



Capacity Extension at Shannon Foynes

Environmental Impact Assessment Report

Volume 4 Non Technical Summary



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1 INTRODUCTION

Context

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of Shannon Foynes Port Company (SFPC) for development works at the Port of Foynes, Foynes, Co. Limerick. SFPC is seeking a 10-year permission to facilitate ‘port capacity extension’ at the Port of Foynes. With port facilities at Foynes, Limerick Docks and Shannon Airport and with commercial jurisdiction over marine activities on a 500km² area on the Shannon Estuary, SFPC is Ireland’s largest bulk port and second largest port based on tonnage.

SFPC is recognised by the European Commission as one of the three core ports in Ireland under the Trans- European Transport Network (Ten-T). In the Government’s 2013 National Ports Policy, it is recognised as one of the three Tier 1 ports of national significance. Importantly, this Government Policy identifies the Tier 1 ports as responsible for providing future national port infrastructural capacity.

Purpose of the Environmental Impact Assessment Report

An Environmental Impact Assessment Report (EIAR) is a statement prepared by the developer, providing information on the significant effects on the environment based on current knowledge and methods of assessment. It is carried out by competent experts, with appropriate expertise to provide informed assessment on their discipline.

This EIAR is a statement of the effects, if any, which the proposed development, if carried out, would have on the environment. It consists of a systematic analysis and assessment of the potential effects of a proposed project on the receiving environment. The compilation of the information necessary for the EIAR did not present any significant difficulties. However, some assumptions and projections were necessary for certain areas of this assessment, particularly the traffic and noise assessments.

The Proposed Development

The proposed capacity extension is provided in two interrelated ways – increased capacity of the quay wall, and, increased capacity of supporting landside storage facilities and logistics. Consequently, the project includes two specific elements of development and operational activities as follows:

- Jetty Extension - The joining of the existing ‘West Quay’ and the ‘East Jetty’
and;
- Durnish Land Development - To provide for increased port related storage and port-centric logistics

Statutory Requirement for Environmental Impact Assessment

In compliance with Section 37(E)(1) of the Planning & Development Act 2000 (as amended), an application for permission for development in respect of which a notice has been served under section 37B(4)(a) shall be accompanied by an environmental impact statement in respect of the proposed development.

In addition, Schedule 5 of the Planning and Development Regulations 2001 (as amended) sets out a comprehensive list of project types and development thresholds that require a mandatory Environmental Impact Assessment. The proposed development also falls within Part 2, Article 10 of the Regulations: Infrastructure Projects. Sub-sections (a) and (b)(iv) apply in this instance and provide that a mandatory EIA is required for developments which provide for:

- (a) Industrial estate development projects, where the area would exceed 15 hectares; and
- (b) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.

The proposed development seeks to extend the existing port estate on land comprising 33.95 hectares for marine related industrial uses and which also comprises urban development in excess of 20 hectares. A mandatory EIA is therefore required under the provisions of both Part 2, Article 10(a); and Part 2, Article 10 (b)iv.

Structure of the EIAR

This EIAR is prepared using the 'Grouped Format Structure'. This means that each topic of environmental assessment is considered as a separate section and is drafted by relevant specialists. The EIAR is presented in seven volumes as follows:

- Volume 1 EIAR Main Document
- Volume 2 EIAR Appendices
- Volume 3 EIAR Appendices (A3)
- Volume 4 EIAR Non Technical Summary
- Volume 5 EIAR Non Technical Summary Drawings (A3)
- Volume 6 Natura Impact Statement
- Volume 7 Planning Drawings (A3)
- Volume 8 Appendix – GQRA
- Volume 9 Roads and Traffic modelling data and A3 drawings

The project managers and engineers for the proposed development are RPS Group Limited. HRA Planning Limited (HRA Planning) are the Planning consultants. The EIAR structure, responsibility and qualified input for each chapter is detailed in Table 1.1.

Table 1.1 List of Contributors to EIAR Chapters

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Chapter 9	Andrew Jackson	RPS	Flood Risk	BEng CEng MICE MIEI
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Chapter 11	Stephen Cleary	RPS	Terrestrial Noise	BA(Mod) MSc MIEMA MIOA CEnv
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2 PROJECT DESCRIPTION

2.1 THE LOCATION OF THE PROJECT

2.1.1 Site Location

The subject site is located within and adjacent to the settlement of Foynes, Co. Limerick and comprises the existing 'Port of Foynes' and undeveloped lands to the immediate east of the existing Port estate. The northern boundary of the subject site adjoins the Shannon Estuary. Foynes village is situated to the south (behind) the existing port estate and extends along the National Secondary (N69) Limerick – Tarbert Road. Limerick City is located circa 38km to the east (upstream), whilst the mouth of the Shannon Estuary where it meets the Atlantic Ocean (between Loop Head and Kerry Head) is located circa 56km to the west (downstream).

Situated on the Shannon Estuary, the Port of Foynes is a 'Tier 1 Port' and is the second largest Port in Ireland and is the principle general purpose terminal on the Estuary routinely catering for cargo vessels. Due to its favourable location on the west coast of Ireland and its modern deepwater facilities, Foynes Port is ideally positioned for additional European trading as well as for further increases in ocean energy resources.

Figures 2.1 and 2.2(a) and 2.2(b) show the location of Foynes Port and the extent of the project boundary and area of proposed development works.

2.1.2 Development Area

The project site for the purpose of this EIA is defined by the red line planning application site boundary as illustrated on the planning application drawings. This area which measures 62.10 hectares (ha) extends to include specific areas in which the proposed development will occur within the existing Port estate and, on lands directly adjacent to it. The proposed development works are concentrated in two specific locations – (i) adjacent to the existing quay walls within the existing Port estate (measuring 0.51ha or 5,142m²), and (ii) undeveloped lands adjacent to the east of the exiting port estate referred to for the purpose of this EIA as 'Durnish' or the 'Durnish lands' as illustrated in figure 2.4 (measuring 33.95ha or 339,559m²).

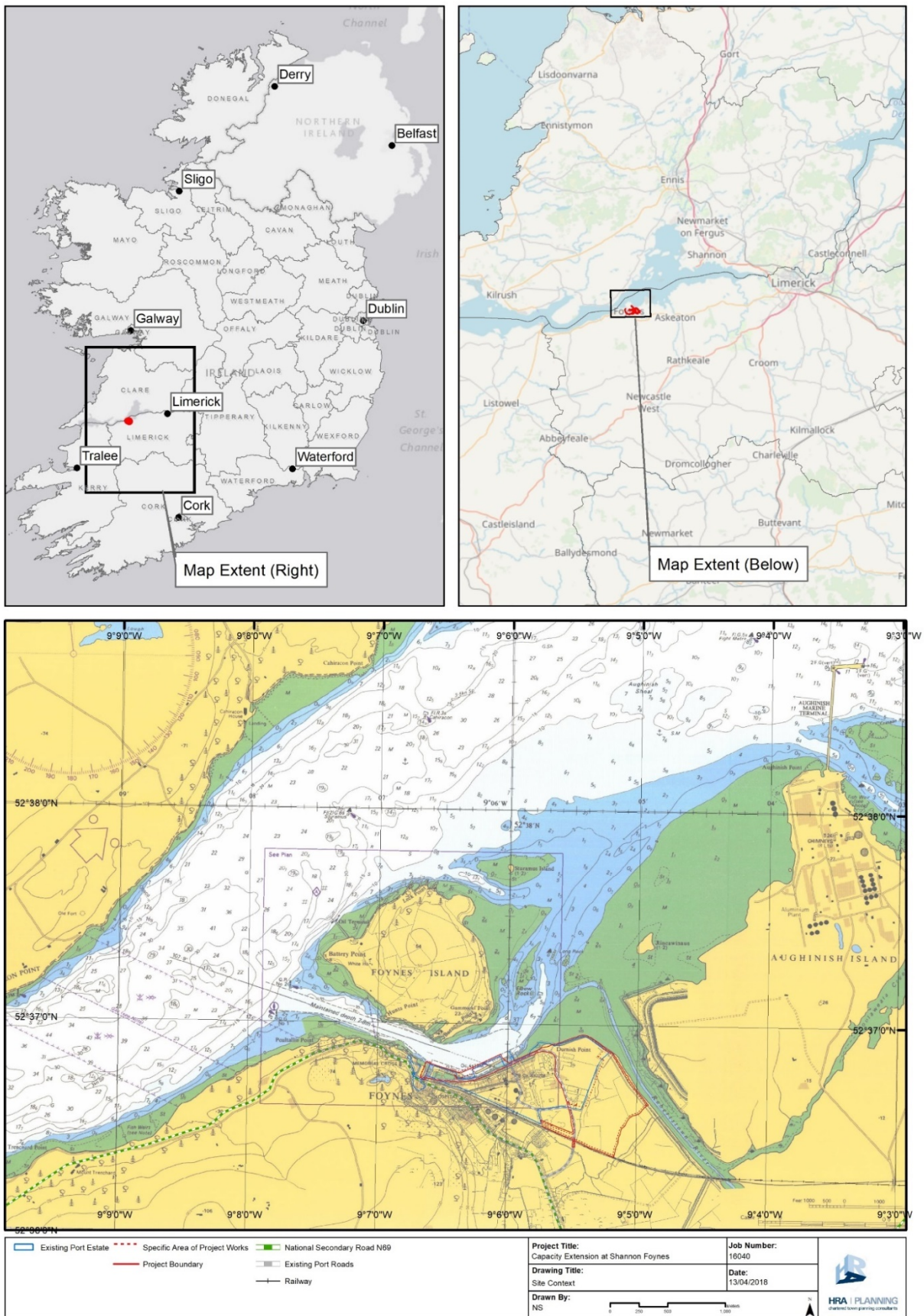


Figure 2.1 Project Location

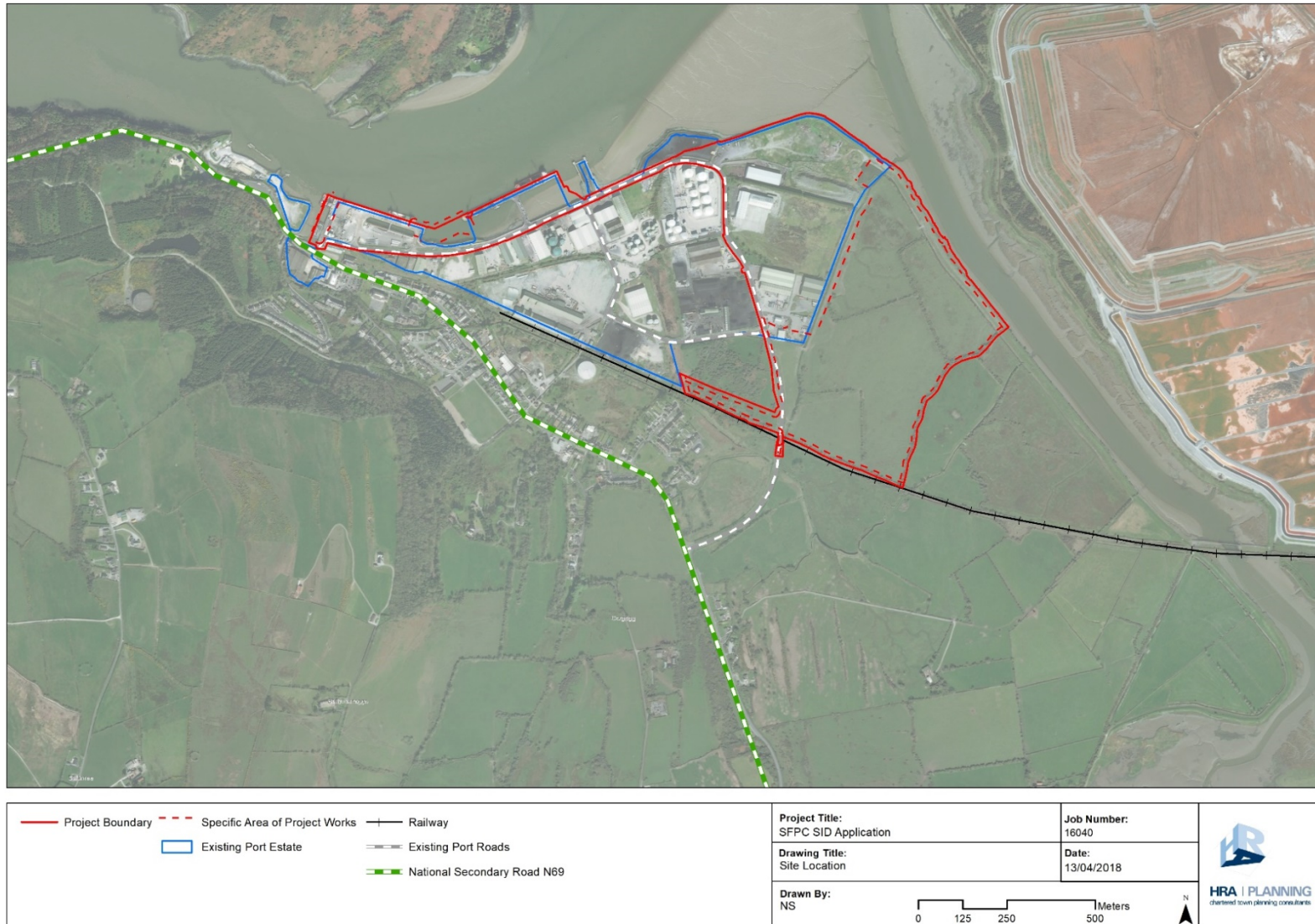


Figure 2.2a Project Location

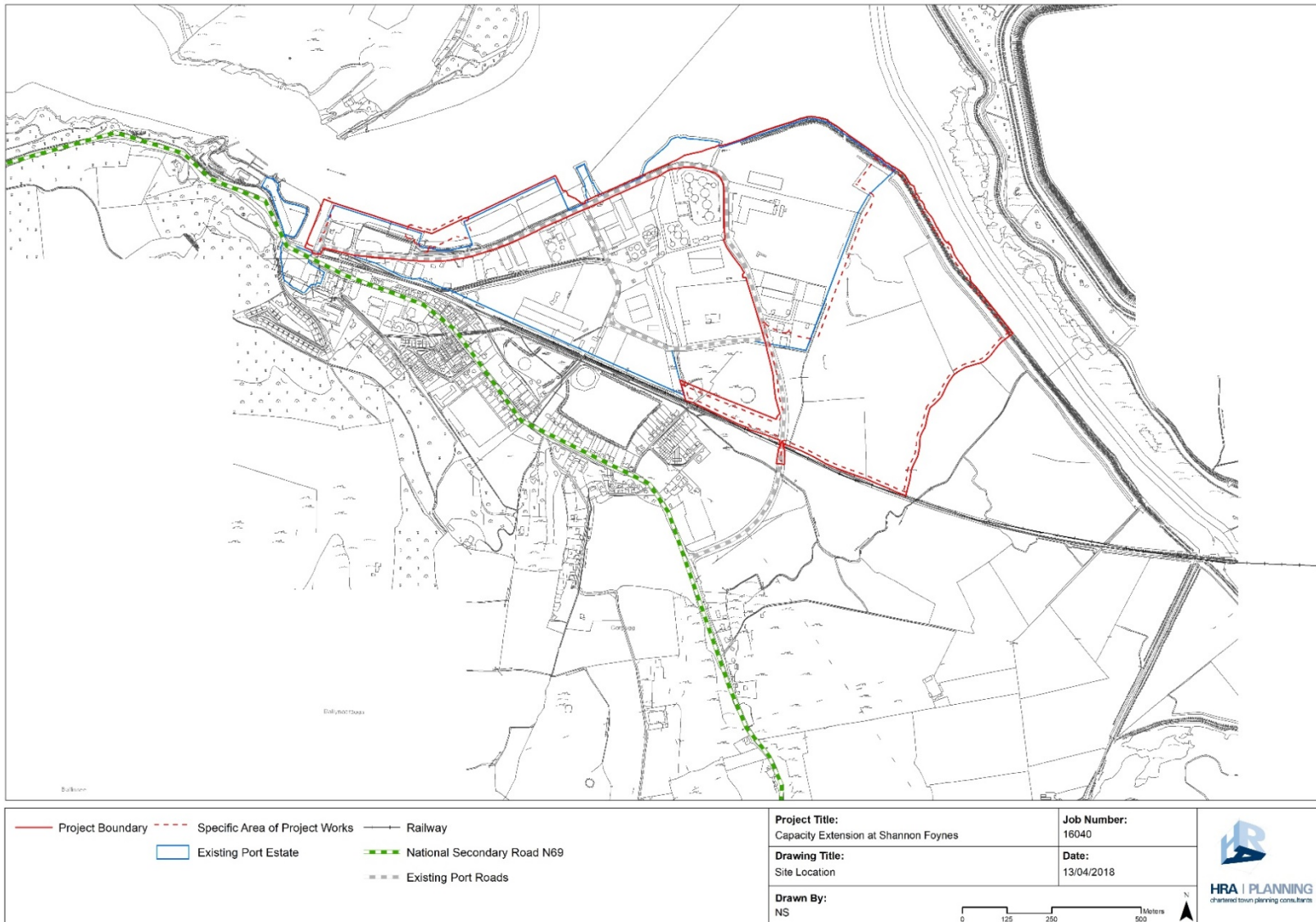


Figure 2.2b Project Location

2.1.3 Adjacent Land Uses

The Shannon Estuary provides a commercial function for SFPC extending over an area encompassing circa 500km² (between Limerick City and Loop Head / Kerry Head) with its naturally occurring deep-waters, accommodating some of the largest vessels entering Irish Waters. Vessel movements occur along the entirety of the estuary between the Ocean and Limerick City in order to gain access to other port facilities at Moneypoint, Tarbert, Aughnish, Shannon Airport, and Ted Russell Dock at eastern extremity of the estuary at Limerick City. The existing Port estate is positioned to the immediate west and includes industrial activities and uses associated with access to the port.

