

MWP

**Waste Licence Application
For
Howth Harbour Dredging and
Reclamation Project
Waste Hierarchy**

Department of Agriculture, Food and the Marine

14/11/2023

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1 Introduction

Section 21(A) of the Waste Management Act states that the following waste hierarchy shall apply as a priority order in waste prevention and management legislation and policy:

- Prevention
- Preparing for re-use
- Recycling
- Other recovery (including energy recovery)
- Disposal



Figure 1-1: Waste Hierarchy (source: EPA)

Figure 1 (Source EPA).

2 Application Requirements

Describe what measures will be taken to prevent the generation of waste to the extent possible. State whether the operator of the installation or facility has participated in any projects under the National Waste Prevention Programme.

Where waste is generated at the installation or facility, describe how it will be, in order of priority in accordance with section 21A of the Waste Management Act 1996, as amended, prepared for re-use, recycling, recovery or where that is not technically or economically possible, disposed of in a manner which will prevent or minimise any impact on the environment.

Section 29(2A) of the Waste Management Act 1996, as amended states that it shall be the duty of waste producers and holders to ensure that waste undergoes recovery operations in accordance with sections 21A and 32(1) of the Acts.

For waste whose generation cannot be prevented, describe what measures will be in place to ensure that waste is collected separately (if technically, environmentally and economically practicable) and will not be mixed with other waste or other material with different properties.

Refer to Section 4 of this document.

3 Dredging Requirement

The last major dredge of Howth Harbour happened in the early 1980s. Since then, the seabed levels have in places gradually risen because of sediment deposition onto the seabed and there has been an increase in draft size of the fishing and other vessels. To maintain vessel safety and the commercial viability of the harbour into the future, increased depths are required beyond previous designed harbour depths. Together with increasing vessel drafts, the bed levels are becoming an increasing hazard to vessels using the harbour. Continued deposition of sediments in the harbour will further raise the bed level and decrease the available water depth navigation in/out and around the harbour. The shallow water depths in the vicinity of the RNLI slipway constrains access to the water for rescue craft and the public towards low tide.

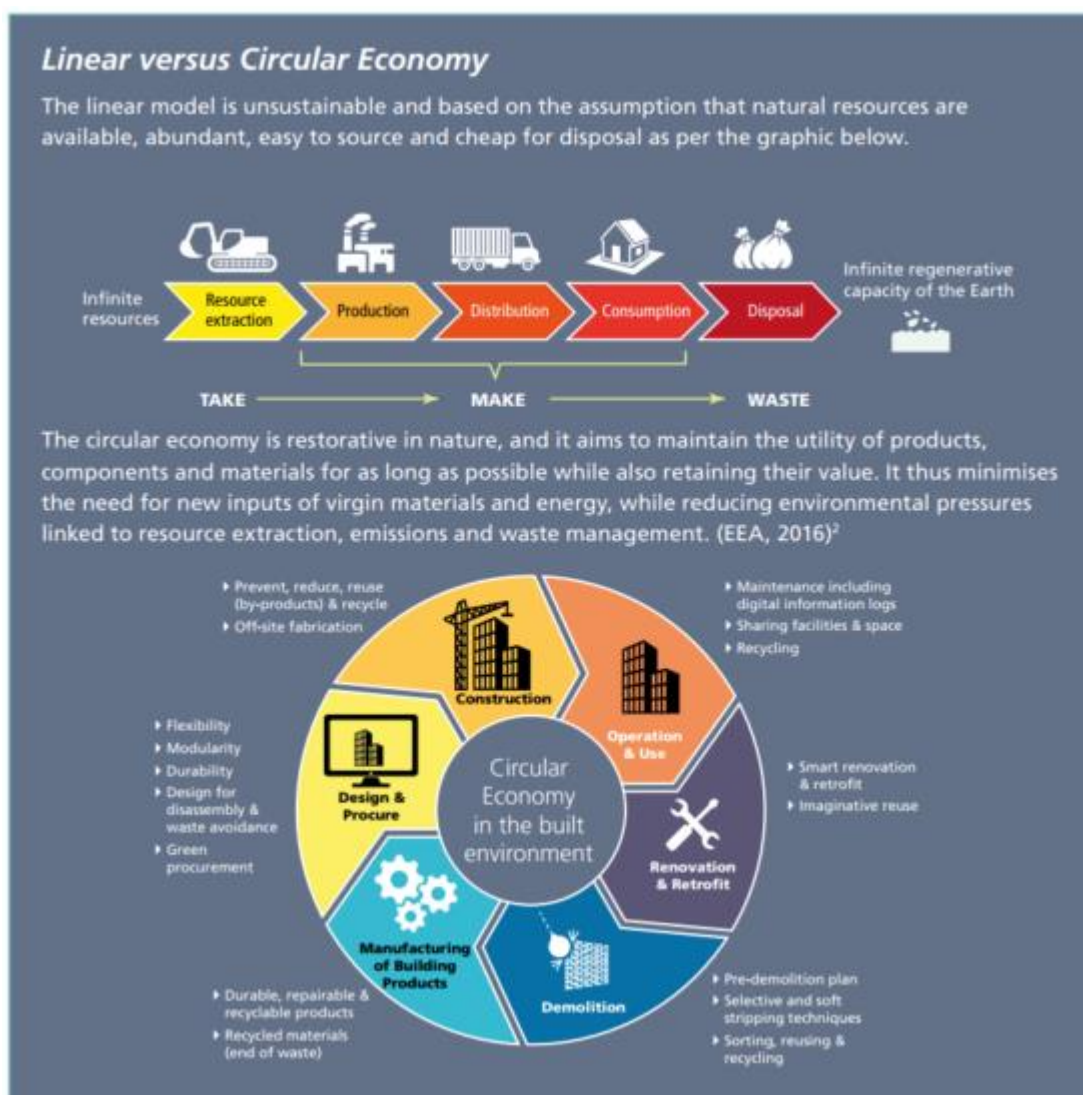
It is necessary therefore to dredge the existing basins and approach channels in Howth Harbour to provide safe access, navigation and berthing to the vessels currently using the harbour. The proposed project is also necessary as without action the harbour will suffer reduced functionality which will worsen over time.

