October 2019

Natura Impact Report (NIR)

Port of Waterford Master Plan

Port of Waterford Company

MALONE O'REGAN ENVIRONMENTAL

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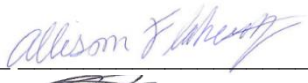
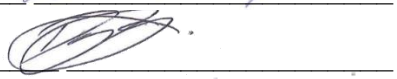
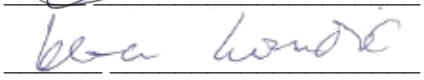
Prepared By: Allison Flaherty **Signed:** 

Checked By: Dyfrig Hubble **Signed:** 

Approved By: Klara Kovacic **Signed:** 

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Natura Impact Report (NIR)

Port of Waterford Master Plan

Port of Waterford Company

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1 INTRODUCTION

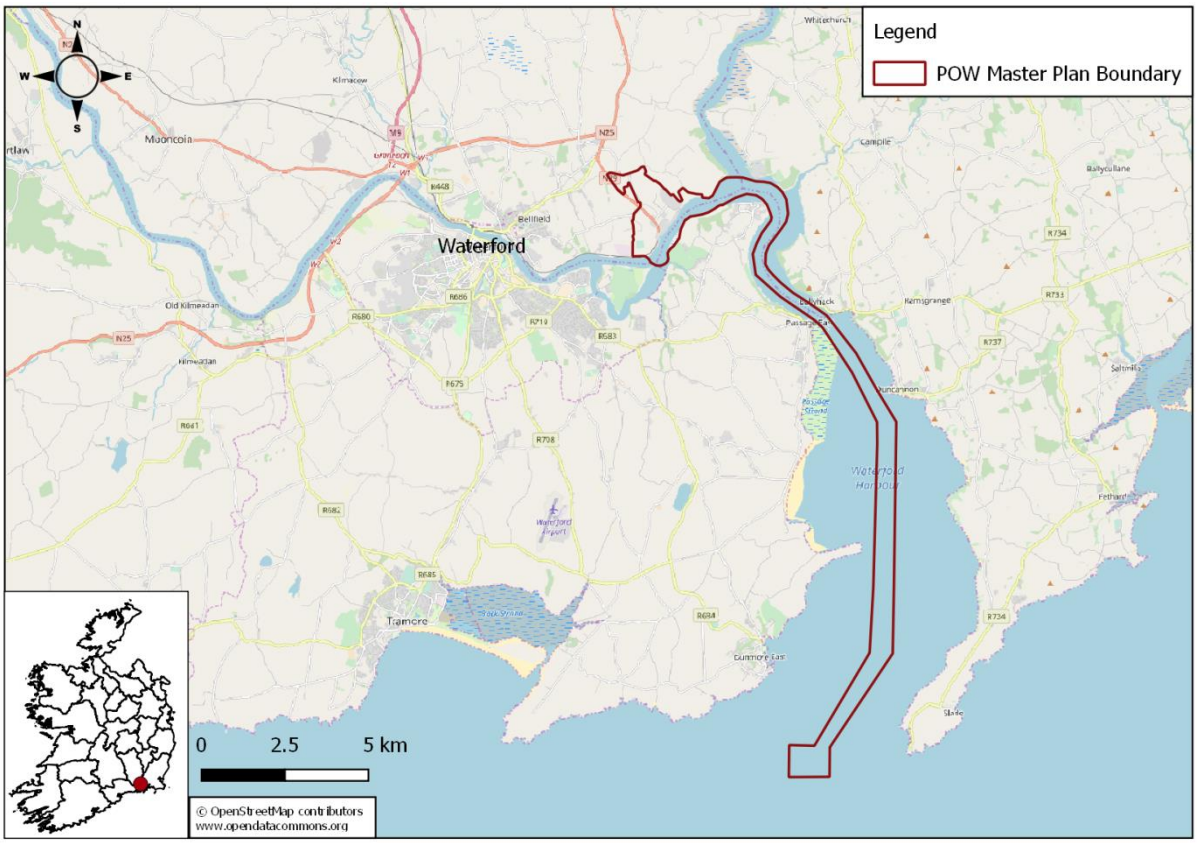
1.1 Background

The Port of Waterford (POW) is currently developing a 25-year Master Plan that will provide guidance and strategic context for future developments at the Port.

Malone O'Regan Environmental (MOR) were commissioned by POW to undertake a Natura Impact Report (NIR) to assess the potential adverse effects, if any, of the proposed POW Master Plan and associated works on nearby sites with European conservation designations (i.e. Natura 2000 sites).

The location and boundary of the Master Plan, encompassing all proposed Master Plan projects, are shown in Figure 1-1.

Figure 1-1: Site Location and POW Master Plan Boundary



1.2 Master Plan Assessment

The POW Master Plan is a non-statutory document that will provide a physical framework for the sustainable development of the Port, describing the strategic intentions necessary to improve overall Port capacity and performance and illustrating a clear vision of future Port operations. The Master Plan sets out the main infrastructural developments envisaged to facilitate trade in the Region for the next 25 years.

The future implementation of any projects detailed within the Master Plan will be subject to further assessment at a project level and will require the necessary statutory planning consent.

1.3 Regulatory Context

This NIR was prepared in compliance with the following legislation:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and on Wild Flora and Fauna better known as "The Habitats Directive" which provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC) (better known as "The Birds Directive").

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement):

> *"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any adverse effects on European sites by identifying possible adverse effects early in the planning stage, and designing the project in order to avoid such adverse effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse effects on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effects.

1.4 Stages of the Appropriate Assessment

This Appropriate Assessment has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC 2001) and the European Commission Guidance 'Managing Natura 2000 Sites'. The Guidance for Planning Authorities issued by the Department of Environment, Heritage and Local Government in December 2009 and revised in February 2010 was also adhered to.

There are four distinct stages to undertaking an AA as outlined in current EU and DOEHLG guidance:

Stage 1: Screening

This process identifies the potential impacts of a plan or project on a Natura site, either alone or in combination with other plans and projects, and considers whether these impacts are likely to be significant. If potential adverse effects are identified, the plan or project cannot be screened out and must proceed to Stage 2.

Stage 2: Appropriate Assessment

Where potential adverse effects are identified, an assessment of the potential mitigation of those impacts is required; this stage considers the appropriateness of those mitigation measures in the context of maintaining the integrity of the Natura 2000 sites. If potential

adverse effects cannot be eliminated with appropriate mitigation measures, the assessment must proceed to Stage 3.

Stage 3: Assessment of Alternatives Solutions

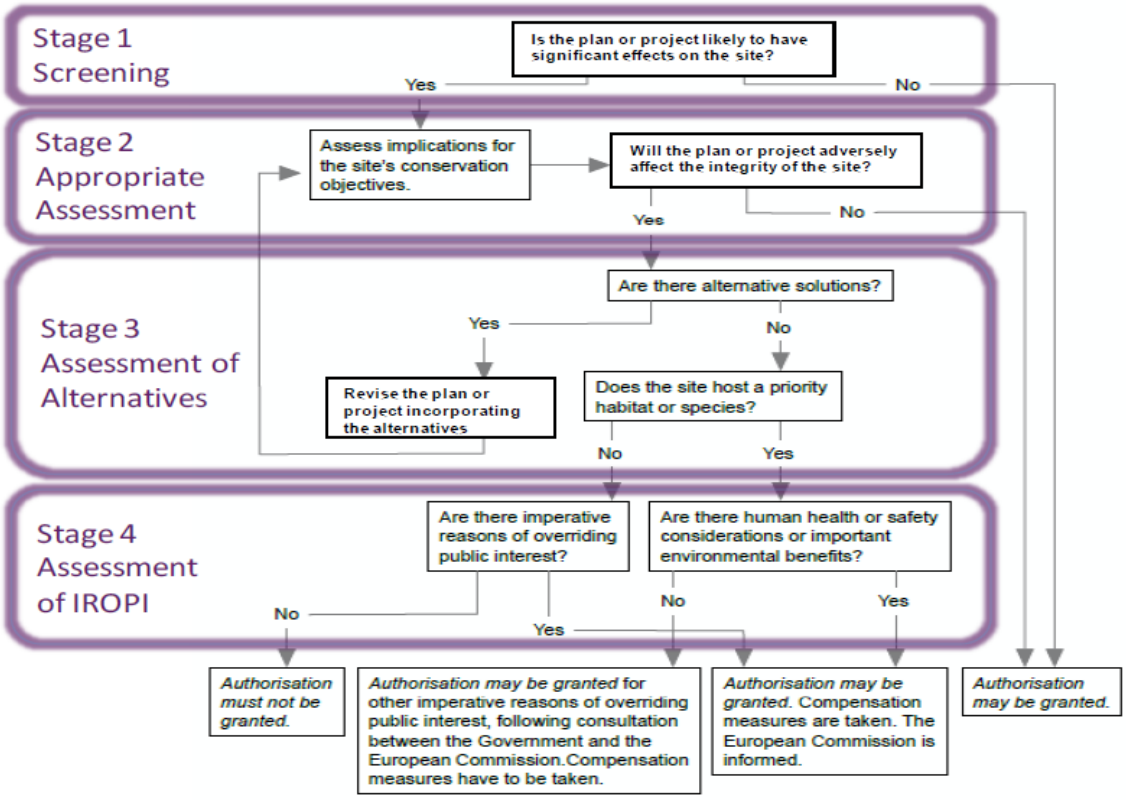
This process examines alternative ways to achieve the objectives of the plan or project that avoid adverse impacts on the integrity of the Natura 2000 site if mitigation measures are deemed insufficient.

Stage 4: Imperative reasons of overriding public interest (IROPI)

Assessment where no alternative solution exists for a plan or project and where adverse impacts remain. This includes an assessment of compensatory measure where in the case of projects or plans which can be considered to be necessary for IROPI.

The application of the Appropriate Assessment stages to a plan or project is illustrated in Figure 1-2.

Figure 1-2: Appropriate Assessment Stages



1.5 Objective of this Report

The objective of this report is to document an appropriate assessment of the implications of the POW Master Plan in the context of the conservation objectives of Natura 2000 sites.

A Screening for Appropriate Assessment (Stage 1) exercise was undertaken in accordance with relevant European Commission and national guidelines. It concluded that likely adverse effects on Natura 2000 sites and their qualifying features of interest could not be discounted as a result of the implementation of the Master Plan.

Accordingly, further assessment and progression within the Appropriate Assessment process was required.

1.6 Relationship with the Strategic Environmental Assessment (SEA) of the POW Master Plan

A Strategic Environmental Assessment (SEA) of the POW Master Plan was carried out in parallel with the AA process. There is a degree of overlap between the SEA and AA and as such an integrated approach of data sharing was undertaken during preparation of the respective reports. The AA and SEA have together informed and shaped the development of the POW Master Plan.

2 METHODOLOGY

In complying with the obligations under Article 6(3) and following the above Guidelines, the approach to the AA process undertaken for this proposal is set out below:

I. Description of the proposed works;

II. Identification of Natura 2000 sites potentially affected and compilation of information on their qualifying interests and conservation objectives;

III. Identification and description of potentially adverse effects likely to result from the proposed works;

IV. Exclusion of sites and impacts at Stage 1 Screening where it can be objectively concluded that there will be no adverse effects;

V. Stage 2 assessment of the significance of potentially adverse effects identified during Stage 1 and development / identification of potential mitigation measures and a further screening of sites and designated features that may be impacted by the works; and,

VI. Conclusion of NIR.

2.1 Consultation

The AA Screening Report, in addition to the SEA Scoping Report, was issued to the following consultees:

- Environmental Protection Agency (EPA);
- Department of Housing, Planning and Local Government (DHPLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Climate Action and the Environment (DCCAE);
- Department of Culture, Heritage and Gaeltacht (DCHG);
- An Taisce;
- Bord Iascaigh Mhara (BIM);
- Chamber of Commerce (Waterford, Wexford, Kilkenny);
- Coastwatch Europe;
- Department of Business, Enterprise and Innovation (DBEI);
- Department of Transport, Tourism and Sport (DTTAS);
- Department of Rural and Community Development;
- Inland Fisheries Ireland (IFI);
- Irish Ports Associations (IPA);
- Irish Environmental Network (Environmental Pillar);
- Irish Maritime Development Office (IMDO);
- Local Heritage Officers (Waterford, Wexford, Kilkenny);
- Local Authorities (Waterford, Wexford, Kilkenny);
- Local Amenity Groups including the Cheekpoint and Faithlegg Development Group;
- National Parks and Wildlife Service (NPWS);
- Office of Public Works (OPW);

- Passage East Ferry Company;
- Southern Regional Assembly;
- The Marine Institute;
- The Sea-Fisheries Protection Authority; and,
- Transport Infrastructure Ireland (TII).

With regards to AA process, relevant submissions were received from:

- Department of Culture, Heritage and Gaeltacht (DCHG); and,
- Bord Iascaigh Mhara (BIM).

DCHG were satisfied that the NIR was supported by the available sources. They did not express any other comments regarding nature conservation.

BIM provided additional sources to assist with preparation of the SEA and NIR, most notably:

- Appropriate Assessment for Aquaculture activities in the River Barrow and River Nore; and,
- Appropriate Assessment of Clam Fishing – Barrow and Nore SAC/Waterford Estuary.

2.2 Guidance

This appropriate assessment of the Master Plan has been completed taking cognisance of the following guidance:

- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC, 2000);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2001);
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission (EC, 2007);
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013);
- Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging. European Commission (EC, 2011a);
- European Commission Document 'Integrating biodiversity and nature protection into port development' (EC, 2011b);
- Estuaries and Coastal Zones within the Context of the Birds and Habitats Directives - Technical Supporting Document on their Dual Roles as Natura 2000 Sites and as Waterways and Locations for Ports. European Commission (EC, 2009);

- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010b);
- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document, National Parks and Wildlife Service, Dublin (NPWS , 2012);
- Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIS Processes: Practitioner's Manual. Environmental Protection Agency, Wexford (EPA, 2013);
- Habitats Regulations Appraisal of Plans: Guidance for Plan-Making Bodies in Scotland. Version 3.0. (Scottish Natural Heritage, 2015); and,
- ESPO Code of Practice on the Birds and Habitats Directive. European Sea Ports Organisation, Brussels (ESPO, 2007).

2.3 Desk Based Studies

A desk-based review of information sources was completed, which included the following sources of information:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment (National Parks and Wildlife Service, 2018);
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to species distributions (National Biodiveristy Data Centre, 2018); and,
- The EPA Envision website was consulted to obtain details about watercourses in the vicinity of the Site (http://gis.epa.ie/Envision/) (EPA, 2018).

3 DESCRIPTION OF THE PROJECT

3.1 Site Context and Description

The proposed POW Master Plan boundary is situated along a stretch of the River Suir and the River Barrow, which drain into Waterford Harbour. These waterbodies intersect three counties – Co. Waterford, Co. Kilkenny and Co. Wexford.

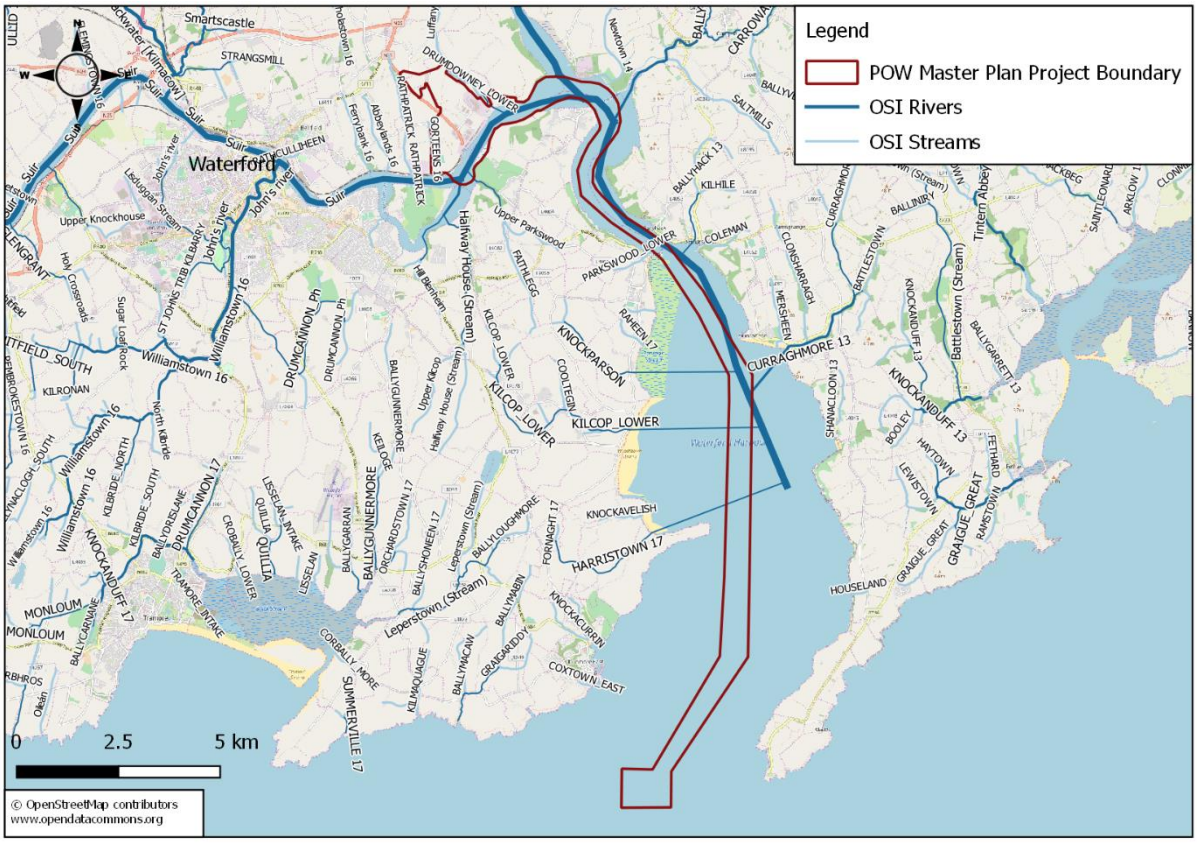
The Master Plan boundary extends ca.3.5km east of Waterford City, Co. Waterford. Part of this area is located within the industrial landscape of the Belview Port and part within the River Suir, River Barrow, and the Waterford Estuary and Harbour. The POW Master Plan and associated projects are bordered by multiple Water Framework Directive (WFD) Catchments including: Suir, Nore, Barrow, Colligan-Mahon, and Ballyteige Bannow (EPA, 2018). The placement of dredged material at sea is part of ongoing maintenance works at the Port and under regular review by the POW and does not form part of the Appropriate Assessment.