2.1.4 Existing Port Operations

The port is accessed from two points from the N69 National Secondary Route which are accessed by controlled barrier. These access points are situated circa 1.4km apart and at opposite sides of the village and port access is controlled by barrier access.

From an operational Ports perspective, the Port of Foynes, specialises in the berthing primarily of commercial cargo vessels (occasional berthing of cruise ships occur), and, the handling and storage of bulk cargoes imported and exported by shipment through the Port. Typical cargo types through the Port of Foynes include; dry bulk fertilisers, animal feeds, salt, coal and alumina hydrate; Break bulk including timber, construction materials, machinery and materials for the offshore industry; Liquids – primarily oils but also chemicals; Project cargoes including materials for the renewable wind energy industry; and, Cruise vessels. The storage demands for these types of cargo are typically greater than container and/or ferry ports because of the sizes of each shipment and the duration that these types of cargos are stored in port.

The landside port operations at Foynes are maintained through a series of jetties, cargo handling equipment and storage facilities. Portside handling equipment includes various mobile harbour cranes and grabs, mobile hoppers, a variety of forklifts and handling equipment, and stevedores. Currently, there are 4 general cargo berths totalling 657m. The West jetty is 271 meters long, the East jetty 295 meters long, and the Tanker jetty is 91 meters long. The current configuration of quay allows the port to manage four 10,000 dwt vessels at any one time or two 50,000 dwt vessels and one 5,000 dwt vessel at any one time. In this configuration, berth occupancy percentage is at 40% on an annualised average and 78% on a peak seasonal average. The length of the existing quay wall and the current berthing provision is proving unsustainable in the context of predicted tonnage growth rates¹ as it will inevitably lead to longer wait times for ships, leading predictably, to increased costs to the receiver and a loss of competitiveness for SFPC and the mid-west region.

Port side operations are used for covered (warehouse or tank) and uncovered open storage of liquid, break bulk and dry bulk cargoes. The existing Port Estate, in terms of open and covered storage is operating at full operational capacity with no residual or undeveloped property occurring within the estate.

¹ Established under the Port Company Economic and Spatial Masterplan 'Vision 2041'

2.1.5 Amenity Designations

The Shannon Estuary is subject to 2 natural amenity sites designated under the EU Habitats Directive² 92/43/EEC. These are: *The Lower River Shannon Special Area of Conservation (SAC)* site code 002165 and, *the River Shannon and Fergus Estuaries Special Protection Area (SPA)* site code 004077. There are no archaeological or features of built heritage occurring with the area of the proposed development.

2.2 CHARACTERISTICS OF THE PROJECT

The project includes specific site development works, and operational activities, the characteristics of which are discussed in detail.

2.2.1 Nature of the Proposed Development

The project is to facilitate capacity extension at Shannon Foynes Port. This requirement to extend Port capacity is responsive to a historic pattern of commercial growth through the Port of Foynes consistent with the projections envisaged in the Port Company's spatial and commercial masterplan – 'Vision 2041' and the resultant fruition of those projections experienced to date. This capacity extension is provided in two interrelated ways – increased capacity of the quay wall, and, increased capacity of supporting landside storage facilities and logistics. Consequently, the project includes two specific elements of development and operational activities as follows:

- JETTY EXTENSION
 - The joining of the existing 'West Quay' and the 'East Jetty'
- And;
- DURNISH LAND DEVELOPMENT
 - To provide for increased port related storage and port-centric logistics

A copy of the pertinent drawings including site plans, elevations and cross sectional details illustrating the proposed development (which were submitted with the planning application) are appended to this document. The description of development for which this EIAR has been undertaken is as follows:

The proposed development seeks to provide for Port Capacity Extension that will consist of the following:

- (1) **Modifications to the existing jetties and quays to include:** connection of the existing West Quay to the existing East Jetty for the purpose of extending the length of the existing quay to facilitate the mooring of vessels and Port related operations. Development works consist of; (i) Construction of an open piled jetty structure with suspended 116.5 metre concrete deck connecting the West Quay to the East Jetty; (ii) quayside furniture including quay fenders, mooring bollards, safety ladders, toe rail, and lighting columns, (iii) construction and remedial works to the both existing West Quay and East Jetty ends to facilitate structural 'tie-in' of the proposed new jetty structure, (iv) removal of the existing small craft landing pontoon and walkway from its current position affixed to the shore between the West Quay and the East

² Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora

Jetty, and provision of a new small craft landing pontoon and walkway affixed to the western side of the West Quay wall, and, (v) all associated site development works; and

- (2) **Phased Expansion of the Port Estate** on 33.95 hectares of land immediately adjacent to the east of the existing port estate to provide serviced industrial land, and, to accommodate marine related industry, port centric logistics and associated infrastructure that will be provided in accordance with a development framework programme prepared for the overall 'expansion' area and which is lodged with the planning application. The development includes:
- (I) site development and infrastructure works to the entire expansion lands on a phased basis including (a) raising of ground levels with fill material to a typical height of +4.44m OD Malin; (b) provision of all associated services including storm water infrastructure and modification to the existing OPW drainage attenuation system; (c) provision of 2.4m high perimeter fencing, (d) landscaping berms and treatments, and (e) all associated site development works; all to be delivered on a phased basis; and
 - (II) Implementation and use of 'Phase 1' of port expansion works including: (a) modification and realignment to part of the existing port estate access road including provision of new roundabout and junction arrangements on that road, and associated lighting, and storm water drainage; (b) provision of new internal Port access road (with associated footpath and combined cycle path) including the provision of bridge structures to facilitate access across existing drainage channels; (c) construction of three covered industrial type warehouse units (with typical maximum ridge height of 15.1m above raised ground level) with associated external storage, parking and circulation areas; (d) the provision of separate dedicated uncovered 'open' storage area/ container storage area and associated circulation and service area (with maximum container stacking height of 8m if/when container storage required); (e) provision of Klargestor BE model (or similar) package foul water treatment system with polishing filter and discharge to ground to serve the Phase 1a expansion area; (f) modifications to existing 'Foynes Engineering' industrial building which involves the removal of the 'lean-to' structure affixed to the main building and remedial building and site development works; (g) provision of an ESB electrical substation; (h) provision of lighting columns within the 'Phase 1' expansion area; (i) provision of a new security kiosk and access control barrier on the existing Port access road; (j) provision of noise attenuation measures along parts of the southern and western boundary of 'Phase 1' expansion area; (k) provision of a 'bus-stop' on the existing Port access road; (l) landscaping; and (m) all associated site development works.

2.2.2 Planning Permission and Environmental Assessment- Clarification

For the avoidance of doubt, all works proposed as part of the planning application for which planning permission is being sought, and described in the statutory notices, have been subject to environmental assessment which is presented in this EIAR. It is proposed to seek the development of the Durnish lands in phased approach and this phasing has been considered as part of this EIAR. In order to ensure an effective and conclusive environmental impact assessment consistent with best practise, the EIAR examines the effects of the development for which planning permission is being sought, and, where necessary, the collective cumulative effects of the overall development scheme for the Durnish lands if all development phases were implemented. The examination of the 'all phase' development scenario for Durnish is consistent with best practice in order to examine a 'worst-case' scenario of the project effects. Examination of this 'worst-case' scenario is based on the likely effects of the proposed development and proposed uses as part of Phase 1, and, the

anticipated landuses that will occur from subsequent operational use of Phase 2 and Phase 3 based on the information known and available at this time in respect to those subsequent Phases. Despite the consideration of those subsequent development phases as part of this environmental assessment, the future uses shall be subject to the necessary and separate planning consent in due course.

2.2.3 Physical Characteristics

2.2.3.1 Jetty Extension

The proposed extension to the existing Port berths will facilitate opportunity for the docking of larger vessels (with increased loads) in response to the increasing international trend toward larger vessel sizes or alternatively, the docking of increased smaller vessels at the same time.

Under either scenario, tonnage throughput will rise as predicted in the Port Company's strategic masterplan ('Vision 2041').

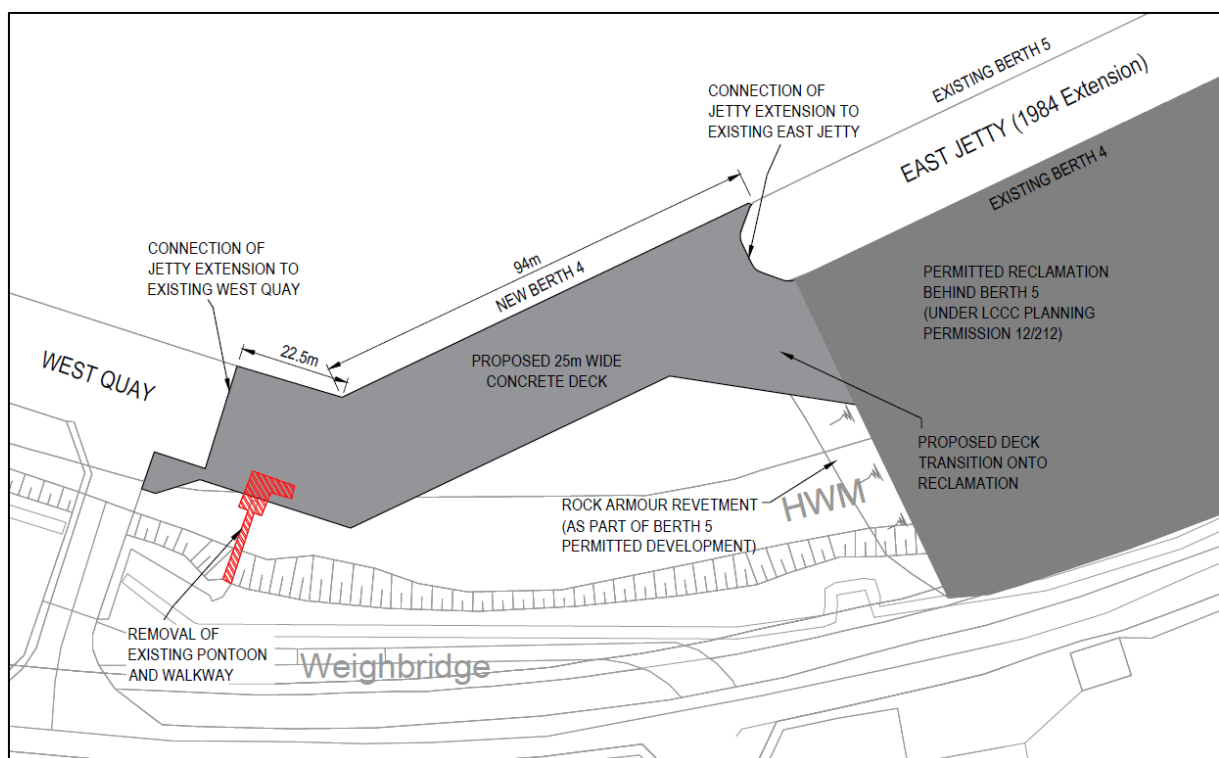


Figure 2.3 Jetty Extension connecting West Quay and East Jetty (removal of existing pontoon also shown)

Connection of the existing West Quay to the existing East Jetty will involve the construction of an open piled jetty structure with suspended reinforced concrete deck tying into; the existing jetty and quay wall structures; and, the land reclaimed to the rear of the East Jetty (and Berth 5 of same) which already has planning consent.

A 25m wide suspended reinforced concrete deck will span between the West Quay and the East Jetty, though will be wider at its eastern end to facilitate transition of the proposed deck into the reclaimed land behind the East Jetty. The proposed deck shall extend a distance of 116.5m between

the West Quay and the East Wall with the loads carried by tubular steel piles driven to provide approximately 3m deep penetration into rock.

Similar methodology will be equally applicable for the foundation piles that will accommodate the relocated small craft floating pontoon on the western side of the West Quay wall.

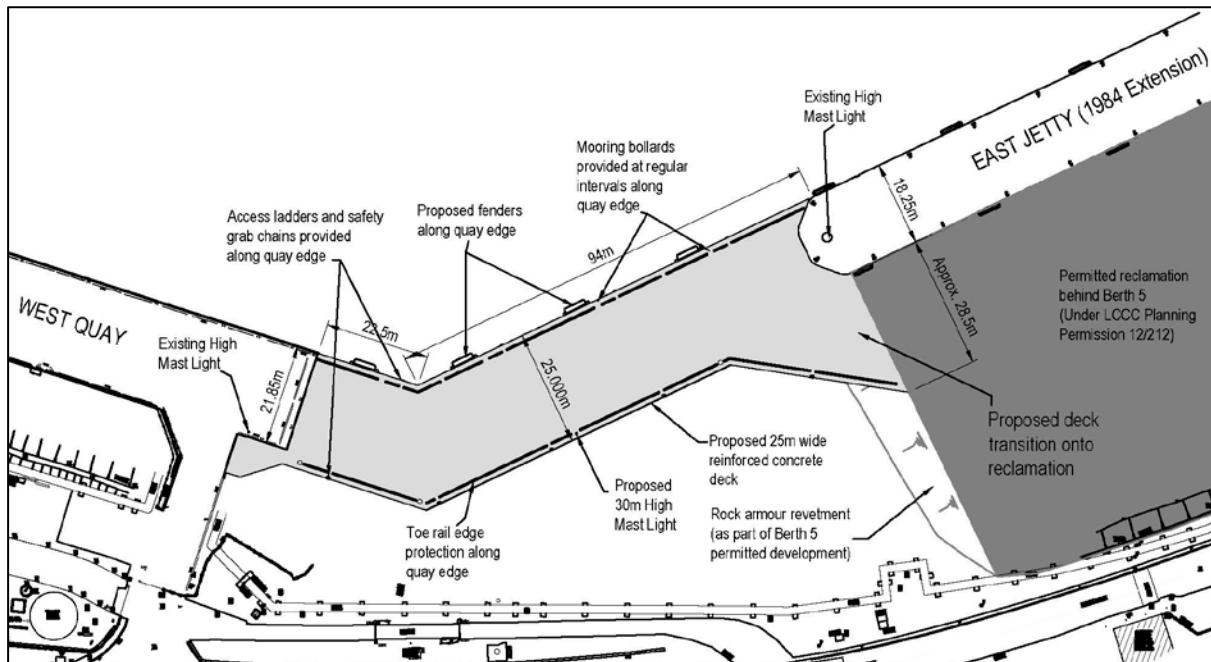


Figure 2.4 Planned layout of proposed jetty

No storm water runoff shall be permitted from the jetty connection structure but shall be collected in a dedicated storm water drainage system.

2.2.3.1.1 Quay Furniture -

The proposed suspended deck will include berthing fenders and mooring bollards placed at regular intervals along the outside (northern) quay edge to accommodate mooring vessels for the purpose of loading and unloading of goods. Mooring bollards will also be placed at regular intervals along the inside (southern) quay edge. The suspended deck will facilitate port traffic and infrastructure which would typically expect to include; loading and unloading vehicles, mobile loading hoppers and craneage, and, associate port traffic and personnel. All existing jetty structures will be retained during the works and will continue to be used for berthing.

2.2.3.1.2 Safety Equipment -

Fire hydrants will be provided at regular intervals along the jetty structure. Access ladders and safety chains shall be provided at regular intervals along both faces of the jetty connection structure.

2.2.3.1.3 Dredging -

No capital dredging is required as part of the proposed works. The location of the proposed jetty extension is currently dredged to a declared depth of -10.5mCD as part of SFPC's current maintenance dredging campaign.

2.2.3.1.4 Mechanical and electrical services

The proposed lighting for the jetty connection working area will comprise 30.0m high; base hinged raising and lowering masts with multiple floodlight arrangements and light cowls for light pollution control. Low energy LED lighting will provide an average lighting level of 30-50 lux for storage and operational areas, and an average of 20 lux in circulation areas. The lighting will be designed to prevent direct glare into surrounding properties and illumination of the night sky.

Power supply will be by connection to the local electricity grid system.

2.2.3.1.5 Water Supply -

Water supply will be by connection to the existing water supplies on the existing East and West Jetty structures.

2.2.3.1.6 Fencing and security -

The site of the proposed works is wholly contained within the existing port operational (ISPS) area and as such no additional security fencing will be required.

2.2.3.1.7 General Construction Sequence –

The general sequence of the construction of the jetty connection works are anticipated to include:

1. Removal and relocation of the existing small craft landing pontoon to an area identified at the west side of West Quay. Two locating piles will be installed at the new location to accommodate the relocated landing pontoon
2. Driving of steel tubular piles to the required depth using a vibrating hammer and hydraulic impact hammer to achieve the required toe level. Piles to support a suspended concrete deck, connecting the existing West Quay to the existing East jetty to create New Berth No. 4.
3. Localised demolition of existing jetty structures and structural connection between new structure and existing jetty structures.
4. Installation of pre-cast concrete deck elements using suitable plant.
5. Pouring of in-situ concrete deck on jetty extension using concrete pump/skip
6. Installation of drainage, services, quay furniture and lighting

2.2.3.1.8 Landing Pontoon Relocation-

Prior to commencement of the jetty extension works, the existing small craft landing pontoon located behind the proposed jetty extension shall be removed and relocated to an area identified at the west side of West Quay. Two locating piles shall be installed at the new location and a landing

platform shall be constructed to tie in with the existing quay structure, along with a landing structure and concrete bankseat to accommodate the pontoon walkway.

