
Waste Management Statement
for
Demolition, Construction and Operation Works
at
SHD Development at Newtown, Malahide Road

Doc No. WS-05-A

Prepared by:



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1.0 Introduction

1.1 Background

Joseph O'Reilly Consulting Engineers were commissioned by Claregrove Developments Ltd to input and coordinate a "Waste Management Statement for Demolition, Construction and Operational Works" to accompany a planning submission for the proposed Strategic Housing Development at Newtown, Malahide Road, Dublin 17. The purpose of this Waste Management Plan (WMP) is to ensure that waste generated during the demolition, construction and operational phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts 1996 - 2013 and associated Regulations and the Waste Management Plan for the Dublin Region 2005 – 2010 are complied with. It will also ensure that optimum levels of waste reduction, re-use and recycling are achieved.

2.0 Government Policy

2.1 National Level

The publication, "Changing Our Ways", which identifies objectives for the prevention, minimization, reuse, recycling, recovery and disposal of waste in Ireland, was issued by the Government in September 1998. The target for C&D waste in this Strategy was to recycle at least 50% of C&D waste by 2003, with an increase to at least 85% by 2013.

The 'Forum for the Construction Industry' which represents the waste sector of the industry, released a report titled "Recycling of Construction and Demolition Waste" concerning the development and implementation of a voluntary construction industry programme to meet the governments objectives for the recovery of construction and demolition waste. The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002 and subsequently produced "Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects" in July 2006. There are thresholds set out in the Guidelines to determine whether a C&D WMP is required. The development requires a C&D WMP for new residential developments of 10 houses or more and new developments, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m².

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. The guidelines include the following:

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

In 2002, the Construction Industry Federation (CIF) issued the “Construction and Demolition Waste Management – a handbook for Contractors and Site Managers”. Annually the Environmental Protection Agency (EPA) issue a “National Waste (Database) Reports” detailing, C&D waste generation and the level of recycling, recovery and disposal of this material, domestic and municipal waste rates etc. The latest and most current policy document was published in July 2012 titled “A Resource Opportunity”. The Policy Document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention.

2.2 Regional Level

The Dublin Region first produced a Waste Management Plan in 1999, which encompasses the Local Authorities of Dublin City Council, South Dublin County Council, Dun Laoghaire Rathdown County Council and Fingal County Council. The Plan has been revised for the period 2005 – 2010 and is awaiting a further review.

One of the primary objectives of the existing Plan is to achieve more sustainable waste management practices in the C&D sector. The treatment/recycling rates for C&D waste adopted by the Dublin Region are currently around 83% (2011). This requires the following actions.

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- The development company must employ best practice at the design, planning and construction stage to ensure waste prevention and recycling opportunities are identified and implemented.
 - Waste Collectors are required to introduce source-separation of recyclables and introduce graduated charges to incentivize better site practices.
 - Local Authorities will ensure the voluntary industry code is applied to development control, to regulate the collection and treatment of waste to meet the Plan objectives, and also work to develop markets for recycled materials.

2.3 Legislative Requirements

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 (as amended by the Waste Management (Amendment) Act 2001) and subsequent Irish legislation, is the principle of 'Duty of Care'. This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) Following on from this is the concept of 'Polluter Pays' whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g.: for collection and transport of waste).

Waste contractors are typically engaged to transport waste off-site. Each contractor must comply with the provisions of the Waste Management Act 1996 and associated Regulations. This includes the requirement that a contractor handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities. A collection permit to transport waste must be held by the relevant contractor, which is issued by the National Waste Collection Permit Office (NWCPO).

Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste unless in possession of a waste permit granted by the local authority under the Waste Management (Facility Permit & Registration) Regulations 2007 1 as amended or a waste license granted by the EPA. The permit/license

held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specified site.

3.0 Description of the Proposed Development

3.1 Existing Site Specific Information

The application site contains a Circle K filling station and vacant commercial buildings, including a former motor showroom (Crossan Motors) with offices, a tyre centre and a commercial workshop and office. The site is bound by a local residential access road and Clare Village residential apartments to the east and south east, Grove Lane to the south west, a tyre centre (Fast Fit) to the north and Malahide Road (R107) to the west. The location of the proposed development site is shown in Figure 1 below.

The location of the proposed development site is shown in Figure 1 below.