The River Suir, the River Barrow and Waterford Harbour are the primary hydrological features of note across the POW Master Plan. The River Suir, which is a designated Special Area of Conservation (SAC) flows in a north easterly direction, where it joins the River Barrow which is also a SAC. The River Barrow is ca.1.8km east of Belview Port. The River Barrow flows in a south easterly direction, eventually discharging into Waterford Harbour.

There are many rivers and streams that are tributaries of the River Suir, and drain into this river within the proposed POW Master Plan Boundary including; Ferrybank 16, Abbeylands 16, Rathpatrick, Gorteens 16, Drumdowney lower, Halfway house, and Upper parks wood (EPA, 2018). Some of these waterbodies have been identified and protected as WFD River Water Bodies that intersect with the River Suir SAC and River Barrow and River Nore SAC Conservation Objective Habitats and Species under the EU Habitats Directive and for the EU Water Framework Directive. These waterbodies include; Ballyhack 13, Parkswood lower, Newtown 17, Raheen 17, Kilcop lower, Knockavelish, and Harristown 17 (EPA, 2018). The EPA attributes numbers to rivers and streams as part of the WFD.

The location of the key surface water features in the vicinity of the POW Master Plan are illustrated in Figure 3-1.

Figure 3-1: Watercourses in the Vicinity of the Site



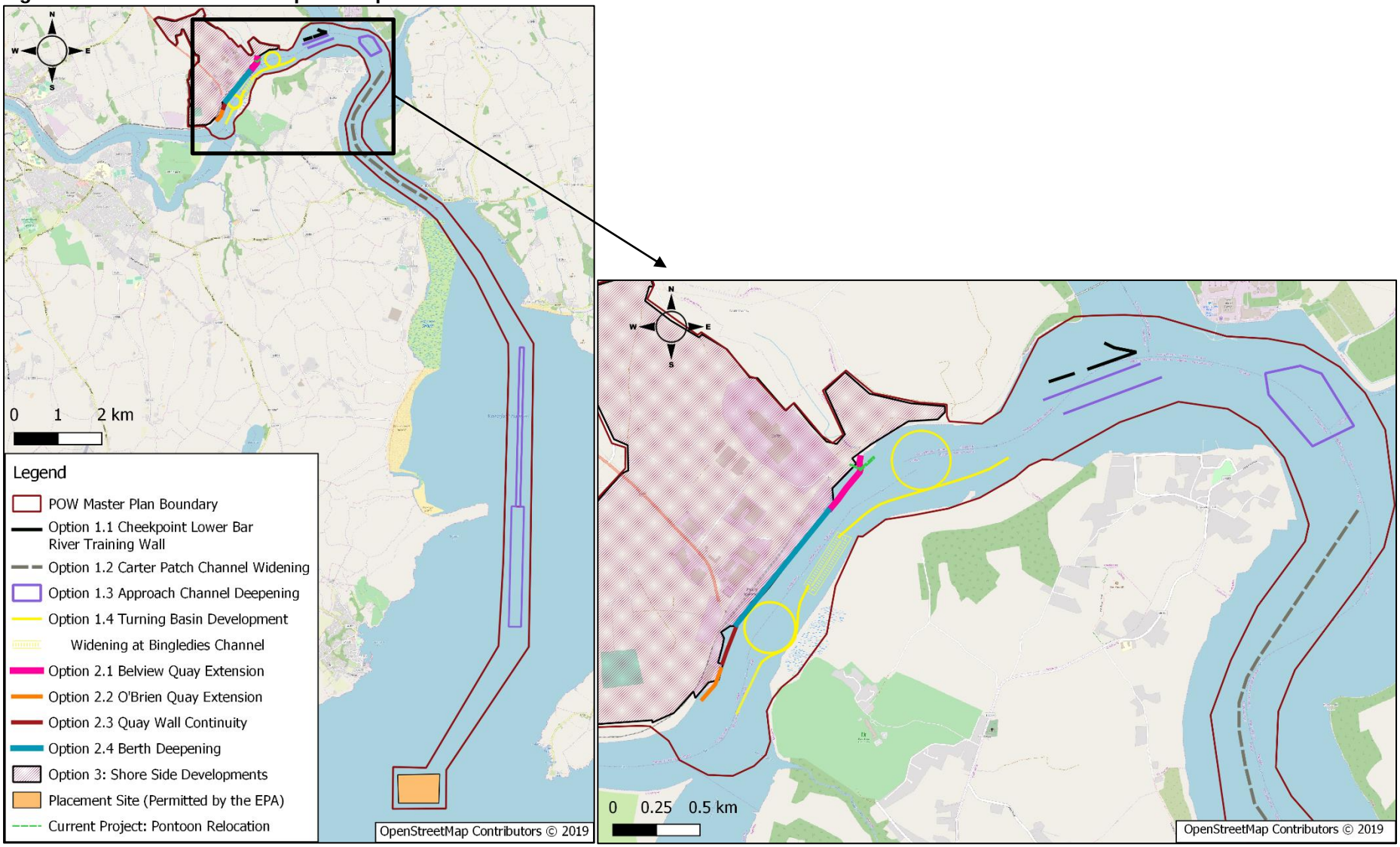
3.2 Master Plan

The POW Master Plan will provide a physical framework for the sustainable development of the Port, describing the strategic intentions necessary to improve overall Port capacity and performance and illustrating a clear vision of future Port operations.

Development of this 25-year Master Plan is considered critical to both maintain and increase the commercial success and sustainability of the Port.

A range of both shore and marine based projects will be included in the Master Plan to achieve these objectives. The area that will be covered by the Master Plan is shown Figure 3-2 and Appendix A.

Figure 3-2: Master Plan Development Options



3.2.1 Master Plan Objectives

The **VISION** of the Port of Waterford is to be the preferred cargo gateway for the South East Region.

The **MISSION** of the Port is to provide the infrastructure and services to enable and facilitate trade and economic development in the region.

The Port Masterplan has been prepared to achieve this vision by providing a clear direction to undertake this mission over the next 25 years. The Master Plan addresses a wide range of issues including:

- Financial – capital expenditure, cash flows, debt servicing, etc.
- Economic – traffic levels, commodities, shipping patterns, i.e. demand,
- Engineering – port marine approaches, dredging, berths, landside infrastructure etc.
- Operations – commodities, storage etc.
- Environmental – impacts and mitigation measures.

This has enabled the port to:

- Identify levels of future demand for port infrastructure and services;
- Identify areas and potential scope for development;
- Prepare alternative development scenarios / schemes; and,
- Evaluate these alternatives.

The objectives for each group of Master Plan development options (detailed in section 3.2.2 below) are listed in Table 3-1 below.

Table 3-1: Objectives for Master Plan Options

No.	Master Plan Options Group	Objectives
1.	Options to minimise dredging and improve marine access	This will minimise future dredging requirements by reducing sedimentation in the port operational areas, particularly around Cheekpoint Lower Bar and to: • Improve vessel manoeuvring areas and turning at Belview; • Improve navigational safety in channels to and from the port; and, • Increase channel dimensions to accept larger vessels.
2.	Options for development/improvements to berths	The demand to accommodate larger (longer and wider) and deeper (drafted) vessels in the future will require increased berth lengths and depths alongside. These options consider improvements to the existing berths (deepening) and potential for additional new berth development at Belview.
3.	Shore Side Developments	The following land use objectives are aligned with the overall aim of the Masterplan which is to enhance capacity of Belview Port. Objectives include: 1. Identify development land requirement, key projects and Strategic Infrastructure Development required to enhance the capacity and efficiency of the Port; 2. Facilitating the development of zoned land and identify serviced development sites;

No.	Master Plan Options Group	Objectives
		3. Improve the storage and handling of materials; 4. Improve traffic management and safety; 5. Ensure port access and security to relevant ISPS Code requirements; 6. Identify supporting infrastructure required to facilitate projects proposals and development of services sites; and, 7. Develop an infrastructure action plan, focused on financing and delivery.

3.3 Development Options

The development options presented in the POW Master Plan are not a definitive list of developments that will be undertaken at the Port. Rather, they are a selection of possible proposals for future development that may be undertaken depending on social, economic and environmental variables. Table 3-2 outlines the development options.

Table 3-2: Development Options

No.	Option	Description
1	**Options to minimise dredging and improve marine access**	
1.1	Cheekpoint Lower Bar River Training Wall	The Cheekpoint Lower Bar area is regularly maintained by dredging, resulting in the need for the disposal of high volumes of dredged material and high ongoing maintenance costs. The key project within the Master Plan is construction of a river training wall at a strategic location, which would significantly reduce the need for ongoing dredging, as shown by the hydrodynamic model completed for the estuary (ABPmer, 2018a). The training wall will be a double line of sheet piles, ca.6m wide – such design minimises environmental impacts, while maximising hydrodynamic benefits.
1.2	Carter Patch Channel Widening	Carter Patch represents an area of the navigational channel (from Passage East to Sheagh Light) that poses a navigational safety hazard to longer trade vessels. The curve of the navigational channel requires vessels to 'crab' when manoeuvring the channel. This results in a limiting length of vessel through the area. This project would involve widening this area by 50m to approximately 150m total width to remove this restriction and increase navigational safety and access.
1.3	Approach Channel Deepening	To accommodate larger vessels, it is required to deepen the approach channel, from the mouth of the estuary to the quays, from 6.5mBCD to a more appropriate level, potentially to a depth of 8mBCD. Approach channel deepening would likely be completed in three phases – deepening to 7mBCD, 7.5mBCD and 8mBCD.
1.4	Turning Basin Development	Currently, areas where vessels can turn have constraints preventing larger vessels accessing the Port. Therefore, it is proposed to enlarge one of these turning basins to safely accommodate trade vessels which are foreseen to possibly visit the Port over the next 25 years.

No.	Option	Description
		This would require widening of the Bingledies channel area, i.e. removal of the rock outcrop to widen and deepen approach channel for maritime safety and manoeuvrability.
2	**Options for development/improvements to berths**	
2.1	Belview Quay Extension	Construction of up to 400m extension of the main Belview Quay to provide two new berths is proposed. This project would require 6 hectares (ha) of land reclamation and capital dredging. This would likely be completed in two phases – the first phase would comprise 200m extension, facilitating one new berth, and the second phase would comprise another 200m facilitating the second new berth.
2.2	O'Brien Quay Extension	O'Brien's Quay can currently accommodate 120m long ships. Extension to accommodate 190m long ships is proposed. Extension on either side of the existing quay is considered. Turning circle will be required in the vicinity of this Quay to allow longer ships to turn, which would require deepening and maintenance dredging.
2.3	Quay Wall Continuity	There is currently a break of 230m in the continuity of the quay wall between Belview Quay and O'Brien's Quay. This area is prone to sedimentation and impinges on safe navigational depths in the adjacent downstream berth. To minimise this feature and provide additional berthing and storage area, the construction of a quay wall in this area is proposed.
2.4	Berth Deepening	Deepening of berths at Belview or O'Brien's Quay is proposed to accommodate deeper drafted vessels at the terminals.
3	**Shore Side Developments**	
3.1	Improvements to road access to port	Alterations to N29 in the vicinity of the Port to allow access to roadside lands will be required.
3.2	Improvements/development of services infrastructure	Development of services including water supply, effluent treatment, and broadband will be required. Potentially, other shore side infrastructural developments required to support the above shore side projects.
3.3	Serviced sites	Provision of serviced development sites.
3.4	Office Buildings	POW is seeking a wider zoning designation on Marine Point.
3.5	Development of additional warehousing	Development of additional warehousing required for forecasted increased Port throughput.
Current Project: **Pontoon Relocation** The tugs serving Belview Port berth at the pontoon system on the South Quays in Waterford City will be relocated to the Belview Port, downstream from the Belview Quay.		

3.4 Cheekpoint Lower Bar River Training Wall Evolution

The Cheekpoint Lower Bar river training wall has undergone a lengthy and detailed design process, involving various design iterations to ensure the development will have minimal environmental impacts. Table 3-3 outlines the progression of the training wall design process including a brief description of each training wall design. Figure 3-3 illustrates the difference between the original and the current training wall designs.

Table 3-3: Training Wall Design Process

Training Wall Design	Description
Original Design	Construction of a training wall 1200m long from Snowhill to Drumdowney Point. The wall would be constructed of rock armour. The area behind the training wall would be reclaimed with dredged material from Cheekpoint and Duncannon Bars and covering an area of 16 ha. The training wall was initially designed to +3.5mOD (Poolbeg), with engineered option to be further raised to +6.0mOD. This option would also require construction of a new road to allow the training wall to be constructed. As a result, 16ha of the River Suir and River Barrow and Nore SACs would be reclaimed, resulting in loss of designated habitats. There would be additional shore-side impacts from the new construction road.
Deep Water Berths at Snowhill Point	Originally, it was planned that the above training wall is also developed into 1,500m long deep-water quay. This option would result in significant additional shore-side developments.
Revised Design 1	Construction of a training wall 1125m long from Snowhill to Drumdowney Point. The wall would be constructed of rock armour. The wall would be founded on the existing river bed and finished at a top level of 6.0mOD (Poolbeg). The wall design provides for 2m wide on top and side slopes of 1 vertical: 1.5 horizontal. Two breaches would be provided in the wall both 20m wide at low water level, one close to the upstream end of the wall and the other on the eastern side of the wall close to Barrow Bridge. This option would also require construction of a new road to allow training wall to be constructed. In this option, the area behind the wall would not be reclaimed, reducing impacts; however, the habitat would be significantly altered. There would be additional shore-side impacts from the new construction road.
Revised Design 2	Construction of an 'arrow head' form of training wall scheme at the apex of the confluence of the Rivers Suir and Barrow. The total length of the two walls would be approximately 650m and is implemented as a 'thin dam' structure, equivalent to a vertical sheet piled wall. Impacts from this design scheme would be significantly reduced, as no reclamation works would be required, and loss of habitat in the River Suir and River Barrow and Nore SACs would be minimised. In this option, a new construction road would not be required, minimising shore-side impacts.
Current Design	The current design proposal envisages two lengths of training wall: • A vee shaped wall ca.495m long; and, • A straight wall ca.130m long. The training wall will be a double line of sheet piles, to ensure the structure can withstand wave impact, currents, silt build-up or an accidental impact. The double sheet will likely be enclosed at either. Waler beams and struts will be required to maintain alignment. The double sheet training wall will be ca.6m wide.

Training Wall Design	Description
	This design is aimed around 'splitting' the flow within the River Barrow, as opposed to 'blocking' the flow. The location of the apex has also been moved up estuary, to reduce circulation adjacent to, and at the apex of, the wall. This design achieves minimal habitat impact, and maximises hydrodynamic beneficial effect of removing sedimentation in the key areas.

Figure 3-3: Evolution of the Training Wall

3.5 Current and Future Dredging

Currently POW is carrying out significant amount of maintenance dredging in order to enable safe navigational access. The areas currently being dredged are shown in Appendix B.

Dredged materials are disposed of at a licenced site through a Dumping at Sea Permit issued by the EPA in 2014 (S0012-02). The Port have recently applied for a new licence to take into consideration proposed amendments to the current practice. Further details are provided in the Environmental Report of the SEA, Section 6.7 – Material Assets. Any future dredging will require new Foreshore Licence.

Although implementation of Phase 1 of the Master Plan will remove the requirement for maintenance dredging, which is currently carried out, implementation of Future Phases of the Master Plan will require both capital and maintenance dredging in other areas. At this stage it is difficult to determine the aggregate amount of dredging required as implementation of Master Plan Options will happen gradually, i.e. initially to 7mBCD, then to 7.5mBCD and 8mBCD in required.

This is detailed in Table 3-4 below. This information is based on a series of hydrodynamic modelling projects completed for POW by ABPMer.

Table 3-4: Current and Future Dredging Requirements at the Port

Option No.	Name	Capital Dredge	Maintenance Dredge		Change in Dredging Commitment
		Proposed	Current	Future	
1.1	Cheekpoint Lower Bar River Training Wall	No	Yes	No[1]	This project is designed to negate the current maintenance dredging requirements and be future proofed to work if the channel is deepened to 8mCD. This equates to a reduction of approximately 185,000m³ annually being relocated to the offshore placement site.
1.2	Carter Patch Channel Widening and Deepening	Yes	No	No[1]	Based on a concept design of 150m channel width, the incremental volumes for capital dredging requirements are estimated to be: • *7mBCD – 156,000 m³;* • *7.5mBCD – 76,000m³;* • *8mBCD - 96,000m³.* Based on modelling undertaken maintenance dredging may not be required.

[1] Hydrodynamic modelling studies completed by ABPmer show that maintenance dredging will not be required, however POW will continue to maintain maintenance dredging permissions until the studies are validated and to cover extreme weather events.

Option No.	Name	Capital Dredge	Maintenance Dredge		Change in Dredging Commitment
		Proposed	Current	Future	
1.3	Approach Channel Deepening	Yes	Yes	Yes	The capital dredging volumes vary for the deepening of the navigational channel depending on the desired depth. The incremental volumes required to be removed are estimated to be: • *7mBCD – 375,000m^3;* • *7.5mBCD – 320,000m^3;* • *8mBCD – 383,000m^3.* Dredging of Duncannon Channel and Creadan Bank would require an additional 132,000m^3 of dredging to occur annually for 8mBCD. Other minor areas, to be identified at project stage may also require dredging.

Option No.	Name	Capital Dredge	Maintenance Dredge		Change in Dredging Commitment
		Proposed	Current	Future	
1.4	Turning Basin Development	Yes	Yes	Yes	This project involves the development of a widened and deepened downstream turning circle to facilitate the safe turning of larger vessels. The estimated capital dredging volumes vary depending on the desired depth and incremental dredging requirements are estimated to be: • *7mBCD – 168,000m³;* • *7.5mBCD – 45,000m³;* • *8mBCD – 50,000m³.* Maintenance dredging of 99,000m³ per year would be required for 8mBCD. Shallower levels may require less maintenance. Development of an upstream turning circle to 8mCD would require the removal of bedrock, and therefore this option is currently not favoured. Widening of Bingledies channel area up to 40m over a 580m length would require removal of 43,000m³ of silt / sand and 35,000m³ of rock.