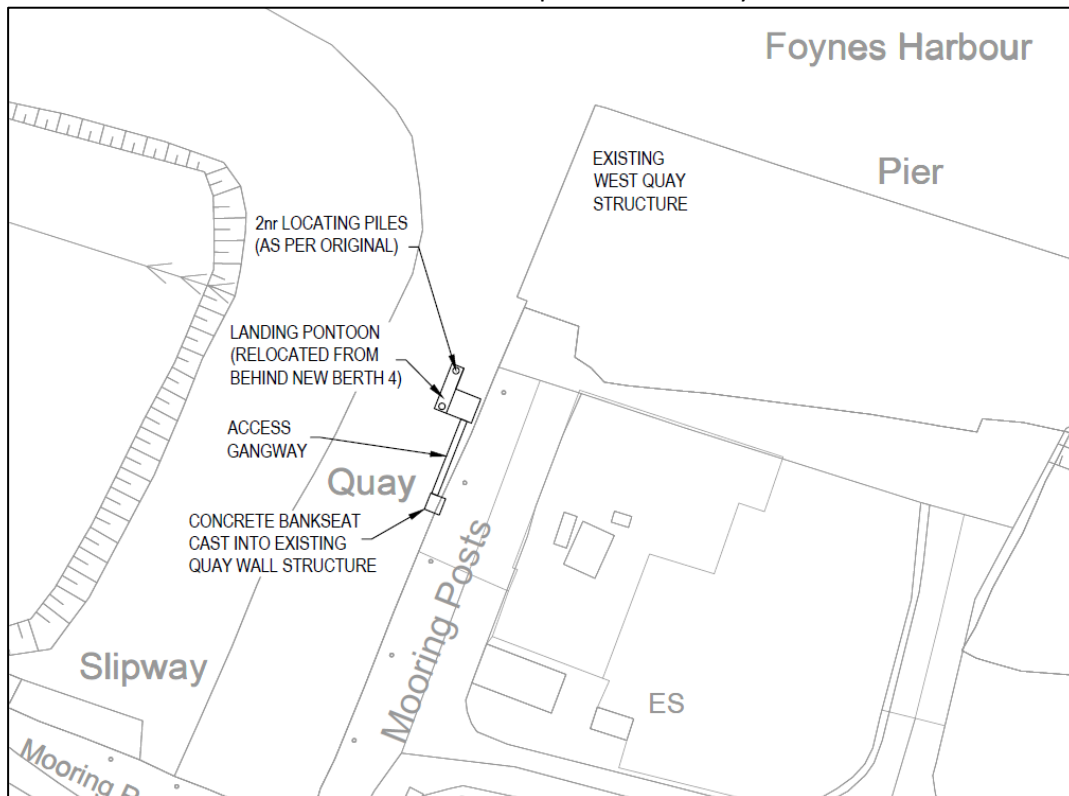


Figure 2.5 Proposed Location of Relocated Pontoon

2.2.3.1.9 Proposed Operations at East Jetty -

Port operations on the jetty extension will be as per the existing jetties, and will generally comprise the loading and unloading of vessels using Harbour Mobile Cranes consistent with existing quay operations. Materials handled will vary depending on trade requirements but the following is anticipated;

- Construction materials including timber, steel sections reinforcement etc.
- Project cargoes such as wind turbine components, steel pipes etc.
- All types of dry and liquid bulk cargoes

It is intended that hours of operation on the jetty extension will be the same as the existing.

2.2.3.1.10 Equipment

Handling operations on the existing jetty will continue as is the current practice with vessels generally being loaded or unloaded by the use of the Port's existing harbour mobile cranes. Other types of port handling equipment such as mobile hoppers, mobile cranes, mobile weighbridges, loading shovels, reach stackers, mast lift trucks or similar will be used as and when required.

2.2.3.1.11 Operational Access -

Access to the jetty extension will be via the existing entrances onto the East and West jetty access structures.

2.2.3.2 Durnish Lands Development

The developed lands will be used for open storage and warehousing and will be used primarily for the handling and storage of general cargo. In addition, the lands will also be used for port-centric processing operations such as bulk raw material being graded, mixed or sorted before being bagged or put into tankers. It is intended that hours of operation on the proposed developed lands will be 24/7, 364 days per year. The breakdown of uses across the Durnish lands has been calculated at;

- Covered storage Approx. 5.2ha
- Open storage Approx. 15.5ha

Materials handled will vary depending on trade requirements but the following is anticipated;

- Construction materials including timber, steel sections reinforcement etc.
- Scrap metal
- Project cargoes such as wind turbine components, steel pipes etc.
- All types of dry and liquid bulk cargoes
- Storage of containers

To provide for the development of the Durnish lands, certain site development and preparatory works are necessary to ensure the proper planning and sustainable development of this previously undeveloped land for Port and marine related industrial uses consistent with current landuse planning provisions and National Planning Guidelines. This includes the raising of the ground levels of the Durnish Lands to a level of +4.44m OD Malin to ensure that proposed uses can be carried out at an appropriate level which has been designed and are responsive to best practice and current flood risk management requirements in order to minimise flood risk to people, property, the economy and the environment. The design of ground levels adopts a precautionary approach to allow for uncertainties in data and risk assessment procedures taking account of climate change. The basis of this approach including the flood risk assessment of the proposed development is contained in Chapter 9.2.

2.2.3.2.1 Phased Approach and Development Framework

It is proposed to provide for land based on forecasted tonnage requirements consistent with the Port's medium (mid-line) growth scenario established in their strategic masterplan document 'Vision 2041'. Tonnage throughput at the Port of Foynes is anticipated to reach 2,770,000 tonnes by 2025. The current throughput is 1,778,126 tonnes.

Based on this tonnage projection (mid-line growth scenario set out in Vision 2041), it is projected that the tonnage growth at Foynes port over the next 10 years, and the life of this planning permission, will reach 3,280,000 tons by 2029. If it is a case that the high growth scenario is realised, then additional land will be required to accommodate such growth prior to the expiration of planning permission in ten years'.

Responsive to tonnage forecast, it is proposed to implement the operational use of the Durnish land in three phases in line with economic growth and customer demand. The proposed phasing regime is illustrated on the appended drawing (also lodged with the planning application) titled: 'Proposed Phasing Plan for Operational Uses'.

However, to ensure the effective and timely availability of the Durnish lands for operational use as the needs arise, the proposed development includes the filling of all of the Durnish land as part of the initial phase of development (Phase 1) to make them serviceable. Phasing is proposed in the following manner:

Phase 1 – Proposed Development and Operational Uses (subject of this planning application)

- Jetty Extension (including relocation of pontoon);
- Filling of entire Durnish lands, provision of infrastructure and landscaping over the entire site (phased over a 10-year period);
- Development and operation use of 8.2 hectares of filled and serviced land for marine related industry to accommodate existing tonnage throughput through the Port of 1,778,126 tonnes.

Phase 1 – Activities

- Covered storage 1.2ha
- Open storage 7ha
 - Warehousing (up to 15m height)
 - Breakbulk and project cargo such as steel sections/reinforcement, timber, palletised fuel/fertiliser, wind turbine blades etc. (stored 10m high)
 - Loose cargoes such as woodchip biomass fuel (stored 6m high)
 - Storage of containers (up to 3nr high) approx. 8m high with handling equipment up to 17m height

Phase 1 – Implementation

The implementation of Phase 1 is envisaged in sub-phases as follows:

- **Phase 1A**
 - ~ Stripping of Topsoil over entire Durnish Lands and seeding with clover mix
 - ~ Boundary treatment around entire site (South, East and Northern perimeters)
 - ~ Access road improvements and roundabout construction
 - ~ Provision of port security kiosk
 - ~ Filling of Phase 1 extent of lands to a level Of +4.44mOD
 - ~ Provision of security fencing around raised lands
 - ~ Provision of storm drainage infrastructure and attenuation pond extension
 - ~ Removal of existing “lean to” shed
 - ~ Construction of internal road network and drainage channel crossing structures
 - ~ Construction of warehousing and open storage areas
 - ~ Provision of foul water infrastructure

- ~ Provision of lighting and services
 - Phase 1B
- ~ Filling of “Phase 2” extent of lands
- ~ Provision of storm drainage system
- ~ Provision of security fencing

- Phase 1C
- ~ Filling of “Phase 3” extent of lands
- ~ Provision of storm drainage system
- ~ Provision of security fencing

The proposed phasing regime (Phase 1A – 1C) is illustrated on the appended drawing (also lodged with the planning application) titled: ‘Proposed Phasing Plan for Construction’ and is illustrated in Figure 2.6.

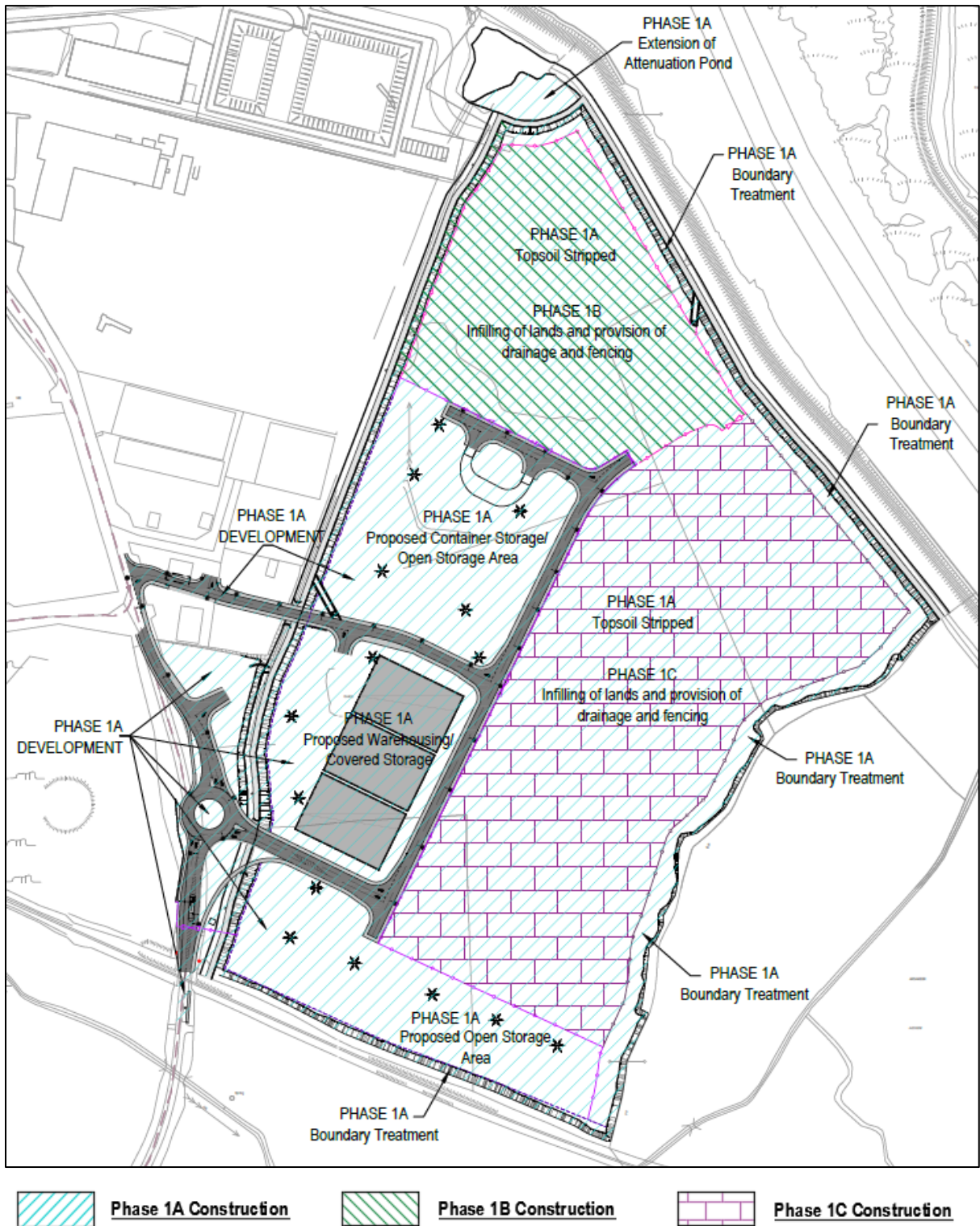


Figure 2.6 Proposed Phasing Plan for Construction

These sub-phases seek to ensure the orderly development of the expansion area. Having said that, the proposed phasing regime does not, nor cannot preclude the possibility of all Phase 1 works being carried out simultaneously if/where market conditions support that.

In the meantime, the upfront capital cost of undertaking site development works and specifically the raising of ground levels across the entire of the Durnish lands is unviable in the absence of supporting market conditions or, one specific user for the lands.

Furthermore, the timescale for implementation of that specific measure (raising the ground levels across the entire site prior to any operational use) will delay the opportunity to provide for immediate storage requirements with the potential effects on maintaining Port competitiveness.

Phases 2 and 3

The operational uses of Phase 2 and Phase 3 are unknown at this time and therefore there are no further site-specific details in terms uses that can be provided. However, for the purpose of this assessment and specifically, a cumulative consideration of proposed and likely anticipated uses (based on existing and proposed port uses), the likely operational scenarios for Phase 2 and Phase 3 are as follows;

Phase 2 – Likely Operational Scenario (Subject to future planning consent)

Accommodation of additional (predicted) 991,874 tonnes of cargo throughput to deliver total Port tonnage throughput of 2,770,000 tonnes by 2025. Anticipated delivery consisting of:

- Covered storage of circa 1.2ha
- Open storage of circa 2.4ha
 - Construction of warehousing and open storage areas for marine related industrial use and port centric activities
 - Construction of internal road network
 - Provision of foul water infrastructure
 - Provision of lighting and services
 - Provision of security fencing

Phase 3 – Likely Operational Scenario (Subject to future planning consent)

Accommodation of additional (predicted) 510,000 tonnes of cargo throughput to deliver total Port tonnage throughput of 3,280,000 tonnes by 2029. Anticipated delivery consisting of:

- Covered storage 2.8ha
- Open storage 6.1ha
 - Construction of warehousing and open storage areas for marine related industrial use and port centric activities
 - Construction of internal road network
 - Provision of foul water infrastructure
 - Provision of lighting and services
 - Provision of security fencing

Open storage uses (predicted for Phase 2 and 3):

- Breakbulk and project cargo such as steel sections/reinforcement, timber, palletised fuel/fertiliser, wind turbine blades etc. (stored 10m high)
- Loose cargoes such as woodchip biomass fuel (stored 6m high)

- Scrap metal (stored 8m high)
- Storage of containers (up to 3nr high) approx. 8m high with handling equipment up to 17m height

Covered storage (predicted for Phase 2 and 3):

- Warehousing (up to 20m height)
- Storage tanks (up to 15m height)

'The Framework Plan' - All phases have been considered and designed for within the context of a 'framework Plan' for development within the Durnish Lands.

The Framework Plan (which is submitted as part of the planning consent) sets out a development concept arrangement for the entire Durnish lands (Phase 1, 2 and 3) in order to present a holistic and co-ordinated approach toward the orderly and sustainable development of the Durnish Lands. This will guide subsequent developments within subsequent Phase 2 and Phase 3 given that the specific details of uses are not known at this time and assists this assessment process. The Framework Plan has given consideration to and presents a strategic arrangement of inter-alia; general layout arrangements; the design and implementation of infrastructure including water, energy services, flood risk management, water services, lighting, and site security; the primary internal access roads, building heights and design across the entire site. The proposed first phase of development reflects the 'development framework' for that area given that the immediate requirements are known at this time. The Framework Plan acknowledges that different Port users have different land use requirements and therefore given that the site-specific storage requirements and uses are not yet known for subsequent phases, the Framework Plan retains a degree of flexibility for operational development within the Phase 2 and Phase 3 albeit within certain limitations.

The design of the Framework Plan has derived from an iterative process conducted in parallel to the formulation of the development proposal and the execution of this EIAR. For the purpose of this EIAR, a cumulative assessment has been undertaken of all development proponents and the EIAR has taken account of and assessed the scope of anticipated end uses and anticipated building types and heights, and landscaping (set out in the Framework Plan).

2.2.3.2.2 Infilling (Phase 1)

The top 200mm of topsoil shall be stripped across the extents of the Durnish lands, and shall be re-used in the formation of the berm required for the landscaping boundary treatment. The exposed sub-base shall be seeded with a clover mix to bind the material together.

Suitable infill material shall be sourced from authorised quarries, and shall be imported by road to raise the level of the existing Durnish lands to a finish ground level of +4.44mOD (including capping and surfacing). It is anticipated that this material can and will be sourced locally within the region and from facilities which already have the necessary consents and licensing in place for the winning and haul of such material. Consequently, there is no obligation on this project to secure planning permission or other consent for sourcing that material, or to undertake EIAR in respect to winning the material.

The anticipated volumes and type of fill material required to meet the design ground levels for Durnish lands are set out as follows:

Assuming filling of Phase 1 in a single phase

- Circa 521,000m³ of imported material (equating to circa 937,800T based on a conversion of 1.8T/m³)
- Circa 71,100m³ of surfacing (equating to circa 167,100T based on a conversion of 2.35T/m³)

Or alternatively,

Assuming filling of Phase 1 as sub-phases:

Phase 1A

- Circa 195,500m³ of imported material (equating to circa 351,900T based on a conversion of 1.8T/m³)
- Circa 28,000m³ of surfacing (equating to circa 65,800T based on a conversion of 2.35T/m³)

Phase 1B

- Circa 115,000m³ of imported material (equating to circa 207,000T based on a conversion of 1.8T/m³)
- Circa 13,600m³ of surfacing (equating to circa 31,950T based on a conversion of 2.35T/m³)

Phase 1C

- Circa 210,500m³ of imported material (equating to circa 378,900T based on a conversion of 1.8T/m³)
- Circa 29,500m³ of surfacing (equating to circa 69,350T based on a conversion of 2.35T/m³)

2.2.3.2.3 Surfacing

The surfacing shall be heavy duty impermeable surfacing, designed to take account of the proposed operational usage and associated loadings.

