Iarnród Éireann
Irish Rail

Rosslare ORE Hub

Introductory Chapters

Chapter 6:

Project Description

venterra | GDG GAVIN & DOHERTY GEOSOLUTIONS | NICHOLAS O'DWYER an RSK company

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CD	Chart Datum
CEMP	Construction Environmental Management Plan
CSD	Cutter Suction Dredging
cSPA	Candidate Special Protection Area
CTV	Crew Transfer Vessels
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electrical Supply Board
EWC	European Waste Code
GBS	Gravity Based Structures
IÉ	Iarnród Éireann
ISPS Code	International Ship and Port Facility Security Code
LED	Light Emitting Diode
LoLo	Lift-on Lift-off
NIS	Natura Impact Statement
NMPF	National Marine Planning Framework
NPWS	National Parks and Wildlife Service
oCEMP	Outline Construction Environmental Management Plan
ORE	Offshore Renewable Energy
REAR	Rosslare Europort Access Road
RNLI	Royal National Lifeboat Institution
RoRo	Roll-on Roll-off
SAC	Special Areas of Conservation
SBH	Small Boat Harbour
SBOA	Small Boat Harbour Owners Association
SPA	Special Protection Areas
TSHD	Trailer Suction Hopper Dredger
UÉ	Uisce Éireann

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6 PROJECT DESCRIPTION

6.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) contains a description of the proposed Rosslare Offshore Renewable Energy (ORE) Hub (the 'Proposed Development') including its location, construction and operational activities, resource requirements, and implementation schedule. The Proposed Development consists of a range of integrated infrastructure elements designed to support the full lifecycle of offshore renewable energy projects.

The Proposed Development includes capital dredging to achieve navigable depths for vessels delivering ORE components; land reclamation to create a storage area for these components; and construction of two new berths to facilitate loading and unloading of ORE components. The land reclamation works include infilling the existing small boat harbour, after the construction of a new small boat harbour. The Proposed Development also includes the installation of a new slipway and facility for local clubs, such as the Sea Scouts. For brevity, this will be referred to hereinafter as the Sea Scouts Facility.

The purpose of the Proposed Development is to provide a facility for the efficient handling and storage, marshalling, staging and integration of ORE components to facilitate installation of offshore wind energy projects by ORE developers and operators.

The Proposed Development is designed to provide facilities that accommodate a wide range of infrastructure uses, both for current requirements and anticipated future needs. For instance, the Proposed Development could be used for traditional port activities if required, including during periods of reduced ORE-related activity. The potential occasional use for traditional port activities has been assessed in the relevant chapters of the EIAR.

By providing facilities that support various uses of infrastructure both currently and in the future, the Proposed Development demonstrates its alignment with the principles of co-existence and shared infrastructure, as outlined in the overarching marine planning policies of the National Marine Planning Framework. This alignment underscores the project's contribution to sustainable growth and integrated marine resource management within the national planning context. Refer to EIAR Chapter 2: Legislation and Policy Context for further information.

This chapter is informed by the following EIAR Introductory chapters:

1 - Introduction and Methodology
2 - Legislation and Policy Context
3 - Need for the Project
4 - Scoping and Consultations
5 - Assessment of Alternatives and Project Design.

This chapter should be read in conjunction with the Application Drawings which have been prepared in accordance with the Planning and Development Regulations 2001 to 2025 and are submitted with the application.

6.1.1 PURPOSE AND STRUCTURE OF THIS CHAPTER

This chapter describes the proposed uses, construction works, and operational activities of the Proposed Development. This description comprises "information on the site, design, size and other relevant features" of the Proposed Development, as required by Article 5(1)(a) of the EIA Directive, as amended.

Further, the EPA 'Guidelines on the information to be contained in Environmental Impact Assessment Reports', 2022, states that it is appropriate for most EIARs to include a description of:

- the location, size and design of the project,
- the physical characteristics of the whole project,
- the main characteristics of the operational phase of the project including a description of the nature and quantity of materials and natural resources used,
- an estimate, by type and quantity, of the expected residues and emissions during the construction and operational phases.
- The Project Description contains relevant information relating to the construction and operation of the Proposed Development, as required to inform the above-referenced estimates, which are described in the technical chapters of this EIAR.

The information in this Project Description underpins the evaluation of the Proposed Development's potential significant environmental effects, as further detailed in the technical chapters of this EIAR.

6.1.2 SITE LOCATION AND CONTEXT

The Proposed Development is located immediately adjacent to Rosslare Europort, situated on the southeastern coast of Ireland in County Wexford. The Port lies southeast of Wexford Town and is strategically positioned at the southern end of the Irish Sea, offering direct maritime access to key offshore wind development zones in the Celtic and Irish Seas.

Rosslare Europort is bounded by the Irish Sea to the east, the village of Rosslare Harbour to the west, and a mix of residential, commercial, and transport infrastructure in the immediate vicinity. The Port is accessible via the N25 national primary road and is connected to the national rail network, providing multimodal transport options for cargo and personnel.

The Proposed Development Boundary (i.e., the area where development permission is sought to construct and operate the Proposed Development) encompasses a total area of 80.3 hectares, lying mostly within the marine area, and includes the areas proposed for dredging and land reclamation.

The site location and Proposed Development Boundary are shown on Figure 6.1.

6.1.3 ASSESSMENT ENVELOPE

The Proposed Development is envisaged to be delivered under a design and build (DB) contract. Under a DB approach, it is customary at application stage that the applicant provides plans and particulars with sufficient detail to inform decision-making processes of the competent authorities. Following a grant of permission, the appointed contractor then prepares a detailed design and plan

for constructing the development, in the optimum fashion, within the parameters of the permission granted.

For the purpose of this EIAR, it was therefore necessary to define the Assessment Envelope for the Proposed Development. This Assessment Envelope is defined by the parameters, such as dimensions and quantities, which are presented in this Chapter and illustrated on the Application Drawings collectively. All environmental assessments in this EIAR have been undertaken on the basis of this Assessment Envelope, which represents the maximum extent and scale of works that could occur within the limits of the application.

Any refinement to these parameters which may be required at detailed design stage is subject to the limits of this Assessment Envelope, which includes compliance with the environmental mitigation measures and commitments outlined in this EIAR.

Similarly, this Chapter presents descriptions of envisaged methodologies and operational activities which are intended to represent conservative assumptions which also form part of the Assessment Envelope.

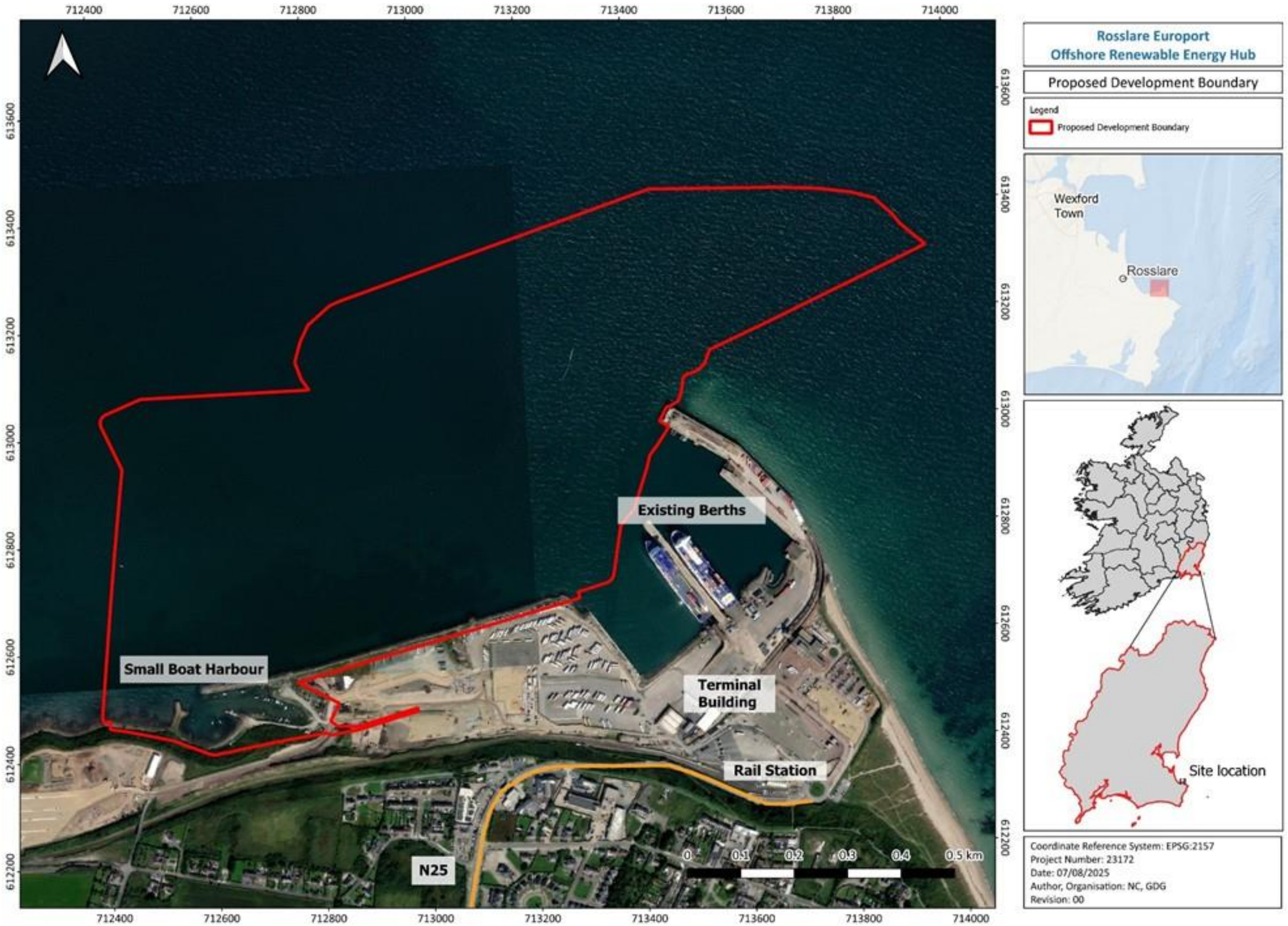

Figure 6.1: Proposed Development Boundary and location

6.2 PROJECT OVERVIEW

The key elements of the Proposed Development are listed in Table 6.1.

Table 6.1: Summary of the Proposed Development

Development / Activity	Description
Site preparation and mobilisation	• Site clearance involving removal of the existing small storage sheds, pontoons, gangways, timber mooring posts and timber structures at the small boat harbour; and establishment of a temporary site compound.
Capital dredging	• The navigation channel will be dredged to a depth of -10 metres Chart Datum (m CD). The berth pocket for ORE Berth 1 will be dredged to a depth of -12m CD. The total area to be dredged is 48.4 hectares (ha).
Land reclamation	• Land reclamation including infilling of the small boat harbour, using the marine dredged material and imported rockfill to create 27.7ha of land for the Proposed Development. • Installation of rock armour revetments around the perimeter of the reclamation area
ORE Storage Area	• Creation of an ORE Storage Area of 19.7ha, within the reclaimed lands, for the handling and storage, marshalling, staging and integration of ORE components.
ORE Berth 1	• Construction of ORE Berth 1, a heavy lift berth with a continuous open piled quay length of 330 metres (m).
ORE Berth 2	• Construction of ORE Berth 2, with a continuous open piled quay length of 240m.
ORE Compound	• A compound area of 0.2ha for installation of temporary modular buildings for site offices, welfare, logistics, and parking to service ORE developers.
New Small Boat Harbour	• Construction of a new Small Boat Harbour consisting of: ○ a 50m long fixed quayside berth and an 80m long floating pontoon ○ a 2.4m wide pontoon to provide 64 no. berths ○ a 127m long floating pontoon with 10 no. berths ○ 1 no. fixed berth for emergency service vessels ○ 10 no. single storey storage sheds ○ a slipway for launching and recovery activities ○ marine enabling works and installation of services to provide for potential future uses.
Sea Scouts Facility	• Construction of a slipway to the western flank of the newly reclaimed lands with a new storage shed and parking to accommodate local clubs, such as the Sea Scouts.
Ancillary works	• Site access to the Proposed Development and a new access road and footpath/cycle track to the proposed new Small Boat Harbour. • A medium voltage single storey electrical substation and switch room • Lighting • Fencing and security measures • Parking • Waste management facilities • Fire water network and storage • Landscaping

Development / Activity	Description
	• Foul water network and pumping infrastructure • Water mains network • Surfacing and drainage • Environmental enhancements

Table 6.2 provides a breakdown of areas for the Proposed Development referred to in this chapter.