Option No.	Name	Capital Dredge	Maintenance Dredge		Change in Dredging Commitment
		Proposed	Current	Future	
2.1	Belview Quay Extension	Yes	No	Yes	This project is likely to be phased into two 200m segments, totalling 400m. The initial 200m extension would require approximately 10,000m³, with the second 200m, requiring over 33,000m³. Development of this project would increase maintenance dredging by about 50,000m³ annually, in the worst-case scenario.
2.2	O'Brien Quay Extension	Yes	No	Yes	Capital dredging volume of about 300,000m³ would be required. This would encompass approximately 200,000m³ of rock, so the project needs further evaluation. Maintenance dredging would result in an increase of 15,000m³.
2.3	Quay Wall Continuity	No	Yes	No or Decrease	Limited dredging currently takes place in this area but the need for this dredging could possibly be negated or at least reduced by completing quay wall continuity project.
2.4	Berth Deepening	Yes	Yes	Yes	Minor capital dredging will be required. Only a marginal increase in maintenance volumes would be anticipated.
3	Shore Side Developments	N/A	N/A	N/A	N/A
	Pontoon Relocation	N/A	N/A	N/A	N/A

While the need for dredging in certain up-estuary areas such as the Cheekpoint Lower Bar and the POW Quay Wall will be reduced or eliminated, downstream areas will require continued and/or increased dredging. As there are multiple combinations of Options that may be implemented over the 25-year Master Plan, the potential total amount of dredged material cannot be calculated at this stage.

3.6 Temporal Scope of the Master Plan

The Master Plan and associated environmental documentation will be reviewed every 5 years and updated as required. Phasing of the development options in the Master Plan is presented in Table 3-5 below.

Table 3-5: Phasing and Temporal Scope of the Master Plan

Master Plan Phases	Options	Option
Current Project	Pontoon Relocation	Option No. 3. Shore Side Developments (road access improvements, services infrastructure, serviced development sites, office buildings, additional warehousing)
Phase 1	Option No. 1.1 Cheekpoint Lower Bar River Training Wall	
Future Phases	Option No. 1.2 Carter Patch Channel Widening Option No. 1.3 Approach Channel Deepening Option No. 1.4 Turning Basin Development Option No. 2.1 Belview Quay Extension Option No. 2.2 O'Brien's Quay Extension Option No. 2.3 Quay Wall Continuity Option No. 2.4 Berth Deepening	

4 IDENTIFICATION OF NATURA 2000 SITES

In accordance with the European Commission Methodological Guidance (European Commission, 2002) a list of European sites that can be potentially affected by the proposed development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment, Heritage and Local Government (DoEHLG, 2009) states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely effects of the project. The key variables determining whether or not a particular Natura 2000 site is likely to be negatively affected by a project are: the physical distance from the project to the site; the sensitivities of the ecological receptors; and, the potential for in-combination effects. Adopting the precautionary principle, all SAC and SPA sites within a 15km radius of the Master Plan Boundary Site have been considered.

Nine Natura 2000 designated sites were identified within 15km of the Site (Table 4-1, Figure 4-1).

Table 4-1: Natura 2000 Designated Sites within 15km of the Site

Site Name	Site Code	Distance (km)*	Direction from Master Plan Boundary
Special Area of Conservation			
Lower River Suir SAC	002137	-	-
River Barrow and River Nore SAC	002162	-	-
Hook Head SAC	000764	1.0km	SE
Bannow Bay SAC	000697	5.2km	E
Tramore Dunes and Backstrand SAC	000671	6.7km	W
Ballyteige Burrow SAC	000696	14.5km	E
Special Protection Area			
Tramore Back Strand SPA	004027	6.7km	W
Bannow Bay SPA	004055	5.2km	E
Keeragh Islands SPA	004118	13km	E

***The distance to the Natura 2000 Sites is measured from the nearest point on the red line boundary to the nearest point on the Natura Site Boundary.**

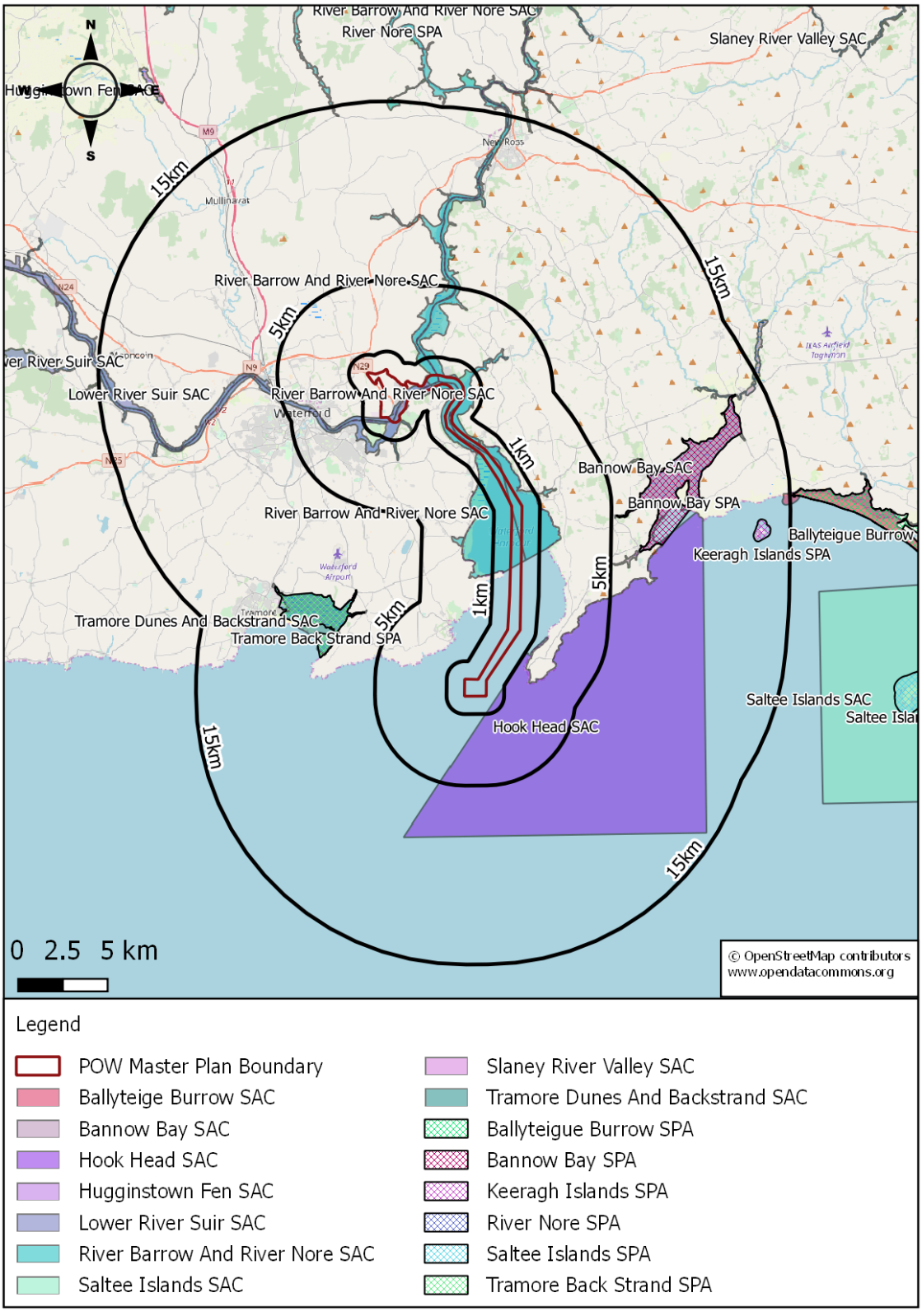
The proposed POW Master Plan is not located within or directly adjacent to Hook Head SAC, Bannow Bay SAC, Bannow Bay SPA, Tramore Dunes and Backstrand SAC, and Tramore Back Strand SPA, Ballyteige Burrow SAC and / or Keeragh Islands SPA, however, the boundaries of these 7 Natura Sites are located within 15km of the Site (Refer to Figure 4-1).

Given the significant distance of ca.14.5km and ca.13km separating Ballyteige Burrow SAC and Keeragh Islands SPA from the proposed Master Plan Boundary, comprised of extensive agricultural land, local and regional road infrastructure and Hook Head Peninsula, it is considered highly unlikely that the proposed development would have any direct or indirect effects on Ballyteige Burrow SAC or Keeragh Islands SPA or their designated features of interest. As a result, these Natura Sites has been screened out and will not be considered further as part of this assessment.

However, the proposed project area is situated within the boundaries of Lower River Suir SAC and River Barrow and River Nore SAC and within <6.7km of Hook Head SAC, Bannow Bay SAC, Bannow Bay SPA, Tramore Dunes and Backstrand SAC, and Tramore Back Strand SPA (Refer to Figure 4-1). Given the proximity of the proposed development area to these

Natura 2000 sites, further consideration will be given to assess potential impacts resulting from the proposed development. Further details are provided in Section 4.1 through 4.8 below.

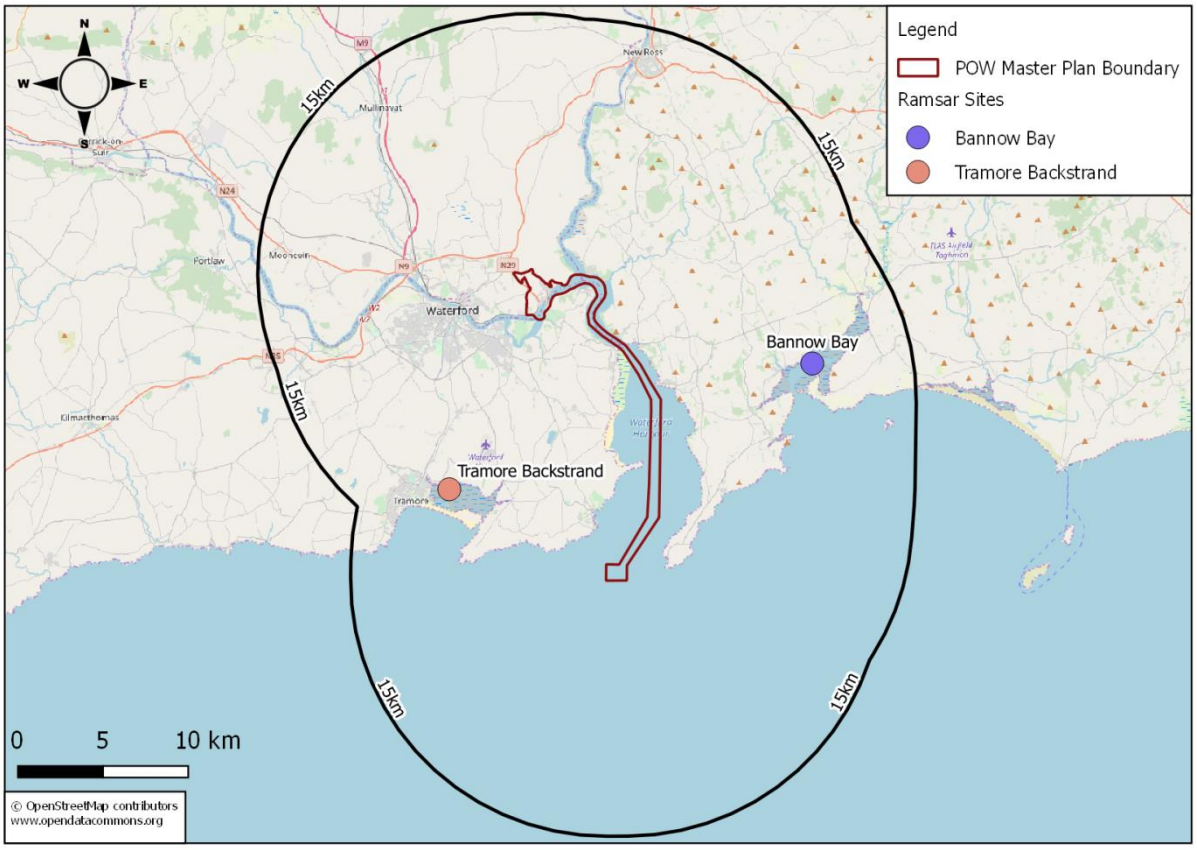
Figure 4-1: Natura 2000 Sites



4.1 Ramsar Sites

Under the Convention on Wetlands[2] (Ramsar, 1971), Ireland has committed to maintaining the ecological character of our wetlands of International importance, known as Ramsar sites. There are two Ramsar Sites located within 15km of the Master Plan area boundary, Tramore Back Strand and Bannow Bay (See Figure 4-2).

Figure 4-2: Ramsar Sites within 15km of the POW Boundary



Under the Convention for the Protection of the Marine Environment of the North-East Atlantic[3] or 'OSPAR Convention', Ireland committed to establishing marine protected areas to protect biodiversity (OSPAR Marine Protected Areas (MPAs). However, in Ireland there is no legislation currently in place to legally underpin the established protected areas. Therefore, since OSPAR MPAs would not afford any legal protection to the relevant areas on their own, Ireland has established a number of its SACs as OSPAR MPAs for marine habitats. As a result, Tramore Dunes and Backstrand SAC and Bannow Bay SAC / SPA are both also OSPAR MPAs.

In terms of this assessment, both Tramore Backstrand and Bannow Bay Ramsar Sites will be considered in conjunction with Tramore Backstrand and Bannow Bay SPA's given that they cover the same area.

4.2 Lower River Suir SAC (Site Code: 002137)

The Lower River Suir SAC is an extensive site which covers the freshwater stretches of the River Suir from south of Thurles, Co. Tipperary, to the Barrow-Suir confluence east of Cheekpoint, Co. Waterford.

The SAC is comprised of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland (Tables 4-2 and 4-3 below). Other habitats within the Site include

[2] Source: www.ramsar.org/about-the-ramsar-convention
[3] Source: www.ospar.org/convention

wet and dry grassland, marsh, reed swamp, improved grassland, tidal river, deciduous woodland and mudflats.

The SAC is of conservation interest for the presence of a number of Annex II species including Freshwater Pearl Mussel, Otter, White-clawed Crayfish, Salmon, Twaite Shad and three species of Lampreys- Sea, Brook and River Lamprey. The site is one of only three known spawning grounds in the country for Twaite Shad. The site is also of ornithological importance for a number of Annex I bird species, EU Birds Directive including Golden Plover, Whooper Swan and Kingfisher.

Intensive agriculture is the primary land use along the banks of the river. The widespread use of fertiliser and slurry pose the greatest threats to the conservation status of the SAC due to the related impairment in water quality. Furthermore, there are multiple industrial developments which border the SAC and discharge into the river. Fishing is the primary tourism attraction along the stretches of the Suir, including both commercial and leisure fishing with numerous Angler Associations (NPWS, 2013). The full reports for the conservation objectives for the Lower River Suir SAC[4] can be found on the NPWS website.

Table 4-2: Qualifying Annex I Habitats for the Lower Suir SAC

Qualifying Habitats **(* denotes Priority Habitat)**	**Code**	**Site Specific Conservation Objective**
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	1330	Restore favourable conservation condition
Mediterranean salt meadows (*Juncetalia maritimi*)	1410	Restore favourable conservation condition
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	3260	Maintain favourable conservation condition
Old sessile oak woods with Ilex and Blechnum in British Isles	91A0	Restore favourable conservation condition
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)*	91E0	Restore favourable conservation condition
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	6430	Maintain favourable conservation condition
Taxus baccata woods of the British Isles*	91J0	Restore favourable conservation condition

[4] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002137.pdf

Table 4-3: Qualifying Annex II Species for the Lower Suir SAC

Species	Species Name	Code
Mammals listed on Annex II of the Habitats Directive	Otter (*Lutra lutra*)	1355
Fish listed on Annex II of the Habitats Directive	Atlantic salmon (*Salmo salar*)	1106
	Sea lamprey (*Petromyzon marinus*)	1095
	Brook lamprey (*Lampetra planeri*)	1096
	River lamprey (*Lampetra fluviatilis*)	1099
	Twaite shad (*Alosa fallax*)	1103
Molluscs listed on Annex II of the Habitats Directive	Freshwater pearl mussel (*Margaritifera margaritifera*)	1029
Crustaceans listed on Annex II of the Habitats Directive	White-clawed crayfish (*Austropotamobis pallipes)*	1092

4.3 River Barrow and River Nore SAC (Site Code 002162)

The River Barrow and River Nore SAC consists of the freshwater stretches of the Barrow and Nore River catchments extending from the Slieve Bloom Mountains to the estuary and tidal elements in Creadan Head, Waterford.

Species rich habitats (Annex I of the EU Habitats Directive) including estuaries, alluvial forests, petrifying springs, and intertidal mudflats and sandflats can be found within this SAC.

This SAC is of considerable conservation significance for multiple reasons:

- Ornithological importance: This SAC supports Kingfisher, a nationally important bird population listed in Annex I of the EU Birds Directive. One SPA (River Nore), designated under the EU Birds Directive, is also located within the SAC; and,
- This SAC supports multiple species listed on Annex II of the EU Habitats Directive, including Otter, River Lamprey and Salmon.

Land use within the SAC is primarily agricultural, principally grazing and silage production. Fishing is also a main tourist attraction along stretches of the main rivers and their tributaries. Other recreational activities such as boating, golfing and walking also occur within the SAC. The main threats to the SAC and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and sewage plants, along with over-grazing, invasion of non-native species and land reclamation (NPWS, 2011). The full reports for the conservation objectives for the River Barrow and River Nore SAC[5] can be found on the NPWS website.

