Alexandra Basin Redevelopment 2

Bringing Dublin Port To 2040

Environmental Impact Assessment Report

Chapter 20 Resource & Waste

Volume 2



CALAFORT ÁTHA CLIATH
DUBLIN PORT

TETRA TECH

20 Resource and Waste

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20.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) comprises an appraisal of the existing resource and waste management conditions within the ABR2 Project study area and addresses the potential effects of the ABR2 Project from generated wastes. The assessment is based on the description of the works in **Chapter 5 Project Description**. Where potential adverse impacts are identified, the assessment identifies mitigation measures that will be implemented to prevent, reduce or offset potential adverse effects, or enhance potential beneficial effects where possible.

20.1.1 Scope of the Assessment

The primary purpose of the EIAR chapter is to provide an assessment of the likely effects of the ABR2 Project from the wastes (solid and sludges/sediments) generated from the construction phase. In particular, this EIAR chapter:

- Presents the existing environmental baseline established from desk studies, relevant datasets and consultation;
- Identifies any limitations encountered in compiling the environmental information;
- Presents an assessment of the potential likely significant effects from the management of wastes arising from the ABR2 Project based on the information gathered and the analysis and assessments undertaken; and
- Highlights any required management measures.

20.2 Assessment Methodology

This section describes the methodology which has been used in the assessment of generated wastes, which may impact or be impacted by the ABR2 Project. The methodology and associated impact assessment had regard to the general guidance for the undertaking of an EIA, as presented in **Chapter 1 Introduction,** and the Institute of Environmental Management and Assessment (IEMA) waste management specific guidance, as follows:

- Guide to Materials and Waste in Environmental Impact Assessment: Guidance for a Proportionate Approach (IEMA, 2020).

The methodology for assessing the significance of effects associated with the generation of waste is based upon an assessment of the quantity and types of waste that are likely to be produced during the construction of the ABR2 Project, as detailed in **Section 20.2.5**. The operational phase was scoped out in the ABR2 EIA Scoping Report, as this has previously been considered under the MP2 Project and is covered by a later stage of development.

20.2.1 Guidance and Legislation

A legislative review has been undertaken as part of this assessment, which includes identifying relevant key waste and environmental European Directives, National Regulations, National Policies and Strategies. The

European Revised Waste Framework Directive (2008/98/EC) was amended in 2018 and sets the framework for Irish Waste Policy. Waste is defined as *"any substance or object which the holder discards or intends or is required to discard"*.

The EIA Regulations 2018 (SI No. 296) require that EIA Reports include an estimate of the quantities and types of waste produced during the construction and operation phases. The legislative framework for the management of wastes in Ireland includes the following key legislation:

- EU (Waste Directive) Regulations 2020 (SI No. 323);
- Waste Management Act 1996 (as amended); and
- Circular Economy and Miscellaneous Provisions Act 2022.

National planning policy for Ireland is contained within the '*Project Ireland 2024: National Planning Framework First Revision*' (Government of Ireland, 2025). The specific policies that are relevant to resource and waste management are:

- National Policy Objective 76: Sustainably manage waste generation, including construction and demolition waste, invest in different types of waste treatment and support circular economy principles, prioritising prevention, reuse, recycling and recovery, to support a healthy environment, economy and society.

Various policies and targets have been put in place by the Irish Government to improve national performance and avoid the disposal of various waste streams to improve sustainability and circular use of materials. The following publications provide the national plan for waste management and implementing a circular economy:

- A Waste Action Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025 (Government of Ireland, 2020a); and
- National Waste Management Plan for a Circular Economy 2024-2030 (Local Government Ireland, 2024).

The focus of these plans in Ireland is to facilitate the reuse, recycling and recovery of material resources and avoid the disposal and loss of resources by landfilling of wastes. Diverting material from landfill will improve resource efficiency.

All wastes produced from the ABR2 Project will be classified in line with the Environmental Protection Agency (EPA) guidance on waste classification to identify hazards associated with those wastes and the risk to the environment and human health. The EPA guidance document on the waste classification, list of waste and determination of waste type sets out how wastes are classified as non-hazardous and hazardous in line with the various hazard criteria (EPA, 2019). The EPA has also produced a National Hazardous Waste Management Plan 2021-2027 (EPA, 2021a) to prioritise actions to improve the management of hazardous waste within Ireland and reduce the quantity of exports to improve circular performance.

Regional and Local Policy

The Eastern-Midlands Region Waste Management Plan, which includes Dublin, has now been replaced by the National Waste Management Plan for a Circular Economy. The local policy for Dublin is detailed in the Dublin

City Development Plan 2022-2028 (Dublin City Council, 2022). The local policies that are relevant to waste management from the Development Plan are detailed in **Table 20-1**, along with details of how these are being implemented by the ABR2 Project.

Table 20-1: Dublin City Council (DCC) Development Plan Policies Relevant to Resource and Waste