Table 6.2: Table of Areas for works in Proposed Development

Boundary	Elements	Area (ha)
Proposed Development Boundary	**All**	**80.3**
	Dredging area (includes side slopes and berth pockets)	48.4
	Marine reclamation area (includes enclosed water in new Small Boat Harbour)	27.7
	Terrestrial reclamation and existing land area	4.2
Proposed Development Operational Area	**All** (excludes rock armoured revetments, perimeter landscaping, pontoons, berths and enclosed water in new Small Boat Harbour)	**24.5**
	ORE Storage Area (includes concrete apron area of 1.6ha)	19.7
	ORE office and parking compound	0.2
	ORE quays	2.0
	Access roads, new Small Boat Harbour and Sea Scouts Facility	2.6
New Small Boat Harbour Enclosed Water	Enclosed water in New Small Boat Harbour (includes area taken by pontoons and navigable berths)	2.2

Note: for consistency, all areas shown above have been rounded to one decimal place.

6.3 KEY PROJECT ELEMENTS

This section provides further detail of the key elements of the Proposed Development. Reference is made to Figure 6.2 which shows the general layout and provides location ID's of the key elements of the Proposed Development relative to the existing Port.

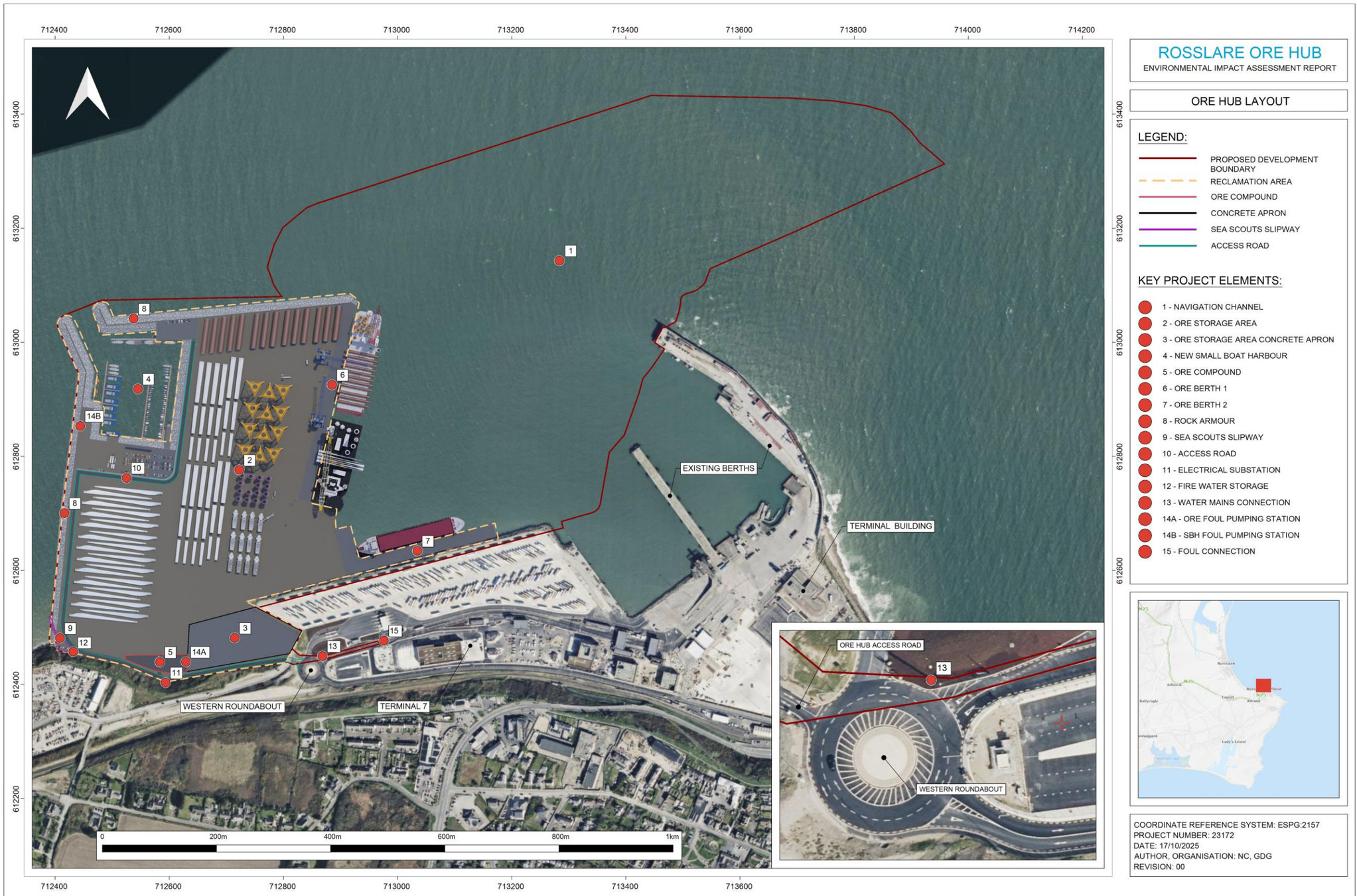

Figure 6.2: **General layout of the Proposed Development**

6.3.1 SITE PREPARATION AND MOBILISATION

The preparation of the site and contractor mobilisation will include site clearance, removal of fishing related equipment and sheds at the existing small boat harbour and set up of a temporary site compound. A temporary site compound will be provided and will be used for the duration of the construction works. The compound will accommodate temporary site cabins for offices and welfare facilities, dedicated areas for wheel wash, and waste storage. Sufficient area is available to accommodate parking for 50 vehicles for the staffing required during construction. The compound will be fenced and gated for security. An indicative layout of the Temporary Site Compound is shown on Figure 6.3.

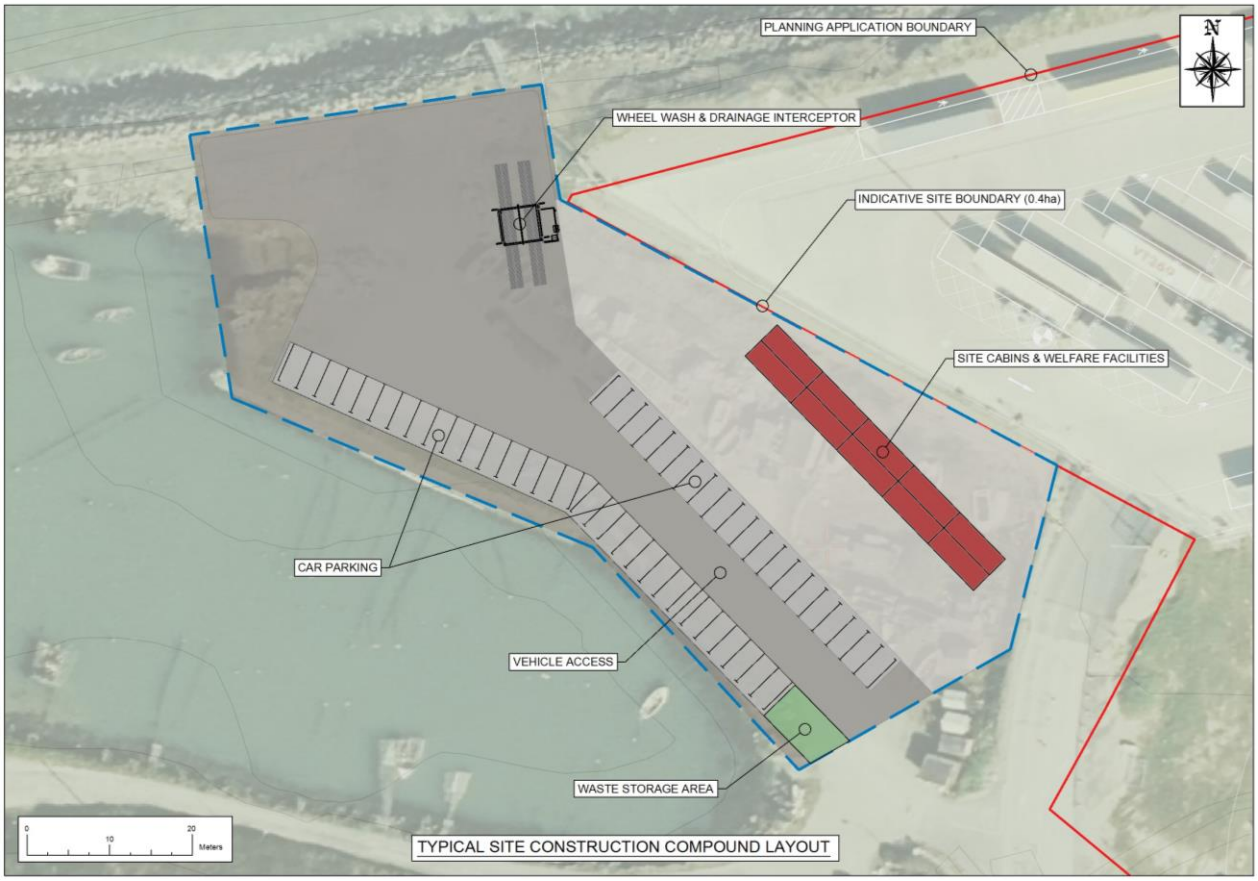

Figure 6.3: Typical Site Construction Compound Layout

6.3.2 CAPITAL DREDGING

Capital dredging will be undertaken to achieve a depth of -10m CD for the navigation channel and the berth pocket adjacent to ORE Berth 2, and to achieve a depth of -12m CD at the berth pocket adjacent to ORE Berth 1. The total area for dredging is 48.4ha. This area comprises the part of the navigation channel delineated by the Proposed Development Boundary (see Figure 6.2, location ID 1).

6.3.3 LAND RECLAMATION

Land reclamation will be undertaken to create 27.7ha of additional land for the Proposed Development. The reclamation works will primarily consist of the material arising from the marine dredging activities, along with some imported rockfill for specific locations, such as perimeter bunds, revetments, rock armour and the capping layer at the surface. The reclamation works will also involve infilling of the existing Small Boat Harbour (SBH), after the construction of a new SBH (see Section 6.3.8 for details). The reclamation works will be undertaken in sections. The reclaimed land will also be surrounded on the seaward facing sides by rock armour.

6.3.4 ORE STORAGE AREA

Within the reclaimed lands, an ORE Storage Area will be provided (Figure 6.2, location ID 2). It will comprise 19.7ha for storage, marshalling, staging and integration of ORE components to facilitate ORE projects. The layout of the reclamation area is illustrated on the drawings submitted with the application.

Within the ORE Storage Area, there is an area of concrete apron proposed, with an area of 1.6ha. While the primary function of this area is ORE activities, it will be capable of serving as an overflow for traditional port activities (e.g. RoRo trailer parking) if required, such as during less busy times for ORE activities.

6.3.5 ORE BERTH 1

The proposed ORE Berth 1 (Figure 6.2, location ID 6) is a heavy lift berth with a continuous open piled quay length of 330m. The associated berth pocket will have a width of 80m and a depth of -12mCD. This berth is designed to be compatible with jack-up installation vessels and includes a rock mattress for vessel stability. The detailed layout of ORE Berth 1 is illustrated on the drawings submitted with the application.