[5] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf

Table 4-4: Qualifying Annex I Habitats for the River Barrow and River Nore SAC

Qualifying Habitats (*denotes Priority Habitat)	Code	Site Specific Conservation Objective
Estuaries	1130	Maintain favourable conservation condition
Mudflats and Sandflats not covered by seawater at low tide	1140	Maintain favourable conservation condition
Salicornia and other annuals colonizing mud and sand	1310	Maintain favourable conservation condition
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	1330	Restore favourable conservation condition
Mediterranean salt meadows (*Juncetlaia maritimi)*	1410	Restore favourable conservation condition
Water courses of plain to montane levels with *the Ranunculion fluitantis* and *Callitricho - Batrachion* vegetation	3260	Maintain favourable conservation condition
European dry heaths	4030	Maintain favourable conservation condition
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	6430	Maintain favourable conservation condition
Petrifying springs with tufa formation (Cratoneurion)*	7220	Maintain favourable conservation condition
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	91A0	Restore favourable conservation condition
Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicioncalbae*) *	91E0	Restore favourable conservation condition

Table 4-5: Qualifying Annex II Species for the River Barrow and River Nore SAC

Qualifying Species	Species Name	Code
Mammals listed on Annex II of the Habitats Directive	Otter *(Lutra lutra)*	1355
Molluscs listed on Annex II of the Habitats Directive	Freshwater pearl mussel (*Margaritifera margaritifera*)	1029
	Nore Freshwater pearl mussel (*Margaritifera durrovensis*)	1990
	Desmoulin's whorl snail (Vertigo moulinsiana)	1016
Crustaceans listed on Annex II of the Habitats Directive	White-clawed crayfish (*Austropotamobis pallipes)*	1092

Qualifying Species	Species Name	Code
Fish listed on Annex II of the Habitats Directive	Salmon (*Salmo salar)*	1106
	Sea Lamprey (*Petromyzon marinus*)	1095
	Brook Lamprey (*Lampetra planeri*)	1096
	River Lamprey (Lampetra fluviatilis)	1099
	Twaite *Shad (Alosa fallax)*	1103
Flora listed on Annex II of the Habitats Directive	Killarney Fern (*Trichomanes speciosum)*	1421

4.4 Hook Head SAC (Site Code: 000764)

The Hook Head SAC, is comprised of marine subtidal reefs to the south and east of the Hook Head Peninsula, and also sea cliffs from Hook Head to Baginbun and Ingard Point. The peninsula forms the eastern side of Waterford Harbour, while to the east it adjoins the estuary mouth of Bannow Bay.

This SAC is of conservation importance for its subtidal reef and shallow bay communities, and their diversity of species, as well as for the vegetated sea cliffs, as listed under the EU Habitats Directive (See Table 4-6). Furthermore, the rocky coastline is also important for a number of breeding birds, two of which are listed on Annex I of the EU Birds Directive. The cliffs at this site are of ornithological interest for breeding Chough, Raven and Peregrine, and there is a small seabird colony, mainly of Guillemots, near Baginbun. The headland is a noted landfall point for migrants.

The waters off Hook Head are rich in marine life and are a popular dive site for SCUBA enthusiasts. Rock pools on the shore support a diverse flora and fauna (NPWS, 2014). The full reports for the conservation objectives for the Hook Head SAC[6] can be found on the NPWS website.

Table 4-6: Qualifying Annex I Habitats for the Hook Head SAC

Qualifying Habitats **(* denotes Priority Habitat)**	**Code**	**Site Specific Conservation Objective**
Large shallow inlets and bays	1160	Maintain favourable conservation condition
Reefs	1170	Maintain favourable conservation condition
Vegetated sea cliffs of the Atlantic and Baltic coasts	1230	Maintain favourable conservation condition

4.5 Bannow Bay SAC (Site Code 000697)

Bannow Bay SAC is a relatively large estuarine site, ca.14 km long, on the south coast of Co. Wexford. Small rivers and streams to the north and southwest flow into the bay and their sub-estuaries form part of the site.

This SAC is of considerable conservation significance for multiple reasons:

[6] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000764.pdf

- This SAC is of considerable conservation significance for the large number of EU Habitats Directive Annex I habitats that it contains, including the priority habitat fixed grey dune (See Table 8); and,
- Ornithological importance: This SAC supports important breeding populations of Little Tern and Kingfisher - two species listed on Annex I of the EU Birds Directive. One SPA (Bannow Bay), designated under the EU Birds Directive, is also located within the SAC because of its significant bird interest. It supports important numbers of wintering wildfowl, including an internationally important population of Light-bellied Brent Goose. Parts of this area has also been designated a Wildfowl Sanctuary.

Land use within the SAC consists mainly of shellfish farming; ca.20ha of the intertidal area is under cultivation. In some areas damage is caused to the shingle vegetation and to the substrate by tractors accessing the aquaculture farms. Any further increase in aquaculture poses a threat. Other land uses include shooting, bird-watching, conservation management, grazing in some of the dune areas, horse-riding on the beach and Big Burrow sand dunes, swimming, sailboarding, jet-skiing, line fishing and bait digging (NPWS, 2014). The full reports for the conservation objectives for the Bannow Bay SAC[7] can be found on the NPWS website.

Table 4-7: Qualifying Annex I Habitats for the Bannow Bay SAC

Qualifying Habitats (*denotes Priority Habitat)	Code	Site Specific Conservation Objective
Estuaries	1130	Maintain favourable conservation condition
Mudflats and Sandflats not covered by seawater at low tide	1140	Maintain favourable conservation condition
Annual vegetation of drift lines	1210	Maintain favourable conservation condition
Perennial vegetation of stony banks	1220	Maintain favourable conservation condition
Salicornia and other annuals colonizing mud and sand	1310	Restore favourable conservation condition
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	1330	Restore favourable conservation condition
Mediterranean salt meadows (*Juncetlaia maritimi)*	1410	Restore favourable conservation condition
Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)	1420	Restore favourable conservation condition
Embryonic shifting dunes	2110	Restore favourable conservation condition
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	2120	Restore favourable conservation condition
Fixed coastal dunes with herbaceous vegetation (grey dunes)	2130	Restore favourable conservation condition

[7] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000697.pdf

4.6 Bannow Bay SPA (Site Code 004033)

Bannow Bay SAC is a relatively large estuarine site, ca.14km long, on the south coast of Co. Wexford. Small rivers and streams to the north and southwest flow into the bay and their sub-estuaries from part of the site.

The site is a Special Protection Area (SPA) under the EU Birds Directive, of special conservation interest for the following species as listed in Table 4-8 below. Bannow Bay SPA is an excellent example of an enclosed estuarine system. It supports internationally important populations of Light-bellied Brent Goose and Black-tailed Godwit as well as nationally important populations of a further eleven species. Bannow Bay is a Ramsar Convention site and part of Bannow Bay SPA is a Wildfowl Sanctuary (NPWS, 2014). The full reports for the conservation objectives for the Bannow Bay SPA[8] can be found on the NPWS website.

Table 4-8: Qualifying Annex I Species of Birds for Bannow Bay SPA

Species Names	Scientific Name	Code
Light-bellied Brent Goose	*Branta bernicla hrota*	A046
Shelduck	*Tadorna*	A048
Pintail	*Anas acuta*	A054
Oystercatcher	*Haematopus ostralegus*	A130
Golden Plover	*Pluvialis apricaria*	A140
Grey Plover	*Pluvialis squatarola*	A141
Lapwing	*Vanellus*	A142
Knot	*Calidris canutus*	A143
Dunlin	*Calidris alpina*	A149
Black-tailed Godwit	*Limosa*	A156
Bar-tailed Godwit	*Limosa lapponica*	A157
Curlew	*Numenius arquata*	A160
Redshank	*Tringa totanus*	A162
Wetland and Waterbirds		A999

4.7 Tramore Dunes and Backstrand SAC (Site Code 000671)

The Tramore Dunes and Backstrand SAC coastal site lies at the head of Tramore Bay, east of Tramore town in Co. Waterford.

Tramore Dunes and Back Strand is a site of major ecological importance for the range of good quality coastal habitats which occur, as listed in Table 4-9, including fixed dunes, which are listed as a priority habitat on Annex I of the EU Habitats Directive. The dunes at this site are well developed and contain several important habitats, including the priority habitat fixed dunes.

[8] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004033.pdf

This SAC has remarkably rich flora, featuring a number of rare and protected species, and the intertidal area is important for wintering waterfowl. The Back Strand is also an area of great importance for waterfowl on the south coast and is a designated SPA.

The main threat to the stability of the dune habitats is from recreational pressures, with heavy usage of the site due to its proximity to Tramore, a popular holiday town. Driftline and shingle vegetation is also under pressure from heavy usage of the beach area. The intertidal and saltmarsh habitats are not under significant threat, though possible seepage from the nearby landfill site is a potential threat (NPWS, 2013). The full reports for the conservation objectives for the Tramore Dunes and Backstrand SAC[9] can be found on the NPWS website.

Table 4-9: Qualifying Annex I Habitats for the Tramore Dunes and Backstrand SAC

Qualifying Habitats (*denotes Priority Habitat)	Code	Site Specific Conservation Objective
Mudflats and Sandflats not covered by seawater at low tide	1140	Maintain favourable conservation condition
Annual vegetation of drift lines	1210	Maintain favourable conservation condition
Perennial vegetation of stony banks	1220	Maintain favourable conservation condition
Salicornia and other annuals colonizing mud and sand	1310	Restore favourable conservation condition
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	1330	Restore favourable conservation condition
Mediterranean salt meadows (*Juncetlaia maritimi)*	1410	Restore favourable conservation condition
Embryonic shifting dunes	2110	Restore favourable conservation condition
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	2120	Restore favourable conservation condition
Fixed coastal dunes with herbaceous vegetation (grey dunes) *	2130	Restore favourable conservation condition

4.8 Tramore Back Strand SPA (Site Code 004027)

The Tramore Back Strand SPA coastal site lies at the head of Tramore Bay, east of Tramore town in Co. Waterford.

The site is a Special Protection Area (SPA) under the EU Birds Directive, for special conservation interest for the species listed in Table 11.

Tramore Back Strand SPA is of high ornithological importance for wintering waterfowl, as it is an important site for wintering waterfowl, providing both feeding and roosting areas, with one species occurring in internationally important numbers and a further seven species having populations of national importance. The regular occurrence of Little Egret, Golden Plover and Bar-tailed Godwit is of particular note as these three species are listed on Annex I of the EU Birds Directive.

[9] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000671.pdf

The EU Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Tramore Back Strand is also a Ramsar Convention site (NPWS, 2014). The full reports for the conservation objectives for the Tramore Back Strand SPA[10] can be found on the NPWS website.

Table 4-10: Qualifying Annex I Species of Birds for Tramore Back Strand SPA

Species Name	Scientific Name	Code
Light-bellied Brent Goose	*Branta bernicla hrota*	A046
Golden Plover	*Pluvialis apricaria*	A140
Grey Plover	*Pluvialis squatarola*	A141
Lapwing	*Vanellus vanellus*	A142
Dunlin	*Calidris alpina*	A149
Black-tailed Godwit	*Limosa limosa*	A156
Bar-tailed Godwit	*Limosa lapponica*	A157
Curlew	*Numenius arquata*	A160
Wetland and Waterbirds		A999

4.9 Conservation Objectives of Natura 2000 Sites

4.9.1 Conservation Objectives for SAC Sites

European and national legislation places a collective obligation on Ireland and its citizens to maintain a favourable conservation status at areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- *Its natural range, and area it covers within that range, is stable or increasing;*
- *The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and,*
- *The conservation status of its typical species is favourable as defined below.*

The favourable conservation status of a species is achieved when:

- *Population data on the species concerned indicate that it is maintaining itself;*
- *The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future; and,*
- *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Conservation objectives for all identified Natura 2000 SAC Sites are as follows:

> *'To maintain or restore the favourable conservation condition of the Annex I habitat(s) and the Annex II species for which the SAC has been selected.'*

[10] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004027.pdf

4.9.2 Conservation Objectives for SPA Sites

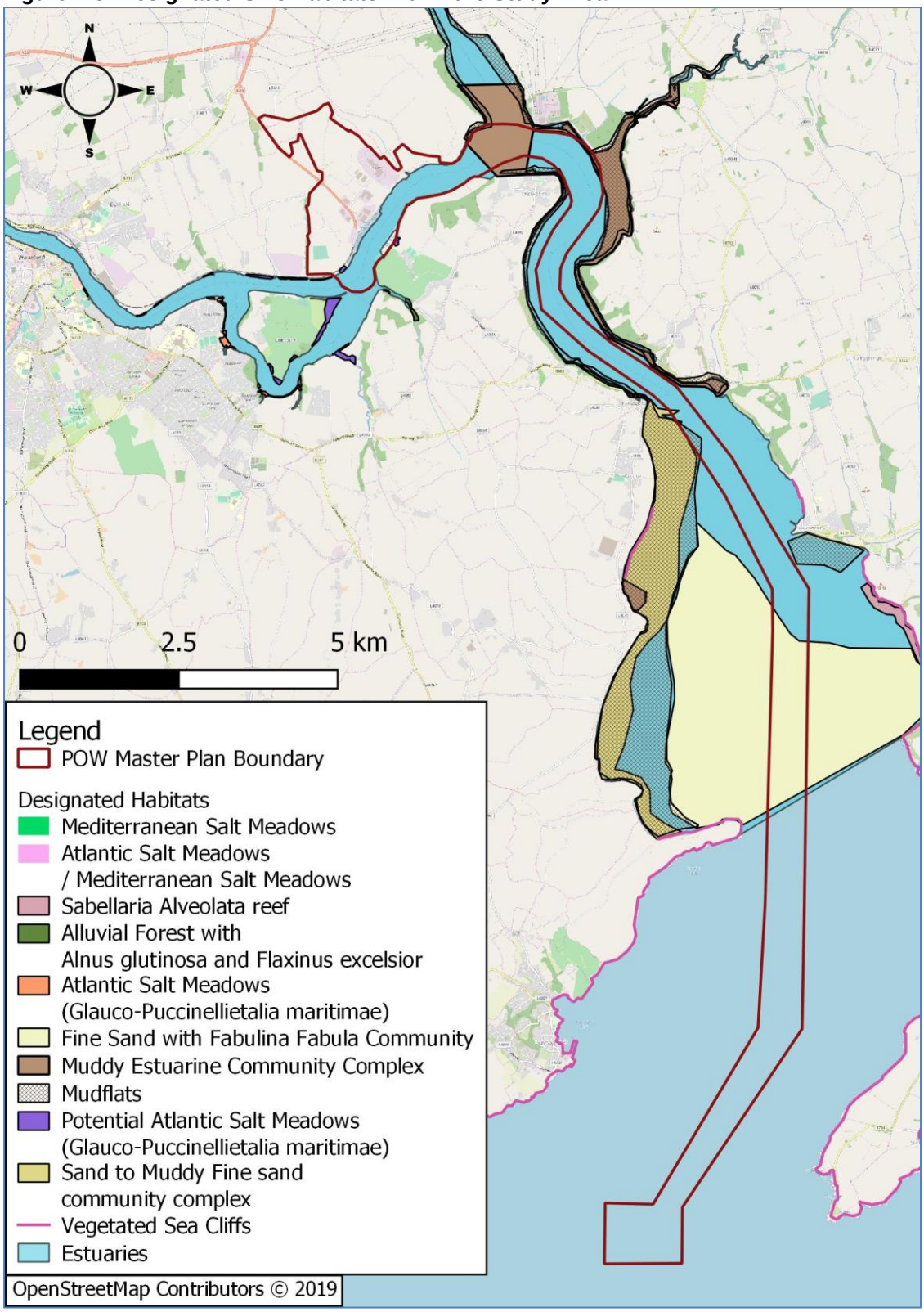
The conservation objectives for Bannow Bay SPA and Tramore Back Strand SPA are the same as those for the SACs. The full reports for the conservation objectives for the Bannow Bay SPA[11] and Tramore Back Strand SPA[12] can be found on the NPWS website.

4.10 Designated Habitats

The map below provides an overview of the Annex I habitat for which the SAC's within the study area are designated for detailed within the conversation objectives (NPWS 2017).

[11] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004033.pdf
[12] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004027.pdf

Figure 4-3: Designated SAC habitats within the Study Area



5 STAGE 1 SCREENING OF POTENTIAL IMPACTS

Potential impacts, if any, on the Lower River Suir SAC, River Barrow and River Nore SAC, Hook Head SAC, Bannow Bay SAC, Bannow Bay SPA, Tramore Dunes and Backstrand SAC, and Tramore Back Strand SPA were considered further in this section. Only those features of the Master Plan that have the potential to impact on the conservation objectives of the identified Natura 2000 sites were considered.

The key output of this stage of the assessment is the identification of the types of threats to the integrity of the Natura 2000 sites as a result of implementing the proposed projects as part of the overall Master Plan. This is a high-level assessment and does not take into account specific threats in relation to these projects given the level of detail currently available. The specific threats resulting from these projects will need to be identified and reviewed during specific assessments for each of these projects at the planning stage.

A number of factors were examined at this stage and dismissed due to the very low risk associated with them. Table 5-1 presents further details and rationale of the screening assessment undertaken for each of the qualifying interests of each of the Natura 2000 and Ramsar sites identified as having the potential to be impacted.

These factors were screened in or out, based on whether or not it was concluded that they are likely to be affected by the Master Plan if no mitigation measures were applied, and if progression to Stage 2 is required. The rationale for these conclusions is based on results from the aforementioned desk study and literature search.

