

PRELIMINARY OPERATIONAL WASTE MANAGEMENT STRATEGY

PROPOSED CRUISE BERTH AT DUN LAOGHAIRE HARBOUR, CO DUBLIN

Technical Report Prepared For

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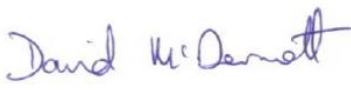
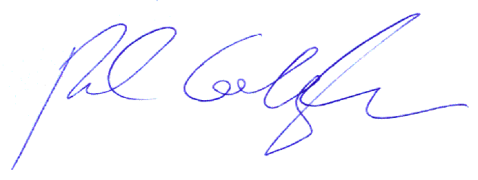
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CONTENTS		Page
1.0	Introduction	4
2.0	Overview of Waste Management in Ireland	5
2.1	National Level	5
2.2	Regional Level	6
2.3	Legislative Requirements	7
2.4	Regional Waste Management Service Providers/Facilities	8
3.0	Proposed Development	9
4.0	Waste Types	10
5.0	Estimated Waste Quantities	11
5.1	Waste Generation Rates	11
5.2	Future Growth	11
6.0	Waste Storage	12
6.1	Designated Waste Setdown Area	12
6.2	Collection Frequency	12
7.0	Waste Movement	13
7.1	Cruise Ship Wastes	13
7.2	Litter and Other DLHC Wastes	13
	References	14

Appendix A Equipment Specification Examples

1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has been commissioned by Stephen Little and Associates to prepare inputs relating to waste management to an EIS for a proposed Cruise Berth facility to be constructed at Dun Laoghaire Harbour, Co Dublin

The proposed strategy is based on the design information for the development including engineering drawings and schedule of areas as provided by the design team and published information relating to waste generation from cruise ships (see references section).

This Operational WMS details of the following:

- Overview of Waste Management Context/Policy in Ireland
- Predicted Waste Generation
- Specification for the designated Waste Storage Areas (WSAs)

Dun Laoghaire Harbour Company currently operate the harbour facility in accordance with their Port Waste Management Plan (prepared in 2010). It is likely that the Port Waste Management Plan will be revised by DLHC subject to the success of this application and the evolving waste management needs of the development. (A copy of the existing port waste management plan can be made available on request).

2.0 OVERVIEW OF WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Government issued a Policy Statement in September 1998 known as *Changing Our Ways*¹ which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill, and finding alternative methods for managing waste.

Amongst other things, *Changing Our Ways* stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document *Preventing and Recycling Waste – Delivering Change* was published in 2002². This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, titled *Making Irelands Development Sustainable – Review, Assessment and Future Action*³. This document also stressed the need to break the link between economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 titled *Taking Stock and Moving Forward*⁴. Covering the period 1998 – 2003 the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

Amongst other things *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. *Taking Stock and Moving Forward* noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

The latest and most current policy document was published in July 2012 titled *A Resource Opportunity*⁵. The Policy Document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out a number of actions, including the following:

1. A move away from landfill towards increased levels of prevention, reuse, recycling and recovery.
2. A Brown Bin Roll-Out diverting 'organic waste' towards more productive uses.
3. Introducing a new regulatory regime for the existing side by side competition model within the household waste collection market.
4. New Service Standards will ensure that consumers receive higher customer service standards from their operator.
5. Placing responsibility on Householders to prove they use an authorised waste collection service.
6. The establishment of a team of Waste Enforcement Officers for cases relating to serious criminal activity will be prioritised.
7. Reducing red tape for Industry to identify and reduce any unnecessary administrative burdens on the waste management industry.

8. A Review of Producer Responsibility will be examined as part of the Review of Producer Responsibility.
9. Significant reduction of Waste Management Planning Regions from ten to three.

While *A Resource Opportunity*⁵ covers the period to 2020, it will be subject to a mid-term review in 2016 to ensure that the measures are set out properly and to provide an opportunity for additional measures to be adopted in the event of inadequate performance.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic *National Waste (Database) Reports*⁶ detailing among other things estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials.