Figure 1

3.2 Proposed development

The proposed development will consist of 331 residential units, built in two blocks (Block A to the southwest and Block B to the north), ranging in height from 8 to 10 storey's. The 331 no. units proposed consist of the following:

- 82 no. 1-bedroom units
- 239 no. 2 bedroom units
- 10 no. 2-bedroom duplex units

Block A contains a double height ground floor level containing two no. commercial units (for Class 1- Shop / Class 2- Office / Restaurant / Café use), a reception area, and an internal / undercroft ground floor car park accessed off Grove Lane incorporating bicycle parking and refuse storage areas. 2 no. duplex units over two levels are located to the rear of Block A; Block B contains a double height ground floor level containing ancillary communal support facilities and amenities, which includes a reception area, a shared work space, a gym and a laundry, a commercial unit (for Class 1- Shop / Class 2- Office / Restaurant / Café use), and a childcare facility, with associated outdoor play area. 8 no. duplex units are located to the rear of Block B over two levels. Block B includes an internal / undercroft car park area over four levels (including partial basement) to be accessed from the Malahide Road and incorporating car, motorcycle, bicycle parking and refuse storage areas;

Block B contains an internal communal amenity space at seventh floor level, lettable storage space from first to eighth floor level and office space from first to sixth floor level and eighth floor level.

4.0 Demolition Waste Generated by the Proposed Development

The demolition of the building will result in the generation of a number of waste streams. The typical type of waste can be summarised as;

- Soil and stones;
- Concrete (including blocks);
- Bricks,
- Steel;
- Timber;
- Glass;
- Mixed Metals;
- Gypsum based materials;
- Tiles / Ceramics;
- Insulation Materials (asbestos free);
- Waste electrical and electronic equipment;
- Fixtures and fittings etc

4.1 Estimated Waste arising

The EPA issued the European Waste Catalogue in January 2002 and this system was used to classify all wastes and hazardous wastes into a consistent waste classification system across the EU. The EWC for typical waste materials to be expected to be generated during the demolition of the existing buildings are as follows;

Waste Material	EWC
Non-Hazardous	
Concrete, bricks, tiles, ceramics	17 01
Wood, glass and plastic	17 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals (including their alloys)	17 04

Soil, stones and dredged spoil	17 05
Gypsum-based construction material	17 08
<i>Hazardous</i>	
Electrical and Electronic Components	16 02
Batteries	16 06
Wood Preservatives	03 02
Liquid Fuels	13 07
Soil and stones containing dangerous substances	17 05 03
Insulation materials containing asbestos	17 06 01
Other insulation materials consisting of or containing dangerous substances	17 06 03
Construction materials containing asbestos	17 06 05
Construction and demolition waste containing mercury	17 09 01
Construction and demolition waste containing PCBs	17 09 02
Other construction and demolition wastes containing dangerous	17 09 03

Table 1: European Waste Catalogue

4.2 Demolition Waste Estimates

The existing building areas in total is approximately 1491m² floor space. The BRE Waste Benchmark Data as of June 2012 provides guidance on the demolition waste estimates based on the gross internal floor area. Refer to the “Construction Management report” accompanying this submission for reference to demolition construction traffic.

Project Type	Number of projects data relates to	Average Tonnes/100m²	Number of projects data relates to	Average Tonnes/100
Residential	256		260	12.3

Public Buildings	23	22.4	24	11.2
Leisure	21	21.6	20	10.5
Industrial Buildings	23	12.6	24	5.7
Healthcare	22	12.0	22	9.9
Education	60	23.3	60	11.8
Commercial Other	4	7.0	2	3.6
Commercial Offices	14	23.8	11	6.3
Commercial Retail	48	27.5	47	11.6
Total number of projects	471		470	

Table 2: BRE Waste Benchmark

For a building area of 1611m² and an average of 12.6 tonnes per 100m² of floor area, the demolition waste generated translates to c203 tonnes. This does not provide for the bulk excavation of the basement, which will generate approximately 13,875m³ of soil (including a 25% bulking factor). The breakdown of demolition waste produced on a typical construction site is classified as follows;

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

Table 3: Breakdown of Demolition Waste

4.3 Mitigation Measures

A site specific Construction and Development Waste Management Plan (C&D WMP) for the demolition and construction of the development will be employed to ensure effective waste management and recycling of waste generated at the site.