Table 5-1: Screening Assessment

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
Option 1.1: Cheekpoint Lower Bar River Training Wall				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of construction of the Cheekpoint Lower Bar River Training Wall; • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the construction works; • Disturbance / displaced and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed Cheekpoint Lower Bar River Training Wall is to be constructed, both direct and indirect impacts on designated habitats will need to be considered further. The proposed training wall will require construction works to take place within the SAC. The wall will cover an area of ca.0.4ha, where the double sheet pile wall will be erected. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	As above	As above	**Screened In**
Hook Head SAC	See Table 4-6 above	No likely impacts	It is not envisaged that the proposed development of the Cheekpoint Lower Bar River Training Wall would result in any potential impacts on the Hook Head SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed development of the Cheekpoint Lower Bar River Training Wall would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** • Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed development of the Cheekpoint Lower Bar River Training Wall would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA.	**Screened out**
Options 2.3 & 2.1: **Quay Wall Continuity and Belview Quay Extension**				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and/or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of construction of the proposed Quay Wall Continuity and Belview Quay Extension; • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed Quay Wall Continuity and Belview Quay Extension is to be constructed, both direct and indirect impacts on designated habitats will need to be considered further. The proposed Quay Wall Continuity and Belview Quay Extension will require construction works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species.	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		Main threats to species include: • Impacts to movement / migration; • Impacts associated with pollution during the construction works; • Disturbance / displacement and habitat loss; • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, noise, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	In addition, consideration will need to be taken with regards to increased vessel movements / routes in and out of the port and potential increase in vessels sizes. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and River Nore SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging;	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within close proximity to the proposed Quay Wall Continuity and Belview Quay Extension and the hydrological links, impacts on designated habitats will need to be considered further. The proposed Quay Wall Continuity and Belview Quay Extension will require construction works to take place within close proximity to the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is	**Screened in**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	designated. Therefore, further consideration will be required with regards to these species. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plumes from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
			considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**
Option 1.4: **Turning Basin Development**				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of Turning Basin Relocation Development and associated dredging works; • Impacts during dredging such as siltation and pollution; and,	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats adjacent to where the proposed Turning Basin Relocation Development and associated dredging works will take place, both direct and indirect impacts on designated habitats will need to be considered further. However, it should be noted that this section	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging; • Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	of the estuary is subject to regular dredging as part of ongoing maintenance. The proposed Turning Basin Relocation Development will require works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. However as noted above, the area is currently dredged. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and River Nore SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging;	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within close proximity to the proposed dredging site and the hydrological links, impacts on designated habitats will need to be considered further. However, it should be noted that sections of the estuary are subject to regular on going dredging as part of ongoing maintenance. The proposed dredging will require works to take place within close proximity to the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with	**Screened in**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	regards to these species. However as noted above, the estuary is currently dredged. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plumes from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed Turning Basin Relocation Development would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
			would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed Turning Basin Relocation Development would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed dredging area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**
Option 1.2: Carter Patch Channel Widening				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration;	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within close proximity to the Carter Patch Channel Widening and proposed dredge site and the hydrological links, impacts on designated habitats will need to be considered further. However, it should be noted that sections of the estuary are subject to regular on going dredging as part of ongoing maintenance.	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• Impacts associated with pollution during the dredging; • Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	The proposed Carter Patch Channel Widening and associated dredging will require works to take place within close proximity to the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. However as noted above, the estuary is currently dredged. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and River Nore SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging; • Disturbance / displacement and habitat loss; and,	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed dredging works will take place, both direct and indirect impacts on designated habitats will need to be considered further. However, it should be noted that this section of the estuary is subject to regular dredging as part of ongoing maintenance. The proposed Carter Patch Channel Widening and associated dredging will require works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. However as noted above, the area is currently dredged.	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plums from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**
Bannow Bay SAC	See Table 4-7 above	No likely impacts.	It is not envisaged that the proposed Carter Patch Channel Widening and associated dredging works would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
			localised nature of the required works, it is considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed Carter Patch Channel Widening and associated dredging works would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed degrading works and the SAC.	
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**
Option 1.3: Approach Channel Deepening				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within close proximity to the proposed Approach Channel Deepening works and the hydrological links, impacts on designated habitats will need to be considered further. However, it should be noted that sections of	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		Main threats to species include: • Impacts to movement / migration; • Impacts associated with pollution during the dredging; • Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	the estuary are subject to regular dredging as part of ongoing maintenance. The proposed Approach Channel Deepening works and associated dredging will require works to take place within close proximity to the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. However as noted above, the estuary is currently dredged. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and River Nore SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging;	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed Approach Channel Deepening works will take place, both direct and indirect impacts on designated habitats will need to be considered further. However, it should be noted that this section of the estuary is subject to regular dredging as part of ongoing maintenance. The proposed Approach Channel Deepening works and associated dredging will require works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these	**Screened In**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
		• Disturbance / displacement and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	species. However as noted above, the area is currently dredged. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plumes from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed Approach Channel Deepening works would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Screening Rationale	Screening conclusion
			would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed Approach Channel Deepening works would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed degrading works and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**

Option 3: Shore Side Developments				
Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Direct habitat loss and / or disturbance to habitats as a result of the Shore Side Developments; • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts associated with pollution during the construction works; • Disturbance / displaced and habitat loss; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	Given the presence of designated habitats adjacent to where the proposed Shore Side Developments are to be constructed, both direct and indirect impacts on designated habitats will need to be considered further. Sections of the proposed shore side development, along the southern boundary will require construction works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened In**
River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	As above	As above	**Screened In**
Hook Head SAC	See Table 4-6 above	No likely impacts	It is not envisaged that the proposed Shore Side Developments would result in any potential impacts on the Hook Head SAC or any of the habitats for which it is designated. This assumption is based on the distance	**Screened out**

			separating the proposed development area and the Hook Head SAC.	
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	**Screened out**
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**
Option 2.2: O'Brien Quay Extension				

Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of construction of the proposed O'Brien Quay Extension; • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the construction works; • Disturbance / displacement and habitat loss; • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, noise, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed O'Brien Quay Extension is to be constructed, both direct and indirect impacts on designated habitats will need to be considered further. The proposed O'Brien Quay Extension and associated deepening and maintenance dredging works as part of the proposed turning circle will require works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. In addition, consideration will need to be taken with regards to increased vessel movements / routes in and out of the port and potential increase in vessels sizes. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened In**

River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and River Nore SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Impacts during dredging such as siltation and pollution; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the dredging; • Disturbance / displacement and habitat loss; and, In-combination effects as a result of the different elements of the proposed works as part of the Master Plan.	The proposed dredging will require works to take place within close proximity to the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. However as noted above, the estuary is currently dredged. In addition, consideration will need to be taken with regards to increased vessel movements / routes in and out of the port and potential increase in vessels sizes. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened in**
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plumes from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**

Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	**Screened out**
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed developments would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**
Option 2.4: Berth Deepening				

Lower River Suir SAC*	See Tables 4-2 and 4-3 above	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of construction of the proposed berth deepening of the container terminal; • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the construction works; • Disturbance / displacement and habitat loss; • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, noise, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. Given the presence of designated habitats within the area where the proposed berth deepening of the container terminal development is to be constructed, both direct and indirect impacts on designated habitats will need to be considered further. The berth deepening of the container terminal will require construction works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. In addition, consideration will need to be taken with regards to increased vessel movements / routes in and out of the port and potential increase in vessels sizes. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened In**

River Barrow and River Nore SAC	See Tables 4-4 and 4-5 above	**The main threats to the River Barrow and Nore SAC habitats include:** • Impacts during construction such as siltation and pollution; • Accidental introduction of invasive species; and, • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan. **Main threats to species include:** • Impacts to movement / migration; • Impacts associated with pollution during the construction works; • Disturbance / displacement and habitat loss; • In-combination effects as a result of the different elements of the proposed works as part of the Master Plan; and, • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, noise, erosion, impacts on water quality (such as mobilisation of sediments, ballast water).	The proposed berth deepening of the container terminal will require construction works to take place within the SAC. These works have the potential to cause both direct and indirect impacts on species for which the SAC is designated. Therefore, further consideration will be required with regards to these species. In addition, consideration will need to be taken with regards to increased vessel movements / routes in and out of the port and potential increase in vessels sizes. Further consideration with regard to impacts on Annexed habitats and species will be required in association with these works and further progression within the AA process will be required.	**Screened In**
Hook Head SAC	See Table 4-6 above	**The main threats to the Hook Head SAC habitats include:** • Potential impacts on habitats as a result of deposition of dredged material; • Impacts associated with increased shipping activities and vessel movements, i.e. increased disturbance, noise, erosion,	Further consideration of deposition site(s) will be required to ensure that impacts can be avoided. Should sediment plumes from the disposition of material reach the designated habitats for which the SAC is designated there is potential for impacts to occur.	**Screened in**

		impacts on water quality (such as mobilisation of sediments, ballast water).		
Bannow Bay SAC	See Table 4-7 above	No likely impacts	It is not envisaged that the proposed berth deepening of the container terminal would result in any potential impacts on the Bannow Bay SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Bannow Bay SPA	See Table 4-8 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	A number of the species for which the SPA is designated are known or likely to utilise the estuary within close proximity to the development. However, given the large size of the estuary and the abundance of potential feeding locations and the localised nature of the required works, it is considered highly unlikely that the proposed works would result in any adverse effects on the species for which the SPA is designated. Furthermore, there is a considerable distance separating the SPA from the development / works area.	**Screened out**
Tramore Dunes and Backstrand SAC	See Table 4-9 above	No likely impacts	It is not envisaged that the proposed berth deepening of the container terminal would result in any potential impacts on the Tramore Dunes and Backstrand SAC or any of the habitats for which it is designated. This assumption is based on the distance separating the proposed development area and the SAC.	**Screened out**
Tramore Back Strand SPA	See Table 4-10 above	**Potential threats to species include:** Disturbance / displacement as a result of the developments.	As for Bannow Bay SPA	**Screened out**

***Refer to tables within section 4 for details on qualifying features of interest.**

5.1 Screening Conclusion

The screening process has examined the option details in the POW Master Plan and has considered the potential for causing impacts on Natura 2000 sites and qualifying features of interest and Ramsar sites within a 15km radius of the Master Plan area.

The screening exercise identified that the implementation of the Master Plan has the potential to impact the following Sites:

- Lower River Suir SAC;
- River Barrow and River Nore SAC; and,
- Hook Head SAC.

These sites have therefore been brought forward for further consideration at Stage 2 of the Appropriate Assessment process (i.e. preparation of a Natura Impact Statement).

6 STAGE 2 APPROPRIATE ASSESSMENT: ASSESSMENT OF POTENTIAL IMPACTS

This assessment considers the likely adverse effects resulting from implementation of the POW Master Plan on Natura 2000 sites in view of their conservation objectives. The assessment is informed by the most up-to-date conservation objectives for the Natura 2000 sites, sourced from the NPWS in October 2018.

Several potential impacts on specific Natura 2000 sites were screened out during Stage 1 and have not been brought forward for further assessment as part of Stage 2 (Refer to Table 5-1).

In order to streamline this high-level assessment process, certain projects have been grouped together given the similar nature of the projects in terms of works required and potential impacts.

The following section will assess the potential impacts in terms of Habitat Loss / Alteration and Impairment of Water Quality Disturbance & Underwater Disturbance on the Natura Sites screened in during Stage 1 under the following section headings:

- Training Wall;
- Quay Extensions;
- Dredging; and,
- Shore Side Developments.

This is a high-level assessment and does not take into account specific project level threats given the level of details currently available. The UK Department for Transport guidance for Port Master Planning (UK Department for Transport, 2008) notes that it is not always feasible to identify the required mitigation to avoid impacts of the proposed developments at Plan level. The specific threats resulting from these projects will need to be identified and reviewed during specific assessments for each of these projects at the planning stage.

6.1 Training Wall

The construction of a river training wall could have the potential to impact designated marine habitats and species. Following initial design, the training wall layout was designed to minimise the regime effects in the entrance to the River Barrow, and build-up of sediment occurring immediately north of the training wall. Here, the existing shallow subtidal will accrete to provide an intertidal mudflat area that will form a new equilibrium over time. This design achieves minimal habitat impact while maximising hydrodynamic beneficial effects of removing sedimentation in the key areas. The wall will cover an area of ca.0.4ha, where the double sheet pile wall will be erected. The incorporation of ecological enhancements, such as a roughened exterior on the training walls would promote a greater diversity of species using the structure for attachment, aiding to mitigate against development impacts. In addition, features suitable for nesting birds will be included on top of the walls.

Figure 6-1 illustrates the Training Wall, with current dredging works against the surrounding designated habitats and species. Table 6-1 presents further evaluation and assessment of the impacts that may occur and outlines the measures to be implemented to prevent or reduce impacts, as required.

Figure 6-1: Training Wall Development and surrounding Designated Areas

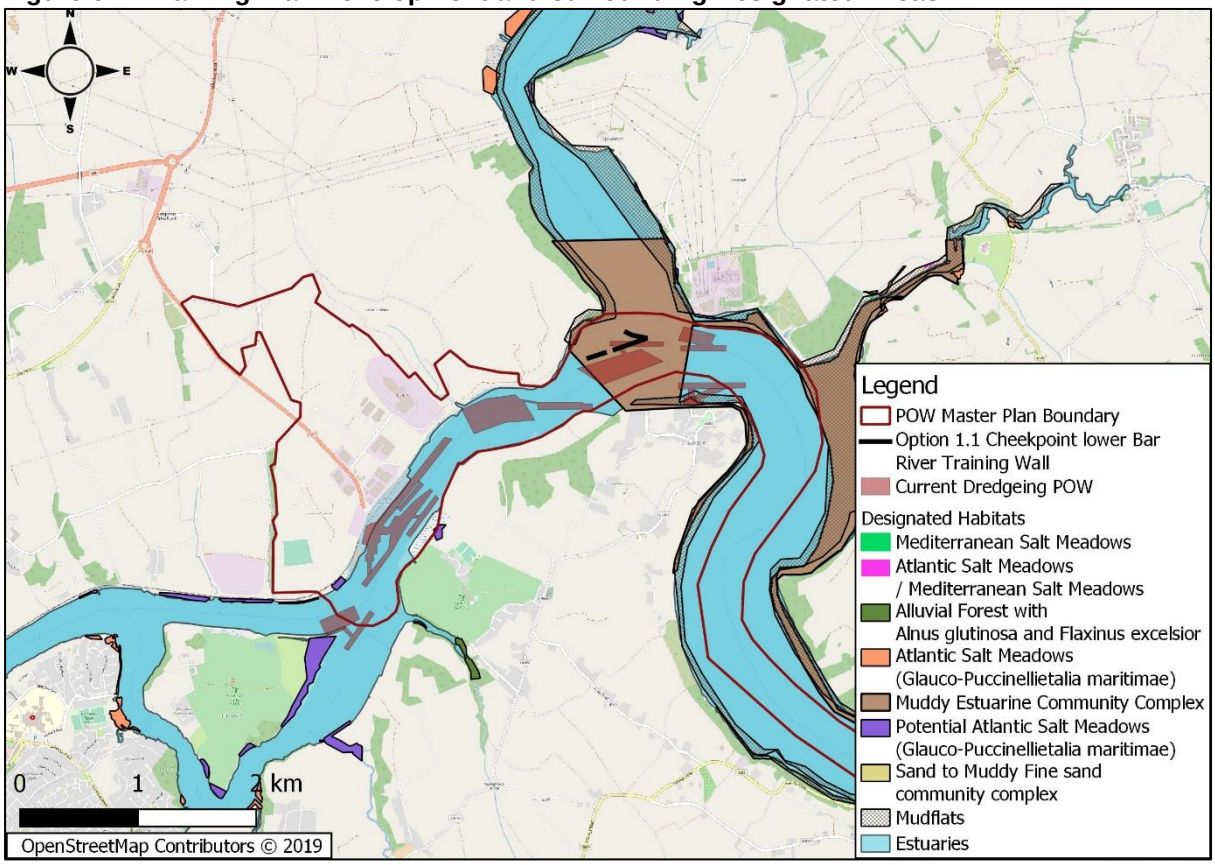


Table 6-1: Habitat Loss / Disturbance Assessment for Training Wall Development

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
Option 1.1. Cheekpoint Lower Bar Training Wall				
Lower River Suir SAC*	**Atlantic salt meadows / Mediterranean salt meadows** Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint (NPWS, 2017).	**The main threats to habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; and, • Impacts during both construction and operation, such as siltation and pollution.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. However, as part of the evolution of the design phase, modelling has been used to reconfigure the training wall layout to minimise the hydrodynamic regime effects (ABPmer, 2018). However, it is noted that there will be some sediment build up to the north of the wall. The subtidal habitat will accrete to provide internal mudflat behind the wall. The significance of this habitat change will need to be considered at a project level following detailed field surveys to determine the quality and extend of the habitats to be impacted. However, it should be noted that Mudflats are an Annex I habitat and the creation of this habitat has the potential to be beneficial in terms of providing suitable foraging habitat for species - which are likely / known to be present within the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure,) Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2017).	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in British Isles The best example of old oak woodland is located at Portlaw Wood, which is located ca.15km to the west of the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Alluvial forests The best examples of this type of woodland in the SAC are found on the islands just below Carrick-on-Suir and at Fiddown Island. A review of aerial photography shows that there are no significant blocks of woodland within the study area, however, the habitat exists within close proximity to the proposed expansion works (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb communities Tall herb communities occur in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. These habitat conditions are not present within the study area and it can therefore be assumed that this habitat type is not present with the study area (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Yew woodlands - Taxus baccata woods of the British Isles There are two stand of Yew woods within the SAC, these are on limestone ridges at Shanbally and Cahir Park. Both of these sites are over 15km away from the site (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Otter Large river catchments including the Lower Suir river catchment are considered to be among the more important SAC's for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the Lower Suir river catchment and the River Barrow and Nore SAC river catchment. Recent records for this species exist within the Lower River Suir near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Avoid / plan high impact activities such piling works to avoid / minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 18:00 Monday to Friday and 08.00 to 16.00 on Saturdays with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area;	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			• Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by ECoW.	
	Atlantic salmon The NBDC holds records for Atlantic salmon within the river catchment of the Lower Suir (NBDC, 2018). The presence of Atlantic Salmon in the Suir catchment is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Direct impacts from piling; • Impacts to movement / migration during the construction works; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	Impacts will need to be further assessed at project level.
	Sea lamprey The NBDC holds several records for Sea lamprey within both the Lower River Suir and River Barrow and Nore SAC catchments (NBDC, 2018). This species was also recorded in the Lower River Suir in 2013 by	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Inland Fisheries Ireland. A survey commissioned by the NPWS in 2007 (DEHLG, 2007) confirmed the presence of this species within Lower River Suir catchment.			
	Brook lamprey A survey commissioned by the NPWS confirmed the presence of this species within Lower River Suir catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	Twaite shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the Lower River Suir and River Barrow and Nore Estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007). There are also anecdotal records for this species within the Lower Suir estuary from bye-catch from various fishing methods.	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Freshwater pearl mussel	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
	White-clawed crayfish	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
River Barrow and River Nore SAC	**Estuaries** The inner boundary of the estuary is taken to be at New Ross and the outer boundary occurs between Creaden Head and Broomhill Point. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes. Additional communities occur within this Annex I habitat include Fine Sand with *Fabulina Fabula* Community. This is the dominate habitat within the proposed Master Plan Boundary.	**The main threats to habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; and, • Impacts during both construction and operation, such as siltation and pollution.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. However, as part of the evolution of the design phase, modelling has been used to reconfigure the training wall layout to minimise the hydrodynamic regime impacts (ABPmer, 2018). However, it is noted that there will be some sediment build up to the north of the wall. The subtidal habitat will accrete to provide internal mudflat behind the wall. The significance of this habitat change will need to be considered at project level following detailed field surveys to determine the quality and extend of the habitats to be impacted. However, it should be noted that Mudflats are an Annex I habitat and the creation of this habitat has the potential to be beneficial in terms of providing suitable foraging habitat for species which are likely / known to be present within the area.	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			Mitigating for Pollution: In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	
	Mudflats and sandflats not covered by seawater at low tide Expanses of sandflat are recorded in the southern margins of the site; it occurs from Creaden Head to Passage East on the western shore and from Black Point to Duncannon Fort on the eastern shore. Mudflats are present as a narrow band on the western shore and on the eastern shore broad areas occur at Shelbourne Bay and Fishertown Flats, thereafter it continues north as a narrow band. Additional communities occur within this Annex I habitat include Muddy Estuarine Community Complex and Sand to Muddy Fine Sand Community Complex. This habitat is a permanent habitat area, is stable and / or	As above	As above	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	increasing subject to natural processes.			
	Reefs An extensive and expansive area of *Sabellaria alveolata* reef occurs intertidally in Duncannon Bay. No records of this habitat exist within this SAC, in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted area.	N/A	**Screened out**
	Salicornia and other annuals colonising mud and sand This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted area.	N/A	**Screened out**
	Atlantic salt meadows / Mediterranean salt meadows This habitat area is stable and / or increasing subject to natural	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).			
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2011). No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	European dry heaths	None – Terrestrial habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Petrifying springs with tufa formation (Cratoneurion)	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in the British Isle No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Alluvial forests No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – No suitable habitats present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Freshwater Pearl Mussel	None – Freshwater species not present within the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	White-clawed Crayfish	None – Freshwater species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Atlantic Salmon The NBDC holds records for Atlantic salmon within the river catchment of the River Barrow & Nore (NBDC, 2018). The presence of Atlantic Salmon is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Direct impacts from piling; • Impacts to movement / migration during the construction works; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	Impacts will need to be further assessed at project level.
	Sea Lamprey The NBDC holds records for Sea lamprey within both the River Barrow and Nore SAC and Lower	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	River Suir catchments (NBDC, 2018).			
	Brook Lamprey A survey commissioned by the NPWS confirmed the presence of this species within catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	River Lamprey A survey commissioned by the NPWS confirmed the presence of this species within the catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	Twaite Shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	Otter Large river catchments including the River Barrow and Nore	**Main / Possible threats to Otter include:**	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts;	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	catchment are considered to be among the more important SAC for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the SAC river catchments. Recent records for this species exist within the River Barrow and Nore near the Port of Waterford (NBDC, 2018).	• Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	• Plan high impact activities such piling works to minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 18:00 Monday to Friday and 08.00 to 16.00 on Saturdays with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by Ecological Clerk of Works (ECoW).	
	Killarney Fern	None – Terrestrial habitat not present within the Master Plan area.	N/A	**Screened out**
	Nore Pearl Mussel	None – Species not present with the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Desmoulin's Whorl Snail	None – Species not present with the potentially impacted Master Plan area.	N/A	**Screened out**