The proposal to dredge the harbour will generate waste material. However, it is being proposed to recover this waste to provide a reclaimed area just west of the West Pier.

4 Application of the Waste Hierarchy

The proposed reclamation project at Howth Harbour is in line with the principles of the Waste Hierarchy as outlined in Figure 1 in which the preferred option is to prevent waste occurring in the first instance. The treatment and stabilisation onsite of the dredge material renders it suitable for reuse as backfill material and removes the need for disposal off site. This is central to the concept of the waste hierarchy.

In addition, the proposed project is in keeping with the principles of the Circular Economic Model (refer to Figure 2) as endorsed by the European Commission and implemented into Irish waste policy by *A Waste Action Plan for a Circular Economy 2020-2025*. This model moves away from the linear resource extraction and disposal model to a circular model which maintains the utility of materials, reduces the need for virgin materials whilst reducing environmental pressures related to resource extraction, emissions and waste management.



Source: <https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf>

Laboratory analysis demonstrates that dredged material within the harbour is suitable for recovery as a backfill material.

It is being proposed to stabilise and solidify the dredge material. The purpose of this treatment is twofold:

1. To reduce the leaching of contaminants. Refer to the Quantitative Risk Assessment for further details on this.
2. To process the dredge material into a usable engineering backfill that can support harbour operational uses.

Dredge material will be brought to an unloading point within the trawler basin of the harbour. For the Waste Acceptance Procedure please refer to the Waste Acceptance Procedure report.

Coarser spoil (>20mm) material will be screened out from the dredge spoil and temporarily stockpiled. This material will then be transferred to the reclamation area by truck where it will be directly placed in layers and compacted into the infill area or used in temporary bunds or in the perimeter embankment.

Sandy and silty material will undergo engineering stabilisation and solidification prior to placement into the reclaimed infill area. Such finer material will be transferred (likely by pumping through a pipeline) into a mixing unit. A binder in the form of a slurry will be added to this dredge spoil within the mixing plant until a homogenous mix of binder and dredge material is attained. The binder will consist of a combination of Portland Cement and Ground Granulated Blast Furnace Slag (GGBS) or equivalent. The mix will then be pumped as a wet mix from the mixing unit plant to the bunded area where it will be deposited. Excess water (supernatant) will be collected from the surface of the deposited material and returned to the treatment area for reuse to help fluidise the dredge spoil as necessary to make it pumpable.

Silos containing cement/GGBS/ Binder will be based within the facility. These components will be conveyed to the mixing process plant in liquid form. Mixing is undertaken in an enclosed system. Dust emissions are controlled within an enclosed plant operation, and as all elements are wet. A controlled and consistent end-product is produced with predictable engineering characteristics.

5 Waste Generated Onsite for Disposal Offsite

It is likely that some debris will be encountered during the dredging process. Typical debris may include tyres, fishing nets, cables etc.

Such waste debris is not suitable for recovery within the reclamation area. It will be segregated and removed offsite by a licenced/permitted haulier to an appropriately authorised waste recycling facility. See below photograph below as an example.



Example waste segregation arrangement using skips.