2.2.3.2.4 Access to Durnish Lands

Roundabout construction

It is proposed to construct a roundabout on the existing port access road to provide the main access into the developed Durnish Lands and designed to the Design Manual for Roads and Bridges (DMRB) adoptable standards.

Mid-Point Access to Durnish Lands

The Foynes Engineering lean-to structure shall be removed in order to facilitate the construction of the mid-point access to the Durnish Lands and these works have been assessed as part of this EiAR.

Access Structures

In order to facilitate access into the Durnish Lands, 2 No. crossing structures are required to provide access across the existing OPW drainage channel.

2.2.3.2.5 Warehousing

3 No. Warehouse units and an area of open/container storage are proposed as part of Phase 1. Warehouses to be constructed on the Durnish Lands shall be similar to the typical Argosea Foynes Warehouses which are typically approximately 50m wide x 80m long portal frame structures, with a pitch roof height of approximately 15m. Warehousing shall have a Finished Floor Level of +4.74mOD Malin. Subject to the requirements of the end user, the warehousing may be combined as one integrated building (with dividing walls) or 3 no. individual units with a 2.5m wide gap between them.

2.2.3.2.6 Provision of New Port Security Kiosk and Barrier

As part of the development works, it is proposed to provide a new security kiosk and access barriers further south along the existing port access road located at the East Entrance to Foynes Port.

2.2.3.2.7 Storm and Foul Water Drainage

Storm Water Drainage- The storm water drainage system for the Durnish Lands has been designed in accordance with SuDS principles to avoid putting any further pressure on the existing OPW drainage channels or attenuation pond.

In line with SuDS principles, it is proposed that the required storage volume of 9,200m³ will be accommodated within the permeable imported fill over the site development.

Storm drains will collect all surface water and convey it through full retention interceptors (to collect hydrocarbons and silt) and the stormwater will then be conveyed through perforated pipes to allow percolation into the infilled ground. It is proposed that hydro-brakes will be installed at the end of each perforated drainage pipe run to ensure the existing discharge rate of 0.164m³/s into the drainage channel is respected in the future development

In addition, the opportunity afforded by the proposed site works has been taken to propose an extension to the size of the existing OPW attenuation pond by 2,000m² as a failsafe measure and contribution towards extended flood protection upstream. This will allow a further storage volume of circa 5,000m³ of influent stormwater during the upper tidal cycle when the outfall (near low water) is not operational. This represents approximately double the storage capacity in the current attenuation pond. The stormwater design of the site has been assessed using catchment hydrological analysis and rainfall intensities for varying durations at a 1:100 year return period event.

Foul Drainage - Foul (sewer) drainage arrangements have been designed and are included as part of this proposal. The foul sewer water arrangement has been designed in the context of the existing infrastructure regime and particularly, the absence of public foul sewer mains servicing the Port and the Port expansion area, the distance and limited capacity of the existing treatment plan serving the town of Foynes, and, the opportunity presented by the size of the Durnish lands to provide for a self-sufficient solution.

The preferred design solution, has derived from consideration of a number of waste-water design options explores as part of the EIAR process and is considered consistent with best practice having regard to the locational and site-specific circumstances. Foul water arrangements will be implemented on a phased basis consistent with each of the planned phases of development. Each phase will involve the implementation of a package treatment system which when implemented collectively, will service the entire Durnish lands, designed with sufficient capacity to accommodate predicted loadings (generated from the 'population equivalent' (PE) of the anticipated number of employees). This approach allows for the foul wastewater treatment system to be individually sized for each development phase to maximise efficiency and afford a level of flexibility for future development given its long programme duration and uncertain land usage requirements of subsequent phases (beyond the immediate known requirements of Phase 1). The table below shows the respective increase in Population Equivalent for each proposed phase of the Durnish Lands development.

	Occupancy	Population Equivalent (PE)
PHASE 1	48	20
PHASE 2	24	10
PHASE 3	48	20
TOTAL	120	50

Table 2.1 – Phase 1 – Phase 3 Population Equivalent

For the design of the Phase 1 treatment system, a factor of safety of 1.25 was applied to the occupancy figure for Phase 1. Therefore, an occupancy figure of 60 personnel was considered and a design population equivalent of 30 was used in the system design.

The package treatment system proposed for Phase 1 is a Klargester BioDisc BE (or similar), which provides both primary and secondary treatment of foul waters. Preliminary sizing of packaged system for 30pe is approx. 2.45m wide x 3.34m long, x 3.3m deep.

See Figure 2.7 below for typical package treatment system proposed.

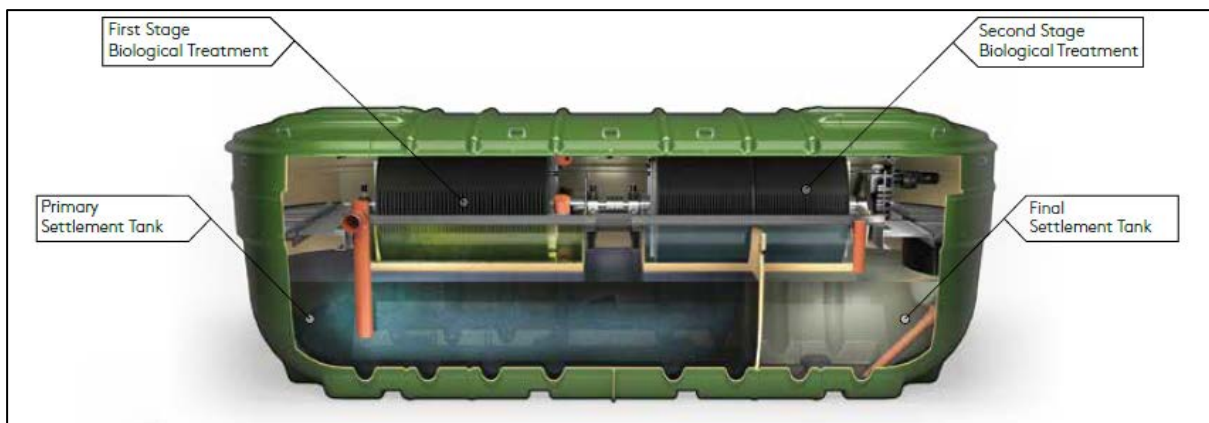


Figure 2.7 Typical Package Treatment Plant (source Kingspan Klargester BioDisc®)

In line with EPA Guidance, the treated effluent will be subjected to tertiary treatment by the means of a polishing filter which also acts as a percolation area to redistribute the treated and polished effluent to the groundwater. It is proposed to use a stratified sand polishing filter to provide the dual function of polishing the effluent and also infiltrating the treated effluent to the groundwater. The design arrangement is in accordance with EPA Code of Practice guidance and European standards.

This polishing filter shall be a minimum of 0.9m deep, with material graded as specified in EPA Guidance, underlain with imported fill material above the in-situ sub-soil/water table. The base of the proposed polishing filter shall be a minimum of 1.2m above the existing water table/bed rock within the existing ground strata. See Figure 2.8 below for typical make-up of sand polishing filter.

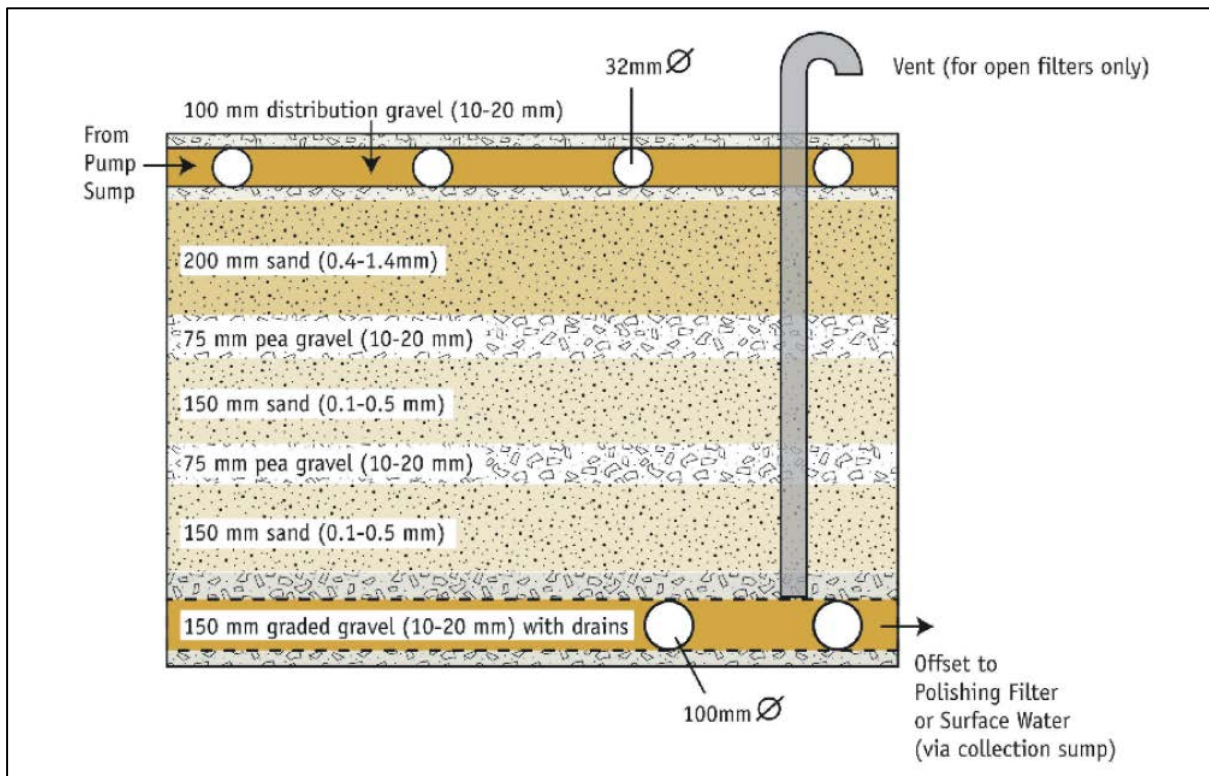


Figure 2.8 Typical Stratified Sand Polishing Filter (Source- EPA Guidance)

This design arrangement has been based on site-specific percolation testing taking account of land raising and the type of material that will be required to provide for appropriate percolation.

These design details provide for the warehousing units proposed as part of Phase 1 and for the WC which is located within the proposed security kiosk. This will be carried by a foul pipe from the kiosk, via the proposed crossing structure, to the package treatment plant being provided for the warehousing as above.

2.2.3.2.8 Water Supply

Water supply will be by connection to the local mains system within the existing port area.

2.2.3.2.9 Mechanical and Electrical Services

The proposed lighting for the general working areas/storage area will comprise 30.0m high; base hinged raising and lowering masts with multiple floodlight arrangements units and light cowls for light pollution control. Lighting will be designed to provide an average lighting level of 30-50 lux for storage and operational areas and an average of 20lux for internal access roads. 8m high lighting standards will be provided along internal roads and footpaths. The lighting will be designed to prevent direct glare into surrounding properties and illumination of the night sky.

In accordance with the mitigation measures outlined in Chapter 7 of the EIAR, the positioning of the proposed high mast lights has been refined and light shields added to ensure the lux levels along the Southern and Eastern boundaries of the Durnish lands do not exceed 5lux.

Power supply will be by connection to the local electricity grid system via a proposed ESB substation to be constructed at the South-Western boundary of the Durnish Lands.

2.2.3.2.10 Fencing and Security

Secure fencing will be provided along the perimeter of the developed Phase 1 lands. Fencing shall be in keeping with the panel mounted fencing currently used around the Port lands, and shall be 2.4m high fencing with a close mesh profile (5mm dia. steel wire with a 200x25mm mesh aperture), mounted on RHS posts with a bracket fixing system.

Fencing will be implemented in phases commensurate with the phased implementation of the development and provided to securitise each of those areas. This is proposed as follows:

Phase 1A

- Circa 800m of 4m high noise barrier
- Circa 930m of 2.4m high fencing
- 5 No. gates

Phase 1B

- Circa 630m length of 2.4m high fencing
- 2 No. gates

Phase 1C

- Circa 670m length of 2.4m high fencing

As part of the mitigation measures outlined in Chapter 11, an 800m long, 4m high noise barrier is to be provided along the Southern and Western boundaries of the Phase 1a development area. In this case, the noise barrier also acts to secure the perimeter along these boundaries in lieu of security fencing.

2.2.3.2.11 Boundary Treatment

Suitable planting will be provided to the external perimeter of the raised lands to provide a visual barrier between the developed site and the neighbouring lands.

At the beginning of the Phase 1 development, the stripped topsoil will be profiled to form a landscaping berm along the Northern, Eastern, Southern boundaries and part of the Western boundary of the Durnish Lands. The top level of this berm will be +4.44mOD (in keeping with the proposed fill levels across the site).

Planting will be carried out along the slope of the berm, extending to the crest, with the width of proposed planting varying dependent upon the width of the existing boundary planting which is to be retained and “gapped up”.

Due to the exposed coastal nature of the Durnish Lands, tolerant hardy species with deeper planting depths will be planted, allowing for a careful profile of very hardy species at the front, and taller screening trees at the rear. First line of defence will include hardy salt tolerant native shrub species like Hawthorn, Blackthorn, Goat Willow, Gorse with low canopy trees Alder and Mountain Ash. This protects the second line of defence that will include native shrubs like Holly, Broom, Hazel and high canopy trees Oak, Ash, Scots Pine.

2.2.3.2.12 Safety Equipment

Fire hydrants will be provided at regular intervals in all working and storage areas.

Correspondence received from Irish Water advised that they cannot guarantee fire flow requirements from the existing mains supply, and therefore the proposed development should include adequate fire storage capacity to guarantee the water flow required to meet the Fire Authority requirements.

To this end, 2nr water storage tanks and a pumping house are proposed as part of the Phase 1 development. Preliminary sizing of the tanks has been undertaken to provide a minimum of 45,000l water storage capacity, and a pumping house with diesel generators shall also be provided.

Confirmation of the tank sizes, location and layout shall be subject to agreement in writing with Limerick Fire and Rescue Service at detailed design stage.

2.2.3.2.13 Durnish Lands General Construction Sequence

Single phase Construction

The general sequence of the development of the Durnish Lands will be as set out below:

- Stripping of topsoil across the existing site and seeding with clover mix
- Profiling of topsoil to form berm for boundary treatment along perimeter of Durnish Lands and planting of visual buffer
- Raising of existing lands to a level of +4.44mOD using imported fill material (whilst providing 5m wayleave for OPW access to drainage channel)
- Roundabout construction on Port access road and main access road into developed lands
- Construction of new Port Security kiosk and access barriers
- Demolition of existing shed “lean to” to facilitate construction of mid-point access road into developed lands
- Crossing structures over existing OPW drainage channel along Western boundary of developed lands
- Hardstanding construction and appropriate surfacing for open and covered storage
- Internal road and footpath construction
- Provision of secure fencing and services (power supply, water, drainage, lighting, attenuation pond extension)
- Erection of warehousing for covered storage with FFL of +4.74mOD Malin

Indicative Phased Programme

In the event that the development of the Durnish Lands is progressed on a phased basis, then the anticipated phasing is as outlined below.

Phase 1A (as outlined on Figure 2.6)

- Stripping of topsoil across the existing site and seeding with clover mix
- Profiling of topsoil to form berm for boundary treatment along perimeter of Durnish Lands and planting of visual buffer
- Raising of Phase 1A portion of existing lands to a level of +4.44mOD using imported fill material (whilst providing 5m wayleave for OPW access to drainage channel)
- Demolition of existing shed “lean to” to facilitate construction of mid-point access road into developed lands
- Roundabout construction on Port access road and main access road into site
- Construction of new Port Security kiosk and access barriers
- Crossing structures over OPW drainage channel
- Internal road and footpath construction
- Hardstanding construction and surfacing
- Provision of secure fencing and services (power supply, water, stormwater drainage, foul treatment system, lighting)
- Erection of warehousing for covered storage with FFL of +4.74mOD Malin

Phase 1B (as outlined on Figure 2.6)

- Raising of Phase 1B portion of existing lands to a level of +4.44mOD using imported fill material (whilst providing 5m wayleave for OPW access to drainage channel)
- Provision of stormwater drainage and fencing

Phase 1C (as outlined on Figure 2.6)

- Raising of Phase 1C portion of existing lands to a level of +4.44mOD using imported fill material (whilst providing 5m wayleave for OPW access to drainage channel along northern perimeter of site)
- Provision of stormwater drainage and fencing

2.2.3.2.14 Equipment

Handling operations in the developed site will be dependent on the type of cargo which is to be accommodated at any given time. However the equipment will likely comprise some or all of those described in the following sections on an “as required” basis. The details and dimensions of particular types of equipment will vary from manufacturer to manufacturer and final dimensions will only be determined when the supplier of the equipment has been identified.

Dimensions considered in preparation of the EiAR are based on typical dimensions of equipment currently available in the marketplace. Some variation may occur in the final items of equipment provided.