6.3.6 ORE BERTH 2

The proposed ORE Berth 2 (Figure 6.2, location ID 7,) is a continuous open piled quay with a length of 240m. ORE Berth 2 will be located along the existing port revetments facing northwards and will handle heavy RoRo activities and Lift-on Lift-off (LoLo) cargo (i.e., ORE wind turbine components). The marine areas immediately surrounding ORE Berth 2 will be dredged to a depth of-10mCD (i.e. the same proposed depth as the navigation channel). The detailed layout of ORE Berth 2 is illustrated on the drawings submitted with the application.

6.3.7 ORE COMPOUND

The location of the ORE Compound is shown on Figure 6.2, location ID 5. The Compound will contain temporary modular buildings for site offices, welfare and logistics, and parking to service the requirements of ORE developers. The location and indicative layout of the ORE Compound is shown on the drawings submitted with the application.

While each ORE developers' requirements for numbers of cabins/offices may vary, a conservative configuration of six double stacked cabins of 12.4m x 2.5m on plan x 2.6m high has been assessed in

this EIAR, as required to serve the operational staff numbers described in Section 6.5.4. A typical example of double stacked cabins is provided in Figure 6.4.

Figure 6.4: Example of double-stacked site cabins (for illustrative purposes only)

6.3.8 NEW SMALL BOAT HARBOUR

A new Small Boat Harbour with enhanced access provisions will be constructed to replace the existing Small Boat Harbour, which will be infilled as part of the land reclamation works. The location of the new Small Boat Harbour is shown in Figure 6.2, location ID 4, and the layout is shown on Figure 6.5 and Figure 6.6. The depth of water within the new Small Boat Harbour will be -4m CD. The new Small Boat Harbour will be securely separated from the much larger vessels and operations in the main ORE facility.

The works will be sequenced such that access to the existing Small Boat Harbour will be maintained until the proposed New Small Boat Harbour becomes operational. Once operational, the existing vessels moored at the existing facility will be moved to the new one before the works commence on reclamation of that area. The only exception will be the existing sheds, which are to be removed during the Site Preparation phase. Replacement sheds are proposed; however, these will not be available for use until the New Small Boat Harbour is completed and operational.

The new Small Boat Harbour will provide an 50m long fixed quayside berth, with an 80m long floating pontoon for local commercial fishing vessels. It will also provide berths for 64 local boats. These berths will be on pontoon spine walkways with individual fingers to access each boat, and a gangway from the adjacent carpark. A separate 127m long floating pontoon will be provided with 10 no. berths, for use by vessels such as crew transfer vessels, and a 20m long fixed quay will also be provided. 1 no. berth will be provided from a fixed quay structure for use by emergency service vessels.

The proposed development also includes 10 steel sheds for landside storage of fishing and sailing equipment. A detailed layout of the new Small Boat Harbour is illustrated on the drawings submitted with the application.

The proposed new Small Boat Harbour includes marine enabling works and installation of services for potential future developments which may include Operations & Maintenance (O&M) facilities and a new RNLI base. Safeguarded capacity has been included in the Proposed Development for these potential future installations, as have ducting and pipework as necessary to accommodate them. Including these safeguarding measures as part of the Proposed Development ensures construction and environmental efficiencies, by avoiding abortive work or duplication of excavations at a given location where possible. The buildings and facilities required for these potential future uses are not included in the Proposed Development.

Figure 6.5: General layout of the New Small Boat Harbour (landward aerial view)

Figure 6.6: General layout of the New Small Boat Harbour (seaward aerial view)

6.3.9 SLIPWAY AND SEA SCOUTS FACILITY

The Proposed Development includes a dedicated slipway for local groups, including the Sea Scouts, on the western flank of the newly reclaimed land area (Figure 6.2, location ID 9). It will allow safe and direct access to sheltered open water for sailing cadets and young seafarers. A new steel shed will be provided to accommodate storage of sailing and boating equipment. The area will be surfaced with asphalt and will drain via gullies to the adjacent road drainage network for discharge via an interceptor into the new Small Boat Harbour. The layout of the proposed slipway and Sea Scouts facility is shown on the drawings submitted with the application.

6.3.10 ANCILLARY WORKS

6.3.10.1 ACCESS ROADS AND PATHS

The Proposed Development includes for an access road to the new Small Boat Harbour connected directly into the Western Roundabout which is currently used by freight traffic to access the Port (Figure 6.2, location ID 10). The access road comprises two lanes each 3.5m in width, and a 3m wide shared cycleway and walkway on the seaward side of the access road. Further, to the seaward side of the shared cycleway and walkway a planted strip will be incorporated, varying from 1m to 3m wide. This planted strip will comprise topsoil and native vegetative species suitable for marine exposure conditions. A safety barrier of 600mm height will be erected on the seaward side along sections of the planted strip at the back of the cycle/footpath. For details of locations and layout, refer to the Application Drawings enclosed with the application.

6.3.10.2 ELECTRICAL SUBSTATION

A new medium voltage electrical substation with a supply transformer size of 2000 kVA is proposed to be constructed at the southern end of the site (Figure 6.2, location ID 11) to service the electricity demand associated with the Proposed Development. The overall apparent power demand of the Proposed Development is 1199 kVA (Neodyne, 2024). The new substation will be built to the applicable ESB Networks specifications and guidance documents. The substation will comprise a single storey building, which will house both ESB plant on one side and a customer-side switch room on the other. The particulars of the proposed substation, including associated connections from the existing electrical supply and to the Proposed Development, are shown on the Application Drawings.

The proposed substation includes safeguarded capacity for the potential future installation of electric charging stations for Crew Transfer Vessels (CTV's), with simultaneous charging of four CTVs included in the overall power demand load estimation.

6.3.10.3 LIGHTING

Lighting will be installed at the Proposed Development in the locations and with the lux levels indicated on the Application Drawings. Lighting proposals include:

- High Mast Lighting around the perimeter of the proposed ORE Storage Area
- Lighting Columns along the access road to the new Small Boat Harbour, around the perimeter of the ORE Compound, and at the new Small Boat Harbour
- Bulkhead lighting at the pontoons at the new Small Boat Harbour.

The lighting specification and design meets with the requirements of Standards IS EN 13201-2 and IS EN 12464-2 and is based upon the latest guidance from the Institution of Lighting Professionals (ILP) in Guidance Note GN08/23 *Bats and Artificial Lighting at Night* (August 2023), including use of LED lighting with a warm white light source (2700K) with reduced blue light component for all lighting along the access road and around the new Small Boat Harbour.

All lighting installed in the ORE Storage Area, the access to and the new Small Boat Harbour, will be operated through motion detection control. After five minutes of inactivity, all lighting will be switched off or dimmed to 20% of the full output to maintain a residual level of safety and security lighting.

Lighting masts will be individually controlled and have lamp clusters directed downwards and onto the storage area. These will be switched on individually via sensors only when operators are active in each respective zone. Measures such as the use of lighting zones where smaller areas can be lit and dimmed individually, motion sensors and the use of energy efficient LED will be adopted. The above described lighting measures will serve to mitigate potential light pollution to the surrounding areas and will minimise the electricity use by the Proposed Development.

6.3.10.4 FENCING AND SECURITY MEASURES

As shown on the Application Drawings, fencing will be erected to surround the main ORE Storage Area and the ORE Compound to ensure security within these port areas. Separate fencing will be erected around the new Small Boat Harbour car park and surrounding area.

Fencing will comprise 2.4m high galvanised steel palisade fencing mounted on steel posts embedded into concrete foundations. Steel gates of 2.4m height will be provided to complement the fencing. The appearance of the fencing will be in keeping with the existing Europort.

The specification for fencing meets with the current International Ship and Port Facility Security Code (ISPS Code) and offers a robust level of security for the proposed port activities and ORE operations. Surveillance systems will be incorporated to ensure safe and controlled access.

6.3.10.5 PARKING

Permanent vehicle parking is provided in the locations indicated on the Application Drawings and listed in Table 6.3.

Table 6.3: Vehicle parking provision at the ORE Hub

Location	Provision
ORE Compound	54 spaces*
New Small Boat Harbour	11 spaces for commercial fishermen 50 spaces for small boat users
Sea Scouts Facility	6 spaces
Contingency for multi-use, e.g. traditional port	108 trailer spaces

Location	Provision
activities (RoRo units or bulk freight)	

*additional overflow staff parking can be accommodated in the ORE Storage Area if required during periods of peak activity.

6.3.10.6 WASTE MANAGEMENT FACILITIES

Areas will be provided for waste storage, segregation and handling during construction and operation. Waste will be stored in appropriate bins on site, kept segregated for end-use recycling, and removed off-site in a timely manner to minimise environmental impacts from potential smells, vermin and negative visual impact.

6.3.10.7 FIRE WATER NETWORK AND STORAGE

In accordance with the fire-fighting requirements of Wexford Fire Department, a water storage tank will be provided at the southwestern corner of the ORE Storage Area (refer to Figure 6.2, location ID 12 and the Application Drawings). This will be an above ground, galvanised steel lined tank with conical roof on a foundation slab of reinforced concrete and concrete perimeter walls. It will have a storage capacity of 180m³ and will be permanently connected to a fire water main with 4" hydrant outlets distributed around the Proposed Development, as shown on the Application Drawings.

6.3.10.8 LANDSCAPING

Landscaping is proposed along the southern boundary of the Proposed Development to integrate the southern side of the access road into the existing grassy embankment located adjacent to the existing Small Boat Harbour. Native, salt tolerant trees and shrubs will be planted to define the landward edge of the Proposed Development, ensuring it blends into the existing embankment.

Rock armour revetments will be installed around the seaward perimeter of the reclaimed lands, and rockfill bunds which form part of the land reclamation works will be used as a permanent perimeter to the reclaimed lands (Figure 6.2). Refer to the Application Drawings for plans and sections of the revetments.

6.3.10.9 FOUL WATER NETWORK AND PUMPING INFRASTRUCTURE

A proposed foul water pumping station will be constructed at the proposed ORE compound (Figure 6.2, location ID 14a). A pressure main will be constructed to convey foul water from this pumping station, along the new access road, to the existing foul pumping chamber on site (refer to Figure 6.2, location ID 15). The existing pumping chamber will then pump these flows from the Proposed Development to Uisce Éireann's existing public wastewater system, to be conveyed by gravity to the Rosslare Sewage Plant for treatment and disposal.

A foul water pumping station will also be constructed at the proposed Small Boat Harbour (Figure 6.2, location ID 14b) as a design future-proofing measure. A pressure main will be constructed to convey foul water from this pumping station, along the new access road, to the existing foul pumping chamber on site (Figure 6.2, location ID 15). This pumping station and pressure main will serve potential future developments adjacent to the proposed Small Boat Harbour, as previously described in Section 6.3.8.

The existing foul pumping chamber has sufficient pumping capacity for flows from both pumping stations.

A Pre-Connection Enquiry was submitted to Uisce Éireann (Ref: CDS25000557) in relation to the proposed foul water connection, as well as the proposed potable water connection (see below). The proposed foul connection is based on a demand from 150 staff of 14,850 litres/day and a peak demand flow of 1.032 litres/sec, with a peaking factor of 6 used as per Uisce Éireann Code of Practice for Wastewater Infrastructure. This includes sufficient capacity to serve both proposed pumping stations. Uisce Éireann subsequently provided a Confirmation of Feasibility for the proposed foul water connection, dated 3rd September 2025 (copy provided in the Application Documents).

6.3.10.10 WATER MAINS NETWORK

A water network will be constructed as part of the Proposed Development. The water supply for this proposed network will be drawn from the Iarnród Éireann internal water main located at the western roundabout (Figure 6.2, location ID 13). The calculated water demand for the Proposed Development arises from a population equivalent of 150 persons which is sufficient to serve the workers who will use the ORE Compound at any one time, with additional capacity available for potential future uses.