No.	Description of Policy Requirement	How Implemented by the ABR2 Project
CA8	Climate Mitigation Actions in the Built Environment f. minimising the generation of site and construction waste and maximising reuse or recycling.	Waste minimisation measures will be implemented throughout project design and construction, and all ABR2 Project wastes will be reused/recovered and recycled where practicable, minimising the disposal in landfill.
CA23	The Circular Economy To support the shift towards the circular economy approach as set out in a Waste Action Plan for a Circular Economy 2020 to 2025, Ireland's National Waste Policy, as updated together with The Whole of Government Circular Economy Strategy 2022-2023.	The ABR2 Project will incorporate circular approaches for specific materials and construction and demolition waste, and will ensure segregation of wastes is undertaken to facilitate recycling and recovery.
CA24	Waste Management Plans for Construction and Demolition Projects To have regard to existing Best Practice Guidance on Waste Management Plans for Construction and Demolition Projects, as well as any future updates to these guidelines in order to ensure the consistent application of planning requirements.	The ABR2 Project will develop a Resource and Waste Management Plan (RWMP) detailing specific requirements for all materials and wastes to maximise resource efficiency in line with EPA best practice (see **Section 20.6.1**).
SI27	Sustainable Waste Management To support the principles of the circular economy, good waste management and the implementation of best practice in relation to waste management in order for Dublin City and the Region to become self-sufficient in terms of resource and waste management and to provide a waste management infrastructure that supports this objective. To support opportunities in the circular resource-efficient economy in accordance with the National Policy Statement on Bioeconomy.	The ABR2 Project will embed circular practices and sustainable waste management where practicable. As detailed above, the ABR2 Project will develop and update, through the construction phase, a RWMP in line with best practice (see **Section 20.6.1**), as well as developing a Material Management Strategy for contaminated sediments.
SI28	Sustainable Waste Management To prevent and minimise waste generation and disposal, and to prioritise prevention, recycling, preparation for reuse and recovery in order to develop Dublin as a circular city and safeguard against environmental pollution.	The ABR2 Project will look to reuse, recycle and recover as many material streams as possible in line with circular practices to minimise resource loss to landfill. Proposed management options for specific wastes are detailed in the tables in **Section 20.4**.

All ship-generated waste, including that from vessels undertaking works on the ABR2 Project, will need to comply with all MARPOL requirements (International Maritime Organisation, 1973) that limit what wastes can be discharged at sea and require types of non-hazardous and hazardous wastes to be backloaded at ports for onshore waste treatment or disposal.

All sediments generated from dredging works will need to comply with the sampling and disposal requirements. Previous sampling has confirmed that the sediment in Alexandra Basin West is contaminated with a range of heavy metals (as detailed in **Chapter 5 Project Description**). These waste sediments will be managed at permitted locations either within the ABR2 Project or at suitable third-party locations.

All wastes generated from the ABR2 Project will be classified in line with regulatory requirements and management plans will document how the different waste streams will be handled, stored and managed. The management plans will include the responsibilities of staff, as well as the site-specific procedures and tracking procedures to enable full traceability of wastes to treatment or disposal locations, with records reported on an annual basis to the EPA under the conditions of the IE licence.

20.2.2 Study Area

The primary Resource and Waste study area for wastes generated from the ABR2 Project is the ABR2 Project study area, as detailed in **Chapter 5 Project Description**, defined as detailed in the IEMA Waste Guidance (IEMA, 2020). The assessment will consider solid waste arising from the construction site and dredged sediment removed from Alexandra Basin West and currently stored at the site; any wastewater generated from project activities will be considered in **Chapter 9 Water Quality and Flood Risk**.

The secondary Resource and Waste study area for the treatment and disposal of wastes not reused on the site will be counties of Meath, Fingal, Dublin, Kildare, and Wicklow, as a sub-region of Ireland for managed wastes. No dredged sediment will be disposed of offshore, so this is not included within either of the Resource and Waste study areas.

20.2.3 Baseline

20.2.3.1 Desktop Study

Information on wastes generated from the ABR2 Project within the Resource and Waste study area was collected through a desktop review of existing studies and datasets, including:

- Construction design plans and documents, including quantities of stored wastes;
- Information sources on the proposed Alexandra Basin West dredging campaign, including the preliminary Material Management Strategy; and
- Indicative waste arisings data provided to the EIA team.

These sources provide the most up-to-date information and data for this assessment, although updated estimates on the expected volumes of wastes from the construction works will be developed in due course. The sources used to inform the baseline environment are provided in **Table 20-2**.

Table 20-2: Summary of Key Desktop Data Sources for Resource and Waste Management

Data Title	Source/Author	Year
Alexandra Basin Redevelopment Project: Project Description/Brief	Tetra Tech	2026
Dublin Port Company – Alexandra Basin West: Preliminary Materials Management Strategy	Tetra Tech	2025

20.2.3.2 Site-specific Surveys

The hazard assessment of the contamination in the sediments was informed by a sampling campaign within different horizons of the sediment of the Alexandra Basin West. Chemical analysis determined that the sediments could not be disposed of at offshore disposal sites due to levels of specific contaminants, and the removed sediment was required to be managed onshore.

No further site-specific baseline surveys were undertaken as part of the assessment for resource and waste management. The baseline data presented in this section is derived from ABR2 Project information, waste management data from the public domain and expert judgement based on waste arisings from similar projects.

20.2.4 Consultation

Following submission of the EIA Scoping Report, consultation was undertaken to obtain opinions regarding the ABR2 Project and its potential and scope for significant effects. No specific comments relating to resource and waste management were received from consultees.

DCC advised in their December 2025 response that the EIAR technical assessments should take account of the policies and objectives of the Dublin City Development Plan 2022-2028 and specific EPA guidelines on information contained in EIAR (EPA, 2022) and that European Commission guidance should be consulted and inform the preparation of the EIAR. Details of the relevant policies from the Dublin City Development Plan relating to resources and waste are outlined in **Section 20.2.1**. Further details of the consultation and engagement are provided in **Chapter 3 Consultation and Scoping** of the EIAR.

20.2.5 Assessment Criteria and Assessment of Significance

Determining the significance of effects is a process that involves defining the magnitude of the impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity for waste management are based on those set out in the IEMA guidance (IEMA, 2020).

20.2.5.1 Magnitude Criteria

The criteria for defining impact magnitude are outlined in **Table 20-3** and are based on the W2 landfill diversion method that recognises that good practice construction projects reuse and recycle a large proportion of generated wastes and minimise disposal practices by applying the waste hierarchy and circular practices. Developments can typically divert at least 90% of generated waste from landfill by applying best practice

approaches to reduce, reuse, recycle and recover waste materials. The W1 void capacity method was not chosen as many of the wastes, including the contaminated dredge sediments, are not suited to landfill disposal and will be managed via other treatment methods.