Port handling equipment such as mobile cranes, mobile hoppers, mobile weighbridges, straddle carriers, loading shovels, reach stackers, mast lift trucks, or similar will be used as and when required.

Reach Stacker

Reach stackers are front lifting items of equipment which use telescopic arms to place containers at height in stacks. This type of equipment will be used in the Durnish Lands to handle containers up to 3nr high (8m high).

Straddle Carrier

Diesel powered straddle carriers are used to lift containers and deposit them in container stacks. They are mounted on rubber tyres and are usually approximately 16.5m in height. They can be used to stack containers up to 4 high (approximately 11m in height).

2.2.3.2.15 Operational Access

Access to the developed site will primarily be via the newly constructed roundabout on the existing port access road. An additional point of access is also proposed in the centre of the developed lands, created as a new access point from the existing port access road, as shown on the relevant planning drawings.

2.2.3.2.16 Rail Use

No works are proposed to the existing rail line. The future operational use of the rail line is under constant review but at this time, the operational reuse of the rail line is subject to a specific end user

requirements and/or viability of investment in the upgrade in the infrastructure. Despite that, the proposal seeks to retain and safeguard the integrity of that line and infrastructure.

2.2.4 Construction Activities

2.2.4.1.1 Jetty Extension

Programme

It is estimated that the proposed construction works will be undertaken during a construction period of approximately 12 months.

Temporary Site Compound

An area will be required for the establishment of the Contractor's site compound. The site compound will be used for the Contractor's site office accommodation and facilities and will include an area for temporary storage of construction materials. A suitable area will be made available on existing port lands close to the site of the proposed works.

Site Access

Existing port operations will continue as normal during the construction period. Access to the site will be via the Foynes Port Access Road (which can be accessed from the adjacent existing port access road off the N69), and along the internal port roads. In general all construction related traffic will use the port entrance to the east of Foynes village in order to avoid traffic passing through the village. Suitable traffic management and other systems will be put in place as required to minimise disruption to existing activities during the construction period.

2.2.4.1.2 Durnish Lands Development

Programme

Assuming that the development of the Durnish Lands is undertaken on a single phase basis, it is estimated that the proposed construction works will be undertaken during a construction period of approximately 39 months.

It is envisaged that the development of the Durnish Lands will be commenced whilst the jetty extension works are being undertaken. This is shown in the draft programmes included with the main EIA report. Alternatively, subject to the availability of funding or potential tenant requirements, the development of the Durnish Lands may be undertaken in sub-phases similar to that set out below under the sub heading 'construction employment'.

The anticipated timeline from the overall strategic programme for the sub-phased development of Phase 1 of the Durnish Lands is outlined below:

- Phase 1A Durnish Development (Expected commencement 2019)
- Phase 1B Durnish Development (Expected commencement 2024)
- Phase 1C Durnish Development (Expected commencement 2027)

Temporary Site Compound

A temporary site compound will be required for the proposed works. A suitable area will be made available within the site of the proposed works. In the event that the works are progressed in sub-phases, then the locations of the proposed site compounds will be positioned accordingly.

Site Access

Access to the Durnish Lands development site will be via the existing Foynes Port Access Road which can be accessed from the adjacent N69 road. In general all construction related traffic will use the port entrance to the east of Foynes village in order to avoid traffic passing through the village. Suitable traffic management and other systems will be put in place as required to minimise disruption to existing activities during the construction period.

2.2.5 Employment

It is anticipated that the total potential for employment during construction phase will range from a minimum 21 no. people to 35 no. people across both the jetty construction works and the port expansion at the Durnish lands during an envisaged 39-month construction period.

On average, 15 no. personnel will be employed for the full duration of the jetty construction works over an anticipated 12 month construction programme.

Construction employment of the Durnish lands development will be more dependent on the implementation of the phasing based on implementation of the proposed phasing regimes.

It is anticipated that the operational phase of the project will result in the generation of 120 on-site port related jobs. This calculation is based on the consideration of land area in the context of the existing use, and user types currently operating within the existing Port estate. It does not take account potential residual effects of off-site support services upon which the new operations might require and which might result in off-site employment opportunities.

2.2.5.1 Pollution Control

The construction works will involve Civil and Marine Engineering works and Mechanical and Electrical works. All machinery used during the construction phase of the works will be required to be in good working order and free from oil and hydraulic fluid leakages.

If machinery maintenance has to take place, it will be carried out at the allocated Contractor's compound which will be located away from the adjacent waters. Fuel for machinery will be required to be stored in a secure and bunded area. For construction operations such as the infilling of the Durnish Lands, pollution control measures such as wheel wash facilities will be put in place.

2.2.5.2 Site Safety

Safety will be of prime importance during the construction works. The works will be subject to the Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations, 2006.

The Principal Contractor will be responsible for the control and co-ordination of health and safety during the works and will be appointed as the project supervisor (construction stage).

2.2.5.3 Waste Disposal

Contractors working on site during the works will be responsible for the collection, control and disposal of all wastes generated by the works.

2.2.5.4 Operational Activities

MAINTENANCE

When construction work has been completed, the jetty extension and Durnish lands development will require little by way of maintenance.

POLLUTION CONTROL

Surface water from the new working area on the jetty extension and the developed Durnish Lands will be collected by a system of drainage channels and gullies. The surface water will be discharged via interceptors to ensure that no pollution is released into the surrounding waters.

By 2020, it is the intention of SFPC to retrofit dust suppression hoppers to two of the existing hoppers used in the vicinity of the proposed jetty extension. This will assist with the control of dust from the jetty operations.

2.2.5.5 Duration of the Project

Planning permission in respect to development work is being sought for 10 years to ensure implementation for all of the above works. The duration of the operational element of the project can for the purpose of EIAR, be considered as 'permanent'.

2.3 DESCRIPTION OF THE RISK OF ACCIDENTS – HAVING REGARD TO SUBSTANCES OR TECHNOLOGIES USED

The risk of accidents can arise during construction and operation phases as part of normal construction measures and port related operations and activities. The risk of accidents and mitigation measures considered necessary to address same, has been considered and is presented under the assessment of the each environmental variable assessed in this EIAR.

2.4 PROJECT CHANGE AND DECOMMISSIONING

There are no plans proposed for the decommissioning of the project given that the nature of the project – i.e. ‘port development’ can in this instance, be considered as a ‘permanent’ operation. The decommissioning of specific buildings or layouts is likely to form part of subsequent planning consent procedures and in the unlikely event that specific decommissioning requirements are necessary, appropriate mitigation can be applied to those consents.

2.5 OTHER RELATED PROJECTS AND POTENTIAL FOR EX-SITU EFFECTS

The proposed development does not involve or rely on any other related projects or give rise to development occurring outside the site that should be considered as part of this EiAR. The applicant is satisfied that all projects are contained within the confines of the development (and EiAR) boundary as presented and assessed in this EiAR.

3 SPATIAL PLANNING POLICY & STRATEGIC INFRASTRUCTURE PROJECTS

The planning policy review considers the European, national, regional and local policy context for the proposed capacity expansion of port facilities at Foynes. It identifies how the proposals are consistent with, and are guided by, formal adopted policy.

European Policy

The main European policy which impacts on the proposed development is the Trans-European Transport Network (TEN-T). The policy aims to transform the existing patchwork of European transport systems (roads, railways, ports, airports and canals) into an efficient and well connected network. The Port of Foynes has been identified as a potentially important link within this European transport network, providing a critical trade connection between continental Europe, Ireland and the surrounding region. The European policy highlights the importance of linking sea ports with road and rail if possible but recognises that in some locations this may not be achievable. The proposals for extension of facilities at Foynes have been endorsed at a European level, with a grant award of €4.5m to assist the Port of Foynes in delivering its expansion plans.

National Policy

National policy, through the National Planning Framework (NPF) acknowledges that to maintain economic growth, we must be capable of delivering additional port capacity in a timely and predictable manner. It promotes redevelopment projects taking place at Tier 1 ports throughout Ireland including Foynes. The NPF focuses on the strengths of the Mid West region including key employment and infrastructure assets at Shannon and Foynes. National Policy Objective 40 seeks to promote the development of Ports within the Regional Spatial and Economic Strategies.

The continued commercial development of SFPC is also a key strategic objective of National Ports Policy. The '2013 National Ports Policy' is a document which sets out the Government's policy and objectives for Irish ports. SFPC is one of three 'ports of national significance' (Tier 1). National ports policy supports the expansion of port capacity and states that planning authorities should work with port companies to help facilitate and guide this development. The document also states that the continued commercial development of SFPC is a key strategic objective of national ports policy. It is noted that, while rail freight should be developed where feasible, there is likely to be a continued focus on road freight in Ireland and that the interconnections between the national primary road network and the commercial port network will continue to be of primary importance.

Regional Policy

The 'Mid West Regional Planning Guidelines 2010-2022' (MWRPG) provides the strategic planning policy context for the Mid West region. At a regional level the MWRPG'S promotes protection of the capacities of existing ports and improvement of access to them as a regional priority.

Perhaps the single most important regional document to be prepared in terms of the Shannon Estuary is the inter-jurisdictional Strategic Integrated Framework Plan for the Shannon Estuary (SIFP), as promoted in the MWRPG. It provides a coherent spatial plan to recognise the economic potential of the Estuary and is significant in that it has 'buy in' from all relevant stakeholders and policy makers. The SIFP seeks to support and facilitate the sustainable growth and expansion of Foynes Port, identifying the Port as a Strategic Development Location. It seeks to ensure greater capacity,

more competitive trade potential and diversification of trade patterns by promoting expansion of the Port in an eastern direction.

Local Policy

At a local level, the Limerick County Development Plan 2010 – 2016, as extended (CDP) provides significant support for the sustainable expansion of the Port in line with the Port Masterplan Vision 2041. There are a number of objectives in the CDP which seek to safeguard the use of land, including the application site, not only for marine related industry but also specifically for port related uses and other industrial activities. The subject lands are appropriately zoned for marine related development in the CDP.

Summary

The assessment demonstrates how the proposed development is concurrent with land use planning and strategic planning at international, national and regional level. The documents confirm that expansion of the Port of Foynes will contribute to the economic and sustainable development in the region. The planning policy assessment brings forth the conclusion that the location, nature and function of the proposed development is in accordance with relevant plans and policies and should as a result be deemed acceptable in principle at the proposed location.

4 PROJECT SCOPING & CONSULTATION

Extensive scoping and public consultation has been undertaken to inform the development project. Consultation was undertaken with statutory consultees, Limerick City & County Council and the general public, to draw on their local knowledge and experience of the Shannon Estuary and to identify issues of particular environmental significance.

Scoping

The project was initially scoped with the applicant and design team based on the expertise and past experience of the EIA contributors for similar projects. Initial scoping by the design team was supplemented by written scoping requests to 40 no. statutory and non-statutory consultees. Of the 40 no. consultees that were contacted:

- Acknowledgement letters / emails were received from 6 no. consultees;
- Detailed responses were received from 7 no. consultees; and
- No response was received from 27 no. consultees

All issues raised by the consultees have informed the EIA and have been comprehensively addressed.

Pre – Planning Meeting

A pre-planning meeting was held with Limerick City and County Council on the 20th February 2018 in respect of the proposed development. A number of issues were raised by the Council which would need to be addressed in the EIA, including:

- Flooding and the potential impacts on adjoining lands;
- Filling of land and sources of quarry material;
- Air Quality and any potential impacts arising from the filling of land;
- On site surface water management and run-off management during the filling of land;
- Provision of foul treatment on the site; and
- Traffic and potential impact on the existing and future road network.

The issues raised by Limerick City & County Council have been comprehensively addressed within the EIA.

Public Consultation

Two separate public consultation events were held in Foynes on the 22nd November 2017 and on the 14th March 2018. Both consultation events consisted of open sessions from 14.00hrs to 16.00hrs and from 18.00hrs to 20.00hrs. The first event was held in the Community Hall and was well attended with 40 no. people. The second event was held in SFPC's Harbour Offices and had a smaller attendance with 12 no. people attending. There was a broad range of issues raised during the consultation sessions as follows:

1. Impact on siltation within Foynes Harbour;
2. Dust arising from on-loading and off-loading practises at the Port;

3. Flooding - reassurance was requested that the proposed works in the Port would not offset the benefits from the recent flooding/drainage relieve scheme in Foynes Village or cause flooding to neighbouring lands;
4. Request for improved access to the Port, and in particular the public slipway;
5. Impact on traffic and how new road layouts will link with the proposed new road from Limerick; and
6. Employment opportunities arising from the proposed development.

In addition to the public consultation event, one formal written submission was received by a landowner in proximity to the subject site. All issues raised during public consultation have been comprehensively addressed within the EiAR.

5 EXAMINATION OF ALTERNATIVES

This section of the EIA details the need for the proposed development and describes the alternatives examined in terms of the 'do nothing scenario and alternative location, alternative design and alternative processes.

Growth

The need for the development is based on economic grounds. Justifying need for the development was a central tenet of the CPO application process. Although it is acknowledged that both the CPO and planning application processes are separate and distinct, it is considered that the issue regarding the need for the scheme has already been established and accepted by An Bord Pleanála.

The Port of Foynes seeks to maintain its competitiveness and address current shipping trends through the proposed development. It seeks to increase efficiencies and deliver improved port infrastructure through increased berth provision and increased land provision to accommodate port centric logistics.

The trend in international shipping has always been towards larger vessels to exploit economies of scale. The number of vessels of over 30,000 dwt calling to the Port of Foynes has more than doubled in the last five years. The port infrastructure must be able to accommodate this growth in vessel size without negatively impacting on the efficiency of the port.

In 2017 SFPC handled over 11 million tonnes of goods, representing 21.6% of the overall volume of goods moving through Republic of Ireland seaports and placing it next to Dublin Port in terms of throughput. SFPC plays a particularly important role in the bulk trades market, through its handling of liquid, dry and break bulks and accounts for 38.3% of the overall volume of bulk trades handled at Republic of Ireland commercial seaports.

Tonnage throughput in the Port of Foynes has steadily increased since 2011, increasing from 1.3 million tonnes to almost 1.8 million tonnes in 2017. Bulk solid trade remains very strong in the Port of Foynes, growing by over 7% between 2016 and 2017. SFPC is already on track to achieving the specified growth projections detailed in Vision 2041. Since 2011 tonnage at the Port of Foynes has increased by 30% to 1.778 million tonnes, which is consistent with Vision 2041's mid to high average growth scenario. The average annual growth in tonnages projected in SFPC's Strategic Plan 2015 – 2019 is just over 7% for SFPC's general cargo terminals, which is also consistent with the mid to high growth scenarios presented in Vision 2041.

Need for Enhanced Capacities

During the period 2015-2016 alone, over €45m was invested in the port estate in Foynes by SFPC and the private sector. Increasing port capacity is dependent on three main elements of water depths, berthage and storage capacity. All three elements are interlinked and a deficit in one area, such as a land shortage, will make it commercially impracticable to carry out jetty improvement works.

The proposed quay length extension of 116.5m will allow the Port of Foynes to facilitate up to 5 no. ships of up to 10,000 dwt at any one time or 3 no. ships of 50,000 dwt at any one time thereby facilitating a reduction in berth occupancy percentage to more acceptable levels and to allow a growth in tonnages out to 2030, in line with Vision 2041.

In 2017 the Port of Foynes handled 1,778,126 tonnes within a port estate of circa 64 hectares which is now at 100% capacity. To be in a position to efficiently manage and achieve the projected growth figures as outlined in Vision 2041, the Port of Foynes requires additional land. Based on historical data (and projecting that data out to 2025 and beyond) SFPC can reasonably predict a requirement for 41.5 hectares of additional land for storage purposes in order to accommodate the projected increase in cargo throughput.

Examination of Alternatives

A failure to deliver capacity extension at the Port of Foynes, to address the ongoing trend towards larger vessels, would place the Port of Foynes at an operational and competitive disadvantage relative to other large ports. In such a situation, SFPC would start to lose trade and larger freight customers, and over capacity trade would have to be handled at other more distant ports. In this scenario additional socio-economic costs would arise across the Irish economy associated with the internal haulage costs of moving trade, the majority of which would otherwise have an origin / destination catchment that is focussed on the Limerick and Mid West area.

Alternative Location

In accordance with European and national ports policy, there is only one port on the west coast of Ireland, namely SFPC, which can / should be capable of significant expansion. It is submitted that expansion of port facilities at any other location would not be in accordance with European or national ports policy. Accordingly, there is no alternative location on the west coast of Ireland which can accommodate the proposed development.

There is no other port facility on the Shannon Estuary capable of accommodating the extent or type of development as proposed and which could be considered as an alternative location to the Port of Foynes. The Shannon Estuary Strategic Integrated Framework Plan undertook detailed site selection and identified nine Strategic Development Locations on the Estuary which would be suitable for the development of marine related industry. The Port of Foynes and its expansion lands at Durnish was one of those identified nine sites. The proposed development adopts a plan led approach to development.

Alternative Design

The underlying principle of the proposed development is to make the most efficient use possible of existing and future port lands. With relation to existing port activities within the existing port estate and the CPO Order determined in relation to a very specific area of land, there is very limited scope for consideration of alternative site boundary arrangements. However, detailed alternatives regarding flood mitigation, filling of land, treatment of foul effluent, alternative modes of sustainable transport and proposed phasing and delivery were considered.

Alternative Process

The facilities being developed by the Port of Foynes will be required to maintain a degree of flexibility as the occupier / occupiers of the port expansion lands at Durnish are not yet known. As the proposed jetty is a direct extension of the existing cargo handling facilities there is limited opportunity for the consideration of alternative methods of port operations, as operations on this new section would need to be consistent with similar operations on the existing jetties.