6.2 Quay Extensions

Quay Extensions are located within and directly adjacent to designated areas (See Figure 6-2 below). Areas along the existing quay wall are subject to maintenance dredging and disturbance as a result of activities at the Port. The European Commission has highlighted that the movement of ships has the potential to affect the characteristics of estuarine / coastal habitats. Further, they state that a significant indirect environmental impact associated with ports is habitat disturbance due to maritime transport operations (EC, 2011a).

Given the levels of disturbance to the habitats within this area, it is likely that the habitats within this area are somewhat degraded. However, given the development of the quay walls will require works and a small amounts of land take within the Lower River Suir SAC, further consideration will be required.

It should be noted that extensions to the Quays had previously been subject to assessments and granted planning, though these have now lapsed and any future works will be required to seek the required statutory planning consent.

The proposed development has been designed to minimise the impacts and Table 6-2 presents further evaluation and assessment of the impacts that may occur and outlines the measures to be implemented to prevent or reduce impacts, as required.

A more detailed assessment of the land take will be required at the project level to determine significance of impacts. This will need to include a detailed assessment of the quality of the habitats to be impacted by the works.

Figure 6-2: Quay Extension Works and surrounding Designated Areas

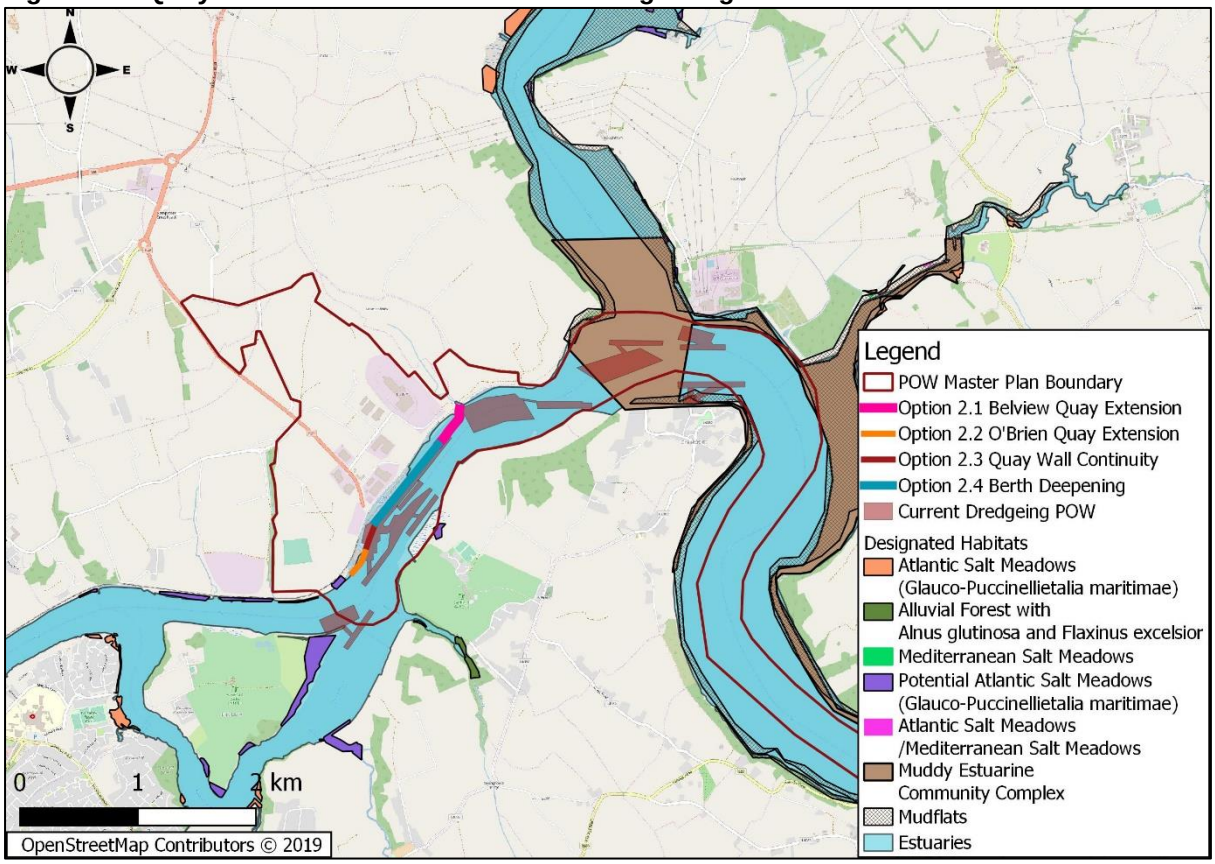


Table 6-2: Habitat Loss / Disturbance Assessment for Quay Extension Development

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
Options 2.1, 2.2, 2.3, 2.4. Quay Extensions				
Lower River Suir SAC*	**Atlantic salt meadows / Mediterranean salt meadows** Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint (NPWS, 2017).	**The main threats to the Lower River Suir SAC habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; • Direct habitat loss and / or disturbance to habitats as a result of Extension; and, • Impacts during construction such as siltation and pollution.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. However, as part of design phase modelling, no significant hydrodynamic impacts where identified as a result of the Quay developments (ABPmer, 2018). **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	Impacts will need to be further assessed at project level.
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2011)	None – Freshwater habitat not present within close proximity to Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Old sessile oak woods with Ilex and Blechnum in British Isles The best example of old oak woodland is located at Portlaw Wood, which is located ca.15km to the west of the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Terrestrial habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Alluvial forests The best examples of this type of woodland in the SAC are found on the islands just below Carrick-on-Suir and at Fiddown Island. These sites are located further up the catchment with the nearest being in excess of 15km away from the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Terrestrial habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb communities Tall herb communities occur in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact.	None – Terrestrial habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	These habitat conditions are not present within the study area and it can therefore be assumed that this habitat type is not present with the study area (NPWS, 2017).			
	Yew woodlands - Taxus baccata woods of the British Isles There are two stand of Yew woods within the SAC, these are on limestone ridges at Shanbally and Cahir Park. Both of these sites are over 15km away from the site (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Otter Large river catchments including the Lower Suir river catchment are considered to be among the more important SAC's for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the Lower Suir river catchment and the River Barrow and Nore SAC river catchment. Recent records for this species exist within the Lower River Suir near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Avoid / plan high impact activities such piling works to avoid / minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 18:00 Monday to Friday and 08.00 to	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			16.00 on Saturdays with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by ECoW.	
	Atlantic salmon The NBDC holds records for Atlantic salmon within the river catchment of the Lower Suir (NBDC, 2018). The presence of Atlantic Salmon in the Suir catchment is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Direct impacts from piling; • Impacts to movement / migration during the construction works; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Sea lamprey The NBDC holds several records for Sea lamprey within both the Lower River Suir and River Barrow and Nore SAC catchments (NBDC, 2018). This species was also recorded in the Lower River Suir in 2013 by Inland Fisheries Ireland. A survey commissioned by the NPWS in 2007 (DEHLG, 2007) confirmed the presence of this species within Lower River Suir catchment.	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at the project level.
	Brook lamprey A survey commissioned by the NPWS confirmed the presence of this species within Lower River Suir catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at the project level.
	Twaite shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the Lower River Suir and River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007). There are also anecdotal records for	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at the project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	this species within the Lower Suir estuary from bye-catch from various fishing methods.			
	Freshwater pearl mussel	None – Freshwater species not present within the Master Plan area.	N/A	**Screened out**
	White-clawed crayfish	None – Freshwater species not present within the Master Plan area.	N/A	**Screened out**
River Barrow and River Nore SAC	**Estuaries** The inner boundary of the estuary is taken to be at New Ross and the outer boundary occurs between Creaden Head and Broomhill Point. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes. Additional communities occur within this Annex I habitat including Fine Sand with *Fabulina Fabula* Community. This is the dominate habitat within the proposed Master Plan Boundary.	**The main threats to habitats include:** • Impacts during both construction and operation, such as siltation and pollution.	**Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Mudflats and sandflats not covered by seawater at low tide Expanses of sandflat are recorded in the southern margins of the site; it occurs from Creaden Head to Passage East on the western shore and from Black Point to Duncannon Fort on the eastern shore. Mudflats are present as a narrow band on the western shore and on the eastern shore broad areas occur at Shelbourne Bay and Fishertown Flats, thereafter it continues north as a narrow band. Additional communities occur within this Annex I habitat; Muddy Estuarine Community Complex and Sand to Muddy Fine Sand Community Complex. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes.	As above	As above	Impacts will need to be further assessed at project level.
	Reefs An extensive and expansive area of *Sabellaria alveolata* reef occurs intertidally in Duncannon Bay. No records of this habitat exist within this SAC, in close proximity to the	None – This habitat is not present within the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	proposed expansion works. (NPWS, 2011).			
	Salicornia and other annuals colonising mud and sand This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the Master Plan area.	N/A	**Screened out**
	Atlantic salt meadows / Mediterranean salt meadows This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the Master Plan area.	N/A	**Screened out**
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in	None – Freshwater habitat not present within the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Lower River Suir SAC. (NPWS, 2011). No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).			
	European dry heaths	None – Terrestrial habitat not present within the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	None – Habitat not present within the Master Plan area.	N/A	**Screened out**
	Petrifying springs with tufa formation (Cratoneurion)	None – Habitat and not present within the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in the British Isle No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within the Master Plan area.	N/A	**Screened out**
	Alluvial forests No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Desmoulin's Whorl Snail	None – No suitable habitats present within the Master Plan area.	N/A	**Screened out**
	Freshwater Pearl Mussel	None – Freshwater species not present within the Master Plan area.	N/A	**Screened out**
	White-clawed Crayfish	None – Freshwater species not present within the Master Plan area.	N/A	**Screened out**
	Atlantic Salmon The NBDC holds records for Atlantic salmon within the river catchment of the River Barrow & Nore (NBDC, 2018). The presence of Atlantic Salmon is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Direct impacts from piling; • Impacts to movement / migration during the construction works; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected: • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	Impacts will need to be further assessed at project level.
	Sea Lamprey	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	The NBDC holds records for Sea lamprey within both the River Barrow and Nore SAC and Lower River Suir catchments (NBDC, 2018).			further assessed at project level.
	Brook Lamprey A survey commissioned by the NPWS confirmed the presence of this species within SAC catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level
	River Lamprey A survey commissioned by the NPWS confirmed the presence of this species within the catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level
	Twaite Shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level
	Otter	**Main / Possible threats to Otter include:**	**Mitigating for Impacts on Otter:**	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Large river catchments including the River Barrow and Nore catchment are considered to be among the more important SAC for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the SAC river catchment. Recent records for this species exist within the River Barrow and Nore near the Port of Waterford (NBDC, 2018).	• Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	• Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Avoid / plan high impact activities such piling works to avoid / minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 20:00 with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by ECoW	
	Killarney Fern	None – Terrestrial habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Nore Pearl Mussel	None – Species and present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – Species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
Hook Head SAC	**Large shallow inlets and bays**	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Reefs	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Vegetated sea cliffs of the Atlantic and Baltic coasts	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

6.3 Dredging

Capital and maintenance dredging is a key element of various projects within the Master Plan. It should be noted that maintenance dredging activities are currently an ongoing activity within many sections of the estuary (See Figure 6-3) and have been subject to assessments and licencing. Table 3-4 outlines the current and future predicted dredging requirements at the Port.

Dredging operations may result in an increase in suspended solid concentrations and associated increased in sedimentation, which have the potential to impact on marine communities and designated habitats. However, the estuary is a naturally turbid environment, with the habitats and species adapted to periodic and temporary increases in suspended solids due to current dredging activities (AQUAFACT, 2017).

The dredging operations will disturb the benthic communities within the impacted areas. However, as noted within the Natura Impact Statement (NIS) which assessed impacts of dredging and disposal site currently carried out by the POW prepared by AQUAFACT in 2017, these benthic communities are adapted to ongoing disturbances by dredging and recovery begins almost immediately following the completion of these works.

Based on the conclusions from the completed NIS prepared by AQUAFACT, it is not considered that the proposed further dredging will negatively impact on the integrity or conservation objectives of the Natura 2000 sites, their qualifying interests or impede the movement of migrating fish, marine mammals or otter provided that adequate migration measures are implemented (AQUAFACT, 2017).

As outlined in Table 6-3, the majority of areas within the Master Plan currently undergo some form of dredging. Therefore, future operations will have the same dredging footprint as the current operations, with the exception of the Carters Patch, quay extensions and other minor areas. Furthermore, dredging will be phased throughout the life of the Master Plan to minimise potential impacts (Refer to Table 3-2).

An overall Dredging Management Plan will be prepared for the Port, which will aim to ensure that future dredging activities are managed and undertaken in accordance with best practice to avoid / minimise environmental impacts.

Table 6-3 presents further evaluation and assessment of the impacts that may occur and outlines the measures to be implemented to prevent or reduce impacts, as required.

Figure 6-3: Dredging Development and surrounding Designated Habitats.