Table 20-3: Resource and Waste: Magnitude of an Impact Definition

Assessment of Magnitude				
No change	**Negligible**	**Minor**	**Moderate**	**Major**
100% landfill diversion	90-99% landfill diversion	60-89% landfill diversion	30-59% landfill diversion	<30% landfill diversion

Source: IEMA, 2020

The construction of the ABR2 Project is expected to avoid and minimise all wastes being disposed of to landfill, non-hazardous and hazardous wastes will be evaluated separately.

20.2.5.2 Sensitivity Criteria

The criteria for defining receptor sensitivity in this chapter are outlined in **Table 20-4**.

Table 20-4: Resource and Waste Sensitivity Matrix Definitions

Importance / Sensitivity of Resource or Receptor				
Across construction and/or operational phases, the baseline regional **non-hazardous landfill** void capacity is expected to…				
Negligible	**Low**	**Medium**	**High**	**Very High**
Remain unchanged or is expected to increase through a committed change in capacity.	Reduce minimally: by <1% as a result of the wastes forecast.	Reduce noticeable: by 1-5% as a result of wastes forecast.	Reduce considerably: by 6-10% as a result of wastes forecast.	Reduce very considerably (by >10%); end during construction or operations; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.
Across construction and/or operational phases, the baseline regional **hazardous landfill** void capacity is expected to…				
Negligible	**Low**	**Medium**	**High**	**Very High**
Remain unchanged or is expected to increase through a committed change in capacity.	Reduce minimally: by <0.1% as a result of the wastes forecast.	Reduce noticeable: by 0.1 - 0.5% as a result of the wastes forecast.	Reduce considerably: by 0.5 - 1% as a result of wastes forecast.	Reduce very considerably (by >1%); end during construction or operations; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.

Source: IEMA, 2020

20.2.5.3 Significance of Effects

The significance of the effect upon waste arisings is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in **Table 20-5**. Where a range of significance of effect is presented in **Table 20-5**, the final assessment for each effect is based on the calculated assessment and professional judgement.

For the purposes of this assessment, any effects with a significance level of less than Minor have been concluded to be not significant in EIAR terms.

Table 20-5: Resource and Waste: Matrix Used for the Assessment of the Significance of the Effect

		Magnitude of Impacts				
Sensitivity (or value) of Receptor		**No Change**	**Negligible**	**Minor**	**Moderate**	**Major**
	Very high	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: IEMA, 2020

Once the effect threshold has been determined, **Table 20-6** provides how the Resource and Waste Topic Lead determines whether environmental effects are potentially significant, or not. Where a threshold is 'slight / moderate', i.e., transcends the significant – or not - effect boundary, professional judgement has been used to determine a final outcome.

Table 20-6: Resource and Waste: Determination of Overall Significance of Effect

Effect	Resource and Waste
Neutral	Not significant
Slight	
Moderate	Significant
Large	
Very Large	

Source: IEMA, 2020

20.3 Baseline Environment

It is anticipated that wastes will be generated from the following construction and operational activities as part of the ABR2 Project:

- Basin of Berths 52/53 demolition works to remove existing infrastructure.
    - Removal of open pile jetty at Berth 52; and
    - Decommissioning of Ro-Ro ramp No. 7.
- Capital dredging of Alexandra Basin West – to remove accumulated sediment to operational depths for safe vessel access.
    - Dredging campaign; and
    - Treatment of contaminated dredge sediments for recovery
- Infilling of the Basin at Berths 52/53 with treated sediment to reclaim the land parcel.
    - Utilisation of treated and stored dredge sediments
- Construction works at the Unified Ferry Terminal site.
    - Provide final sub-base level
- Construction support services.
    - Equipment laydown and material storage
    - Welfare facilities

The wastes that will be generated from these works can be classified as either non-hazardous or hazardous, depending on the properties of the waste types (EPA, 2019). Maximum worker numbers are estimated to be 30 staff supporting the construction works during the 24-month programme, commencing Q1 2027.

20.3.1 Waste Arisings from Construction

To inform the impact assessment, the wastes that will be generated from each element of the ABR2 Project have been identified for the construction phase, and estimates of the quantities from the ABR2 Project have been included.

Demolition Works

The waste arisings expected from the planned demolition works within the basin of Berths 52/53 associated with the removal of the jetty and Ro-Ro ramp No. 7, are detailed in **Table 20-7**. The waste types are primarily concrete that will be removed to allow for the systematic infilling of the basin.

Table 20-7: Demolition Works: Waste Types and Estimated Arisings

Location	Decription	Waste Type	Est. Quantity (tonnes)	Comments
Berth 52	A line of dolphin ramps supported on concrete pile-clusters	Concrete	2,454	Assume concrete pile-clusters remain in-situ
	Guide railings along ramps	Metal	150	Railings and associated structures
Berths 52/53	Ro-Ro Ramp No. 7	Concrete	2,369	
		Tarmac road planings	259	

Previous surveys for asbestos-containing materials did not identify any suspected asbestos in marine structures at the basin of Berths 52/53 (RPS, 2014). Only limited access was provided to structures during previous surveys; therefore, further detailed pre-demolition surveys identifying any asbestos or any other hazardous wastes will also be undertaken to inform estimates of waste arisings. This data will be used to update the Pre-construction Resource and Waste Management Plan (RWMP), as detailed in **Section 20.6.1**.

Capital Dredging, Material Transfer / Treatment and Stored Sediment

It is estimated that the additional capital dredging of Alexandra Basin West will generate 333,546m^3 of gravel, silts and sand material. Sediment sampling previously undertaken confirmed that the material contained hazardous substances, so it cannot be disposed of offshore. There are higher and lower levels of contamination within the sediment horizon; the estimated quantities of each of these sediment types are detailed in **Table 20-8** (Tetra Tech, 2026a).