As previously mentioned, a Pre-Connection Enquiry was submitted to Uisce Éireann (Ref: CDS25000557), which included the proposed potable water main connection based on a total water demand from 150 staff of 22,500 litres/day and peak demand of 1.302 litres/sec, with a peaking factor of 5 used as per Uisce Éireann Code of Practice for Water Infrastructure. The aforementioned Uisce Éireann Confirmation of Feasibility dated 3rd September 2025, which copy is provided in the Application Documents, also includes confirmation for the proposed potable water connection.

6.3.10.11 SURFACING AND DRAINAGE

Areas of the Proposed Development will be hard surfaced as follows:

- a granular stone surface over the ORE Storage Area, with the exception of a concrete surfaced apron (1.6 ha) in the south-east of the ORE storage area
- a granular stone surface in the areas set aside for future development at the new Small Boat Harbour,
- asphalt paving on the access road to the new Small Boat Harbour and around the Sea Scouts facility and ORE Compound for vehicle parking and circulation
- concrete pavement at the fishing quay and for parking at the new Small Boat Harbour.

Drainage from hard surfaces will be collected via gullies and piped to an oil and silt interceptor to avoid potential release of contamination prior to final discharge directly into the sea.

Perimeter drainage will be provided for the ORE Storage Area, in the form of a perforated pipe to catch percolating water draining horizontally. All of the perimeter drains run to collector chamber points and run through oil/silt interceptors before discharging directly into the sea. In addition to the proposed perimeter drains, flow paths for ground water may be supplemented by herringbone filter drains through the site, as determined by detailed design.

Drainage will be installed along the toe of the existing slope at the south side of the road adjacent to the ORE Storage Area. These drains will pick up the surface drainage from the vegetated slope of the embankment on the landward side and convey it westwards to a sea outfall. An outfall pipe will be constructed with a direct sea discharge at the south-western side of site, adjacent to the slipway at the Sea Scouts facility (as shown on the Application Drawings).

6.3.10.12 ENVIRONMENTAL ENHANCEMENTS

As Black Guillemots are known to nest in the existing port infrastructure (see EIAR Chapter 14: Ornithology), nest boxes will be integrated into the inner and outer ends of ORE Berth 1 and ORE Berth 2 to provide safe, secure nesting places for Black Guillemots.

Proposals also include the planting of salt tolerant native trees and shrubs, which will provide opportunities for nesting birds and other wildlife, and to soften hard edges of the reclaimed area to help it blend into the existing environment, especially on the landward side.

Refer to the Application Drawings.

6.4 CONSTRUCTION METHODOLOGY

6.4.1 OVERVIEW

This section presents the construction methodology and sequencing for the construction of the Proposed Development which was considered for the purpose of this EIAR. The sequence, methodology and duration of specific activities is described throughout the sub-sections that follow.

This section presents more than one potential methodology for certain activities (e.g. for dredging) as the construction methodology will be confirmed at detailed design stage by the appointed contractor. For the purpose of this EIAR, it was necessary to consider more than one potential methodology and to establish worst-case conservative assumptions regarding construction method and activity durations. The assumptions which underpin the EIAR assessment of construction methodology are summarised throughout this chapter. These assumptions are then further expanded upon in the relevant technical Chapters of this EIAR to assess the environmental effects of each activity.

References throughout this section to actions which “will” be undertaken by the contractor are intended to describe the approach under this worst-case basis for EIAR assessment. This is not presented as a definitive methodology. The construction methodology and timing of the works will be developed by the appointed contractor at detailed design stage, within the Assessment Envelope (Section 6.1.3) of the Proposed Development defined in this EIAR.

This also applies to the indicative images of construction equipment shown in this section. These images are taken from comparable projects, shown for context purposes and are also subject to confirmation at detailed design, within the Assessment Envelope of this EIAR

Figure 6.8 shows the locations of the key construction stage elements of the Proposed Development including details around the proposed Dredging Area, Reclamation Area, Perimeter Bund Arrangements and Weir Box all of which are discussed in more detail in the subsequent sections.

6.4.2 ENVIRONMENTAL MANAGEMENT DURING CONSTRUCTION

The application for development permission includes an outline Construction Environmental Management Plan (oCEMP), developed in line with the mitigation and monitoring measures set out in the EIAR and NIS. The appointed Contractor will be required to develop a Construction Environmental Management Plan (CEMP) based on the oCEMP, ensuring compliance with conditions of the development permission. The CEMP will be an environmental management and monitoring tool which will be continually updated throughout construction as required to reflect any legislative changes, best practices, updates to construction methodology and / or site audit findings.

The appointed Contractor will be responsible for implementing and maintaining compliance with the CEMP, as required to ensure compliance with the requirements of the EIAR. This includes regular reports on monitoring, mitigations, corrective actions and environmental performance. All site personnel and subcontractors must adhere to the CEMP to ensure effective mitigation and promote best practice environmental management on site.

6.4.3 DURATION AND SEQUENCING OF WORKS

The duration of the construction works is anticipated to be 24 months. The anticipated sequencing of construction works for the Proposed Development is presented in Figure 6.7. The timetable represents a conservative scenario and has been used as the basis for the assessments presented in this EIAR. In those environmental topics where modelling has been undertaken for the assessment of effects (e.g. coastal processes; noise and vibration; and traffic and transportation), assumptions are made about the durations of the works to ensure a worst case or maximum case scenario is considered. The modelling assumptions are described in the relevant Technical Appendices of the EIAR.

The indicative programme shown in Figure 6.7 represents the overall sequence and duration of key project activities, indicating the full period from the start to the end of each activity. These durations do not necessarily reflect continuous work throughout the entire period. For instance, the new Small Boat Harbour will be constructed before the infilling of the existing Small Boat Harbour, but there will be construction works required at the new Small Boat Harbour after that point (e.g. permanent service connections and final reinstatement details). Further details on the expected durations of continuous work and the sequencing of individual construction activities are provided in the following sections. The exact timing of specific activities will be confirmed once the start date of the works is known, to ensure compliance with all applicable environmental constraints, including seasonal restrictions.

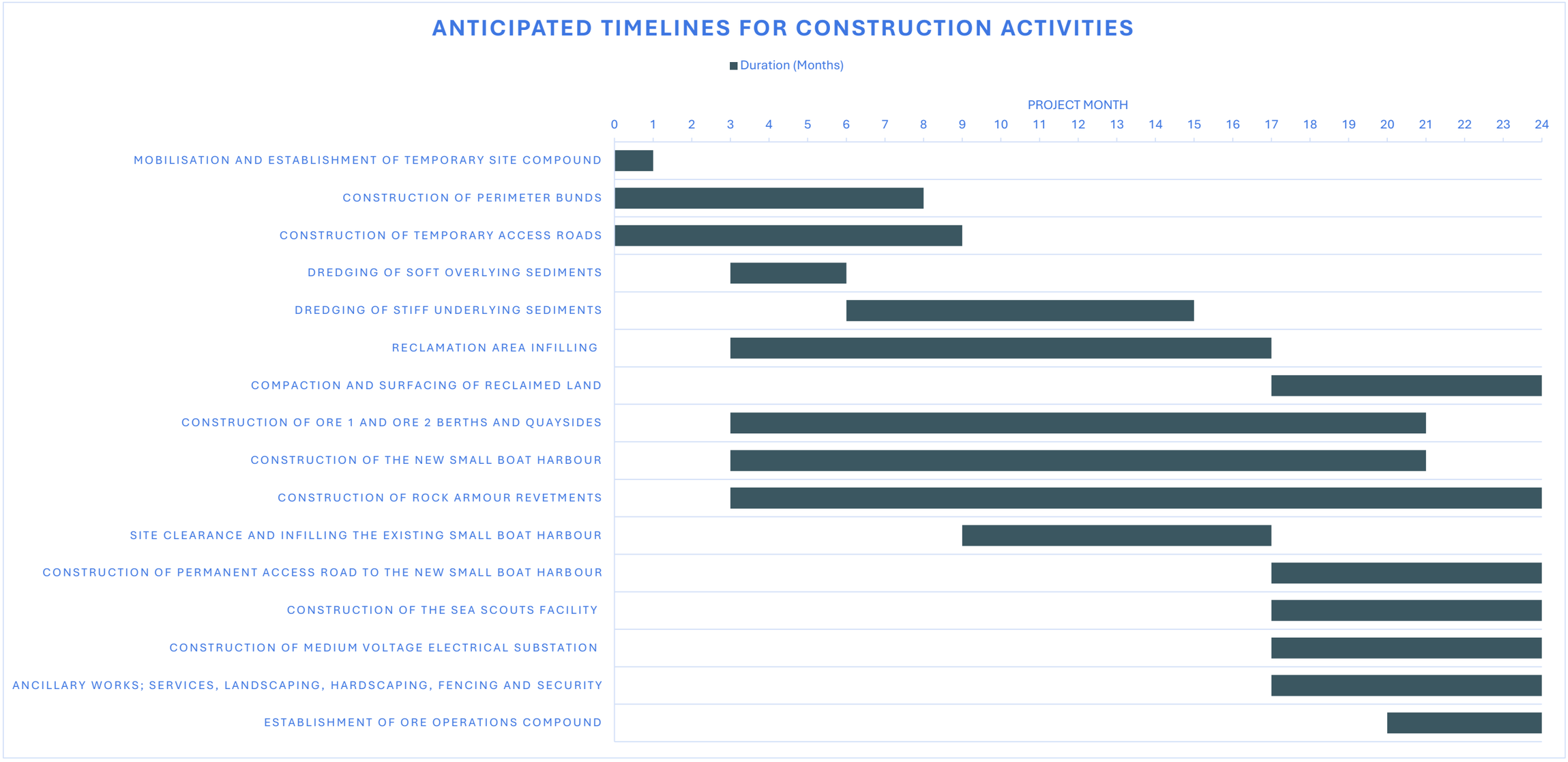

Figure 6.7: Anticipated timelines for construction activities

6.4.4 MOBILISATION AND ESTABLISHING THE TEMPORARY SITE COMPOUND

It is anticipated that site preparation will commence with the clearance of the site. This includes the removal of fishing related equipment, sheds and several pieces of precast concrete wall units at the existing small boat harbour. All material removed will be brought to a licensed waste disposal facility.

The appointed Contractor will set up a temporary site compound in an area close to the eastern edge of the existing Small Boat Harbour which will allow access to the foreshore on the northern side of existing port lands (Figure 6.2). This location will facilitate efficient movement of personnel, equipment and materials. The temporary site compound will comprise:

- Temporary buildings - The compound will include mobile office units, stacked no more than two cabins high to house site offices, drying rooms, welfare and sanitary facilities, a canteen, and small equipment storage facility. The layout will be determined by the Contractor.
- Utility connections - Temporary services (water, electricity, foul drainage, and communications) will be sourced from existing services within the adjacent Port. These connections will support all welfare and operational needs of the construction works.
- Parking and staff access - A temporary parking area for 50 vehicles will be provided. The site is expected to accommodate a peak workforce of over 100 personnel. Carpooling is anticipated, with most vehicles carrying two or more staff. Estimated traffic peaks are 30 vehicles between 7:00–7:30am, and 5:00–5:30pm, Monday to Saturday, and Sundays and public holidays by exception.
- Security measures - The compound will be enclosed with temporary fencing and controlled access gates with barriers, perimeter lighting (minimum 20 lux average), CCTV surveillance, warning and information signage, and suitable foundations or anchorage to secure the fencing in position. The ISPS measures and protocols applicable to Rosslare Europort will be extended to cover the new ORE berths to ensure compliance for visiting vessels.

As part of the installation of the temporary site compound, connections to services (e.g. electricity, water, communications) will be installed. This will be followed by the phased mobilisation of the people, plant, equipment and materials necessary to construct the works.

6.4.5 DREDGING AND RECLAMATION WORKS

Dredging and reclamation works are planned which will comprise of five main categories of activity:

1. Construction of perimeter bunds for the reclamation works;
2. Dredging of soft overlying sediments;
3. Dredging of stiffer underlying sediments;
4. Reclamation area infilling;
5. Compaction and surfacing of the reclaimed land.