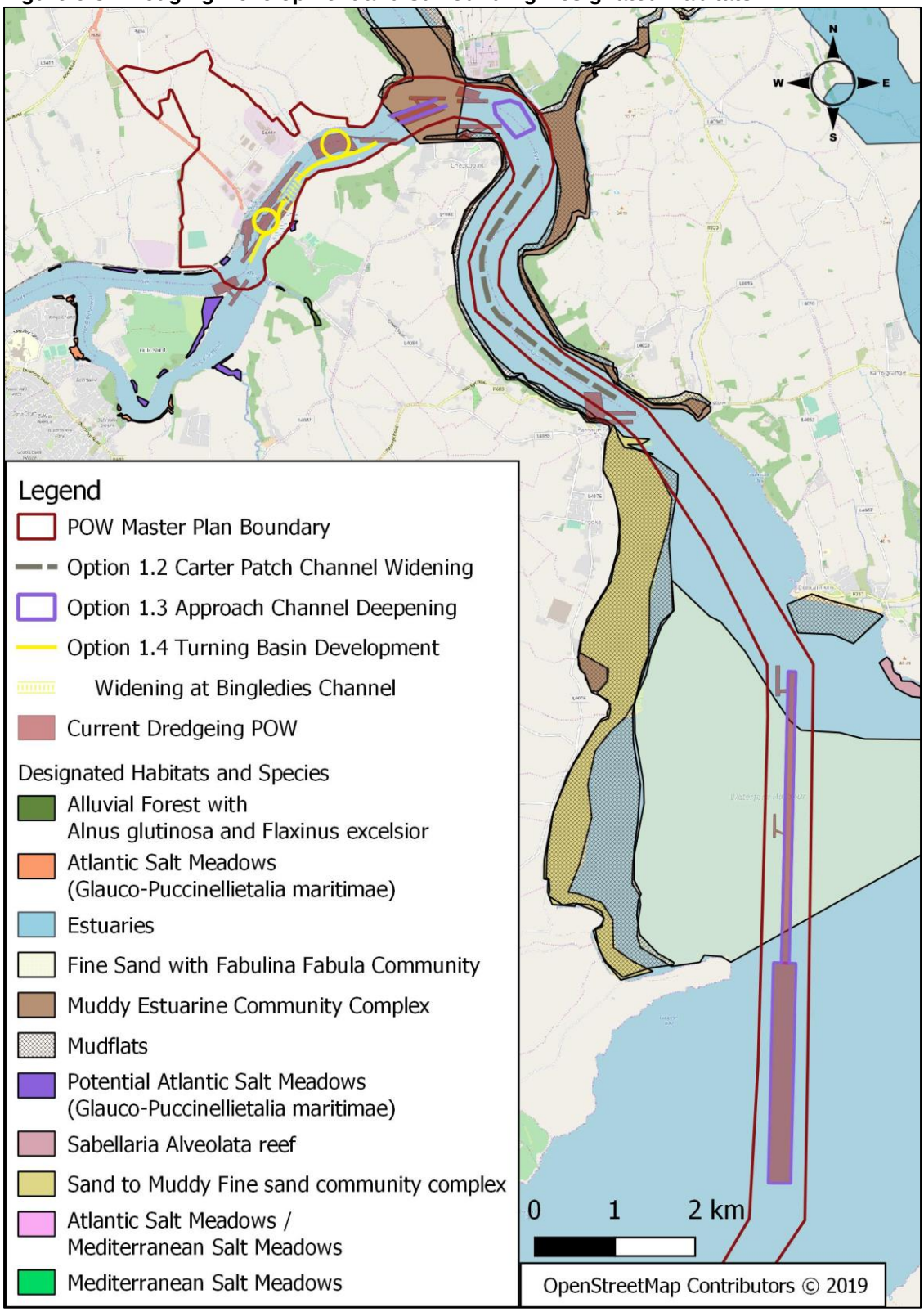


Table 6-3: Habitat Loss / Disturbance Assessment for Dredging Development

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
Options 1.2, 1.3, 1.4. Dredging				
Lower River Suir SAC*	**Atlantic salt meadows / Mediterranean salt meadows** Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint (NPWS, 2017).	**The main threats to habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; and, • Impacts during both dredging works and operation, such as siltation and pollution.	Impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. However, the estuary is naturally turbid environment, with the habitats and species adapted to periodic and temporary increases in suspended solids. Species such as salmon, shad and lampreys have evolved to adapt to migrate through turbid estuarine waters with high levels of suspended solids. **Mitigating for Dredging Activities:** See section 6.5 General Mitigation Measure. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure,) Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2017)	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in British Isles The best example of old oak woodland is located at Portlaw Wood, which is located ca.15km to the west of the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Alluvial forests The best examples of this type of woodland in the SAC are found on the islands just below Carrick-on-Suir and at Fiddown Island. These sites are located further up the catchment with the nearest being in excess of 15km away from the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb communities Tall herb communities occur in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. These habitat conditions are not present within the study area and it can therefore be assumed that this habitat type is not present with the study area (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Yew woodlands - Taxus baccata woods of the British Isles There are two stand of Yew woods within the SAC, these are on limestone ridges at Shanbally and Cahir Park. Both these sites are over 15km away from the site (NPWS, 2017).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Otter Large river catchments including the Lower Suir river catchment are considered to be among the more important SAC's for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the Lower Suir river catchment and the River Barrow and Nore SAC river catchment. Recent records for this species exist within the Lower River Suir near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during dredging works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the dredging works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 20:00 with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and,	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			• All works to be supervised by ECoW.	
	Atlantic salmon The NBDC holds records for Atlantic salmon within the river catchment of the Lower Suir (NBDC, 2018). The presence of Atlantic Salmon in the Suir catchment is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Impacts to movement / migration during the dredging works; and, • Impacts associated with pollution during the dredging works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected. • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	Impacts will need to be further assessed at the project level.
	Sea lamprey The NBDC holds several records for Sea lamprey within both the Lower River Suir and River Barrow and Nore SAC catchments (NBDC, 2018). This species was also recorded in the Lower River Suir in	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	2013 by Inland Fisheries Ireland. A survey commissioned by the NPWS in 2007 (DEHLG, 2007) confirmed the presence of this species within Lower River Suir catchment.			
	Brook lamprey A survey commissioned by the NPWS confirmed the presence of this species within Lower River Suir catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level
	Twaite shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the Lower River Suir and River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007). There are also anecdotal records for this species within the Lower Suir estuary from bye-catch from various fishing methods	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level
	Freshwater pearl mussel	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	White-clawed crayfish	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
River Barrow and River Nore SAC	**Estuaries** The inner boundary of the estuary is taken to be at New Ross and the outer boundary occurs between Creaden Head and Broomhill Point. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes. Additional communities occur within this Annex I habitat including Fine Sand with *Fabulina Fabula* Community. This is the dominate habitat within the proposed Master Plan Boundary.	**The main threats to habitats include:** • Impacts to the hydrodynamic regime and / or geomorphology of the estuary; and, • Impacts during both dredging works and operation, such as siltation and pollution.	Some impacts to the hydrodynamic regime and / or geomorphology of the estuary are likely to change the balance and flux of sediments within the estuary and lead to modifications to the habitats for which the SAC is designated. However, as part of the evolution of the design phase, modelling has been used to reconfigure the training wall layout to minimise the hydrodynamic regime impacts (ABPmer, 2018). However, it is noted that there will be some sediment build up to the north of the wall. The subtidal habitat will accrete to provide internal mudflat behind the wall. The significance of this habitat change will need to be considered at a project level following detailed field surveys to determine the quality and extend of the habitats to be impacted. However, it should be noted that Mudflats are an Annex I habitat and the creation of this habitat has the potential to beneficial in terms of providing suitable foraging habitat for species which are likely / known to be present within the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure,) Site specific mitigation is required to ensure that the Lower River Suir SAC and River	Impacts will need to be further assessed at the project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	
	Mudflats and sandflats not covered by seawater at low tide Expanses of sandflat are recorded in the southern margins of the site; it occurs from Creaden Head to Passage East on the western shore and from Black Point to Duncannon Fort on the eastern shore. Mudflats are present as a narrow band on the western shore and on the eastern shore broad areas occur at Shelbourne Bay and Fishertown Flats, thereafter it continues north as a narrow band. Additional communities occur within this Annex I habitat including Muddy Estuarine Community Complex and Sand to Muddy Fine Sand Community Complex. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes.	As above	As above	Impacts will need to be further assessed at the project level.
	Reefs	None – This habitat is not present with the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	An extensive and expansive area of *Sabellaria alveolata* reef occurs intertidally in Duncannon Bay. No records of this habitat exist within this SAC, in close proximity to the proposed expansion works (NPWS, 2011).			
	Salicornia and other annuals colonising mud and sand This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Atlantic salt meadows / Mediterranean salt meadows This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC (NPWS, 2011). No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	European dry heaths	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Petrifying springs with tufa formation (Cratoneurion)	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in the British Isle No records of this habitat exist within the estuary in close	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	proximity to the proposed expansion works (NPWS, 2011).			
	Alluvial forests No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – No suitable habitats present with the potentially impacted Master Plan area.	N/A	**Screened out**
	Freshwater Pearl Mussel	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
	White-clawed Crayfish	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
	Atlantic Salmon The NBDC holds records for Atlantic salmon within the river catchment of the River Barrow & Nore (NBDC, 2018). The presence of Atlantic Salmon is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Impacts to movement / migration during the dredging works; and, • Impacts associated with pollution during the dredging works.	**Mitigating for Impact on Migration:** Mitigation measures will also be required to ensure the migration of these fish through the Site is not adversely affected. • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area. **Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation	Impacts will need to be further assessed at project level.

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	
	Sea Lamprey The NBDC holds records for Sea lamprey within both the River Barrow and Nore SAC and Lower River Suir catchments (NBDC, 2018).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	Brook Lamprey A survey commissioned by the NPWS confirmed the presence of this species within catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	River Lamprey A survey commissioned by the NPWS confirmed the presence of this species within the catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be further assessed at project level.
	Twaite Shad	See above as per Atlantic salmon	See above as per Atlantic salmon	Impacts will need to be

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007).			further assessed at project level.
	Otter Large river catchments including the River Barrow and Nore catchment are considered to be among the more important SAC for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the SAC river catchment. Recent records for this species exist within the River Barrow and Nore near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during dredging works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during dredging works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 20:00 with the exception of essential activities to be carried out at low tide; • All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and,	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			• All works to be supervised by ECoW.	
	Killarney Fern	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Nore Pearl Mussel	None – Species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – Species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
Hook Head SAC	**Large shallow inlets and bays**	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Reefs	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Vegetated sea cliffs of the Atlantic and Baltic coasts	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

6.4 Shore Side Developments

The Local Area Plan for Ferrybank / Belview designates a significant area of land around Belview for port related facilities and uses. It is envisaged that these developments will not occur within designated sites. However, given that the shore side developments will occur within close proximity to the designated areas (See Figure 6-4 below) and the potential for impacts paths, further consideration is required. Table 6-4 presents further evaluation and assessment of the impacts that may occur and outlines the measures to be implemented to prevent or reduce impacts, as required.

Figure 6-4: Shore Side Developments and surrounding Designated Habitats

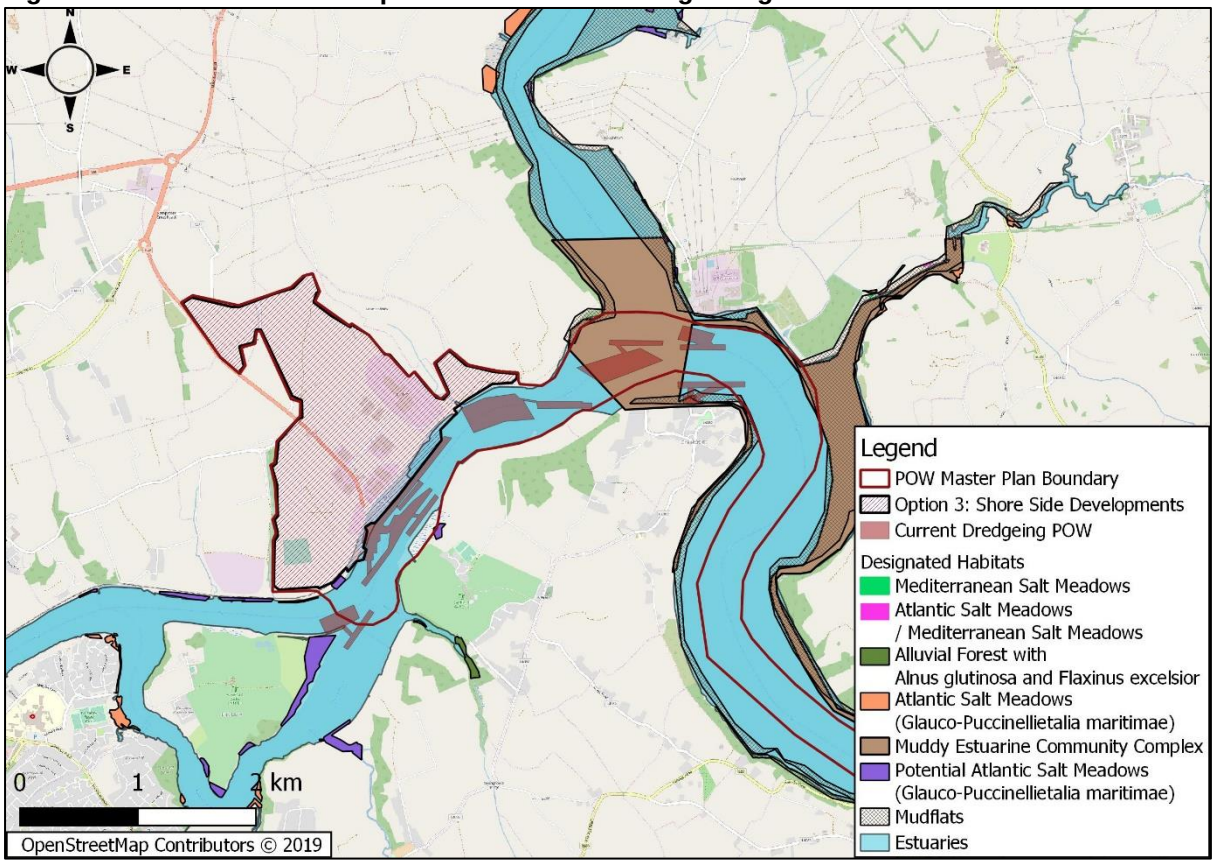


Table 6-4: Habitat Loss / Disturbance Assessment for Shore Side Developments

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
Option 3 Shore Side Developments				
Lower River Suir SAC*	**Atlantic salt meadows / Mediterranean salt meadows** Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint (NPWS, 2017).	**The main threats to habitats include:** • Impacts during both construction and operation, such as siltation and pollution.	**Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure) Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	**Screened out**
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2011)	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Old sessile oak woods with Ilex and Blechnum in British Isles The best example of old oak woodland is located at Portlaw Wood, which is located ca.15km to the west of the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Habitat not present within close proximity to the POW	N/A	**Screened out**
	Alluvial forests The best examples of this type of woodland in the SAC are found on the islands just below Carrick-on-Suir and at Fiddown Island. These sites are located further up the catchment with the nearest being in excess of 15km away from the site. A review of aerial photography shows that there are no significant blocks of woodland within the footprint of the site or surrounding area (NPWS, 2017).	None – Habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb communities Tall herb communities occur in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. These habitat conditions are not present within the study area and it	None – Habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	can therefore be assumed that this habitat type is not present with the study area (NPWS, 2017).			
	Yew woodlands - Taxus baccata woods of the British Isles There are two stand of Yew woods within the SAC, these are on limestone ridges at Shanbally and Cahir Park. Both these sites are over 15km away from the site (NPWS, 2017).	None – Habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Otter Large river catchments including the Lower Suir river catchment are considered to be among the more important SAC's for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the Lower Suir river catchment and the River Barrow and Nore SAC river catchment. Recent records for this species exist within the Lower River Suir near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Avoid / plan high impact activities such piling works to avoid / minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 20:00 with the exception of essential activities to be carried out at low tide;	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			• All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by ECoW	
	Atlantic salmon The NBDC holds records for Atlantic salmon within the river catchment of the Lower Suir (NBDC, 2018). The presence of Atlantic Salmon in the Suir catchment is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	**Main threats to species include:** • Impacts associated with pollution during the construction works.	**Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	**Screened out**
	Sea lamprey The NBDC holds several records for Sea lamprey within both the Lower River Suir and River Barrow and Nore SAC catchments (NBDC, 2018). This species was also recorded in the Lower River Suir in 2013 by Inland Fisheries Ireland. A survey commissioned by the NPWS in 2007 (DEHLG, 2007) confirmed the	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	presence of this species within Lower River Suir catchment.			
	Brook lamprey A survey commissioned by the NPWS confirmed the presence of this species within Lower River Suir catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**
	Twaite shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir. Catchment (NBDC, 2018). This species was also recorded in the Lower River Suir and River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007). There are also anecdotal records for this species within the Lower Suir estuary from bye-catch from various fishing methods.	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**
	Freshwater pearl mussel	None – Freshwater species not present within the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	White-clawed crayfish	None – Freshwater species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
River Barrow and River Nore SAC	**Estuaries** The inner boundary of the estuary is taken to be at New Ross and the outer boundary occurs between Creaden Head and Broomhill Point. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes. Additional communities occur within this Annex I habitat including Fine Sand with *Fabulina Fabula* Community. This is the dominate habitat within the proposed Master Plan Boundary.	**The main threats to habitats include:** • Impacts during both construction and operation, such as siltation and pollution.	**Mitigating for Pollution:** In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site work.	**Screened out**
	Mudflats and sandflats not covered by seawater at low tide Expanses of sandflat are recorded in the southern margins of the site; it occurs from Creaden Head to Passage East on the western shore and from Black Point to Duncannon Fort on the eastern shore. Mudflats are present as a narrow band on the western shore and on the eastern shore broad areas occur at Shelbourne Bay and Fishertown	As above	As above	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Flats, thereafter it continues north as a narrow band. Additional communities occur within this Annex I habitat; Muddy Estuarine Community Complex and Sand to Muddy Fine Sand Community Complex. This habitat is a permanent habitat area, is stable and / or increasing subject to natural processes.			
	Reefs An extensive and expansive area of *Sabellaria alveolata* reef occurs intertidally in Duncannon Bay. No records of this habitat exist within this SAC, in close proximity to the proposed expansion works. (NPWS, 2011).	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Salicornia and other annuals colonising mud and sand This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Atlantic salt meadows / Mediterranean salt meadows This habitat area is stable and / or increasing subject to natural processes including erosion and succession. No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – This habitat is not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Little is known about the distribution of the habitat and its sub-types in Lower River Suir SAC. (NPWS, 2011). No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Freshwater habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	European dry heaths	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Petrifying springs with tufa formation (Cratoneurion)	None – Habitat and not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Old sessile oak woods with Ilex and Blechnum in the British Isle No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Alluvial forests No records of this habitat exist within the estuary in close proximity to the proposed expansion works (NPWS, 2011).	None – Terrestrial habitat not present within close proximity to the POW.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – No suitable habitats present with the potentially impacted Master Plan area.	N/A	**Screened out**
	Freshwater Pearl Mussel	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
	White-clawed Crayfish	None – Freshwater species not present with the potentially impacted Master Plan area.	N/A	**Screened out**
	Atlantic Salmon	**Main threats to species include:**	**Mitigating for Pollution:**	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	The NBDC holds records for Atlantic salmon within the river catchment of the River Barrow & Nore (NBDC, 2018). The presence of Atlantic Salmon is well documented and this species forms an integral part of the local tourism industry (NPWS, 2011).	Impacts associated with pollution during the construction works.	In addition to the standard pollution prevention guidance (See section 6.5 General Mitigation Measure), Site specific mitigation is required to ensure that the Lower River Suir SAC and River Barrow and River Nore SAC and associated water bodies are not impacted by pollution from activities associated with the Site works. Impacts associated with the construction works will need to be further assessed at the project level and works / mitigation will be agreed with IFI.	
	Sea Lamprey The NBDC holds records for Sea lamprey within both the River Barrow and Nore SAC and Lower River Suir catchments (NBDC, 2018).	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**
	Brook Lamprey A survey commissioned by the NPWS confirmed the presence of this species within catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**
	River Lamprey A survey commissioned by the NPWS confirmed the presence of this species within the catchment (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
	Twaite Shad The NBDC holds records for Twaite shad within the river Barrow and Nore SAC catchment, which is directly linked to the Lower Suir catchment (NBDC, 2018). This species was also recorded in the River Barrow and Nore estuary in 2013 by Inland Fisheries Ireland (DEHLG, 2007).	See above as per Atlantic salmon	See above as per Atlantic salmon	**Screened out**
	Otter Large river catchments including the River Barrow and Nore catchment are considered to be among the more important SAC for otter. The National Biodiversity Data Centre (NBDC) holds several records for otter within both the SAC river catchment. Recent records for this species exists within the River Barrow and Nore near the Port of Waterford (NBDC, 2018).	**Main / Possible threats to Otter include:** • Disturbance / displaced during construction works; • Temporary loss of feeding ground; and, • Impacts associated with pollution during the construction works.	**Mitigating for Impacts on Otter:** • Pre-construction surveys for otter to assess habitat quality and importance for otters, including the presence of holts; • Avoid / plan high impact activities such piling works to avoid / minimise impacts; • Ensure noise abatement measures are employed during all noise works; • All site plant will be selected with recognition of its sound power and vibration output; • All noisy plant should be placed as far as practicable from noise sensitive locations; • Noisy works will be restricted to the hours of 08:00 to 20:00 with the exception of essential activities to be carried out at low tide;	**Screened out**

Site Name	Qualifying Interests	Potential Impacts Arising from Master Plan / Threats to Site Integrity	Mitigation / Rational	Screening conclusion
			• All noisy activities will require a soft start and will ramp up to allow animals to disperse away from the area; • Vessel movements will be controlled (speed limits) and planned to avoid impacts; and, • All works to be supervised by ECoW.	
	Killarney Fern	None – Terrestrial habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Nore Pearl Mussel	None – Species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
	Desmoulin's Whorl Snail	None – Species not present within the potentially impacted Master Plan area.	N/A	**Screened out**
Hook Head SAC	**Large shallow inlets and bays**	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Reefs	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**
	Vegetated sea cliffs of the Atlantic and Baltic coasts	None – Habitat not present within close proximity to the Master Plan area.	N/A	**Screened out**

6.5 General Mitigation Measures

At the project level, the methods of working will comply with all relevant legislation and best practice guidance available at the time, in order to reduce the environmental impacts of the works. Although construction phase impacts are generally of a relatively short-term duration and are localised in nature, the impacts will be reduced as far as practicable through compliance with current construction industry guidelines.