Table 20-8: Estimated Quantities of Dredge Sediment Requiring Management: Worst Case Scenario

Sediment Type	Estimated Quantity (m^3)
Low-Level Contaminated	119,250
High-Level Contaminated	214,296
Total	**333,546**

An additional 84,300m^3 of treated dredge sediment from a previous dredge campaign is currently being stored next to the basin of Berths 52/53 in accordance with the conditions of the existing IE licence.

The proposed management strategy for the dredgings will be to treat and recover the material where technically possible as part of the ABR2 Project, following a review of options (RPS, 2025). DPC currently have an IE licence (P1002-02) that covers the ex-situ treatment of contaminated dredge material (see **Section 20.3.3.1**). Where sediment material from zones of low-level contamination is treated and processed, these separate

material types comprising sands and silts/clays will be segregated as part of the process and exported from the site for recovery/reuse (Tetra Tech, 2026a).

The dredge sediment from Alexandra Basin West will be transferred via barge to a remediation plant that will be located in the vicinity of the basin of Berths 52/53, as detailed in **Chapter 5 Project Description**. The processing facility will include a wastewater treatment system that will control liquid effluent, this being utilised as part of the treatment process. The management routes for these waste materials from the new dredging campaign are detailed in **Table 20-9**, as set out in the proposed Material Management Strategy.

Table 20-9: Planned Management Routes for Alexandra Basin West Sediments from Future Dredge Campaign

Dredged Material	On-site Recovery for Reuse		Off-site Recovery for Reuse	
	Solidification / Stabilisation	Gravels	Sands	Silts & Clay
Low-Level Contaminated	42,470	16,695	26,235	33,850
High-Level Contaminated	214,296	n/a	n/a	n/a
Total	**256,766**	**16,695**	**26,235**	**33,850**
% of Total	**77.0%**	**5.0%**	**7.9%**	**10.1%**

The material management strategy proposes utilising 77% of the sediment as infill at the basin of Berths 52/53, excluding bulking material that will be combined with the sediment as part of the solidification and stabilisation process. Around 5% of the low-level contaminated material recovered from the treatment process will be reused as capping material adjacent to the basin of Berths 52/53 as part of the engineering design. As part of the mass balance, a further 18% of the material comprising sands and silt/clays will be transferred to third-party recovery facilities by road within Ireland for further processing and grading before the materials are made available for recovery/reuse, avoiding the need for mineral extraction. This is the worst-case scenario, as there is uncertainty around the settlement rates during infilling that may lead to reduced quantities of materials requiring transfer from the site.

It is expected that all of the sediment will be recovered for reuse within the works or off-site via treatment and processing, with none of the bulk volumes being disposed of to landfill. The strategy plans for at least 82% of the sediment to be dredged from Alexandra Basin West to be utilised on-site, and the remainder to be reused after further processing at a soil recovery facility. Details of potential waste processing facilities and their processing capacity are outlined in **Section 20.3.3**.

A range of other non-hazardous and hazardous wastes will be generated from the processing plant and equipment, including worker welfare facilities and general equipment laydown areas (see list of wastes under Construction Support Services below).

Basin Infilling at Berths 52/53

The infilling of the basin will utilise treated and recovered dredge sediment in line with the Material Management Strategy, noting that recovered sediments will be mixed with other materials to stabilise the contaminants, which will add additional bulk volume that is deposited. The infill will include the stored treated and recovered sediments from the previous dredge campaign of the parent ABR Project.

Wastes generated from these activities will include routine construction wastes from the plant and associated processing facilities. These wastes will be minimised as materials will be bulk transferred to the site via marine vessels, reducing packaging and vehicle movements.

Construction Works at the Unified Ferry Terminal

Recovered gravels from the sediment treatment will be reused as part of the Unified Ferry Terminal works to raise the ground levels, reducing the need to bring in other aggregates. Testing of the outputs from the sediment processing facility will demonstrate that the contamination has been removed and that the materials are suitable for use as part of the engineering design.

Construction Support Services

Various wastes will arise from the remediation plant and from construction support services, including laydown areas and welfare facilities for the workers. The various non-hazardous and hazardous wastes will arise periodically from construction activities, and the main expected types are listed below.

Non-hazardous wastes are likely to include the following waste streams:

- Cardboard – clean packaging materials
- Concrete and rubble – clean concrete from demolition works
- Dry mixed recyclables – plastic bottles and tin cans for recycling
- Food waste – from welfare facilities
- General mixed waste – residual waste that contains non-recyclable materials
- Glass – empty glass bottles and clean jars
- Construction waste (mixed) – not containing any hazardous materials
- Plastic – flexible and sheet wrap
- Plastic – hard plastics
- Scrap metal – ferrous and non-ferrous (where generated)
- Soils and stones – clean material
- Tarmac residues – bitumen-based materials from the removal of the road surface
- Wood – pallets and wooden strapping

Hazardous wastes are likely to include the following wastes:

- Absorbents – used spill kit clean-up media, including contaminated sands

- Batteries – large, including lead-acid types
- Batteries – small, including lithium types
- Chemicals – off specification or wastes
- Filters (spent) – from treatment equipment
- Oil filters (used) - containing oils
- Oils and lubricants – used product or wastes
- Oily rags – from equipment servicing and cleaning
- Oily sludges – from traps and bunds
- Oily water – from interceptors or drip trays

The ABR2 Project's RWMP will include descriptions of each waste type and the List of Waste (LoW) codes that will be required for tracking the wastes from the source to end points to allow traceability.

20.3.2 Waste Arisings from Operations

Waste arisings from the operational phase have not been considered within the EIAR, as noted in **Section 20.2**. Any routine maintenance dredging that is required to be undertaken at Alexandra Basin West will be covered by a separate application (see **Chapter 2 Project Justification** for further information).