As reported in the EPA National Waste Report for 2012⁶, which is the most recently published report, there was an overall decrease in waste generation in 2012 with a 4.6% decrease in the quantity of municipal waste (i.e. commercial and household waste) compared to 2011. This continues the trend of decreasing waste generation since the economic downturn in 2007.

Notably the percentage tonnage of municipal waste managed for recovery (59%) exceeded the percentage tonnage managed for disposal (41%) for the first time in 2012. 34% of municipal wastes managed in Ireland were exported for recovery in 2012.

2.2 Regional Level

The proposed development is located in the Local Authority area of Dun Laoghaire Rathdown County Council.

The *Eastern-Midland Regional Waste Management Plan*⁷ is the current Waste Management Plan for the Dublin region. The Plan has only recently been published having been evaluated under the transposing regulations (S.I. 126 of 2011) of the *Waste Framework Directive (2008/98/EC)*. The Plan addresses all areas of waste management – from waste prevention and minimisation, to its collection, treatment, recovery and final disposal. The Plan is guided by international, EU and Irish legislation and policy on waste management.

The new plans primary goal is to move waste management conceptually to the “circular economy”, replacing outdated take-make-consume and dispose models. The primary targets set out in the plan are;

1. 1% reduction in quantity of household waste generated per capita over the period of the waste plan
2. 50% recycling rate of managed municipal waste by 2020
3. 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.

2.3 Legislative Requirements

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

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001⁹. Sub-ordinate legislation includes:
 - European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended 2011 (S.I. No. 323 of 2011)
 - 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)
 - 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 2011(S.I. No. 434 of 2011) as amended 2012 (S.I. No. 221 of 2012)
 - European Communities (Waste Electrical and Electronic Equipment) Regulations 2011
 - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009)
2. MARPOL 73/38 International Convention for the Prevention of Pollution from Ships and associated regulations including;
 - EU Directive 2000/59/EC on port reception facilities for ship generated wastes and cargo residues.
 - European Communities Port Reception Facilities for Ship generated waste and cargo residues regulations, 2003 SI 117 of 2003 (as amended).
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997)¹⁰
4. Protection of the Environment Act 2003 (S.I. No. 413 of 2003)¹¹

These Acts and subordinate Regulations enable the transposition of relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996 - 2008* and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site. 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 transportation and disposal/recovery/recycling of waste).

It is therefore imperative that the operators of the development ensure that the waste contractors they engage 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. A waste collection permit to transport waste must be held by each 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 relevant

Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007 and amendments* or a waste licence granted by the 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.

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services in Dublin City. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the National Waste Collection Permit Office.

As reported in the Waste Management Plan for the Dublin Region 2005 – 2010, there are a number of licensed and permitted facilities in operation in the region. Licensed facilities include waste transfer stations, integrated waste management facilities and landfills operated by both local authorities and private contractors. A copy of all waste licenses issued and a list of all facility permits granted is available from the EPA.

3.0 PROPOSED DEVELOPMENT

The proposed Cruise Berth facility (to cater for cruise ships up to 340m in length) is to be located in the centre of Dun Laoghaire harbour directly south of the existing harbour mouth. Dun Laoghaire Harbour is located on the southern edge of Dublin city. The existing harbour is enclosed within a western pier and eastern pier. Within the harbour there are two breakwaters. These breakwaters shelter the inner waters of the harbour.

The new quay structure will extend approximately 450m northwards from a point just west of the Hobbler Memorial on the eastern marina breakwater. The berth will consist of a 120m long by 20m wide concrete quay supported on tubular steel piles, located 180m north of the breakwater, this quay will be connected to the eastern marina breakwater by an approximately 8.5m wide concrete access causeway also supported on tubular steel piles. Ships will berth along the eastern side of the quay.

AWN has based our waste generation estimates for the development on the facility acting as a port of call facility only. This will mean that the quantity and types of waste received at DLHC will be limited. The following sections present the anticipated waste types and preliminary estimate of quantities likely to be received. (Home ports and major port hubs such as Southampton typically provide the majority of waste servicing requirements for larger cruise ships).

