manner in twelve local authority areas. The development of the Plan involved significant interaction and consultation with stakeholders such as the Department of the Environment, Community & Local Government, the Environmental Protection Agency (EPA), Irish Waste Management Association (IWMA), Compliance Schemes, NGOs, and members of the public. The Plan sets out the strategic targets for waste management in the region and also specifies a mandatory target of 70% of C & D wastes to be prepared for reuse, recycling, and material recovery (excluding soil and stones) by 2020. This reflects the target for management of C & D waste in the Waste Framework Directive. The three key objectives of the Eastern-Midlands Region Waste Management Plan are:

1. Prevent waste: a reduction of one per cent per annum in the amount of household waste generated over the period of the plan;
2. More recycling: increase the recycle rate of domestic and commercial waste from 40 to 50 per cent by 2020;
3. Further reduce landfill: eliminate all unprocessed waste going to landfill from 2016;

3. PROPOSED CONSTRUCTION METHODOLOGY AND LIKELY RAW MATERIAL USAGE

The construction of the project will involve conventional construction methodologies. The proposed development consists of 102 No build to rent units across 2 no. blocks, with ancillary landscaped open space, residential amenity and commercial space, access, and all other associated infrastructure. The proposed development includes the relocation of the existing vehicular access on Crofton Road.

A full development description is provided in the planning report which accompanies the submission.

The anticipated phasing of construction will be as follows;

- Set up site perimeter hoarding, maintaining existing pedestrian and traffic routes around the site;
- Site clearance, services diversions, and demolitions;
- Construction of the building substructures;
- Construction of the building frame and envelope;
- Installation of new underground services on site and off site;
- Interior fitout;
- External landscaping.

3.1 Site Compound

A site compound will be created for the storage of materials, plant, and equipment and for site offices. Given the site constraints and in particular the requirement for substructure excavations it is likely that the construction of this element of the works will be undertaken on a phased basis so that a contractor's compound can be facilitated initially at grade on the site. Once the first phase of construction has been completed the contractor's compound can be accommodated on the section of the completed ground floor slab.

It is worth noting that the type of plant and machinery to be used and the methodologies to be adopted for the works will need to take cognisance of the site access constraints and this, in turn, is likely to impact on the phasing of the works and on the construction programme.

3.2 Waste Arising

Given the nature of the project and the construction methodologies to be adopted it is anticipated that the main waste types generated during the construction phase of the project will be the volumes of excavated material arising from excavations for foundations, trenches to receive utilities and the road formation and arisings from the demolition of existing structures.

Table 3.1 presented below indicates the breakdown of C & D waste types produced on a typical Irish construction site based on data from the EPA National Waste Reports and GMIT research reports.

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

Table 3.1: Waste Materials Generated on a Typical Irish Construction Site

3.3 Excavation Arisings (Clay, Soil, and Construction Waste)

It is proposed that the majority of the material arising from the excavations will be disposed off-site in accordance with the requirements of the Waste Management Act and any subsequent amendments.

3.4 General Construction and Demolition Waste

Quantities of general construction and demolition wastes such as wood, packaging, metals, plastics, bricks, blocks, canteen waste, some hazardous wastes (e.g. oils, paints, and adhesives), site clearance and residual wastes will be generated during the construction phase of the project. It is not possible to predict the precise quantities of these wastes which will be generated during the construction of the project, however a more detailed estimate of the anticipated quantities of these materials will be provided in the detailed waste management plan following the appointment of the contractor.

4. PROPOSALS FOR THE MINIMISATION, REUSE, RECYCLING AND MANAGEMENT OF CONSTRUCTION WASTE

4.1 Waste Handling

The primary aim of this document is to ensure that the wastes generated in the course of the project are managed in a systematic manner in accordance with Waste Management Legislation and the principles of the Waste Hierarchy (i.e. prevention, minimisation, reuse, recovery, and recycling).