20.3.3 Waste Capacity Baseline

To inform the assessment, the availability and capacity of local/regional waste infrastructure within the secondary Resource and Waste study area has been reviewed for the treatment and disposal facilities within the defined region to reflect that sites should be proximal, where management options exist. The most up-to-date information on the waste management permitted sites within the region was identified from data published and provided by the EPA (EPA, 2026).

The current non-hazardous landfill capacity is set out in **Table 20-10** that indicates the remaining capacity is nearly 8 million cubic metres of void.

Table 20-10: Non-hazardous Landfill Capacity

Site Name / Location	Auth. No.	Disposal Capacity (t/yr)	Remaining Capacity (m3)	Comments
Knockharley Landfill, Co. Meath	W0146	175,000	324,338	Planning permission from ABP approved (Ref. ABP-303211-18) for additional capacity
Ballynagran Residual Landfill Co. Wicklow	W0165	175,000	382,019	Consented capacity expected to be used up by 2028
Drehid Waste Management Facility Co. Kildare	W0201	120,000	7,250,000	New licence W0201-05 granted Feb 2026.
Total Capacity	n/a	**470,000**	**7,956,357**	

There are no hazardous waste landfills in Ireland, so no capacity exists for disposing of these wastes via this option. Quantities of hazardous waste that cannot be managed via other methods are currently exported for disposal.

The soil recovery processing capacity is detailed in **Table 20-11**. The EPA does not publish capacity data, so the information is based on research from 2020 published by the Government of Ireland (2020b) and also provided by EPA staff. This data does not include planned capacity increases that had planning approval or were waiting for licences/permits, so it is considered conservative. The processing capacity for soil recovery facilities that fall within the secondary Resource and Waste study area is just over 2.4 million tonnes per annum.

Table 20-11: Soil Recovery Facility Processing Capacity

County	Annual Processing Capacity (tonnes)
Dublin (Fingal)	1,900,000
Meath	167,400
Kildare	344,000
Wicklow	0
Total	**2,411,400**

There are two Energy from Waste (EfW) facilities within the Resource and Waste study area, as detailed in **Table 20-12**. Combustible wastes, when segregated, can be routed to these facilities to minimise the quantity of wastes sent for landfill disposal, as set out in the proposed management methods.

Table 20-12: Energy from Waste Capacity in Ireland

Site Name / Location	Auth. No.	EfW Capacity (tonnes/year)
Dublin Waste to Energy Ltd, Co. Dublin	W0232	600,000
Indaver Ireland Ltd, Co. Meath	W0167	235,000
Total Capacity	**n/a**	**825,000**

Data on Material Recovery Facilities (MRF) and other waste handling sites is not published by the EPA and is not presented here.

20.3.3.1 IE Licence

An IE licence was issued by the EPA on 27th October 2016 (Licence Register No: P1022-01) to DPC to regulate the treatment of contaminated dredge material within a licenced boundary at the port. This licence was subsequently reviewed and issued by the EPA on 14th February 2019 (Licence Register No: P1022-02), with a further technical amendment issued on 5th November 2024 (Licence Register No: P1022-02/B). This licence is for the ex-situ treatment by stabilisation/solidification, recovery of contaminated dredge material at specific locations within Dublin Port as part of the ABR2 Project, and the temporary storage of hazardous waste. In accordance with the licence, the waste to be treated will comprise contaminated dredged sediment taken from Alexandra Basin West. The treated waste will be recovered by infilling at designated locations within the Dublin Port area, including at the basin of Berths 52/53.

The licence includes for the temporary storage of hazardous waste, which is managed through a Waste Materials and Storage Plan and approved via CEMP revisions in consultation with DCC. The latest Waste Materials and Storage Plan includes testing data demonstrating that the previously treated sediment recovered from dredging at Alexandra Basin West in the parent ABR project has been classified as non-hazardous (Tetra Tech, 2026b).

As per Schedule A.2 Waste Acceptance, a total of 1,262,800 tonnes of dredge sediment will be treated and recovered over the lifetime of the activity. The treatment and recovery of the dredge material on site will take place in accordance with the conditions of the IE licence P1002-02/B or as may otherwise be agreed with the EPA during a licence review to account for amendments to the licence which may be required to accommodate the works as outlined in this EIAR.

20.3.3.2 Waste Capacity Baseline Europe

In addition to assessing the availability and capacity of local and regional waste management infrastructure within the secondary Resource and Waste study area, treatment and disposal facilities elsewhere in Europe were also reviewed. This was undertaken to identify potential export routes for alternative recovery should surplus material not be capable of being accommodated within the proposed works as detailed in **Chapter 5 Project Description**.

Treatment and recovery facilities reviewed within Europe are detailed in **Table 20-13.**

Table 20-13: Treatment And Disposal Facilities in Europe

Country	Site Name / Location
Netherlands	ATM Renewi,Moerdijk
	Innovarec B.V (Westdorpe)
	Theo Pouw Groep (Utreacht Hub)
	BMR Schiedam (Boskalis)
	SBD Amersfoort
	BAM Infra Milieu (Grondreinigingcentrum)
Belgium	RC&TOP Ghent (Port of Ghent) (Envisan)
	RC Antwerp (Haven 1025 / Beveren) (DEME)
	Envisan Liege Valorisation Centre(Ile)25 / Beveren) (DEME)

Following a desktop review of the identified facilities, consideration was given to their ability to accommodate the proposed vessel size, provide direct access without the need to transfer material to smaller vessels, undertake appropriate treatment and recovery processes, and receive the anticipated material volumes. On this basis, the following facilities were identified as suitable destinations for the export of surplus unwashed sediments for the purposes of the EIAR assessment. Each facility has sufficient capacity and direct access to enable unloading from vessels directly to the relevant treatment or recovery facility.