4.0 WASTE TYPES AND PROPOSED WASTE MANAGEMENT REQUIREMENTS

The anticipated primary waste streams generated by the operation of the cruise berth facility are as follows;

- Solid Waste (Municipal Waste comprising food waste, mixed dry recyclables including cardboard and paper, glass and other residual waste)
- Hazardous Waste (photo-processing wastes, dry cleaning wastes, batteries and fluorescent light bulbs etc)
- Sewage and Waste Water (“Black water” including solid human waste and waste from on board medical facilities and “grey water” – non sewage waste water)
- Oil and other maintenance wastes (Bilge water etc)
- Litter from litter bins on the quay side
- General wastes from proposed Café, Toilets and Washroom facilities

As outlined above, the proposed cruise berth will operate as a port of call facility only. DLHC propose to provide facilities for solid waste only for the following reasons.

1. Most modern cruise ships have on board facilities which treat 75-85% of all wastes generated. Ash from the incineration of wastes is disposed overboard in compliance with MARPOL requirements. In some instances some ash may require disposal at port. This facility is typically provided at home ports and will not be provided at DLHC. The waste reception and storage facilities provided by DLHC will be primarily for recyclables and other wastes not suitable for on board incineration.
2. Hazardous waste reception and storage facilities will not be provided at Dun Laoghaire. Vessels may independently make contractual agreements with hazardous waste contractors to collect hazardous wastes directly from the vessel. This is a matter for individual vessels.
3. Sewage and waste water is treated onboard in sewage treatment plants and discharged overboard at sea in accordance with MARPOL requirements (typically restricted to discharging a number of miles off shore). There will be no requirement to receive waste water at Dun Laoghaire.
4. Oil and other maintenance waste will only be removed from cruise ships for disposal at home ports. DLHC do not propose to provide facilities for oil or oily wastes.

5.0 ESTIMATED WASTE QUANTITIES

5.1 Waste Generation Rates

As outlined above, DLHC will provide limited facilities for the reception and storage of solid wastes only. The amount of solid waste generated by a ship varies depending on the size of the vessel, number of passengers and crew and consumption patterns.

On a day to day basis large cruise ships (carrying up to 3,780 passengers) can generate of the order of 3.5kg per passenger per day of solid waste. Most of this waste will be treated on board by incineration. The remainder requires disposal or recycling/recovery on land.

AWN estimate that the maximum quantity of waste requiring reception and storage from vessels visiting DLHC berthing facility will be of the order of 3-5 tonnes of solid wastes per visit.

It is anticipated that up to 60% of passengers will disembark when at port in Dun Laoghaire and of those of the order of 20% will use the proposed café/washroom facilities. It is estimated that this will generate up to 5.5m³ of mixed municipal wastes per week.

At present the breakdown of the composition of this solid waste is difficult to anticipate. The composition of the waste will vary considerably between vessels and will be dependent on the on board facilities provided.

5.2 Future Growth

The cruise ship industry is growing year on year. DLHC intend to develop Dun Laoghaire harbour and grow the facility as a regular destination for large cruise ships and it is anticipated that the number of ships visiting will increase with time.

AWN recommend that this report be updated periodically to ensure adequate waste storage provision as the occupancy of the development increases and waste generation rates evolve.

6.0 WASTE STORAGE

This section provides information on how waste is to be stored at the development. The strategy for waste movement is detailed in Section 7.0. This has been developed with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of Dun Laoghaire Rathdown Council (DLRCC). In particular, consideration has been given to the following documents:

- Recommendations for the Inclusion of Waste Management Requirements in the Planning Process (DCC Engineering Department 2002) (updated by the “Standard Planning Conditions, DCC Planning & Development Department 2007”);
- Eastern Midlands Regional Waste Management Plan 2015 – 2021; and
- Dun Laoghaire Rathdown County Council Bye-Laws for the storage, presentation and collection of Household and Commercial Waste Bye Laws 2009.

6.1 Designated Waste Setdown Area

It is proposed to assign a designated area on the quayside as a Waste Setdown Area for reception and storage of cruise ships wastes pending collection by waste contractors. As described in Section 5, it is expected that up to 5 tonnes of solid waste may require disposal/recycling on shore at Dun Laoghaire. The estimated minimum area required to accommodate skips or 1100L bins for this quantum is estimated at 20m².