Mitigation measures proposed are summarised below:

- On-site segregation of all waste materials into appropriate categories including:
 - made ground, soil, subsoil, bedrock
 - concrete, bricks, tiles, ceramics, plasterboard
 - metals
 - dry recyclables e.g. cardboard, plastic, timber
- All waste materials will be stored in skips or other suitable receptacles in a designated area of the site.
- An asbestos survey will be completed in the buildings. Asbestos will be removed by qualified and registered asbestos removal contractors, in accordance with the requirements of the HSA (Health and Safety Authority).
- Wherever possible, left over materials (e.g. timber off cuts) and any suitable demolition materials shall be re-used on-site.
- There is potential for soil contamination. As such, any potentially contaminated soil to be removed from site will be tested to confirm its contamination status and subsequent management requirements.
- All waste leaving site will be recycled, recovered or reused where possible, with the exception of those waste streams where appropriate facilities are currently not available.
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably licensed or permitted facilities.
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

These mitigation measures will ensure the waste arising from the demolition and construction of the development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended 2001), and associated Regulations, the Litter

Act of 1997 and the Dublin Waste Management Plan (2005 - 2010), and achieve optimum levels of waste reduction, re-use and recycling.

5.0 Construction Waste Generated by the Proposed Development

General Construction and Demolition (C&D) waste generated at a typical site includes the following:

- Concrete, bricks, tiles and cement;
- Wood;
- Glass;
- Plastics;
- Bituminous mixtures, coal tar and tarred products;
- Metals (including their alloys);
- Soil and stones;
- Insulation materials and possibly asbestos containing materials;
- Gypsum based construction material;
- Materials containing mercury;
- PCB containing materials (e.g. sealants, resin-based floorings, capacitors, etc);
- Waste electrical and electronic equipment;
- Oil wastes and waste of liquid fuels;
- Batteries and accumulators;
- Packaging (paper/cardboard, plastic, wooden, metallic, glass, textile, etc)

5.1 Mitigation Measures

Mitigation measures proposed to manage impacts arising from waste generated during the construction of the proposed development are summarised below and are described in more detail in the C&D WMP:

- On site segregation of all waste materials into appropriate categories including:
- Top-soil, sub-soil, bedrock;
- Concrete, bricks, tiles, ceramics, plasterboard;
- Asphalt, tar and tar products;
- Metals;
- Dry recyclables e.g. cardboard, plastic, timber;

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- All waste material will be stored in skips or other suitable recyclables in a designated waste storage area on the site;
 - Wherever possible, left-over material (e.g. timber cut-offs) and any suitable demolition materials shall be reused on or off site;
 - Uncontaminated excavated material (top-soil, sub-soil) will be reused on site in preference to importation of clean fill, as soil to be reused or removed from site must be tested to confirm its contamination status and subsequent management requirements;
 - All waste leaving the site will be transported by a suitably licensed/permitted contractor and taken to a licensed/permitted facility;
 - All waste leaving the site will be recorded and copies of relevant documentation retained.

5.2 Predicted Impacts of the Proposed Development

Assuming all the proposed mitigation measures are implemented, the following impacts are expected to arise as a result of the proposed development:

Significant volumes of waste materials will be generated during the construction of the proposed development, including the demolition of the existing structures. However, careful management of these, including segregation at source, will help to ensure maximum recycling, reuse and recovery is achieved, in accordance with current local and national waste targets. It is expected however, that a certain amount of waste will still need to be disposed to a landfill. Assuming appropriate facilities are provided, environmental impacts (e.g. litter, contamination of soil or water etc.) arising from waste storage are expected to be minimal. Particular attention must be given to the appropriate management of demolition (and construction) waste containing contaminated or hazardous materials. The use of suitably licensed waste contractors will ensure compliance with relevant legal requirements and appropriate off site management of waste.

In summary, if the C&D WMP is implemented and a high level of due diligence is carried out at the site, it is envisaged that the environmental impact of the construction phase of the proposed development will be short term and slight, with respect to waste management.