- Belgium - RC Antwerpen,
- Netherlands - Innovarec B.V. (Westdorpe) Autrichehavenweg 1, 4554 MB Westdorpe.
- Netherlands - BMR Schiedam (Boskalis) Nieuwe Waterwegstraat 52, 3115 HE Schiedam.

20.4 Description of Likely Significant Effects

20.4.1 Assessment of Construction Effects

There is the potential for quantities of materials to be deposited in landfill sites rather than being recovered/reused or recycled unless the RWMP is implemented and adhered to. The use of non-permitted waste contractors or unlicensed facilities could give rise to inappropriate management of waste and result in pollution incidents or contamination of land. Therefore, it is essential that all waste materials are dealt with in accordance with regional policies, national legislation, and that site management procedures are in place to ensure the appropriate procedures for waste segregation, storage, handling, and off-site transportation to approved waste facilities are implemented.

A number of different waste types are expected to be generated on-site. The proposed management methods and indicative quantities are detailed in **Table 20-14** and **Table 20-15**.

- Non-hazardous wastes

- Demolition works and general site activities 5,398 tonnes
- Stored sediment – 84,300m^3 (under existing IE licence)

- Hazardous wastes
  - Contaminated sediments – 333,546m^3
  - Various hazardous wastes – 20.6 tonnes

These estimates exclude any routine wastes generated on the dredge vessels that will be managed in line with MARPOL procedures.

In terms of the overall impact of the construction phase of the ABR2 Project, there is the potential for the estimated 5,398 tonnes of non-hazardous waste management to have a **Neutral or Slight adverse effect**, due to the increase in waste being generated and the potential for this waste to be sent to landfill for disposal. This would be a worst-case scenario as the intention of the ABR2 Project will be to achieve a higher rate of diversion from landfill through reuse, recycling and recovery throughout the construction phase. Based on the proposed management methods for non-hazardous wastes, it is anticipated that 4.8% would be reused, 94.3% recycled, 0.8% sent for energy recovery and potentially no waste would be sent to landfill. The stored sediment from the previous dredge campaign has not been considered as part of the impact assessment, although its utilisation as a resource is beneficial as it offsets the need to import other material and avoids the production of virgin aggregates.

For hazardous waste, the quantity of waste requiring management is large from the proposed dredging campaign, as 333,546m^3 of contaminated material requires treatment. All of the sediments from the planned dredge campaign are assumed to be hazardous wastes for the purposes of this assessment. There are currently no hazardous waste landfills in Ireland, so treatment is required either within the ABR2 Project or at third-party facilities, or the contaminated sediment (hazardous waste) would require export to appropriately permitted sites in Europe. The ABR2 Project has the potential to have a **Neutral effect** as there will be 100% landfill diversion. The utilisation of this material as basin infill is also beneficial as it avoids the use of virgin aggregates.

The other small quantities of hazardous wastes generated from the ABR2 Project, estimated to be 20.6 tonnes, are unsuitable to be landfilled so will be reused, recycled or incinerated via approved waste contractors. There is the potential for these hazardous wastes to have a **Neutral effect** as the quantity is small and likely management methods avoid landfill disposal. Using the proposed management methods for these hazardous wastes, 58.3% would be reused, 18.7% recycled, 23.1% sent for energy recovery, and no waste would be sent to landfill.

Table 20-14: Non-Hazardous Waste: Expected Waste Streams and Proposed Management Options

Waste Type	Source	Management Option	Proposed Management Strategy and Indicative Quantity
Cardboard and paper	All Project locations	Recycle	Cardboard and paper shall be segregated for off-site recycling. Small quantities <2.5 tonnes
Concrete / reinforced concrete	B52/53 infrastructure removal	Recycle	Arisings from demolition. ~4,823 tonnes
Construction waste (mixed)	B52/53 infrastructure removal	Recycle via MRF or landfill	Mixed materials from demolition works. ~100 tonnes
Dry mixed recyclables	Welfare areas	Recycle via MRF	Recover separate material streams at MRF and recycle. <5 tonne
Food waste	Welfare areas and canteens (onshore and vessels)	Recycle – via composting or AD	Where quantities arise (depending on staff numbers) food waste can be collected from welfare areas. <2 tonnes
General mixed waste	All Project locations – non-recyclable materials	EfW or landfill	Recovery energy from non-recyclable materials. 40 tonnes
Glass	Welfare areas	Recycle	Provide separate containers where glass bottles and jars arise, such as welfare facilities. Periodic collection by contractors. <2 tonnes
Plastics - flexible	Material storage and laydown areas	Recycle	Deploy dedicated storage containers where materials arise, <3 tonnes
Plastics - hard	Material storage and laydown areas	Recycle	Segregate and recycle. Small quantities expected <5 tonnes
Scrap metal	B52/53 infrastructure removal	Recycle	All metals shall be segregated for off-site recycling. Separately segregate ferrous and non-ferrous metals if sufficient quantity expected to be generated. Estimated arisings. ~150 tonnes.
Sewage waste	Temporary toilets facilities	Wastewater treatment	Temporary toilets for construction workforce to be periodically emptied by vacuum truck or discharged into the mains sewerage system where possible.
Tarmac residues	B52/53 infrastructure removal	Reuse	Estimated arisings ~260 tonnes
Wood	All Project sites – including material storage	Reuse packing material, recycle or EfW.	Pallets can be returned to suppliers for reuse where possible. Wood waste can be segregated into a separate container to enable off-site recycling. Oily or chemical contaminated wood must be segregated and treated as a hazardous waste. <5 tonnes

Table 20-15: Hazardous Waste: Expected Waste Streams and Proposed Management Options