A similar sized area will be needed to serve the reception café use (and minor waste inputs from staffing i.e. security etc). It is recommended that a 20m² area be provided at both the quay side and the rear of the reception/café building.

Based on our site walkover, the available area is sufficiently large to accommodate the temporary collection point so there is no likely traffic or other impacts.

6.2 Collection Frequency

Waste collection frequency will be adjusted subject to demand and the number of vessels visiting Dun Laoghaire. Based on the waste generation rates set out above it is proposed that the following minimum waste collection schedule will initially be observed. It should be noted that some cruise vessels will make their own arrangements with waste contractors to collect wastes from the ship when it docks.

- Three weekly collections of solid wastes including organic wastes recyclables
- Weekly collection of glass

Based on AWNs review of the waste generation data, we conclude that daily collection of solid waste will not be necessary however it may be DLHC or a vessels preference in terms of potential odour management. It is recommended that collection frequency be discussed with the waste contractor, and adjusted accordingly.

7.0 WASTE MOVEMENT

This section provides information on how waste is to be transferred from the designated waste setdown area . This proposed strategy for waste movement has been developed with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of the DLRCC.

7.1 Cruise Ship Wastes

The proposed designated waste set down area will be directly beside the vessels when they are docked in the berth (to facilitate easy unloading of wastes). The 20m2 storage area will be directly accessible by waste vehicles and no transfer of wastes to a collection point will be required.

Depending on waste operator preference, it may be preferable (from a convenience perspective more than a technical one) to have the facility to transfer wastes to the proposed 20m2 waste storage area at the reception/café building on collection day. A golf buggy type vehicle can be used to transfer 1100L bins from the waste set-down area to the waste storage area.

7.2 Litter bins and other DLHC wastes to Collection Point

It is proposed that cleaning staff appointed by DLHC will be responsible for conveying waste from on-site litter bins and waste facilities at the proposed toilets and washroom to the designated waste storage area. Regular cleaning and management of the designated set down area will be required to ensure good hygiene at all times and avoid environmental health issues.

7.3 DLRCC Presentation and Collection Bye Law requirements

In accordance with the Dun Laoghaire Rathdown County Council (DLRCC) “Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste using wheeled bins or bags” the collection point will be maintained (unless otherwise agreed with DLRCC) such that:

- A service provider shall not collect waste between the hours of 9pm and 6am without the prior agreement of the Environment Department of the Council.
- All waste containers (whether empty or full) are removed no later than 10.00am on the day following the designated collection day;
- A holder shall not cause or permit the storage of waste to endanger health, create a risk of injury to pedestrians or traffic, harm the environment or create a nuisance through odours or litter.

REFERENCES

1. Changing Our Ways; A Policy Statement on Waste Management, 1998 Department of Environment, Heritage and Local Government.
2. Preventing and Recycling Waste - Delivering Change, 2002, Department of Environment, Heritage and Local Government.
3. Making Ireland's Development Sustainable – Review, Assessment and Future Action, 2002, World Summit on Sustainable Development.
4. Taking Stock and Moving Forward, 2004, Department of Environment, Heritage and Local Government.
5. DoECLG, (2012), A Resource Opportunity - Waste Management Policy in Ireland.
6. National Waste Database Reports, Environmental Protection Agency, Wexford.
7. Eastern Midlands Regional Waste Management Plan 2015-2021.
8. Dun Laoghaire Rathdown County Development Plan 2010 – 2016 and Draft Development Plan 2016 -2022.
9. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001¹. Sub-ordinate legislation includes:
 - European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended 2011 (S.I. No. 323 of 2011)
 - 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)
 - 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)
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 - European Communities (Waste Electrical and Electronic Equipment) Regulations 2011
 - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009)
10. Litter Pollution Act 1997 (S.I. No. 12 of 1997)
11. Protection of the Environment Act 2003 (S.I. No. 413 of 2003)

APPENDIX A

1100 LITRE BINS FOR ORGANICS (COMPOST), MIXED NON-RECYCLABLE (MNR) AND MIXED DRY RECYCLABLE (DMR) WASTE

Dimensions: 1.2m wide x 1m deep x 1.40m high