The proposed development seeks to maintain a rail connection to the overall port operation. Nothing within the proposed development will hinder the potential for the future use of rail freight carrying facilities. The maintenance of the rail connection and the safeguarding of the potential for future use of rail freight currently satisfies the requirements of the TEN-T Regulations, as the port can still be connected to the rail network by 2030.

Summation

This chapter has demonstrated a 'need' for the project and has referenced that this need was accepted by An Bord Pleanála during the consideration of an application by the Port Company for the compulsory acquisition of the 'Durnish' lands in 2016. The circumstances that dictated that need are still applicable and relevant in the context of this proposal. The proposed location and design of this project has derived from detailed consideration of alternative locations, alternative designs and alternative processes and it is on this basis, that the current proposal is the most appropriate design option in the context of environmental impact assessment.

6 POPULATION AND HUMAN HEALTH

The assessment considers impacts on Human Beings related to economic activity; social considerations; use of land and health and safety. Foynes village has a population of around 520 people. Existing Port activities and associated industry have a dominant role within the village. RUSAL – Aughinish Alumina is another significant industry located to the east of Foynes. The community and residential services within Foynes include a primary school; church; community centre; small convenience shop; restaurants, public houses, health centre and sports fields.

The Shannon Estuary is well used for both commercial and leisure activities. Commercial activities include commercial shipping; fishing and water based tourism (dolphin watching). Leisure activities include sailing; boating; fishing; bird watching; kayaking and open water swimming.

Human Health

Human health may be impacted in a variety of ways and by several environmental receptors including water, biodiversity, climate, flooding, air and major accidents. Exposure to contaminants or pollutants can have serious implications for human health. Potential impacts on pollution and human health include inadequate water and wastewater infrastructure, contamination of soils, excessive noise, flooding, poor air quality in areas where there are large volumes of traffic and the health impacts associated with storage of materials, although it should be noted that the proposed development does not propose any hazardous materials on site.

Environmental receptors where potential impacts could arise include soils & geology; water quality; flooding; dust; and noise. These issues are addressed within the relevant discipline of the EIA and where necessary mitigation measures have been introduced to ensure no significant adverse impacts arise.

Economic Activity

A 'Do-Nothing' scenario would undermine the competitiveness of the Port of Foynes; resulting in negative impacts on the economic vitality of the county and the region and undermining the region's attractiveness for future investment. A 'Do-Nothing' scenario would also have negative impacts on the potential of the Port of Foynes to be connected to the Trans-European Network, with consequential negative impacts on the integration of the Mid West Region to the rest of Europe.

The proposed development will have a positive impact on economic activity during both construction and operational phases. It is estimated that the construction phase will require on average 25 no. Full Time Equivalent (FTE) jobs, as well as having significant indirect economic impacts, which will result in positive impact on economic activity.

The proposed development will allow the Port of Foynes to remain competitive within national and international markets, supporting the economic growth of the region. As port trades grows there will be a related growth in employment linked to the port's activities. Although actual employment figures will be dependent on each specific end user, current employment trends within the Port of Foynes it is estimated that Phase I of the proposed development is likely to result in additional employment for 48 no. people with this figure extending to 120 no. people once the development is fully completed. Total employment within the Port of Foynes is likely to be in the region of 306 no. persons once the development is fully complete.

No negative impacts on economic activity have been identified, therefore no mitigation measures are required.

Landuse

Port lands at Foynes are either already in active port use, or a zoned for marine related industry uses. The proposed development is an appropriate use of zoned land and follows a plan led approach to development.

In terms of landuse, construction works will have a moderate, neutral short term impact on land use.

The operational phase of the proposed development will incorporate intensification of the existing port area and an extension of Port activities to the east, into existing greenfield land.

The jetty extension works will result in a change to the physical structure of the area. While there is a physical change, the use of the area will remain 'port operations' and it is considered that there is a significant neutral permanent impact in relation to 'land' use. The extension of port facilities to the east will result in a long term change of land use, from the existing undeveloped greenfield land, to active industrial use. In relation to the zoning provision of the land, this provides for a more intensive and appropriate land use and is therefore a moderate positive long term impact.

No negative impacts have been identified in relation to land use, therefore no mitigation measures are required.

Social & Recreational

Due to the low levels of employment arising from the proposed development, it is anticipated that the increased demand for services and facilities within the village of Foynes will be minimal.

The proposed development is not affecting any existing or proposed land based recreational facilities. The predicted increase in the number of ships in the Estuary is also minimal and likely to increase from an existing average of six ships per week to seven ships.

The proposed development is therefore likely to have a neutral long term impact on recreation and social activities and services in the area.

Transportation

Existing access arrangements shall be maintained during the construction and operational phases of the proposed development. Most traffic to and from the Port shall continue to use the existing Port access road located to the east of the village thereby ensuring that the residential amenities of residents within the village are maintained.

Design of the proposed development and implementation of existing road and sea traffic management operational procedures will ensure that increased traffic has no negative impact on the residential and recreational amenities of the area. Consequently, in relation to sea and road traffic, the operational phase of the proposed development will have a neutral permanent impact on the residential amenities of the area

Health & Safety

The main health and safety risks arise from construction activities; the operation of plant and machinery; the storage of bulk goods and movement and storage of containers on the port lands. Health and Safety procedures will be followed during construction and operational phases of the development, therefore no negative impacts were identified. and no further mitigation measures required.

7 FLORA & FAUNA, AND BIODIVERSITY

The assessment on biodiversity comprises an ecological impact assessment of terrestrial habitats, flora and fauna; marine habitats flora and fauna; fisheries; marine mammals and birds. It contains a comprehensive description of these biodiversity features at the site of proposed development and surrounding areas and identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the proposed development on these biodiversity features, with particular attention to species and habitats protected under the European Habitats and Birds Directives. The assessment on biodiversity is accompanied by a Natura Impact Statement.

7.1 TERRESTRIAL BIODIVERSITY

Habitat survey was conducted in late summer 2016 and mid-summer 2017. Sixteen terrestrial habitat types were identified on or adjacent to the site of proposed development. Most habitats recorded at the site of proposed development were of local (lower) value, although some were of local (higher) value as they function as wildlife habitats and linking corridors at the local level. No rare or protected plants were recorded at the site of proposed development. Japanese knotweed was recorded 200m from the site of proposed development but not within the site of proposed development. The Jetty extension area consists primarily of highly modified built land and sea walls, piers & jetties of local (lower) value. At Durnish, a number of hedgerows occur, enveloping predominantly wet grassland habitat. Some hedgerows are townland boundaries and of local (higher) value. OPW maintained drainage channels occur also. None of the habitats on site correspond to any habitats listed on Annex I of the Habitats Directive.

Protected species surveys were conducted in late summer 2016 and mid-summer 2017. Camera traps were deployed to assist in recording the mammals using the site of proposed development at Durnish. Bat surveys were conducted in autumn 2016, and spring and summer 2017. The interior of the site of proposed development was found not to be of particular importance for mammals. The linear vegetated boundary to the east of Durnish and the railway corridor to the south were found to be of higher value. They are to be retained and significant landscape planting will occur there as well as the northern boundary at the Robertstown River, as part of the planting strategy adopted.

Signs of otter, badger, pine marten, Irish stoat, Irish hare and red fox were observed in survey. There was no evidence of a breeding or resting place of protected mammal species occurring at the site of proposed development. Seven bat species were recorded through survey, including Common and Soprano Pipistrelle Bat; Leisler's Bat; Brown Long-eared Bat; Whiskered Bat; Natterers Bat and Lesser Horseshoe Bat. There was no evidence of bat roosts occurring at the site of proposed development. Structures assessed were assigned a low or negligible suitability of features for roosting bats. One tree was assigned a moderate suitability of features for roosting bats and it is to be retained.

Bat activity concentrated along linear vegetated corridors in general, and the railway corridor to the south of the site of proposed development in particular. Common and Soprano Pipistrelle and Leisler's Bat were the most frequently encountered species, reflecting their range and distribution, and they were regularly encountered foraging and commuting. Brown Long-eared Bat was detected regularly along the railway corridor and adjacent hedgerows. Natterers Bat and Lesser Horseshoe Bat were detected less frequently and mainly along the railway corridor. Whiskered Bat was recorded once.

Five species of dragonfly and eight species of butterfly were recorded during survey.

No protected species were recorded at the site of the proposed East Jetty extension and habitats of value shall be lost. No significant effects upon terrestrial biodiversity features are predicted as a result of the construction or operation of this element of the proposed development.

At Durnish, approximately 1.1km of hedgerow will be removed. 30 hectares of wet grassland and 11 hectares of improved agricultural grassland will be removed. Loss of grassland habitats will likely result in displacement of Irish Hare and loss of foraging habitats for badger and red fox. Loss of the hedgerows within the Durnish site will result in loss of commuting and foraging corridors for bats and ground mammals. The design and layout of the proposed development at Durnish has sought to retain the OPW drains and as much external boundary vegetation as possible, and enhance it with supplemental planting. Retained vegetation shall be protected from root damage in accordance with BS 5837:2012 Trees in relation to design, demolition and construction as part of the construction contract. There will be more tree and hedgerow species replanted as part of the proposed development than will be removed, providing net gain. Existing boundary vegetation shall be augmented where retained and strengthened by additional planting. A wide landscaped belt shall be planted along the north-eastern site boundary between the site and the Robertstown River.

Proposed construction activities will not cause the spread of Japanese Knotweed from its recorded location.

Noise and visual disturbance at construction stage was considered not to result in significant adverse effects. At operational stage, the lighting design initially proposed for the development at Durnish was found to illuminate retained boundary corridors. This was assessed as likely to disrupt normal nocturnal foraging and commuting behaviour of mammals. The lighting design was amended and high mast column lighting at the site of proposed development has been designed and directed so as to not illuminate existing the Robertstown River or other hedgerows and vegetated corridors outside of the site of proposed development at levels above 5 lux.

There is no likely significant residual impact predicted upon terrestrial biodiversity features as a result of the construction and operation of the proposed East Jetty extension.

Likely significant effects were predicted as a result of habitat loss, lighting disturbance or noise and visual disturbance at Durnish. With the application of mitigation measures, redesigned lighting and supplemental planting, there is no likely significant residual impact predicted upon terrestrial biodiversity features as a result of the construction and operation of the proposed development at Durnish.

7.2 MARINE BIODIVERSITY

A benthic survey was undertaken within, and adjacent to, the footprint of the proposed marine development. This involved the collection of intertidal core and subtidal grab samples. The proposed marine development occurs within the Lower River Shannon Special Area of Conservation (SAC).

Results indicate the presence of a single biological community within the intertidal part of the survey area and a single biological community within the subtidal part of the survey area. Species diversity and abundances were low in both intertidal and subtidal parts of the survey area. Both intertidal and subtidal communities contained species typical of muddy, estuarine environments and were dominated by the polychaete worm *Nephtys hombergii* and the bivalve mollusc *Macoma balthica*. Both intertidal and subtidal habitats broadly correspond with the biological communities identified by National Parks & Wildlife Service (NPWS) at this location (Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex and Subtidal sand to mixed sediment with *Nephtys* spp. community complex).

As all works undertaken in the proposed development are subtidal, no impacts are expected on the intertidal communities adjacent to the project. Subtidal impacts are predicted to be localised. Subtidal impacts associated with the construction phase, such as hydrocarbon or cement spillages can be mitigated against using environmental management protocols committed to in the Construction Stage Environmental Management Plan (CEMP). Habitat disturbance as a result of the placement of anchor legs from the jack-up barge are expected to be temporary, with rapid recovery expected following completion of the works. The construction of the East Jetty extension will result in the permanent loss of 81m² of subtidal benthos. The total area of this community within the subtidal Annex I habitat in the SAC both before and after the installation of the East Jetty extension will remain the same as previously estimated by NPWS at 1,353ha. This habitat loss will not fragment the habitat, and will not have any significant implications for the structure and functioning of the habitat. Re-positioning of the floating pontoon will result in no net loss or gain of benthic habitat. The habitat loss is considered to result in a negligible effect on marine biodiversity.

Operational phase impacts associated with the proposed development are limited to effects of sediment disturbance due to propeller wash immediately adjacent to, and on approaches to, the new quay structure. The impact of this disturbance is classified as slight, with no effect expected on the functioning of the ecosystem in the area. There will be no significant residual adverse impacts of the proposal on the benthic habitats.

The Lower Shannon Estuary contains a diverse range of common marine and estuarine fish species that are either mainly resident or make seasonal migrations to the marine environment beyond the estuary, e.g. plaice, flounder, mullet, gobies etc. The estuary is also a migratory route in and out for anadromous Annex II species including Atlantic salmon, sea lamprey and river lamprey and the Red Data Book species smelt. In addition the catadromous species, European eel, also passes through and or feeds in the estuary. No commercial marine fishing is undertaken in the vicinity of the development and only one aquaculture licence i.e. for trestle-grown Pacific oysters, currently operates in the same part of the estuary (i.e. east of Aughinish Island). Some recreational fishing is undertaken within and close to Foynes.

Construction and operation of the East Jetty extension will not result in a significant adverse impact either on the resident or migratory fish species within the Lower Shannon SAC, as the very small area of habitat which will be removed by the insertion of 69 piles will have an imperceptible influence on the carrying capacity of the fish population utilising these habitats. Also, mitigation measures to control the loss of hydrocarbons, cement and suspended solids during construction are committed to in the CEMP and will protect fish from any localised adverse impacts from these sources.

Modelling of the noise impact from impact piling during the installation of piles that could potentially injure fish is limited to within 7m of the piles being driven. Piles will be driven one at a time and only during daytime hours Monday to Saturday. Taken together with the very wide width of the estuary

at Foynes (~2km) this means that the vast majority of inward or outward migrating fish will not be present within the area of injurious noise output from pile driving. The small number in that area can actively avoid injury by swimming away from the immediate area of elevated noise. Small proportions of glass eel may on some tides be drawn within this zone, as they are poor swimmers but any adverse impact arising will be imperceptible at the population level of this species.

The nearest currently licensed oyster farm is more than 5km east of the development and construction and operation phase mitigation measures will prevent any adverse impact at that site. There is no commercial fishing activity undertaken in and around Foynes, so no adverse impact is anticipated.

No residual adverse impacts are anticipated to arise for fisheries or aquaculture as a result of the proposed development.

A number of marine mammal species have been recorded in the Shannon Estuary including bottlenose dolphin, grey and common seals. Otter also occur along the shores of the estuary and forage within the estuary. The Lower River Shannon SAC includes bottlenose dolphins and otter as qualifying interests.

The Shannon Estuary is one of the most extensively study sites for bottlenose dolphins in Europe. Bottlenose dolphins are found throughout the estuary but regular concentrations occur off Kilcredaun Head in the outer estuary and Tarbert-Killimer which is associated with foraging behaviour. Most research and monitoring work has been carried out in the outer estuary as far upriver as Tarbert-Killimer with relatively less upriver of Tarbert. Foynes Port is situated in the middle to inner part of the estuary, which despite less survey effort research has shown is still used extensively by bottlenose dolphins including during winter.

Static Acoustic Monitoring (SAM) using continuous porpoise detectors (C-PODs) has been used off Foynes to assess the use of the area by bottlenose dolphins. A C-POD off the north side of Foynes Island detected bottlenose dolphin but tidal cycle and tidal phase were not found to be significant factors influencing dolphin presence at the site. A C-POD was deployed off the Quay Wall at Foynes Jetty for 176 days. Dolphins were detected between 27% and 47% of recording days, with a total of 162 Detection Positive Minutes (DPM) recorded with a mean on 0.87 DPM per day. When detected, there was only one encounter per day and the duration of encounters were very short with 76% of detections being at night. This suggests that dolphins are using Foynes more frequently at night, perhaps in part because of lower levels of human activity in the estuary at night.

Common and Grey seals are occasionally reported hauled out east of Foynes Island on Sturamis Island and Beeves Rock upriver of Foynes port. Although both species only occur in small numbers these seals are part of a much wider population.

There was no evidence of otter at the site of proposed marine development during a survey carried out of the site in 2010 or during surveys carried out for this project.

Potential impacts on marine mammals include localised disturbance, habitat degradation (e.g. decline in availability of potential prey) and increased ambient noise due to increased shipping. The receiving environment is mainly restricted to the port area. Impacts in the wider estuary include the approaches to the port and shipping channels through increased traffic. The zone of influence of disturbance or habitat degradation including pulsed acoustic impacts associated with the proposed

development are restricted to the immediate port area. Shipping is a known continuous noise source and has been reported as the dominant source of anthropogenic sound in a broadband range from 5 to 300 Hz. Bottlenose dolphins auditory range is as low as 150Hz but they are not very sensitive at these low frequencies.

Sound pressure from piling activities may have a negative impact on bottlenose dolphins if exposed to sound exceeding the relevant criterion, irrespective of the anthropogenic source. Implementation of NPWS (2014) guidelines which requires a Marine Mammal Observer (MMO) to ensure the area is clear of marine mammals and use of a soft start procedure would ensure any potential impacts are not significant. Impacts from increased vessel traffic are restricted to the shipping channel and adjacent water and not significant in relation to existing marine traffic activity and no mitigation is proposed.

There is no cumulative impact as the impacts of both construction activities, even if they coincided within time and space are minimal and not significant in isolation, or together. With recommended mitigation there will be no residual impacts on marine mammals.