Waste Type	Source	Management Option	Proposed Management Strategy and Indicative Quantity
Absorbents	All Project sites	Incinerate	Contain in leak-proof storage and transfer to an approved off-site vendor. Least preferred option is hazardous landfill. <2.5 tonne
Batteries, large	Plant, vehicle, vessels at all Project locations	Recycle	Must be segregated and stored in leak-proof boxes and recycled by specialist contractors. <0.25 tonne
Batteries, small	All Project sites	Recycle	Segregate and store, transfer for recycling. Small quantities <0.1 tonne.
Chemicals (liquid)	All Project sites, including equipment stores	Treated based on properties by specialist waste contractors	Small quantities of spent / out-of-date chemicals may arise during the construction works. These should be stored in the hazardous waste area where the MSDS indicates hazardous properties. <0.75 tonne
Contaminated soils	All Project sites	Treatment and recovery or hazard waste landfill	Contain on-site and transfer to approved third-party facility for remediation. <10 tonnes
Dredging sediment (contaminated)	Alexandra Basin West dredging campaign	Treated within Project site for Recovery/Reuse and selected materials transferred for off-site Recovery/Reuse	Treatment and processing at dedicated on-site facility in line with Material Management Plan. ~333,546m^3 (in-situ volumes) Due to uncertainties associated with certain treatment and site-specific factors, as described in **Chapter 5: Project Description**, any excess treated dredged material arising from the works will be managed in accordance with the waste hierarchy, in the following order of preference: 1. **Minimisation:** Minimise the generation of dredged sediments as far as practicable through confirmation of the required dredging depths with the Harbour Master. 2. **Recovery in Ireland:** Recover any excess dredged material that cannot be recovered within the Berth 52/53 basin at a suitable soil recovery or soil treatment facility in Ireland. 3. **Recovery in Europe:** In the very unlikely event that a suitable soil recovery or soil treatment facility is unavailable in Ireland, recover the material at a suitable facility elsewhere in Europe. 4. **Disposal in Ireland:** As a last resort, dispose of the material at a suitably licensed landfill facility in Ireland that is authorised to accept material requiring disposal.

Waste Type	Source	Management Option	Proposed Management Strategy and Indicative Quantity
			The maximum volume of excess dredged material is estimated to be **up to 60,085 m³**.
Filters (spent)	Waste treatment plant	Energy recovery	Filter media from treatment plant can be incinerated, where carbon used. <0.5 tonne.
Oil filters	Plant, vehicle, vessel service / maintenance	Recycle	Oil filters from plant maintenance can be stored in leak-proof containers to collect oil residues. Drained filters can be recycled. <0.5 tonnes
Oily rags	Plant and equipment maintenance (including vessels)	Energy recovery	Segregated with other hazardous wastes. <1 tonne
Oily sludges	Alexandra Basin West dredging and drainage traps	Remediation	Contain in leak-proof storage and transfer to approved off-site vendor for remediation or incineration. Least preferred option is hazardous landfill. <2 tonnes
Oily water	Oil / water separators, collection traps and vessel bilge	Separate and WWT plant	Sediment processing WWT plant or other approved DPC collection location.
Used oils and lubricants	Plant at all Project sites and vessels	Recycle	Used oil to be collected and stored in the hazardous waste area and removed for re-processing by waste contractor. <3 tonnes

20.4.2 Assessment of Operational Effects

The effect of the operational phase in relation to resource and waste has not been included in the impact assessment.

20.5 Inter-relationships

Effects on Resource and Waste also have the potential to have secondary effects on other receptors, which are considered in relevant topic-specific chapters. These receptors and effects are:

- Noise from sediment processing plant and associated equipment (**Chapter 12 Terrestrial Noise and Vibration**)
  - Effect of noise from temporary processing plant.
- Impacts of any vehicle movements associated with hauling or removing waste materials (**Chapter 15 Material Assets - Traffic and Transportation**)
  - Effect of vehicle movements on traffic.

20.6 Mitigation and Monitoring

20.6.1 Mitigation

20.6.1.1 Construction Phase Mitigation Measures

The mitigation for resource and waste is the development and implementation of the RWMP, which will form part of the CEMP. This will be updated post-consent to cover the Pre-Construction Phase and will include current practices in line with EPA best practice and DCC policy requirements. The RWMP will include details that will reduce the risk to human health of pollution or contamination and exposure from the storage, handling or disposal of all waste materials and ensure there is full traceability to the end point of treatment or disposal of all waste streams.

Details of all waste types that will be produced from the Construction Phase of the ABR2 Project will be documented in the RWMP. All construction waste will be managed as part of the RWMP, which will be implemented by the Principal Contractor for the duration of the construction works. The detailed RWMP will contain procedures for the management of waste and related pollution control measures and will be a live document subject to revision throughout the course of the construction works.

Specific waste management requirements will include the following:

- Strict adherence to waste regulatory requirements for the storage and handling on-site, as detailed in the IE licence.
- No wastes shall be deposited outside the areas permitted under the IE licence or ABR2 Project red line boundary, unless it is at a facility that holds a valid environmental permit / licence.

- Allocation of space in the temporary construction compound for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there.
- Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination.
- Segregation of wastes into specific categories and provide separate containers for dry recyclables, such as paper and cardboard, plastic, glass, wood, and metal at welfare facilities within temporary works areas.
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site. The waste storage area(s) will be assigned and all construction staff will be provided with training regarding the waste management procedures on commencement of the ABR2 Project.
- Confirmation of waste treatment and disposal methods for each of the waste streams and robust application of the waste hierarchy to reuse and recycle specific percentages of the overall quantity generated to minimise wastes disposed of to landfill.
- Ensure that all Waste Contractors that remove waste from the site have the appropriate authorisation.
- Monitor the actual quantities of wastes produced during construction and management location(s) and update the RWMP to allow comparison with waste arisings estimated prior to construction.
- All wastes that are deposited within the ABR2 Project (as infill) or removed off-site must follow tracking procedures that trace the movement of the waste to the approved management location.
- The Principal Contractor will designate staff who are responsible for waste management and ensure that all contractor staff are aware of the appropriate reuse, recovery, or disposal routes for each waste.