These activities are described throughout the following sub-sections. Figure 6.8 shows the locations of the key dredging and reclamation areas of the Proposed Development.

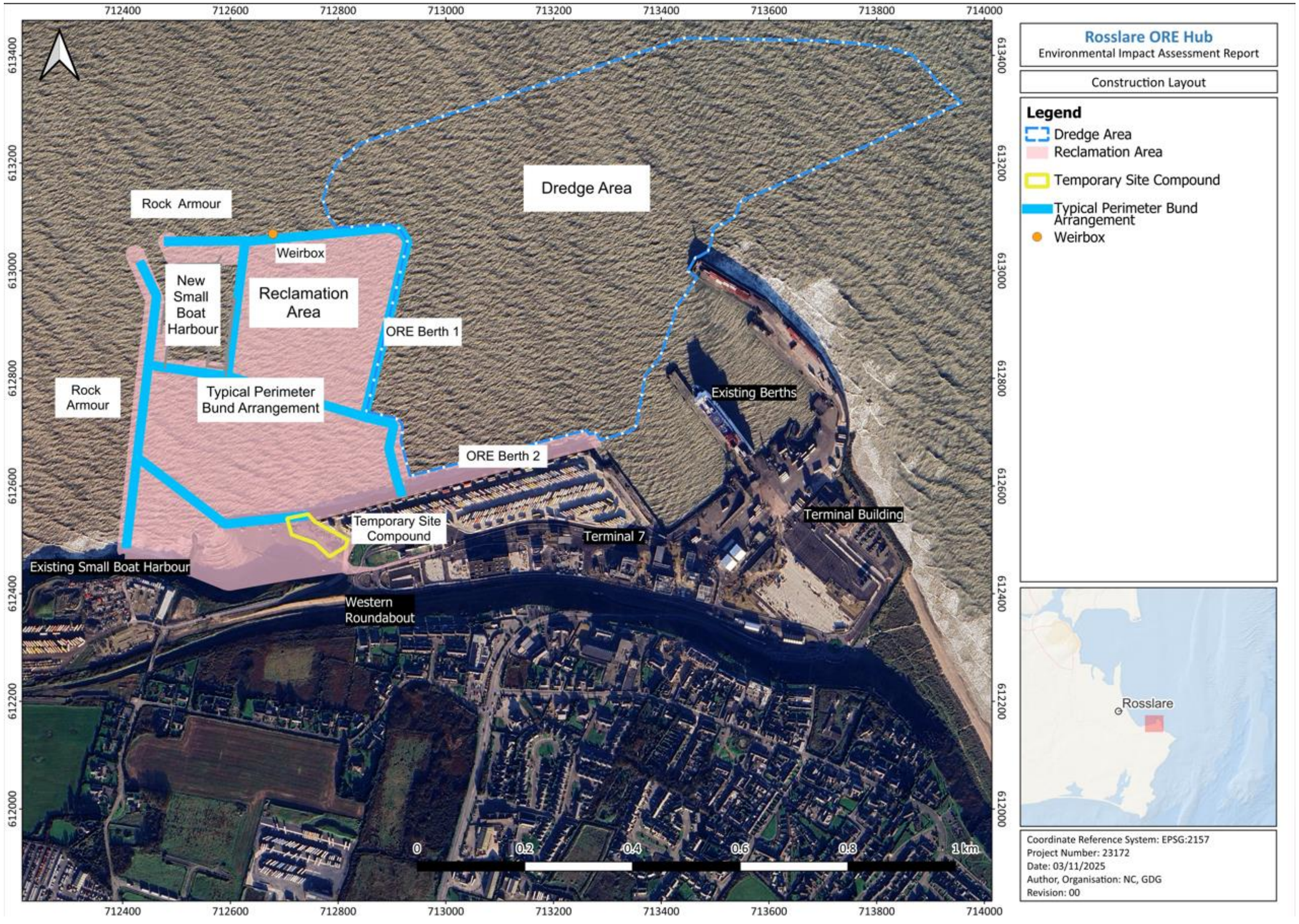

Figure 6.8: Key construction stage elements of the Proposed Development

6.4.5.1 STEP 1: CONSTRUCTION OF PERIMETER BUNDS

Step 1 involves constructing over 1,000m of perimeter bunds using approximately 400,000m³ of imported rockfill. These perimeter bunds will form the outer boundary of the reclamation area and support future rock armour for wave protection. As shown on Figure 6.8, this step will also include the construction of internal bunds within the reclamation area, which will divide the reclamation area into sections to aid with the activities described below. The construction of the western perimeter bund will be completed in sections and sequenced to enable continued passage of marine vessels to and from the existing SBH until the new SBH is constructed and commissioned.

To support early works such as site setup, shoreline bunds, and internal access, up to 25,000m³ of rockfill will be delivered by road. Thereafter, rockfill will be delivered by sea going barges at a rate of 5,000m³ per day in two daily loads. Material will be offloaded using conveyors, excavators or bottom doors, then shaped by long-reach excavators to the required profile. A conservative total duration of 6 to 8 months for perimeter bund construction is considered for the purpose of this EIAR.

Adjustments to the perimeter bunds will also be needed throughout the remainder of the contract as necessary to accommodate the subsequent activities described below.

6.4.5.2 STEP 2: DREDGING OF SOFT OVERLYING SEDIMENTS

Stage 2 involves the dredging of approximately 550,000m³ of soft marine deposits. This will be carried out using either a Trailing Suction Hopper Dredger (TSHD) or a Cutter Suction Dredger (CSD), depending on seabed conditions. The TSHD operates with a 1,500m³ hopper, completing up to six loads per day and working productively for up to 20 hours per day. It uses powerful pumps to suction soft sediments and loose sand into its onboard hopper. Once the TSHD hopper is full, the vessel will offload material into the bunded reclamation area.

A typical TSHD and its equipment layout is illustrated in Figure 6.9.

The TSHD is not suitable for stiffer clays or weak rock. In such cases, a CSD may be used. It features a rotating cutting head that breaks apart the seabed before suctioning the material. The dredged material can then be pumped either directly to the reclamation area or to a separate hopper barge (self-propelled or tug-assisted). The barge then conveys the dredged material to the reclamation area.

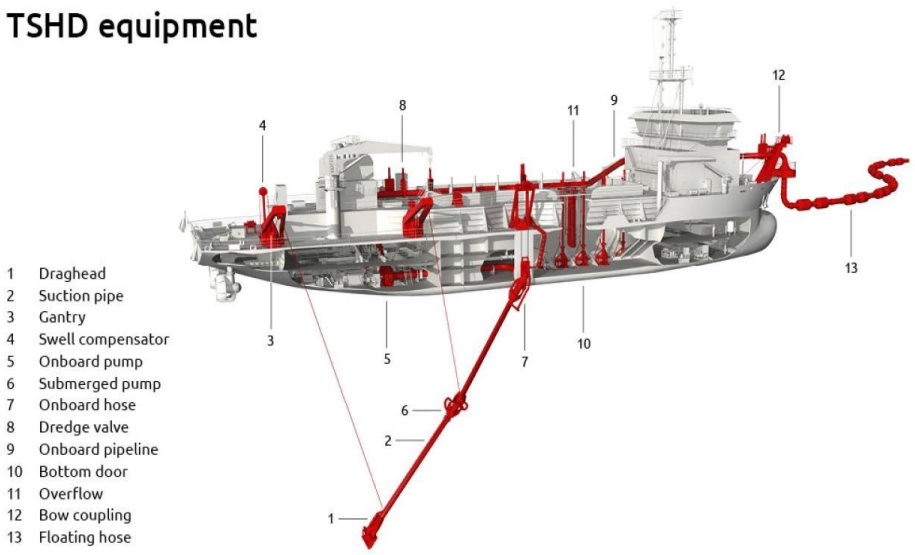

Figure 6.9: Example of a Trailer Suction Hopper Dredger[1]

Both dredging methods are expected to achieve an average production rate of 9,000m³ per day, resulting in approximately 9 weeks of active dredging for this step. To account for potential breakdowns, weather delays, and initial learning curves, a conservative duration of 12 weeks is estimated for the purpose of the EIAR.

6.4.5.3 STEP 3: DREDGING OF STIFF UNDERLYING SEDIMENTS

Step 3 will involve the removal of 850,000m³ of the remaining stiffer material, which is anticipated to be carried out using a backhoe mechanical dredger. With the backhoe dredger it is possible to excavate harder material, including weathered and hard rock. An example of a backhoe dredger is shown in Figure 6.10.

Figure 6.10: Example of a Backhoe Dredger[1]

The backhoe dredger will be used to remove material from the seabed and transfer it to a self-propelled or tug-assisted hopper barge. When the hopper barge is full, it is positioned alongside the bunded reclamation area to allow the spoil to be dug out of the hopper using long reach excavators and transferred by dumper into the bunded reclamation area.

With a production rate of 180m³/h, operating up to 20 hours per day, the backhoe dredger can deliver productivity of approximately 3,600m^3 per day on average, resulting in approximately 236 days of continuous dredging. Allowing for some breakdowns, lower productivity during the initial learning curve and lower productivity during weathered rock removal, a conservative duration of 9 months is estimated for this step.

Alternatively, the CSD can be employed to remove both hard and soft material. If the CSD is used, the same ongoing production rates of approximately 9,000m^3 per day on average would apply and thus result in approximately 94 days of dredging. Allowing for breakdowns and initial set-up, these works are estimated to take 3.5 months.

The total dredged volume, including a conservative scenario with over-dredge allowances (up to 0.15m average), is detailed in Table 6.4.

[1] Source: https://www.etermar.pt/en/servicos/dragagens/dragagem-com-backhoe

Table 6.4: Total dredged volume considering over-dredge allowances

Material Type	Volume (m^3)
Soft marine deposits; sand, silt (Step 2)	550,000
Glacial till; stiff clay (Step 3)	450,000
Weathered Rock and Bed Rock; (Step 3)	400,000
Total	**1,400,000**

All dredged material will be used within the reclamation area; thus, no material will be required to be removed from the site.

6.4.5.4 STEP 4: RECLAMATION AREA INFILLING

During the works, the reclamation area will comprise bunded lagoons, delineated by the perimeter bunds constructed during Step 1. The dredged material will be filled into these lagoons continuously throughout the dredging activities. The displaced seawater will be allowed to escape via a weir box (Figure 6.8) that can control the discharge of water from the seaward end of the lagoon. During periods of peak water inflow, the weir box will be raised to retain silty water, thereby controlling and minimising loss of fines into the open water. Conversely, during low inflow times, the weir- box will be lowered to increase the flow of clean water out to sea.

Within the reclamation area, earthworks will be required to transport the dredged material, to be deposited in the reclamation lagoons. These earthworks will be carried out by using bulldozers and wide tracked excavators. Dozers will mound the dredged material into bunds/platforms at the end of the reclamation area, above the surrounding water level within the reclamation lagoon. This will allow the dredged material to drain and settle more effectively over time.

To aid the consolidation process in the reclamation area, it is proposed that band drains and dynamic compaction techniques will be used. Band drains will be installed from ground level using a piling rig equipped with a reel of hollow plastic strip that is pushed into the reclaimed ground at typically 2m centres, using a vertical pushing plate. The band drain allows water to escape from the deepest strata and the silt and clay particles to become re-oriented into a more compact arrangement. Dynamically weighted vibrating rollers will then be used to compact the upper strata in layers once infilling is almost complete.

The duration of band drain installation to cover the reclamation area will be 8 to 10 weeks after all dredging and reclamation has been undertaken. Based on estimates of the dredged material and the depths required for reclamation, a further 6 to 8 weeks of dynamic compaction is expected prior to overlaying the site with geotextile/geogrid and a capping layer of imported stone infill.