7.3 AVIAN BIODIVERSITY

Surveys of breeding birds at the site of the proposed development were undertaken in spring-summer 2017. Surveys of non-breeding waterbirds in the surrounding tidal areas were carried out over 17 months from November 2015 to March 2017 covering two winter periods and the intervening summer of 2016. These surveys established clearly the value of the area for birds in all seasons.

The breeding bird community within the site of the proposed development at Durnish is typical of grassland and hedgerow in Ireland with all breeding species being common and widespread in Ireland. Two species, Meadow Pipit and Grey Wagtail, are Red-listed in Ireland and a 14 further species are Amber-listed. Eight additional non-breeding species were recorded on the lands.

Birds were also recorded during the breeding season in the area of the proposed jetty extension and pontoon relocation. Of the breeding species recorded here, only five species were confirmed breeding with a further 13 species probably breeding in the general area. The breeding species are found exclusively in the buildings and built land and will not be affected by the proposed development. Several species were not breeding in the area but were recorded for completeness.

The total populations of non-breeding waterbirds recorded in the intertidal area around Foynes Port are described in the EIA. The greatest proportion (55%) was recorded consistently at the southern end of Robertstown Creek which is remote from the proposed development. The intertidal area immediately around the existing Port and Foynes Island held about one fifth of the total each. A total of 38 species were recorded in this period. The most abundant species were Golden Plover, Dunlin and Lapwing. Wigeon and Teal were the most numerous ducks and Black-headed Gull the most abundant gull. There can be considerable interannual variation in numbers and distribution of waterbirds.

No breeding birds occur within the footprint of the proposed East Jetty extension and pontoon relocation development. No significant adverse effects are predicted. No mitigation is proposed. Any breeding birds are associated with existing buildings and will not be affected by construction

disturbance as they are habituated to vehicle and personnel movements. Less than 10 individual non-breeding waterbirds occurred within the footprint of the proposed East Jetty extension and pontoon relocation development during the period 2105 to 2017. Oystercatcher and Black-headed Gull were the only waterbird species present here. The effect of an imperceptible amount of subtidal habitat loss beneath the new open pile jetty will be negligible and the mudflat habitat that currently exists here will be retained behind the new development. The waterbirds present are already habituated to vehicle and personnel movements around the existing jetties and will not be significantly adversely affected by additional noise or disturbance during construction.

There will be temporary adverse effects of construction on breeding birds as a direct consequence of the infilling and development of the Durnish site causing loss of breeding habitats in the hedgerows, treelines and grassland. This habitat loss and noise or visual disturbance due to personnel and vehicles at construction stage may cause displacement of species to alternative areas or fragmentation of territories. Of the breeding species recorded, two (Meadow Pipit and Grey Wagtail) are considered to be of high conservation concern (red list) while a further 12 species are of moderate conservation concern (amber list).

Normal port operations will continue during and after construction. This will involve berthing of ships, vehicle and personnel movements around the site. The waterbirds present in the area are already habituated to vehicle and personnel movements around the existing jetties and will not be significantly adversely affected by additional noise or disturbance during operation of the port. The potential adverse effects of port operations on breeding birds in the Durnish site are noise and visual disturbance by personnel and vehicles. Many of the species concerned are habituated to vehicle and personnel movements as they occur widely in farmland, urban areas and even industrial sites where suitable habitat exists.

During construction, site clearance works requiring removal of vegetation are restricted to the period 1st September to 28th February to avoid adverse effects on breeding birds. A moderate beneficial long-term effect is predicted as a result of existing boundary vegetation being augmented where retained along external boundaries and strengthened by additional planting of a wide landscaped belt planted along the external boundaries. This planting along the north-eastern site boundary between the site and the Robertstown Creek will help to screen port activities at Durnish from the intertidal area at Robertstown Creek and prevent disturbance to non-breeding birds in this area.

7.4 DESIGNATED SITES

The assessment considered the possibility of likely significant effects on Lower River Shannon SAC; River Shannon and River Fergus Estuaries SPA; Stack's to Mullaghareirks, West Limerick Hills and Mount Eagle SPA; Askeaton Fen Complex SAC; Barrigone SAC; and Curraghchase Woods SAC.

Likely Significant Effects could not be discounted for Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA, and a Natura Impact Statement was prepared to analyse and evaluate the implications of the proposed development on the conservation objectives of these two European sites. Mitigation was proposed and an Adverse Effect on the Integrity of the Site is not predicted for any European site.

Significant adverse effects were not predicted upon the features of Inner Shannon Estuary - South Shore proposed Natural Heritage Area (NHA), or any other proposed NHA or NHA.

8 SOILS, GEOLOGY, HYDROGEOLOGY AND WASTE

8.1 SOILS, GEOLOGY AND HYDROGEOLOGY

The assessment of soils, geology and hydrogeology was based on a desk study of publicly available information such as geological maps, historical borehole logs and maps, consultation with Local Authorities, a site walkover survey and an intrusive ground investigation.

The investigation identified that the site is underlain by made ground, estuarine alluvium (silts and gravels), glacial clay and limestone bedrock. The bedrock of the Durnish lands consists of the Rathkeale Formation to the east of the site and the Durnish Formation to the west. The bedrock geology of the Port of Foynes site is the Clare Shale Formation.

Hydrogeology is the study of groundwater, including its origin, occurrence, movement and quality. The site area is located on two aquifer domains: Poor Aquifer (PU) and Locally Important Aquifer (LI). The PU designation represents bedrock which is generally unproductive while the LI designation represents bedrock which is moderately productive only in local zones. A Regionally Important Aquifer - Karstified (conduit) is present to the east of the site area (approximately 2km).

The conceptual site model developed in the assessment has not identified any potential significant relevant pollutant linkages (RPLs) for the site.

The proposed development will not have any substantial, negative impacts on the soils, geology and hydrogeology of the area.

8.2 WASTE

A review of the operational waste types generated at the Port of Foynes was undertaken as part of the assessment in relation to waste management. The data was used to estimate waste types that will be generated from the construction and operational phases of the proposed development. An extensive document review was completed to assist in identifying current and future requirements for waste management. Effects from the forecast waste generation have been assessed in the context of the effects on waste management infrastructure and legislation, policy and strategy targets.

The proposed harbour development will generate construction related waste and once operational the extended capacity at the port will facilitate an increased number of berthing opportunities and the likelihood of increased waste arising associated with the additional port capacity during the operational phase.

Localised demolition of the existing deck structure will be necessary at the Western end of the existing East Jetty to allow for connection of the jetty extension to the existing jetty's rounded end. Similar localised demolition will also be required at the existing West Quay. The localised demolition will generate Construction, Demolition and Excavation (CD&E) type waste materials. It has been estimated that the demolition works will generate approximately 130m³ of concrete / demolition waste. This waste will be managed off-site at a licensed facility.

The proposed works to be carried out on the Durnish Lands includes infilling of the existing Greenfield site with imported clean aggregate fill material to raise the level of the existing site above the flood plain, facilitating a mixture of warehousing, storage and port centric development. As such the development on this land will be a Greenfield development and typical waste arisings associated with the construction of warehousing and access infrastructure are considered likely.

In terms of the overall impact of the construction stage, a carefully planned approach to waste management and adherence to the CEMP and SWMP during the construction and installation phase will ensure that the impact on the environmental will be neutral, short term and imperceptible. Contractors working on the site during the works will be responsible for the collection, control and disposal of all wastes generated by the works, the contractor will meet all legal requirements. All wastes will be managed off site under the principles of the waste management hierarchy by reuse, recycling, recovery and disposal to inert, non-hazardous and hazardous waste facilities, as appropriate. There is available capacity within the existing waste management infrastructure in the Region to manage C, D and E waste from the proposed development works. Therefore the effect of the construction phase in relation to waste management is deemed as neutral.

The reception and management route of waste at the Port is currently managed as per the Port's Waste Management Plan 2018. The Waste Management Plan underpins all waste related operations at Port of Foynes. SFPC will continue to review and implement any required changes in this port waste management plan in order to avoid and minimise the potential effects of ship and boat generated wastes once the jetty extension and warehousing and storage facilities are operational. SFPC will continue to provide adequate reception facilities and remove, as far as is practicable, any disincentives to landing waste in the port. SFPC will continue to encourage the responsible management of waste, including minimisation and recycling, at the point of generation on ships, reception in ports/harbours, transportation and disposal, and ensure that port and harbour employees and users dispose of wastes responsibly in facilities provided. From a waste management point of view the site will return to the baseline situation as it is anticipated that due to recycling and reuse policies, procedures and the implementation of the Waste Management Plan, that, while there may be a minor increase in waste arisings there will be no discernible effects to waste management once operational. Therefore the effect of the operational phase in relation to waste management is deemed as neutral.

9 WATER QUALITY & FLOOD RISK ASSESSMENT

The assessment of water quality and flood risk comprises water quality assessment based on the Water Framework Directive (WFD) environmental objectives for water bodies and a flood risk assessment consistent with a Stage 3 site specific FRA under 'The Planning System and Flood Risk Management Guidelines', (DEHLG/OPW, 2009). Existing water quality in the vicinity of the proposed development is established based on available water quality information, the likelihood for significant negative impacts on water quality is determined and mitigation measures to reduce impacts are proposed, where necessary. The assessment framework for flood risk is based on a probability assessment using the best available historic records of observed data. The probability assessment is considered against the potential consequences of flooding to arrive at an understanding of the long term risk. As well as a risk assessment based on the currently available observed data, scenarios considering the impact of climate change are also considered.

9.1 WATER QUALITY

Baseline water quality within the receiving environment has been established through review of monitoring data used to establish water quality status in the context of the EU Water Framework Directive (WFD).

The proposed capacity extension at Shannon Foynes has the potential to directly affect the Foynes_010 (IE_SH_24F230770) river water body and Foynes Harbour transitional waters. It also has the potential to impact upon the adjacent Lower Shannon Estuary transitional waters. The available monitoring information for the water bodies in the immediate vicinity of the Project (i.e. the Lower Shannon Estuary water body) indicates that:

- the overall WFD status of the water body is 'moderate' due to biological elements, i.e. fish. All other contributing elements, including chemical surface water status and hydromorphological conditions are classified as good or better;
- trophic status is 'unpolluted';
- dissolved oxygen levels are satisfactory and capable of supporting nearly all forms of aquatic life; and
- the level of oxygen demand in the water body is acceptable.

Whilst the Lower Shannon Estuary, Foynes Harbour and Foynes_010 water bodies are not identified as areas for action under the current River Basin Management Plan published by the Department for Housing, Planning and Local Government in accordance with the WFD, it is necessary to ensure that the proposed development does not prevent the achievement of the WFD objectives for these water bodies in subsequent RBMP cycles.

An assessment of the impacts during the construction and operation phases of the development has been undertaken in the context of water quality. Impacts during the construction phase include increases in suspended solids, possible oil and chemical pollution, concrete production and placement and physical changes to a water body (i.e., hydromorphology changes). Operational impacts identified include the management of foul (sewage) water and the storm water drainage of hard standing areas, including run off from cargo handling and storage areas, and the limited road improvements.

Mitigation has been incorporated within the engineering design of the proposed development to minimise its potential impact on the water environment, e.g. the use of a piled jetty construction to minimise any changes in coastal process and the generation of suspended sediment. Most impacts to water quality posed by this project during construction and operation will be dependent on the quality of drainage and treatment of run off and foul waste before discharge to the Estuary / Harbour. Therefore mitigation measures will be taken to ensure existing drainage pathways are kept free from construction sediment and contaminants through the use of effective barriers to pollutant export and best practice techniques to control these pressures at source. In addition the new development areas will be serviced by appropriate foul and storm water drainage systems that will effectively treat any potential pollutants generated from the operation of the development areas prior to discharge to the receiving environment.

The mitigation measures proposed are consistent with the measures listed in the SEA Environmental Report and Natura Impact assessment for the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary in terms of the general principles, mitigation for the Marine Related Industry theme and the site specific mitigation for the 'Lands to the Rear of Foynes Port'. These measures are required to ensure the WFD status does not deteriorate and the proposed development does not prevent the achievement of the Environmental Objectives for the associated water bodies, including the protected area qualifying interests for the downstream Natura 2000 network.

The Capacity Extension at Shannon Foynes Project is therefore not expected to have a significant detrimental impact on the water quality of the receiving waters or make a significant change to the existing morphology. It can therefore be concluded that the proposed works are compliant with the requirements and environmental objectives of the EU Water Framework Directive.

9.2 FLOOD RISK ASSESSMENT

The application site at Shannon Foynes is potentially at risk from coastal and fluvial/drainage system flood mechanisms. The level of risk is greatly affected by the flood defences which surround the application site including earthen embankments and a recently constructed flood wall which runs through Foynes Port. It is considered that the earthen flood defences, although they provide the required standard of protection in terms of their line and level, cannot be relied upon structurally to provide protection against coastal flood events up to 0.5% AEP (1 in 200 year probability).

The understanding and quantification of the level of risk in relation to these mechanisms is aided by a number of recent studies. As a result there is a large body of analysis upon which to base a detailed Flood Risk Assessment (FRA) that accurately captures potential impacts arising from the development and meets the requirements of a Stage 3 site specific FRA under 'The Planning System and Flood Risk Management Guidelines', (DEHLG/OPW, 2009). As part of this assessment the information already available has been reviewed and used as the basis for this assessment. Further site specific analysis has been undertaken to build a detailed picture of flood risk. This has included topographical and watercourses surveys, hydrological analysis and hydraulic modelling of the application site and the surrounding Foynes/Durnish area.

In relation to fluvial flood risk it was found that the risk to the application site itself is fairly low. However the surrounding lands and Foynes Village lie upstream of the application site and any constriction to flow in the system of ditches and watercourses which drain these areas could potentially result in increased flood risk. Mitigation is proposed in the form of adequately sized culverts crossings and a 5m wayleave retained at existing levels along the watercourses. When

represented within the hydraulic model it is demonstrated that the development of the application site will not result in increased fluvial/drainage flood risk.

Coastal flooding to the application site is considered the greatest source of flood risk in relation to the development of the application site. In particular in the event that the earthen embankments were to fail then the application site and the surrounding area would be inundated rapidly to a high depth of flooding. In line with a precautionary approach that is not reliant on the performance of flood defence structures it is proposed that the Durnish lands portion of the application site be filled to above the 0.5% AEP coastal flood event level in the Shannon/Robertstown Estuary. This will ensure that the risk of the application site flooding is relatively low, even in the event of defence structure failure. In the event the existing flood defences continue to be effective this filling of the site will have no impact on the coastal flood risk elsewhere. In the event that the earthen defences fall into disrepair and extreme flood events are free to completely inundate the area the filling of the site will have no impact on coastal flood risk to the surrounding area. It is only in the event of a breach where the volume of water which inundates the Foynes/Durnish area is limited that the filling of the application site could impact coastal flood risk owing to the displacement of flood waters which would otherwise flood these portions of the application site. Extensive modelling of the effect of this scenario has been undertaken and demonstrates that although there will be increases in flooding to the agricultural lands to the south east in such a breach scenario there will be reductions in flood risk to the Village of Foynes. It is considered therefore that the overall impact of the development in the coastal breach scenario is at worst neutral and at best positive.

10 AIR & CLIMATE

Site specific baseline air quality monitoring has been carried out within the study area to supplement the existing air quality data available from the EPA National Air Quality Monitoring Programme and other local data sources. The site specific monitoring identifies the existing pollutant trends in the area and establishes compliance with relevant ambient air legislation. All levels detected are within the statutory limits for the protection of human health set by the European Union as well as the guidelines set by the World Health Organisation.

Once construction dusts are effectively managed, the potential impact of construction dust on affected properties is a temporary “slight adverse” impact for 28 properties (residential and commercial) in the Foynes area.

Based on the predicted additional volumes of construction related traffic on the local road network, the resultant air quality impact of construction traffic emissions is predicted to be “negligible” for local populations adjacent to the road network. At a regional scale the construction traffic for the proposed development is predicted to cause a permanent “slight adverse” impact.

The results of dust monitoring at the port indicate that there are current open sources of dust on the port site that are leading to localised dust generation around the site. While, the most recent data set indicate that these dusts are not being detected close to residential areas, the potential for dust nuisance at these area exists in the baseline scenario. Given the history of dust deposition levels in the port area and the sensitivity of the area to continued and additional dust impacts, there is a long-term “slight adverse” direct impact to air quality predicted for all properties within 350 metres of the existing and proposed port boundaries.

The results of the modelling of the additional operation phase traffic on the main routes in the network show that properties will experience an increase pollutant levels in future scenario years. The air quality impact of this operation phase traffic emissions is classed as “negligible” for local populations.

The total greenhouse gas emissions and oxides of nitrogen from traffic associated with the proposed development will increase over the years 2023 to 2041 when compared to the do-minimum scenario. These increases are considered to be a permanent “slight adverse” impact.

11 NOISE & VIBRATION

11.1 TERRESTRIAL NOISE

A detailed Noise and Vibration Assessment was completed as part of the EIA for the proposed development. This assessment was completed in accordance with a range of standard and recognised noise and vibration guidance documents. The aim of the Noise and Vibration Assessment was to determine if there was likely to be any significant noise and vibration impact associated with the construction and operational phases of the proposed development. Where noise and vibration impacts are predicted, the Noise and Vibration Assessment included a range of mitigation measures to reduce these impacts to the lowest possible levels.

A noise monitoring survey was undertaken at four locations in the vicinity of the existing port to record the noise environment currently experienced at residential properties in the vicinity of the port.

An assessment of construction noise was undertaken and illustrated that there is potential for noise to be elevated at the nearest noise sensitive properties during the construction phase, although these noise levels will be within the required noise threshold limits as specified in the relevant noise guidance documents. A range of noise mitigation measures are included in the report to reduce all construction noise impacts to the lowest possible levels.