Wastes generated on the construction site must be identified and segregated according to their category as described by the European Waste Catalogue (EWC). In order to effect this, designated Waste Storage Areas (WSA's) will be created within the site compound for the storage of segregated wastes prior to their transport for recovery/disposal at suitably licensed/permitted facilities. Suitably sized containers for each waste stream will be provided and will be supervised by the contractor. The number and sizing of containers will be agreed with Waste Contractors in advance of the commencement of the project.

In accordance with the Waste Management (Collection Permit) Regulations 2007, a waste collection permit for the appropriate EWC Code and destinations is required by a waste haulier to transport waste from one site to another. Compliance with the Waste Management (Movement of Hazardous Waste) Regulations, 1998 is also a requirement for the transportation of hazardous waste by road. The Contractor will ensure that the transport and movement of all wastes are carried out in accordance with these requirements.

In order to prevent and minimise the generation of wastes, the Contractor will be required to ensure that raw materials are ordered so that the timing of the delivery, the quantity delivered and the storage is not conducive to the creation of unnecessary waste. In practice this means that the contractor will be required:

- To ensure materials are ordered on an "as needed" basis to prevent over supply to the site;
- Purchase construction materials in shape, dimensions and form that minimises the creation of excessive waste on the site;

- Ensure that construction materials are correctly stored and handled to minimise the generation of damaged materials/waste;
- Ensure that construction operations are appropriately sequenced;
- Assign individual responsibility (through appropriate contractual arrangements) to sub-contractors for the purchase of raw materials and for the management of wastes arising from their activities, thus ensuring that available resources are not expended unnecessarily;

The Contractor will be required to continuously seek to improve the waste management process on site during all stages of construction and maximise opportunities for reuse or recycling where they exist. For example, in relation to waste packaging, the contractor will seek to negotiate take back of as much packaging waste as possible at source to ensure maximum recycling.

4.2 Excavated Clay, Soil and Stones

Excavated soils and clay will be loaded directly from the excavation location to vehicles for removal from site and use within the project area as appropriate (e.g. as potential backfill material). Where short term temporary storage is unavoidable, the method of storage of such material will be key to its potential reuse as certain types of soils and clays are likely to degrade if left uncovered in wet weather. Topsoil will be stored separately from other soil types.

4.3 Concrete

Waste concrete is likely to arise during the construction of the project. It is proposed that where possible waste concrete generated will be returned to the supplier for reuse.

4.4 Metals

Waste metal generated by the project will be stored separately within the site compound in skips and when these skips are full, they will be removed and sent to a licensed metals recycling facility.

4.5 Timber

Timber waste will be stored separately. Any pallets will be returned to the supplier for reuse. A covered container for waste wood will be placed in the site compound and will be collected by a waste contractor who will forward it to a wood recycling facility for chipping.

4.6 Packaging and Plastic

Many suppliers are now prepared to collect their own packaging for recycling and this possibility will be investigated prior to works commencing. It is intended that where possible

materials with recycled packaging will be purchased. Waste packaging will be segregated and stored in separate containers for collection and delivery to packaging recycling facilities.

4.7 Blocks, Bricks and Tiles

The most likely source of these wastes will be off-cuts, trimmings and wastes arising from breakages. Every effort will be made to use broken bricks and off-cuts. The wastes generated will be stockpiled and where feasible used as subbase materials for roads and hardstand areas.

4.8 Hazardous Wastes

It is not anticipated that the project will generate hazardous waste, however if such waste is generated or encountered appropriate handling, storage, transportation, and disposal of such waste will be undertaken. Prior to being removed from the site any such waste will be the subject of a comprehensive waste assessment and classification by a suitably qualified person in accordance with the European Waste Catalogue (EWC) and Hazardous Waste List.

4.9 Hazardous Liquids (Oils, Paints, and Chemicals)

Oils, paints, adhesives, and chemicals will be kept in a separate contained storage area which will be locked when not in use. Lids will be kept on containers in order to avoid spillage or waste by evaporation. Waste oils, paints and chemicals which are required to be disposed off-site will be disposed of in accordance with the related waste requirements.

All liquid and hazardous materials will be stored in a designated and temporarily bunded area with appropriate signage. This area will be within the construction compound.