A small extent of excavation and ground re-profiling will be required around the northern side of the cliff face adjacent to the existing Small Boat Harbour (Figure 6.2), to tie-in with the infilled levels from reclamation. Sequencing of the land reclamation works will be timed to ensure access is

maintained to the existing Small Boat Harbour until the new Small Boat Harbour is complete. Once the new Small Boat Harbour has become operational, the remaining section of the western rockfill perimeter bund will be completed, and the dredged material will be dozed into the lagoon at the existing Small Boat Harbour.

Existing rock armour and topsoil from the existing Small Boat Harbour will be removed and temporarily stored in stockpiles on site during reclamation works, to be reused as part of the works.

6.4.5.5 STEP 5: COMPACTION AND SURFACING OF THE RECLAIMED LAND

The ORE Storage Area will be surfaced with a layer of imported rockfill. This layer will be approximately 1m deep and capable of supporting the anticipated loading from ORE components and equipment during the operational phase.

There is a requirement for approximately 210,000m^3 of rockfill import 0for creating the surface layer of the ORE Storage Area. This volume is separate and additional to the rockfill imported for the construction of the perimeter bunds described in Section 6.4.5.1. The rockfill for the surface layer is expected to be delivered by sea going barges. Vessel deliveries are expected to contain approximately 2,500m^3 of rockfill each. This rockfill will be transferred from vessel to quayside via an offloading conveyor. The material will then be spread and compacted using conventional excavators, dumpers, graders and rollers. The duration of rock import using seagoing vessels is estimated at 84 days, which would be equivalent to approximately 4 no. months, assuming continuous supply and five-day working weeks for deliveries. However, it is conservatively assumed for the purpose of the EIAR that the rockfill import for the surfacing layer may take 5 to 6 months to complete. This estimate allows additional time for potential breakdowns, weather downtime, and potential delays in the availability of suitable vessels.

A minor quantity of this rockfill for surfacing will be required to be delivered by road for construction of the access road and to form construction tracks through any soft underlying reclaimed sediments. An upper limit of 20,000m^3 of rockfill (approximately 10% of the total rockfill required) may be brought to site by road.

Surcharging of material within the reclamation may also be required to aid with the consolidation process. Surcharging will involve placing a bund of fill above the finished elevation of the reclamation area. The additional weight of the surcharged material will then aid with the consolidation of the reclaimed land. This surcharge bund will be placed in sections and moved after the surcharging of one section is complete.

On completion of construction, the surfacing of the ORE Storage Area will consolidate as the reclaimed dredged spoil becomes compacted over time, due to the weight of overburden and due to usage (i.e., due to weight of plant and stored components).

6.4.6 PILING WORKS

Piling works are required to construct the ORE quays as well as provide facilities in the new Small Boat Harbour for the fishing quay, CTV berths and pontoon restraints. The extent of piling is specified in Table 6.5.

Table 6.5: Total steel piling in the development

Piling	Quantity
Main deck tubular steel piles in ORE Berth 1 up to 1219mm diameter x 30/35m long	440 nr piles and 4760 tonnes total
Main deck tubular steel piles in ORE Berth 2 up to 1219mm diameter x 30/35m long	160 nr piles and 1730 tonnes total
Combi wall piling at the stern of ORE Berth 2 as a RoRo platform to allow direct discharge of ORE components	465 tonnes of tubular piles and infill sheet piles 205 tonnes of anchor wall piles
Small Boat Harbour: Steel sheet piling in the fishing quay up to 20m long piles x overall plan length of 90m (including return walls at each end)	665 tonnes total
Small Boat Harbour: Steel sheet piling in the CTV berth loading quay up to 20m long piles x overall plan length of 30m (including return walls at each end)	315 tonnes total
Small Boat Harbour: Tubular piles for pontoon restraint typically of 500-700mm diameter and up to 20m long.	35 nr piles and 220 tonnes total
Slipways: sheet piling as perimeter to slipway in the Small Boat Harbour and slipway at the Sea Scouts facility. Sheets varying up to 8-10m long x overall length of 260m	535 tonnes total
Total	**8,895 tonnes of steel piling**

The quay structure and nature of piling have been determined largely by the requirement to minimise wave reflection in the inner harbour of Rosslare Europort.

The subsequent EIAR chapters and assessments are based on all piling being impact piling using a 240kNm hammer in open water to ensure the worst-case piling scenario has been assessed.

6.4.6.1 PILING FOR THE ORE BERTHS

Piling for the ORE berths will commence once the rockfill bund construction has sufficiently advanced to enable safe access to conduct the piling works. This approach is proposed so that continuous piling progress can be made while the remainder of the bund construction is being progressed. See Figure 6.2 for locations of the ORE Berths.

Open piled quay wall construction is proposed for the ORE Berths. A wave absorbing revetment comprising a rock armoured sloping revetment, positioned beneath the decks of the ORE quays, has been incorporated into the berth design. The purpose of this is to absorb incoming waves and minimise reflection of wave energy, thereby mitigating any potential effects of wave reflection in the existing harbour. See Figure 6.11 for an example of open piled quay construction.

Rockfill bunds will be pushed out from shore along the ORE Berth 1 and ORE Berth 2 quay wall alignments, so that piling can be undertaken by conventional land-based drilling and piling plant. These bunds will be sequentially excavated and moved forward to the next area of piling as the works progress. This approach minimises the propagation of underwater noise into the marine environment. The use of a bunded construction area significantly attenuates noise transmission into the water column compared with piling undertaken from floating or jack-up barge in open water. This is particularly important given the presence of sensitive marine species in the vicinity of the Proposed Development and has been identified as a key measure to reduce the risk of disturbance or injury to marine mammals, otter and fish during the construction phase (see Chapter 15 of the EIAR).

Bearing piles for the two main quays will comprise rotary bored piles since it is better suited to boring through harder sections of rock, compared to impact driving. Rotary drilling is much quieter than conventional impact driving since the effort is based on rotary drilling tools that advance relatively slowly by removing spoil as they progress.

Bearing piles are conservatively estimated to take 15 to 18 months to install in both ORE berths, based on rotary bored piling, which is significantly slower than conventional impact piling. This timeline includes for any associated piling along the quay face as an integrated activity. Two rotary piling rigs (or three at peak productivity) are expected to be used on site to progress the bearing pile installation.

Figure 6.11: Example of open piled quay construction at Port of Dundee[2]

Note: The above image is taken from a comparable project and is shown solely for illustrative purposes. The final design, layout and materials will be determined during detailed design within the Assessment Envelope of this EIAR.

It is anticipated that the face of the quay will be rotary drilled. However, the design allows for a contingency scenario where pre-drilling and blasting is used, using explosives to fracture the underlying rock and so allow for short lengths of driven sheet piles to connect between the main bearing piles. Clutches would be aligned on the bearing piles so that these infill sheet piles could be installed from ground level and driven into the pre-blasted rock. This contingency scenario would only be required if ground conditions are encountered where the compressive strength of underlying rock is observed locally to be higher than that observed in the Site Investigations.

The blasting, if required, would be expected to use 90mm diameter holes at 2m centres along the line of the quay wall edge and with up to 15No. holes drilled in preparation for a single blast. Thus, a length of c. 30m could be prepared in a single day's blast. This would correspond to a worst-case scenario, considered in this EIAR, of approximately 20 individual days where a blasting event would be required to cover the full length of both ORE Berth 1 and ORE Berth 2.

There would be 2-3 weeks between each blast to allow progress on the main quay wall bearing piles that would follow the blasts as they progress sequentially along the quays. Each drill hole would be drilled to approximately-16mCD to allow sufficient fracturing of the rock and allow toe penetration by the sheet piles. All drilling and blasting work would be done from the dry rock filled platform laid along the line of the quay wall so there would be an effective blanket of rock overburden to a platform level of approximately +4mCD to dampen vibrations from each blast.

[2] Source: https://www.graham.co.uk/projects/civil-engineering-maritime-port-of-dundee-east-development/

6.4.6.2 PILING FOR QUAYS IN NEW SMALL BOAT HARBOUR

Impact piling is required to install the sheet piles that form the boundary of the fishing quay, Crew Transfer Vessels loading quay and slipways in the new Small Boat Harbour. These piles will be driven through a rock filled platform and advanced using an impact driving hammer suspended from a tracked mobile crane. A typical impact driving hammer used for this type of work would have an impact energy of 180kJ or less. Sheet pile installation for these elements is expected to take 18 to 22 weeks including for breakdown, weather restrictions and unforeseen ground conditions. An example of impact piling in the maritime area is show in Figure 6.12.

Specific measures will be applied during construction of the new Small Boat Harbour to address potential underwater noise impacts on marine mammals. Rockfill bunds will be pushed out to enclose the new Small Boat Harbour during piling works, creating an enclosed lagoon that will significantly attenuate noise transmission into the open water column seaward of the piling area compared with piling in open water. This approach will be employed to minimise the propagation of underwater noise into the marine environment. This will help to reduce the risk of disturbance or injury to marine mammals, otter and fish during the construction phase. Once the piling within the Small Boat Harbour is complete, the rockfill closure bund will be excavated at the proposed entrance to the Small Boat Harbour and reused in the remaining parts of the works.

Figure 6.12: Example of impact piling in marine conditions[3]

[3] Source: https://imi.com.pa/en/diesel-impact-hammer-ape-180-42/

6.4.6.3 PILING FOR PONTOONS IN SMALL BOAT HARBOUR

Individual tubular piles that act as pontoon guides will be installed inside the temporarily closed lagoon in the Small Boat Harbour. The piles will be installed from a small barge using an impact driving hammer. A typical impact driving hammer used for this type of work would have an impact energy of 180kJ or less. Each pile is assumed to take 2-3 hours to install, and the barge may be moved such that up to two piles are installed in any one day, if conditions are favourable. An overall period for installation of 6-8 weeks is expected to include for breakdown, weather restrictions and unforeseen ground conditions.

6.4.7 CONSTRUCTION OF ROCK ARMOUR REVETMENTS

Rock armour revetments will surround the reclaimed area, providing the boundary protection for the new Small Boat Harbour (Figure 6.2 and Figure 6.3). It is expected that the construction of revetments will take place after the perimeter rockfill bund has been placed. This also allows for the dredging and associated reclamation infilling activities to commence whilst the rock armour is being placed on the outer perimeter.

Approximately 160,000 tonnes of rock armour is required to protect the revetments. This rock armour is expected to be delivered by sea going barges at a rate of 6,000 tonnes per delivery in a cargo vessel, requiring 27 delivery days of offloading at Rosslare spread over a 4-month period (thus a delivery vessel every 4-5 days on average). Rock armour material will then be offloaded, stockpiled temporarily and transferred by dumper to be placed by long-reach excavators to the required revetment profile. The placement of rock armour will be carried out incrementally throughout the remainder of the construction duration as each section of the revetment is completed and ready for rock armour placement.

Up to 16,000 tonnes of the rock armour will be delivered from local quarries by road vehicles over an expected 3-month window. This equates to 1,250 tonnes per week or 13 truckloads per day.

6.4.8 CONCRETE WORKS

Concrete works are required at ORE Berth 1 and ORE Berth 2 as they will be constructed from a suspended concrete deck resting on steel tubular piles filled with concrete. It is proposed to provide a concrete apron (1.6ha area) within the ORE Storage Area. Concrete will be required at the new Small Boat Harbour where quay wall edges will be formed from a concrete capping beam, and for the two slipways. Concreting works will also be required for the concrete apron and slipway at the Sea Scouts facility. Underground services will also require concrete works for inspection chambers and ancillary works. The quantity of concrete in each structure is provided in Table 6.6.

Section 6.4.6 describes the method of construction of the quay wall structures that may be selected by the chosen Contractor based on the precise methods of construction and plant availability.