There will be no significant noise impact associated with traffic flow changes as a result of the construction or operational phase of the proposed development. The assessment concluded that traffic flow changes associated with the proposed development will be minor adverse at worst.

There is potential for plant/equipment noise impacts from the Durnish lands at the nearest noise sensitive properties if no mitigation measures in place. Subject to the mitigation measures stipulated in this chapter being enforced, plant/equipment noise will be within the appropriate noise threshold limits. A noise monitoring schedule will be put in place to ensure that there will be no exceedances of the NG4 noise threshold limits at the nearest noise sensitive receptors. There will be no significant vibration impact associated with the proposed development.

11.2 UNDERWATER NOISE

The underwater noise assessment comprised of the collection of background noise data, calculating potential noise levels on fish and marine mammals during the construction and operation phases and recommending mitigation and monitoring as appropriate. The methodology is consistent with best practice for underwater noise assessments and includes interaction with the benthic and marine mammal specialists.

Background noise measurements were carried out at the entrance to the harbour and in the central area. Underwater noise levels are within the range expected in a harbour, with levels increasing during vessel movements. Due to the confined nature of the harbour noise level increases are localised and arise for short periods.

The most significant underwater noise impact will arise during the construction phase during piling. This increased impact will only arise for short periods on a day when piling is taking place. Piling is will be carried out using vibratory (low noise) piling with limited impact piling requirements. The impact assessment is based on the worst case scenario (impact piling). Noise from vessels during construction and for the operation phase was also assessed.

Potentially harmful underwater noise levels may arise during impact piling within 50m of the piling rig. Disturbance to marine mammals may occur within 250m of the impact piling activity. These impacts can only arise in the central harbour area for a few hours on a day when impact piling is taking place. Where noise and vibration impacts are predicted, the Noise and Vibration Assessment includes a range of mitigation measures to reduce these impacts to the lowest possible levels.

Subject to the mitigation measures being implemented, underwater noise will be controlled and no significant environmental impact is expected. An underwater noise monitoring programme will be put in place to ensure that underwater noise levels are adequately controlled during construction. There will be no significant underwater vibration impact associated with the proposed development.

12 MATERIAL ASSETS – COASTAL PROCESSES

The potential impact of the proposed works at Shannon Foynes Port on the existing coastal processes was assessed through an extensive numerical modelling programme. The modelling programme was undertaken using RPS's in-house suite of MIKE coastal process modelling software developed by the Danish Hydraulic Institute (DHI). This suite of software is considered a global standard, used internationally for many environmental, planning, legal, engineering and other predictive applications.

To represent baseline conditions RPS refined an existing model of the Shannon Estuary to increase the model resolution around Foynes Island and the existing Port. This model was calibrated and verified across a typical spring neap period using results from fieldwork and other data held by RPS. RPS then amended this baseline model to include the additional pile structures around the pier to represent proposed conditions. The impact of the presence of the additional structures on tidal flows was then quantified using these two models.

Results from the baseline and proposed conditions model simulations found that:

- The installation of the additional piles to facilitate the jetty extension will have very little effect on tidal currents and therefore negligible impact on coastal processes.
- There may be some circulation around the pile structures and in the shallow area behind the jetty extension however this is in line with the existing surrounding piled structures and reclaimed areas.
- As the impact of the proposed open piled structure on the existing coastal processes will be negligible further remedial or mitigating measures are unnecessary.
- The long term impact of the jetty extension would be small scale low magnitude changes in tidal currents at the pier locations.
- The area behind the jetty may experience circulation however this is consistent with the existing pile array associated with the east and west jetties.
- The limited nature of changes to the existing tidal regime are such that these variations would not have an adverse effect on the receiving environment.

In terms of coastal processes the predicted impacts on tidal currents during both the construction and operational stages are well within the natural variability of tidal flows and therefore monitoring would be neither necessary nor effective.

The comprehensive studies undertaken, as outlined above, demonstrate that the proposed works at Foynes Port are not expected to have a significant detrimental impact on the coastal processes of Shannon Estuary. It can therefore be concluded that the proposed works will have no residual impact.

13 MATERIAL ASSETS – ROADS & TRAFFIC

RPS Group was commissioned by Shannon Foynes Port Company to prepare a Traffic and Transport Assessment Chapter within this Environmental Impact Assessment Report for the proposed development of an extension to the current Shannon Foynes port lands.

The Traffic and Transport Assessment Chapter has been completed in support of a planning application for a jetty extension and extension of the existing port lands to the east (known as Durnish Lands), which will accommodate an aspirational increase in port activity tonnage throughout, as set out by SFPC.

The proposed jetty extension is located in the near shore region of Foynes Port between the existing East Jetty and the existing West Quay.

The Durnish Lands proposed for development are located on the eastern side of the main entrance road leading into the Shannon Foynes Port at Foynes, Co. Limerick. The development site is located approximately 1.5 kilometres east of the village of Foynes, and is within 500 metres of the N69 (Limerick to Tralee Road).

The port is served by two separate vehicle access points, which are connected via an internal road. These two accesses include a security kiosk / access barrier to halt unauthorised public vehicles from entering the port lands.

The proposals include a new roundabout to access the eastern side of the port which ties into the existing adopted road owned by Limerick City and County Council (LCCC). A Letter of Consent from LCCC allowing the roundabout to be shown on their lands for the planning application is attached. LCCC were also informed in writing at pre-application stage that the proposals will include the principle of the port barrier being relocated to an area within LCCC lands at the eastern side of the port south of the new roundabout.

Several pre-application meetings were held with An Bord Pleanála (ABP) for the scheme. ABP released a Record of Meeting correspondence in relation to a meeting that was held on the 19th October 2016, in which it was confirmed that the traffic assessment for the proposed scheme should assess the effects on the local road network.

Both Transport Infrastructure Ireland and the Commission for Railway Regulation responded to the Environmental Scoping letter issued for the scheme. Their comments have been taken into account in the preparation of the application.

On the 20th February 2018 a pre-application meeting was held at the LCCC offices in Limerick, with members from both the Application/Client team and the LCCC, including representatives from the roads department of the LCCC. During the meeting a summary of the envisaged approach to undertaking the TTA was described and discussed.

A baseline accessibility assessment was undertaken to establish the existing transport provision serving the site and its surrounds. The assessment considers travel by sustainable modes of transport including walking, cycling and public transport; and provides a brief assessment of available infrastructure and service provision. It should be noted that due to the location of the site and the nature of the existing and proposed development, access to the site by sustainable modes of transport is likely to be minimal.

There are existing footways provided on both sides of the N69 carriageway, from west of Durnish Avenue to north of the Port West Access. The footways are well lit and maintained, with the footway to the south of the carriageway terminating for a short section in the vicinity of Saint Senan's car park.

In order to enhance walking and cycling sustainable travel options, the proposed scheme has been future-proofed to accommodate a possible future internal footway and cycle connection at the Port. The proposals include the provision of walkway / cycleways along the proposed roads within the Durnish Lands. In addition to the provision of the walkway / cycleways, cycle parking spaces will also be provided within the proposed development site at Durnish Lands.

The main bus operator serving the stops at the site is Bus Éireann Service 314, with the nearest existing bus stop located on the N69, adjacent to the Port's west access. This service provides a direct route from Foynes to Limerick and Tralee, including settlements of Askeaton, Talbert and Listowel. The bus stops at the site are served 5 times a day in both directions. It is proposed to facilitate a possible future bus stop to future-proof the possibility of the extension of the 314 Bus Service from the N69 along the eastern access road to serve the Durnish Lands.

An Iarnród Éireann (Irish Rail) owned single rail line extends from Limerick and extends directly up to the East and West Jetties at the Port. The use of the rail line was discontinued in 2000 and is not currently in use; however it remains a key asset to the Port.

No works are proposed to the existing rail line for this development proposal. The future operational use of the rail line is under constant review but at this time, the operational reuse of the rail line is subject to a specific end user requirements and / or viability of investment in the upgrade in the infrastructure. Despite that, the proposal seeks to retain and safeguard the integrity of that line and infrastructure, and do not compromise or preclude any future potential uses relating to the railway line.

A Mobility Management Plan (MMP) was prepared to set out the type of measures which could be adopted by the Operator(s) within the proposed development to ensure such choice of sustainable travel is available to staff and visitors.

A MMP is a management tool that brings together transport and other staff and site management issues in a coordinated manner. A successful plan can help competitiveness by reducing transport costs for both staff and the employer and provide a more conducive working environment. It brings together a package of measures tailored to the needs of an individual work site or a collection of work sites. This package generally includes measures to promote and improve the attractiveness of using public transport, cycling, walking, car sharing, flexible working or a combination of these as alternatives to single occupancy private car travel.

The MMP can consider all travel associated with a work site, including business travel, fleet management, customer access and deliveries. It should be considered as a dynamic process where a package of measures and campaigns are identified, piloted and monitored on an on-going basis. The impact of these measures should be reviewed by LCCC and the Operator against a set of agreed targets.

Traffic will be generated by the construction activities associated with the project and by the main site once operational. It is anticipated that the port will remain operational during construction, with the traffic generated by the proposed development once operational being more onerous than the construction phase. The construction traffic associated with the proposed development will be temporary and it is predicted that the construction period will be completed by 2029.

Operational traffic flows were established from a pro rata increase from new surveys undertaken at the site access points and based on aspirational targets of increased tonnage activity at the port as set out within SFPC Vision 41 document.

Detailed junction capacity analysis was undertaken using approved traffic modelling software to ensure that the existing highway network can accommodate the traffic generations associated with the proposed development. The results demonstrate that the network functions within operational capacity when the proposed traffic associated with the new development is added to the surrounding road network by the year 2041; the end of the Masterplan and 24 years from the survey year.

The construction of the Foynes to Limerick Road Improvement Scheme, which is currently at planning stage, will provide further road capacity to the road corridor between Foynes and Limerick. The construction of the Foynes to Limerick Road Improvement Scheme will result in the N69 / Port East Access priority junction being upgraded to a roundabout junction. LCCC provided RPS with the dimensions of the proposed roundabout, which was modelled with the results showed that the proposed N69 roundabout will work comfortably within capacity for the year 2041.

Therefore it is concluded that the proposed development and related construction vehicle movements can be accommodated within the existing surrounding road network.

14 ARCHAEOLOGY AND CULTURAL HERITAGE

The Archaeological Diving Company Ltd (ADCO) was appointed by RPS Group, consulting engineers on behalf of Shannon Foynes Port Company (SFPC), to undertake an Archaeological Assessment as an Environmental Impact Assessment (EIA) for the Cultural Heritage Section of the Environmental Impact Assessment Report (EIA) for the proposed Capacity Extension and Harbour Development project within Shannon Foynes Port.

The project comprises the construction of a new jetty structure between the existing East Jetty and West Quay, within Shannon Foynes Port, and the development of lands to the southeast of the port estate, within Durnish Townland. The study area encompasses subtidal, intertidal, and terrestrial components that extend across three areas of the project design, namely:

- **Area 1**, a 145m (north-south) x 38m (East-West) area of intertidal foreshore located to the west of West Quay.
- **Area 2**, a 130m (north-south) x 237m (east-west) area of intertidal foreshore and subtidal riverbed located between/behind the existing East Jetty and West Quay.
- **Area 3**, a 797m (north-south) x 547m (east-west) parcel of land (Durnish Td.) located immediately to the southeast of the eastern limit of the existing boundary of the port estate.

The proposed jetty extension works will include: the removal and relocation of the existing small-craft landing pontoon to an area identified on the west side of the existing West Quay; construction of an open pile jetty structure, with suspended concrete deck, between the west terminus of the East Jetty and the east terminus of West Quay, tying-into same; and a transition slab to provide access from the open pile jetty structure to the Berth 5 reclamation area (this reclamation being a previously permitted development under LCCC planning permission 12/212). These foreshore development areas are located within a Special Area of Conservation and have also been subject to classification as a Natural Heritage Area. Both areas lie adjacent to a Special Protection Area that encompasses the wider River Shannon Estuary.

The development of the land adjacent to the port estate, in Durnish Townland., is to comprise the in-filling of the existing greenfield site with imported fill material, raising ground levels above the floodplain to facilitate the insertion of warehousing, storage and other port related infrastructure.

The archaeological assessment is based on a desktop review of existing archival and published information, interpretation of the results of a geotechnical site investigations works undertaken for the project, and an on-site inspection of the relevant green-field, foreshore, quayside, and underwater areas.

The desktop assessment indicates the presence of a range of prehistoric and more recent archaeological sites within the wider area of Foynes Port, including the site of two fish traps to the east at Durnish Point, which have been recorded on Ordnance Survey maps since the nineteenth century. However there are no known archaeological sites or features within the present port development areas.

The onsite assessment was comprehensive and comprised the systematic non-disturbance assessment of the areas surrounding the proposed construction impacts associated with the port

development (Areas 1-3); extending significantly beyond the identified limits of each of those impacts. The assessment sought to provide a thorough background to the maritime landscape present, record the general topography of the areas under assessment, assess the potential of deposits from those areas to retain archaeological material and identify any material, features or structures of archaeological or historic significance that are present.

The archaeological assessment was carried out in accordance with Section 5 of the National Monuments Act (2004 Amendment), under licence from the Department of Culture, Heritage and the Gaeltacht (DCHG); licence numbers 17D0017 and 17R0012. Visual inspection of the Durnish greenfield site and the intertidal foreshore areas within the port was undertaken on the 13th February 2018. The underwater assessment of the sub-tidal area between the East Jetty and West Quay was carried out on 16th February 2017.

While no features of archaeological or historical significance were encountered within the immediate port development area, a series of four fishtrap structures (F01-F04) were discovered as part of the intertidal field-walking of the foreshore adjacent to the Durnish development land. These archaeological sites lie outside any impact area associated with the port expansion project and will remain unaffected by the proposed development. In addition, a recorded enclosure site (RMP: RMP LI 010-009) is located some 85m to the west of the proposed development land within Durnish townland (Area 3). This site retains a 20m buffer zone around its extent and will also remain unaffected by the development.

It is recommended that further archaeological assessment in advance of construction is not required. However, it is recommended that all ground and foreshore/riverbed disturbances associated with the development are archaeologically monitored by a competent maritime archaeologist experienced in marine/port development projects, with the proviso to resolve fully any archaeological material observed at that point. A series of other mitigation measures are included that addresses the management of the archaeological resolution during construction.

Recommendations are subject to the approval of the National Monuments Service at the DCHG.

15 THE LANDSCAPE

The proposed development is located within the north-eastern of Foynes urban area on a zoned portion of marine industrial lands. In landscape character terms the wider study area has been classified as:

- Foynes Port and Urban Landscape; and
- Shannon Estuary and Rounded Farmland.

The proposed development is located directly in both landscape character areas. The proposed East Jetty Extension is consistent with the character of the extended port area and the facility will blend in seamlessly with the existing infrastructure surrounding the site. New mobile cranes will be read with existing cranes. The predicted magnitude of change in landscape resource is small and the significance of the landscape effect is assessed as negligible to minor.

The location of the proposed development directly within this landscape will result in the physical alteration of open agricultural fields to marine industrial use and a large landscape impact at a local level (<1-2km). The significance of landscape effect will be Major to Substantial negative without mitigation. Beyond the local Shannon Estuary Rounded Farmland landscape (>1-2km) the proposed development will be read with the existing marine industrial uses and other commercial and industrial uses on adjacent lands and the undulating topography to the west, east and south quickly absorbs the proposed development to significantly restrict any potential change in landscape resource with a negligible landscape impact and a significance of landscape effect of minor.

In accordance with the robust approach to LVIA which has been employed, the Zone of Theoretical Visibility (ZTV) has been established based on a "worst case scenario." It has been established that from many locations within the ZTV views of the site will entirely be obscured by a combination of landscape and urban features. A series of 10 viewpoints have been assessed within the ZTV. No significant effects are predicted for any viewpoints.

There are limited dwellings in the immediate proximity of the proposal given its location adjacent to an existing industrial setting but for the nearest properties at Dernish Avenue in Foynes and along the N69 no significant visual effects have been predicted due to the limited visibility of the proposed development in conjunction with retention of existing hedgerows and proposed landscape planting. At locations further from the proposed development the low lying nature of the site of the proposed development, intervening features, separation distances and orientation of distance combine to ensure there are no residential dwellings within the ZTV predicted as being significantly affected.

The current Limerick and Clare County Development Plans have been examined. The proposal will have no significant effect on any relevant landscape or visual designations.

Overall, therefore, when the landscape and visual impacts are considered the proposal is acceptable and the surrounding landscape and its visual resources have the ability to accommodate the changes of the type associated with this development.

16 INTERACTIONS WITH THE FOREGOING

All environmental factors are inter-related to some extent and this section of the EIA cross references the individual environmental assessments undertaken, including the proposed mitigation measures, having regard to current knowledge and methods of assessment. An indication is also given of the cumulative effects of the proposed port capacity extension.

The overall cumulative impact of the development will result in,

- An increase in economic activity in the local area region;
- A slight increase in traffic on the local road network which can be adequately managed;
- No significant environmental nuisance from an air quality perspective subject to implementation of the mitigation measures and adherence to good working practices;
- No significant landscape visual effects due to the limited visibility of the proposed development in conjunction with retention of existing hedgerows and proposed landscape planting;
- Acceptable noise levels within the 55dB $L_{A,T}$ daytime threshold limit at the nearest noise sensitive properties, following construction of a 4m acoustic barrier on the southern and western boundaries of the site.