The implementation of the detailed RWMP will promote sustainable waste management practices by maximising waste prevention, re-use, recycling, and recovery opportunities and will ensure all regulatory requirements are in compliance and DCC policy requirements are implemented.

20.6.2 Monitoring

Records will be kept of all waste materials that are produced, utilised and leave the ABR2 Project site during construction, whether for reuse on another site, recovery, recycling or disposal. Further details of the tracking of wastes will be detailed in the RWMP. Details of the sampling of processed sediments to confirm hazardous properties and leachability will be agreed with the EPA and included within the RWMP.

20.7 Potential Cumulative Effects

Chapter 21 Cumulative Effects and Environmental Interactions outlines the methodology used to complete the assessment of cumulative effects, which may arise from adjacent or nearby development, together with those predicted for the ABR2 Project. The projects which have been considered within the assessment of cumulative effects are outlined in **Chapter 21 Cumulative Effects and Environmental Interactions**.

The projects of particular relevance are the Dublin Harbour Capital Dredging Project and the Dublin Port Maintenance Dredging Programme, as they will generate large quantities of dredge sediment. Both of these

projects have demonstrated that there is no contamination in the sediments and have approval for offshore disposal of large quantities of the material at the entrance to Dublin Bay to the west of the Burford Bank. No material will require processing onshore.

The other projects will generate routine construction wastes, although none will produce large quantities and affect the processing capacity of the waste facilities within the vicinity of the ABR2 Project. At this stage, it is considered that there are no potential cumulative effects arising from adjacent or nearby development, together with those predicted for the ABR2 Project.

20.8 Residual Impacts

In circumstances where the mitigation measures are fully implemented during the construction phase, as outlined in **Section 20.6**, the residual effects of the ABR2 Project on resource and waste would consist of maximising the diversion of resources and waste from landfill and benefiting from the recovery of resources by reuse and recycling practices. There would be no residual impacts if all the sediments from the dredge campaign were reused for infilling the basin and, if needed, reused off-site if volumes needed within the ABR2 Project are exceeded.

20.9 Summary of Effects and Conclusions

This chapter considers the resource and waste arisings from the ABR2 Project and assesses how the wastes are reused, treated or disposed of within a regional and national context. Wastes will be generated from the construction of the ABR2 Project, including dredging works associated with sediment removal from Alexandra Basin West.

The key receptors used in the assessment are the capacity of local/regional waste infrastructure in line with IEMA waste guidance. The baseline waste assessment used the latest capacity data available from the EPA. Estimates of the quantities of waste likely to be generated from the various elements of the ABR2 Project informed the assessment.

The ABR2 Project will generate large quantities of waste from the Alexandra Basin West dredging campaign during the construction phase, which is planned to be treated and used as infill to the Berths 52/53 basin within the ABR2 Project. Good waste management practices will be required to protect the environment and avoid contamination of resources. A Preliminary Material Management Strategy has been developed to assess options for reusing the treated material within the ABR2 Project or via off-site facilities. This will maximise the circular benefits and minimise any potential impacts.

The principal objective of sustainable resource and waste management is to use material resources more efficiently, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised. In the case of contaminated dredge material originating from Alexandra Basin West, the sediment (following treatment) has been identified as being suitable for use to infill the existing basin at Berths 52/53 to provide increased capacity for Ro-Ro traffic in line with the Masterplan for the development of the port. The use of treated dredge material replaces the need to use virgin materials or other onshore fill material that would otherwise be required for the development.

Additional mitigation measures include following all best waste management practices to ensure that waste minimisation and recycling of materials occur at the site to minimise any residual waste being disposed of to landfill. Mitigation includes developing a detailed RWMP in line with EPA best practice, setting out waste storage locations, approved management methods, and locations and fate of all generated waste materials at permitted locations. A summary of the impact assessment is provided in **Table 20-16**.

The RWMP will be developed as part of the CEMP and will be updated post-consent by the Principal Contractor, including more accurate waste estimates, locations of waste storage areas and details of the waste management contractors. The residual effects of the ABR2 Project, considering the mitigation measures, are determined to be **Not Significant**.

Table 20-16: Summary of Effects Relating to Resource and Waste

Potential Effect and Receptor	Phase[1]		Magnitude of Effects	Sensitivity of Receptor	Significance of Effect	Significant/Not Significant	Mitigation Measures	Residual Effects
	C	O						
Non-hazardous waste: Diversion of from landfill and reduction of non-hazardous landfill capacity	✓		C: Negligible	C: Low	C: Neutral or Slight	C: Not Significant	Pre-Construction and Construction RWMP	No residual effects if approved management methods implemented.
Hazardous waste (contaminated sediment): Diversion from landfill and reduction hazardous landfill capacity	✓		C: No change	C: Negligible	C: Neutral	C: Not Significant	Detailed Material Management Plan	No residual effects if approved management methods implemented.
Hazardous wastes (excluding sediment): Diversion from landfill and reduction hazardous landfill capacity	✓		C: No change	C: Negligible	C: Neutral	C: Not Significant	Pre-Construction and Construction RWMP	No residual effects if approved management methods implemented.

[1] C: Construction; O: Operational

20.10 Limitations of Assessment

The known limitations to the assessment presented in this chapter of the EIAR include the availability of estimates of non-hazardous and hazardous wastes from the various component elements of the ABR2 Project. These have been informed by data estimates to feed into the management of the largest waste stream, dredged sediments from Alexandra Basin West.

Further detailed design works and further development of a Material Management Strategy for the dredge sediment will improve estimates of waste arisings from these works. The development of a detailed RWMP covering all resources and wastes expected to be generated from the ABR2 Project activities will allow all materials and wastes to be managed in the most sustainable way and minimise wastes being disposed of to landfill.