Table 6.6: Concrete quantities required for construction phase

Concrete	Quantity (m^3)
ORE Berth 1 suspended deck and slab	13,550
ORE Berth 1 pile infill concrete	15,050
ORE Berth 2 suspended deck and slab	10,200
ORE berth 2 pile infill concrete	4,550
Small Boat Harbour fishing quay wall capping beam and deck	580
Small Boat Harbour CTV loading berth quay wall capping beam and deck	200
Slipway in Small Boat Harbour (tapering up to 14m wide x 49m on plan) with adjacent concrete apron and slipway for Sea Scouts (5 x 45m on plan)	330
Underground concrete in manhole chambers and around buried services	150
Concrete kerbing around roads and perimeter edges of Small Boat Harbour	630
Concrete surfacing of 1.6ha. within the ORE storage area	3,500
Total	**Maximum 48,740m^3 of concrete used in the development**

The summary quantity is the maximum anticipated volume of concrete required. This maximum concrete volume, including all associated traffic movements, have been considered for the purpose of this EIAR.

6.4.9 ANCILLARY WORKS

The construction methodology for the ancillary works listed in Section 6.3.10 will be carried out in accordance with best-practice methods. The detailed methodologies for these activities will be developed by the Contractor at detailed design stage, as will the construction-stage CEMP which will be maintained and updated throughout the construction process by the Contractor. The Contractor will be required to comply with the requirements of the EIAR when developing and implementing their construction methodology and construction-stage CEMP. The ancillary works will be conducted in compliance with specific relevant codes of practice and guidance, including the ESB Networks Code of Practice, for electrical ancillary works, and the Uisce Eireann Codes of Practice for foul water and potable water construction. General Civil Engineering ancillary works will comply with the applicable guidelines in the Civil Engineering Specification for the Water Industry (8th Edition).

6.4.10 PLANT AND EQUIPMENT FOR CONSTRUCTION PHASE

A representative list of typical plant and equipment likely to be used during construction is provided below. This list is indicative only and reflects the conservative assumptions regarding plant and equipment types that informed the construction noise and air quality assessments, as part of this EIAR. The final selection and deployment of plant will be determined by the appointed Contractor, within the Assessment Envelope (Section 6.1.3) of the Proposed Development defined in this EIAR.

- Hydraulic impact hammer for driven piles
- Vibratory piling rig for steel piles and vertical band drains
- Large rotary bored piling rig for cast in situ piles
- Concrete mixer truck and concrete pump
- Dredging Excavator power rating
- Excavators for land-based earthworks and rock breaker
- Long reach tracked excavator for dredging
- Dredging ship / hopper vessel
- Dozers for land-based earthworks in reclamation
- Articulated Dump Truck
- Tracked mobile crane for piling
- Mobile telescopic crane for piling and handling materials
- Telescopic handler
- Tractor towing equipment or trailer
- Diesel generator for task lighting or site cabins
- Generator for welding
- Gas cutter (cutting top of pile)

- Concrete poker vibrator (with generator)
- Road sweeper
- Asphalt paver + tipper lorry
- Vibratory roller

This list is the basis of the construction noise assessment contained in Chapter 19: Noise and Vibration.

6.4.11 CONSTRUCTION TRAFFIC AND ACCESS

The predicted land-based vehicle movements associated with construction activities are provided Table 6.7. These traffic numbers are indicative only. They represent conservative assumptions which were established for the sole purpose of informing the EIAR, specifically Chapter 17: Traffic and Road Transport.

Table 6.7: Predicted vehicle movements during construction

Category	Details
Mobilisation of cranes, piling rigs, supplies and equipment	15 HGVs per day (first 2 months)
Remaining site construction	10 HGVs and van deliveries per day (next 22 months)
Staff component for construction	100 people on site with 50 cars and vans arriving daily
Rockfill delivery	28 trucks per day (first 4 months)
Ancillary uses (e.g. removal of waste, a concentration of material deliveries in any single day, and site visits by dignitaries and school trips, etc)	8 HGVs per day (peak)
Surfacing of port storage area with rockfill and surfacing of access road with asphalt	15 HGVs per day (4-months of activity distributed between month 12 and month 24)
Steel piling, imported rockfill and rockfill surfacing, and rock armour delivery	No land-based traffic (delivered by barge or seagoing vessel)
Concrete pour	42 concrete wagons per day (peak periods from month 4 to month 24); 17 wagons per typical day

As all excavated material and dredged material arising on the site will be used in reclamation or landscaping in the site, this avoids the need for additional land-based vehicle movements, to or from the site, for disposal of these materials.

As outlined in the oCEMP which accompanies this application, a Construction Traffic Management Plan will be implemented to minimise disruption to port activities.

6.4.12 CONSTRUCTION WORKING HOURS

Construction works (excluding dredging and reclamation) will be undertaken between 7am to 7pm Monday to Saturday. Work outside of these hours may be required on an infrequent basis to suit tides and vessel movements. If, in exceptional circumstances, works are required outside of these hours, the relevant statutory authorities will be notified in advance.

Dredging activities are expected to be ongoing for up to 24 hours per day, 7 days per week (24/7). The dredged material needs to be continually transported to the reclamation area to enable continuous dredging activities. For this reason, the reclamation activities will also need to be carried out on the same schedule.

6.4.13 CONSTRUCTION SEQUENCING AND OTHER PROJECTS

The construction of a new Border Control Post, known as Terminal 7, by the Office of Public Works is at completion stage. Terminal 7 is located adjacent to the existing berths within Rosslare Europort. It provides permanent infrastructure at Rosslare Europort to comply with Customs regulations as a consequence of Brexit. Terminal 7 is substantially complete so no construction activities will be ongoing when construction of the Proposed Development commences.

There is also a planned Berth 3 Extension project at Rosslare Europort, which consists of an extension to the existing Berth 3. This planned development is located at the eastern side of the existing harbour. Construction of this project is due to commence in mid-2026 and to have a duration of approximately 2 years. While the construction programme is anticipated to overlap with the Proposed Development, the locations of construction will not overlap. The Berth 3 works will, however, involve marine works within the harbour. Coordination of marine works for the Berth 3 Extension and the Proposed Development will be carried out, to ensure that safe, uninterrupted access is maintained for marine vessels moving to, from and within the harbour.

Wexford County Council, in conjunction with Transport Infrastructure Ireland, is currently progressing with the Rosslare Europort Access Road (REAR) project. Construction is expected to commence in early 2026 and will be substantially complete in the early stages of construction of the Proposed Development, with no significant overlapping constraints. Road access into Rosslare Europort would remain as per the existing route from the N25 until the REAR project is completed. A worst-case scenario of the REAR project not being built has been considered for the purpose of assessing the impact of construction traffic on existing roads for this EIAR.

This EIAR considers the cumulative impact and potential interactions between the Proposed Development and other projects and plans. These are presented in the Cumulative Effects Assessments provided in each topic-specific chapter and summarised in Chapter 25: Interactions.

6.5 OPERATIONAL PHASE

6.5.1 INTRODUCTION

This section describes the envisaged operational activities which will take place at the Proposed Development, including the assumptions regarding staffing, traffic numbers and management of the Proposed Development. The purpose of this section is to establish an operational-stage Assessment Envelope (Section 6.1.3) for the purpose of this EIAR.

It is acknowledged that the operational activities will be subject to confirmation based on the requirements of the ORE developers and operators who utilise the Proposed Development in future. Therefore, for the purpose of this EIAR, it was necessary to establish worst-case conservative assumptions regarding the envisaged operational activities. The assumptions which underpin the EIAR assessment of the operational stage are summarised throughout this chapter and form part of the Assessment Envelope. These assumptions are then further expanded upon in the relevant technical Chapters of this EIAR to assess the environmental effects of each activity.

References throughout this section to actions which "will" be undertaken are intended to describe the approach envisaged under this worst-case basis for EIAR assessment. This is not presented as a definitive or restrictive statement of operational activities. The operational activities will be developed by the appointed ORE developers and / or operators, within the Assessment Envelope (Section 6.1.3) of the Proposed Development defined in this EIAR.

This also applies to the indicative images of operational layouts shown in this section. These images are taken from comparable projects, shown for context purposes and are also subject to refinement by ORE developers and operators, within the Assessment Envelope of this EIAR.

6.5.2 ORE COMPOUND

Different ORE developers will lease the quayside and ORE Storage Area over different periods of time. The duration of installation operations are dependent on the scale, location and technical complexity of the projects being undertaken by the ORE developers. The ORE compound has been designed to accommodate the anticipated operational staff numbers, as detailed in Section 6.5.4.

6.5.3 OPERATIONAL ACTIVITIES

The section describes the operational activities associated with the Proposed Development. This includes the activities of ORE developers and operators and other users of the Proposed Development, such as those who will use the Small Boat Harbour and Sea Scouts Facility.

6.5.3.1 ORE ACTIVITIES

The Proposed Development will allow for efficient handling and storage, marshalling, staging and integration of ORE components to facilitate the installation of ORE projects. The Proposed Development will be used as the final staging point between globally distributed supply chains and the offshore wind farm sites. The key vessels which will use the ORE berths during the construction of fixed-bottom offshore wind farms can be divided into the following categories:

- Component Transfer Vessel

- Turbine and Foundation Installation Vessel
- Construction Support Vessels
- Cable Installation Vessels

The anticipated number of project vessels using the ORE berths is relatively low, with peak traffic numbers during an Offshore Wind Farm lifecycle of up to one large vessel every two days to ORE Berth 1. Vessels will typically range from 160m to 250m in length and will either rely on steel legs that are lowered into the seabed for stability or be dynamically positioned to hold station in the water.

Vessels which will use ORE Berth 2 will typically range from 160m to 180m in length and will deliver components by Load-on Load-off (LoLo) or RoRo methods, depending on the size and weight of components being delivered.

The proposed berth sizes provide sufficient space for the typical range of anticipated vessels, with an additional safeguarded allowance for potential future increases in the size of vessels engaged in ORE activities.

For the purpose of establishing an Assessment Envelope, it is assumed that, during times of paused or infrequent ORE activity, the proposed berths will serve a back-up function of accepted deliveries associated with traditional port activities (i.e., if ORE Berths are available and the existing berths within Rosslare Europort are occupied).

The heavy-lift quayside will be used for the temporary assembly of towers and preparation for integration of ORE components, prior to out-loading onto installation vessels. Component Transfer Vessels will be used to transport components to the Proposed Development and these components will be brought on to the quayside by crane for transport to the storage area. Some examples of equipment typically used for lifting and moving ORE components within the ORE Storage Area are listed below:

- A crawler crane of approximately 1,350t capacity and maximum 220m hoist height;
- A subsidiary crane of approximately 800t capacity and 170m hoist height; and,
- Self-Propelled Modular Transporters (SPMTs).

Assembly activities will include the preassembly of certain tower elements, turbine and transition piece elements, as well as other specific welding activities as required. Electrical testing and commissioning of assembled components will also be undertaken within the Proposed Development.

Partially erected towers and components such as blades and turbines being transited from the ORE Storage Area, awaiting out-loading to the installation vessels, will be temporarily stored on the ORE Berth 1 quay during this time. Components will then be loaded by crane onto the Turbine and Foundation Installation Vessel for deployment to the offshore windfarm sites.

Both ORE Berth 1 and ORE Berth 2 will be used to facilitate the delivery of incoming components without hindering the integration and out-loading of components onto an installation vessel.

An example of monopiles and transition pieces stored in Belfast Port's D1 terminal is shown in Figure 6.13 and indicative operational activity layouts for the Proposed Development can be seen in Figure 6.14 to Figure 6.16.