6.0 Operation Waste Generated by the Proposed Development

Municipal waste means household waste as well as commercial and other waste that, because of its nature or composition, is similar to household waste. It excludes municipal sludge's and effluents. In the context of this report municipal waste consists of three main elements - household, commercial (including non-process industrial waste), and street cleansing waste (street sweepings, street bins and municipal parks and cemeteries maintenance waste, litter campaign material).

Municipal waste generation continues to decrease from a peak in 2007, with municipal waste generated 21% lower in 2012 compared with 2007. Subsequently, municipal waste generated per capita has decreased from 0.78 tonnes of waste generated per person in 2007 to 0.59 tonnes in 2012. This decrease is linked to declining personal consumption as the economy contracted over the period 2007 to 2012 and occurred despite an increase in population over the same period. In addition, it also indicates a trend towards improved waste prevention in the country. Significantly, 2012 was the first year that the percentage of municipal waste recovered (59%) exceeded the percentage disposed (41%).

Typical municipal waste streams are expected to be produced during operation of the proposed development. This includes:

- Food wastes;
- Cardboard and Paper;
- Plastics (including bottles and other containers);
- Glass (including green, brown and clear);
- Metals (including aluminium cans and tin cans).

Periodic maintenance and repair activities will generate small quantities of wastes such as green waste, inert building materials (e.g., textiles) and certain chemicals (cleaning products, paints, pesticides etc.).

6.1 Site Waste Disposal

A Waste Control Strategy will be developed by the site Facilities Manager to clearly outline the approach to waste disposal. A dedicated waste collection area will be located at ground

floor level within both Block A & B. The waste will be segregated at the Waste Collection area into the following categories;

- Cardboard / Paper;
- Mixed non-recyclable waste;
- Plastic;
- Glass;
- Metals;
- Organic (food) waste;
- Electrical Waste

Residents and staff will empty the waste and transfer the bin using a trolley, via the service lifts, to dedicated Waste Collection Areas in the basement.

Bins/containers will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each. Mini-compactors will be provided for mixed non-recyclable waste. Balers will be provided for cardboard, plastic and paper, with storage for baled and unbaled waste. Finally, dedicated containers will be provided for electrical and battery waste.

Facility management will be responsible for the collection and disposal of all waste. Waste and recycling bins from the dedicated waste collection area in the basement will be moved to ground floor level using the vehicular ramp during off peak times via a mobile buggy operation. Facility management will be responsible for the collection and disposal of all waste. Waste will be collected from here for disposal at the appropriate facilities.

6.2 Mitigation Measures

In order to minimise the disposal of waste material to landfill, the mantra of “reduce, reuse, recycle” will be promoted throughout the development. In addition, the following mitigation measures will be employed;

- Suitable waste materials will be stored in bins or other receptacles in designated, easily accessible locations. These will be located on each floor prior to being moved to the waste collection area at basement level.

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- Waste leaving the site will be transported by suitable permitted contractors and taken to suitably permitted/licensed facilities.
 - Where necessary, waste leaving the site will be recorded and copies of relevant documentation maintained.
 - Where necessary, waste from the development will be segregated and stored in designated centralised waste storage areas in the basement.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended 2001), and associated Regulations, the Litter Act of 1997 and the Dublin Waste Management Plan (2005 - 2010), and achieve optimum levels of waste reduction, re-use and recycling.

6.3 Predicted Impacts of the Proposed Development

As with the construction phase, waste material will be generated during the operational phase of the proposed development. Again, careful management of these, including segregation at source, will help ensure applicable local and national waste targets are met. It is expected that some waste (e.g. mixed non-recyclables) will still be required to be disposed of to landfill. Assuming appropriate no-site storage is provided, Environmental impacts (e.g. litter and to a lesser extent contamination of soil or water etc) arising from waste storage are expected to be minimal. Bin stores will be located within the site. The use of suitably licensed waste contractors will ensure compliance with the relevant legal requirements and appropriate off-site management of waste.

In summary, if the Operational Phase Management Plan is implemented and a high level of due diligence is carried out at this site, it is envisaged that the environmental impact of the operation phase of the proposed site will be long-term and slight with respect to waste management.

7.0 Conclusion

The document outlines the principles of how the waste generated during the demolition, construction and operational phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts 1996 - 2013 and associated Regulations and the Waste Management Plan for the Dublin Region 2005 – 2010 are complied with. It will also ensure that optimum levels of waste reduction, re-use and recycling are achieved.