4.10 Canteen Waste

Designated receptacles will be provided at the canteen to allow for the segregation and storage of individual waste streams. These will include receptacles for food waste, dry recyclables, and a residual bin. Separate receptacles for the recyclable fractions may be provided such as plastics, metals, and glass.

4.11 Other Wastes

Other waste is normally made up of residual non-recyclable waste such as soiled paper, cloth, cardboard, or plastics as well as canteen waste. Other wastes which might be generated are fibreglass, polystyrene insulations, and plasterboard. Such material will be stored in a dedicated container. Container size and collection frequency will be assessed with waste management contractors as works proceed. All residual wastes will be dispatched to a suitably licensed facility for disposal. Other construction and demolition

waste materials will be collected in receptacles with mixed construction and demolition waste materials, for subsequent separation and disposal at an off-site facility.

5. ASSIGNMENT OF RESPONSIBILITIES

A Waste Management Co-ordinator (WMC) will be appointed by the contractor who will have overall responsibility for waste management on the site. Following the appointment of the contractor the Waste Management Plan will be updated in accordance with the final design scheme. The WMC appointed by the Contractor will be appropriately trained and experienced in all aspects of waste and materials management. In addition, the WMC and all site operatives must be able to:

- Distinguish reusable materials from materials suitable for recycling
- Ensure maximum segregation at source
- Separate materials for recovery

The WMC will be responsible for educating all site staff, sub-contractors, and suppliers about the available alternatives to conventional waste disposal. Training will also be given to all site staff in materials management on site. The WMC will continually identify waste minimisation opportunities on site and these will be updated in the plan.

6. TRAINING

Copies of the Waste Management Plan will be made available to all personnel on site. All site personnel and subcontractors will be instructed about the objectives of the Waste Management Plan and will be informed of their responsibilities. This process will be carried out during the induction process for site operatives. Where source segregation and material reuse techniques apply, each site operative will be given instructions on how to comply with the Waste Management Plan. Site notices will be designed to reinforce the objectives identified within the Waste Management Plan and will be displayed prominently.

7. OUTLINE WASTE AUDIT PROCEDURE

7.1 Responsibility for Waste Audit

The Contractor will be required to arrange for full details of all arisings, movements and construction and demolition waste discards to be recorded during all stages of the project. Each consignment of C & D waste removed from the site will be documented in the form of a Waste Transfer Record form which will ensure full traceability of the material to its final destination. Separate forms will be completed in respect of each waste transfer that takes place. The Contractor will also keep a copy of documents/records from waste disposal companies employed by him quantifying the exact amount of waste materials removed from the site. These records should also identify the quantity of material sent to landfill and the quantity of material sent for recycling. All such records will be retained on site and be readily available for inspection.

7.2 Review of Records and Identification of Corrective Actions

A review of the records for the waste generated and transported off-site should be undertaken throughout the course of the project. If waste movements are not accounted for, the reasons for this should be established. The waste records will be compared with the established recovery/reuse/recycling targets adopted 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 ensure that the targets set are being achieved.

Upon completion of the construction phase, a final report will be prepared summarising the outcomes of the waste management processes adopted and including figures for the total volumes of waste materials recycled/reused/recovered during the course of the project.

8. CONSULTATION WITH RELEVANT BODIES

8.1 Local Authority

Following the appointment of a contractor for the project and prior to the commencement of the works on site details of the proposed destination of each waste stream will be provided to Dún Laoghaire–Rathdown County Council.

Dún Laoghaire–Rathdown County Council will also be consulted, as required, throughout the excavation and construction phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

8.2 Recycling/Salvage Companies

Companies that specialise in C & D waste management will be contacted by the appointed contractor to determine their suitability for engagement. Where a waste contractor is engaged, each company will be audited to ensure that they hold relevant and up-to-date waste collection permits and facility COR/permits/licences. In addition, information regarding individual construction materials will be obtained, including the feasibility of recycling each material, the costs of recycling/reclamation and the means by which the wastes will be collected and transported off-site, and the recycling/reclamation process each material will undergo off site.