Figure 6.13: Belfast Port D1 terminal with monopiles and transition pieces[4]

[4] Source: https://www.belfastlive.co.uk/news/belfast-news/belfast-only-port-ireland-ready-25065215

Figure 6.14: Example of operational layout for ORE Marshalling and Assembly

Figure 6.15: Example of operational layout for ORE Marshalling and Assembly (seaward aerial view)

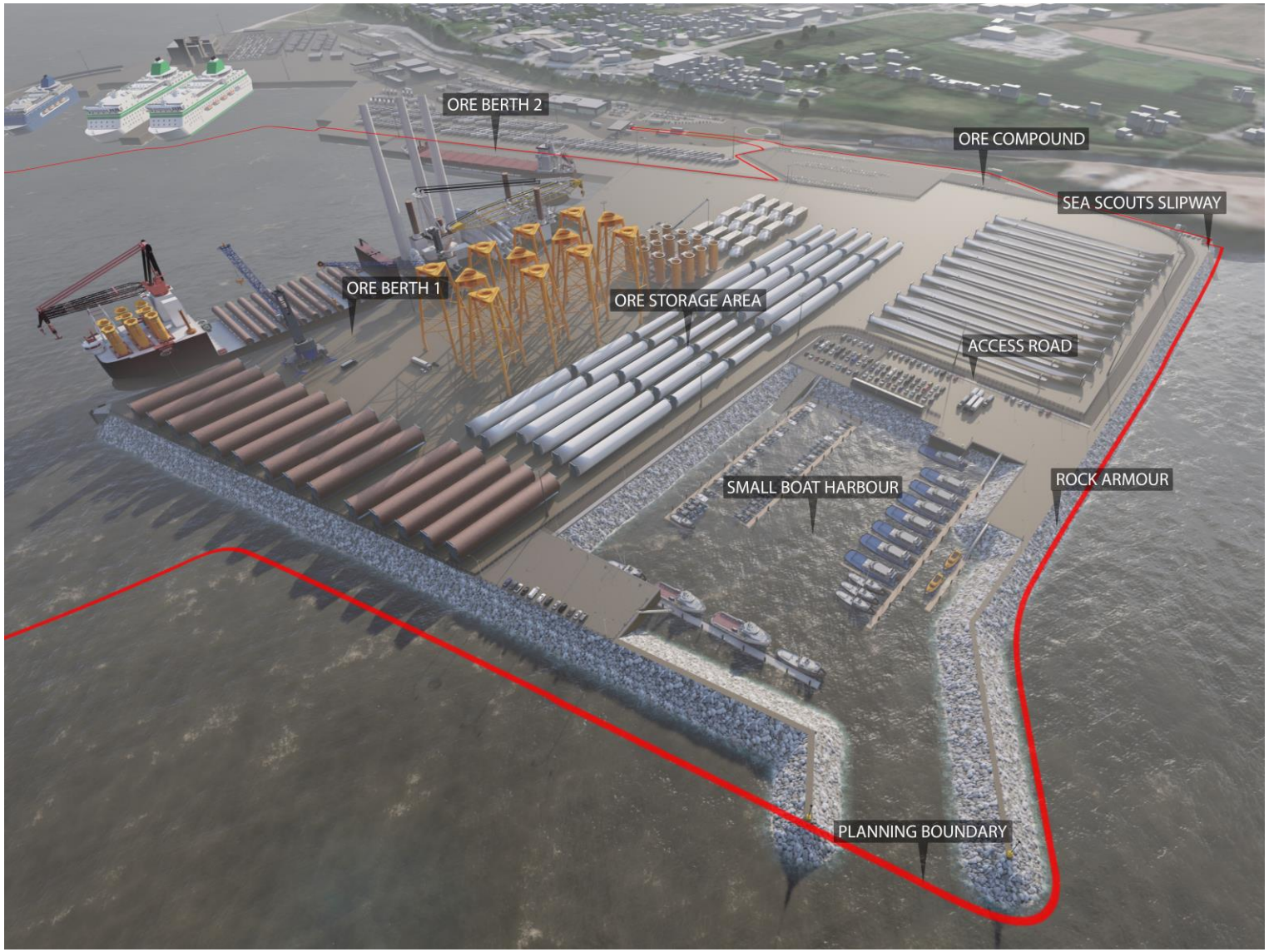

Figure 6.16: Example of operational layout for ORE Marshalling and Assembly (landward aerial view)

6.5.3.2 OTHER ACTIVITIES

The new Small Boat Harbour will be used by up to 64 no. local boat owners and local fishermen. The Small Boat Harbour also includes 8 no. berths to be used by Crew Transfer Vessels and a berth for use by the RNLI. The personnel using these facilities are anticipated to travel to and from the SBH by land-based vehicle. They will use the fixed berths, pontoons and slipway provided to set sail and dock their vessels, as well as loading and unloading of equipment and materials.

The slipway and associated parking area (6 no. spaces) at the proposed Sea Scouts Facility will also be used by local groups, including the Sea Scouts, for training young seafarers. The local groups will use the proposed storage shed for their equipment.

As previously stated, while the primary function of the ORE Storage Area is for ORE-related activities, it will be capable of serving as an overflow for traditional port activities if required, such as during less busy times for ORE activities. For the purpose of this EIAR, a conservative assumption has been made that the 1.6ha concrete apron area within the ORE Storage Area will be used for traditional port activities (e.g. RoRo trailer parking or bulk freight).

6.5.4 OPERATIONAL STAFF NUMBERS

The number of staff at the Proposed Development will fluctuate depending on installation activity and weather, and depending on the construction logistics and methodology used by each ORE developer utilising the Proposed Development. At any one time, there will typically be between 40 to 60 personnel at the Proposed Development (comprising 20 to 30 compound/office based staff and 20 to 30 quayside staff), with an anticipated maximum peak scenario of 150 personnel considered for more intense operations over short-durations i.e. when the installation vessel is in port there will be a short-term peak (e.g. 24-hour period) with incoming and outgoing crew, and vessel replenishment and possibly service technicians coming to do maintenance on the vessel. The maximum peak scenario was used as the basis for assessing the traffic impact, for the purpose of this EIAR.

The 54 spaces proposed to be provided at the ORE Compound for operational staff. Overflow parking is available in the ORE Storage Area if required to accommodate peak staff numbers during the maximum peak scenario.

6.5.5 OPERATIONAL TRAFFIC

The estimated 24-hour peak traffic flows from the operational activities at the Proposed Development at 2028 and 2040 have been assessed in Chapter 17: Traffic and Road Transport and are as summarised in Table 6.8. The estimated flows are based on peak staffing levels for the Proposed Development.

Table 6.8: Predicted 24-hour peak traffic flows – operational phase

Category	2028	2040
Primary ORE activities	2	2
ORE Hub personnel	300	300

Category	2028	2040
Operation & Maintenance personnel	240	240
Contingency for multi-use, e.g. traditional port activities (RoRo units or bulk freight)	116	305
New Small Boat Harbour and Sea Scouts facility	160	160
Total	**818**	**1007**

The above operational traffic numbers are indicative only. They represent conservative assumptions which were established for the sole purpose of informing the EIAR. Further details of the operational traffic assessment undertaken as part of this EIAR are provided in Chapter 17: Traffic and Road Transport.

The traffic numbers under the "contingency for multi-use" category are based on a conservative scenario where, on occasion e.g. if operational issues arise elsewhere in the Port, traditional port activities may utilise the Proposed Development on a temporary basis. It is typically not envisaged that usage of the Proposed Development for traditional port activities will be required. However, this contingency scenario has been considered in this EIAR, as part of a conservative assessment approach.

6.5.6 MAINTENANCE DREDGING

Maintenance dredging for the existing port will continue to be undertaken on an ongoing basis throughout the lifetime of the Proposed Development. This will be subject to separate licencing by application to the relevant competent authorities. As such, it is not considered further in this EIAR other than in topic-specific Cumulative Effects Assessments as relevant.

6.5.7 WASTE MANAGEMENT

The waste streams anticipated to be generated from the Proposed Development are listed in Table 6.9. Waste categories and estimates are based on current usage of the Small Boat Harbour and expected waste streams from ORE developers, which were informed by developer's usage of ORE marshalling facilities in other locations. These estimates of waste streams were also informed by the EPA National Waste Statistics reports, and the EPA National Waste Statistics Web Resource.

Table 6.9: Estimated Waste generated during Operational Phase

Waste Category	European Waste Code (EWC)	Hazardous / Not Hazardous	Waste Volume
Sediment from silt traps, interceptors and gullies	13 05 07 / 20 03 03	Potentially containing hazardous compounds	12m^3 per year
Steel and timber for packing, shoring and ground bearing of large components in the ORE yard. Reused on site until fatigued/damaged.	17 04 05 17 02 01 / 17 02 04*	No	30m^3 per year

Waste Category	European Waste Code (EWC)	Hazardous / Not Hazardous	Waste Volume
Organic Waste including kitchen/canteen waste and cleansing of foul pumping station chambers	20 01 08 20 03 04 / 20 03 06	No / Possibly	20m^3 per year
Dry Recyclables including office glass/plastics/paper and electrical components/cabling when integrating ORE towers	20 01 02 20 01 39 20 01 01 17 04 11 / 20 01 36	No / Possibly	2m^3 per week
Mixed non-recyclables including waste oil and maintenance components from cranes and heavy transport vehicles	20 03 01 13 02 05* / 13 02 08* 15 02 02* / 16 01 07	No / Yes	5m^3 per year
		Total	**171m^3 per year**

Waste will be stored, managed and ultimately disposed of at licensed facilities, depending on the category and type of waste in accordance with the requirements of the European Waste Code (EWC) as listed in Table 6.9**.**

6.5.8 ENVIRONMENTAL MANAGEMENT

Once the Proposed Development is complete, Iarnród Éireann will put in place operation and maintenance plans for the development and will also put in place agreements with ORE developers, which will include requirements for operational environmental management controls. Operational environmental management controls will also be put in place for the management and maintenance of the new Small Boat Harbour and the Sea Scouts facility. These operational environmental management controls will include the following (non-exhaustive) list of items:

- In the event of any contaminant spills, these will be contained, excavated and remediated in accordance with the Port's Oil Spill Response Plan. If any potential contaminant is released into the stone surface, the perimeter drain will pick up this percolating water and convey it to an oil interceptor.
- Each port user (i.e., ORE operator, commercial fishermen, Sea Scouts) will be responsible for employing licensed Contractors to remove and process their waste off-site in accordance with all legal requirements. Iarnród Éireann will monitor compliance with this requirement including monitoring of waste Contractors to ensure that they are legitimately handling, transporting, recovering, reusing, recycling and disposing of waste in a manner that produces least environmental impact.
- The silt traps in manholes and interceptors at the terminal end of each drainage system will be monitored by Iarnród Éireann and will be maintained by removal of silt and hydrocarbons by suction tanker. All road gullies will be similarly maintained by Iarnród Éireann in a scheduled maintenance regime and disposed of at a licensed waste disposal facility.

- Cleansing of the foul water pumping station chambers will be carried out by suction tanker as required following scheduled 6-month inspections and prior to any repair or maintenance works to pumps, valves or fittings.
- All facilities created and constructed for the Proposed Development will be subject to procedures and policies of Rosslare Europort including the Port Waste Management Plan 2021/2022, Iarnród Éireann Environmental Policy, Iarnród Éireann Health and Safety Policy, Byelaws of Rosslare Europort, Rosslare Europort Emergency Plan 2022/2023, and Rosslare Europort Oil Spill Response Plan (2018).

6.5.9 POTENTIAL FUTURE USES

The Proposed Developed is designed for compatibility with potential future developments, including Operations & Maintenance (O&M) facilities, for use by the ORE industry in carrying out major repairs and replacement of ORE components, and an RNLI base.

The Proposed Development is also suitable for use by ORE operators in the future decommissioning of the ORE installations once the design life of the installations expires.

When the Proposed Developments' usage for ORE activities has been concluded, it is envisaged that the development will be retained and re-purposed for use in traditional port activities. The Proposed Development includes elements which are compatible for multi-use with traditional port activities during its operational lifespan, as previously stated throughout this chapter. Therefore, the Proposed Development is suitable for this potential future use, albeit some upgrade works would be required to facilitate this transition. These potential future upgrades are not included in this application and are not considered in this EIAR and would be the subject of a separate planning application in the future.

6.6 REFERENCES AND SOURCES

European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018

Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018

Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, 2017

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Iarnród Éireann
Irish Rail

venterra

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

NICHOLAS
O'DWYER
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