At a minimum, Comprehensive Working Method Statements (WMS) and Construction Environmental Management Plans (CEMP) will be developed in accordance with best practice guidelines. These plans will be agreed with the relevant statutory bodies in advance of works taking place.

The WMS and CEMP will be prepared with input from a suitably qualified and experienced ecologist and the document will make reference to current best practice construction guidance available at the time of the project.

In addition, individual projects will include a requirement for the development of Erosion and Sediment Control Plans; Invasive Species Management Plans; Emergency Response Plans and Accident Prevention Procedures and Dust and Noise Minimisation Plans as applicable to ensure water quality is protected and the conservation status of estuarine and coastal habitats does not deteriorate.

An overarching Habitat Management Plan will be developed for the Port of Waterford which will aim to ensure that features of biodiversity value at the Port are managed and protected to ensure that biodiversity enhancement measures form an integrate part of future developments at the port and biodiversity benefits can be maximised wherever possible.

In addition, a Dredging Management Plan will be developed for the overall dredging operations associated with the Port.

The table below includes mitigation measure that will apply to relevant project.

Table 6-5: Mitigation Measures

Mitigation Measures	Projects
General	
On-going consultation with the NPWS will be required for the full life-cycle of the Master Plan to ensure that the NPWS are fully informed and that the mitigation measures employed remain current / relevant in the context of the impacted Natura 2000 sites and their conservation objectives.	All
Pre-construction surveys will be undertaken by a suitable qualified and experienced ecologist for each of the relevant projects. These will confirm the extent and quality of the habitat to be impacted by the various elements of the works. This information will be used at the project level to inform design / approach to the project to ensure the impacts can be either minimised or avoided. In cases where impacts cannot be avoided, the appropriate statutory bodies will be consulted and derogation licence acquired, where necessary.	All
Full details of the proposed construction methodologies will be developed at the design stage and subject to detailed assessment to ensure that impacts can be both avoided and minimised.	All
Contact with IFI and the National Parks & Wildlife Service will be established before works commence.	All

Mitigation Measures	Projects
Water Quality	
Ongoing monitoring, including water quality monitoring during project that take place either in or adjacent to the estuary. This will help monitor impacts on the environment and aquaculture. Standard best practice measures along with Site specific measures will be incorporated into WMS, CEMPS and other management plans for the works.	All
Dredging	
Dredging regime will employ best-practice measures to minimise the release of suspended particulate matter within the water column by: • Preparation of an Environmental Management System (EMS) which meets the recommendations as outlined in the EC Guidance on the implementation of the EU nature legislation in estuaries and coastal zone (EC, 2011a); • Maintaining a low speed during dredging; • Only utilising water jets when necessary to ensure adequate production; • Minimise the use of overflowing whenever possible; and, • Dredging will be undertaken as efficiently as possible so that the number of dredger movements is minimised. The disposal regime will employ the following best practice measures: • Maintain an acceptable speed to ensure against losses during transit during inclement weather; • Division of the disposal site into sectors with each used in turn; and, • Maintain a low speed during disposal to disperse material over disposal area. The above measures are standard best practice and serve to minimise any possible impacts on the environment. The POW will be bound by the conditions as set out by the EPA in their Dumping at Sea permit. This will ensure a sustainable maintenance / or capital dredging strategy is adopted. The POW will ensure that all dredging works are optimized in line with the ESPO guidance (ESPO, 2007).	Options 1.2, 2.3, 3.4.
Invasive Species / Biosecurity	
A pre-construction survey to identify any potential invasive species. In order to ensure biosecurity in terms of aquatic invasive species, all works requiring access to the marine environment will be required to prepared method statements detailing their biosecurity protocol in relation to use of equipment between different Sites. The method statements will be based on the relevant guidance for the works being undertaken.	All
In order to mitigate against the unintentional introduction of invasive species to the Site as part of the works, all shore side developments works will be undertaken in line with best practice.	Option 3. Shore Side Developments

6.6 Monitoring

Monitoring requirements will be identified at the project level, however ongoing input to the project will be required through the life span of the POW Master Plan, to ensure that impacts can be either minimised or avoided.

6.7 Ecological Enhancements

The incorporation of ecological enhancements to hard standing structures in coastal habitats has aided in recolonization rates and increased biodiversity post-development (Li, Reeve, & and Fleming, 2005). Increasing surface heterogeneity and incorporating niches in structures can improve conditions for target organisms, or increase general ecological potential.

As part of the training wall will lead to a permanent loss of ca.0.4ha of habitat, increasing habitat diversity by rough surfacing on the training wall rather than leaving it a smooth surface, will minimise these impacts by facilitating colonisation. Additionally, the installation of bird nesting structures placed on flat surfaces on top of the training wall will assist in greater sea bird (Fulmars, Gulls, Guillemots, Kittiwakes, Cormorants) utilization of the area post-construction.

At the project level further consideration will be given to ecological enhancement measure and details of which will be included in applications for the required project permissions.

6.8 Assessment of IROPI and Identification of Compensatory Measures

If mitigation cannot adequately avoid impacts at the project level and no alternatives can be identified that are suitable, it will be necessary to identify the Imperative Reasons of Overriding Public Interest (IROPI). Any reliance on IROPI will need to be appropriately documented and the required statutory consents sorted.

Article 6(4) of the Habitats Directive and regulation 109 of the Habitats Regulations require that any compensatory measures necessary to "ensure that the overall coherence" of the Natura 2000 network be secured. Specific compensatory measures may be difficult to identify at the Master Plan level given the level of detail available and the absence of detailed baseline information. Specific adverse effects will not be identifiable; therefore, bespoke compensation cannot be determined at this stage.

Any future infrastructure developments that require IROPI will need to meet the requirements of European Commission guidance, i.e. that any compensation measures must be available, achievable and judged likely to be effective; and must be in place before the adverse effect occurs.

6.9 Analysis of 'In-Combination' Effects

The Habitats Directive requires that an appropriate assessment of any plan or project takes into consideration effect alone or in-combination with other plans and projects.

Due to the large size of the Lower River Suir SAC and River Barrow and River Nore SAC, there are numerous projects and activities which have the potential to affect the conservation interests of these sites.

The current proposal will provide a physical framework for the sustainable development of the Port and is comprised of multiple projects which aim to reduce dredging requirements at the Port, to increase navigational safety and access to the Port, to provide additional capacity at the Port and to facilitate the development of new shore side berthing provisions and facilities.

A range of both shore and marine based projects will be included in the Master Plan to achieve these objectives and the developments will most likely interact with each other.

However, it is considered that in-combination effects can be avoided / minimised provided that works are well planned and phased. Furthermore, no other plans comprising of similar projects / activities where noted in the locality.

Further detailed project level assessments will be required to ensure that in-combination impacts can be minimised / avoided.

7 CONCLUSIONS

This NIR comprises a scientific examination and analysis to determine whether or not POW Master Plan will adversely affect the integrity of any European site. This examination and analysis under Directive 92/43/EEC were conducted in parallel with the preparation of the SEA Environmental Report. The outcomes and mitigation or compensation measures proposed in the NIR have been incorporated into the SEA. The POW Masterplan has also fully integrated the findings of the NIR and SEA.

Having regard to the relevant legislation, an appropriate assessment of the implications of the POW Master Plan on Natura 2000 sites in view of their conservation objectives has been completed.

The screening process has examined the details of the proposed projects associated with the POW Master Plan and has considered the potential for causing impacts on Natura 2000 sites and their qualifying features of interest within a 15km radius of the study area.

The screening exercise identified that the Lower River Suir SAC, River Barrow and River Nore SAC, and Hook Head SAC require further consideration as part of the appropriate assessment process due to the potential for impacts to occur.

A further high-level assessment exercise was undertaken, taking high level mitigation measures into consideration. Taking these mitigation measures into account, a number of species and habitats were also identified as unlikely to be impacted by the projects detailed within the POW Master Plan and screened out. Hook head SAC was also screened out at this stage. Also, all potential impacts arising from Option No. 3 in the Masterplan - Shore Side Developments were screened out at this stage.

A number of species and habitats for which both the Lower River Suir SAC and the River Barrow and River Nore SAC are designated will require further detailed assessment at the project level to ensure that impacts can be avoided / minimised. These species and habitats include:

- *Lower River Suir SAC: Atlantic salt meadows / Mediterranean salt meadows, Atlantic salmon, Sea lamprey, Brook lamprey, River lamprey, Twaite shad; and*
- *River Barrow and River Nore SAC: Estuaries, Mudflats and sandflats not covered by seawater at low tide, Atlantic salmon, Sea lamprey, Brook lamprey, River lamprey, Twaite shad.*

It should however be noted that the iterative approach taken in the preparation of the POW masterplan, the SEA and the NIR has allowed consideration of potential adverse impacts on both these Natura Sites during the design process. This has allowed for the selection and development of options that are both in keeping with the ongoing port core activities while being sympathetic to the local environment and the designated features of the Natura 2000 sites.

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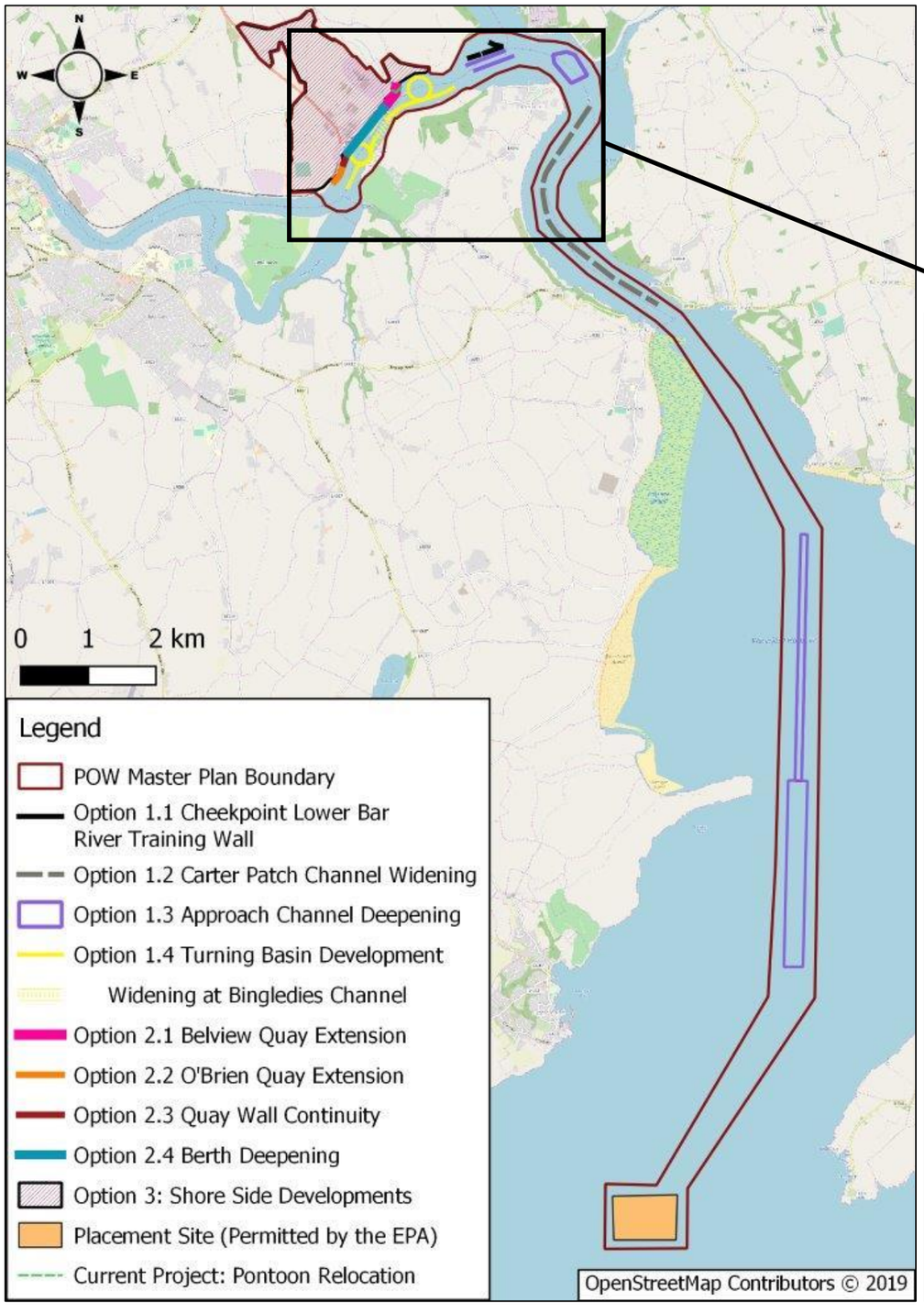
APPENDICES

APPENDIX A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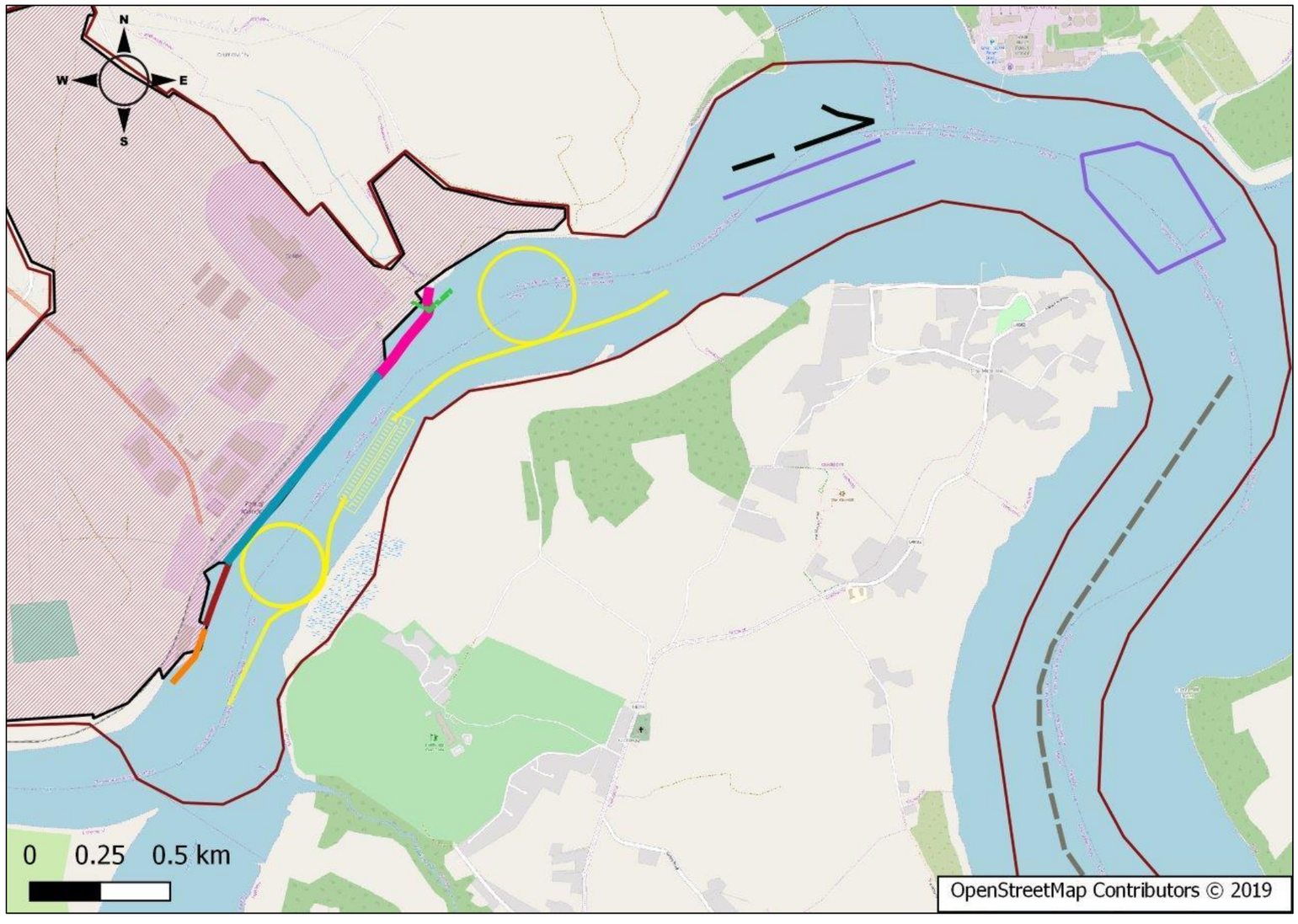
Legend
POW Master Plan Boundary
Option 1.1 Cheekpoint Lower Bar River Training Wall
Option 1.2 Carter Patch Channel Widening
Option 1.3 Approach Channel Deepening
Option 1.4 Turning Basin Development
Widening at Bingledies Channel
Option 2.1 Belview Quay Extension
Option 2.2 O'Brien Quay Extension
Option 2.3 Quay Wall Continuity
Option 2.4 Berth Deepening
Option 3: Shore Side Developments
Placement Site (Permitted by the EPA)
Current Project: Pontoon Relocation
OpenStreetMap Contributors © 2019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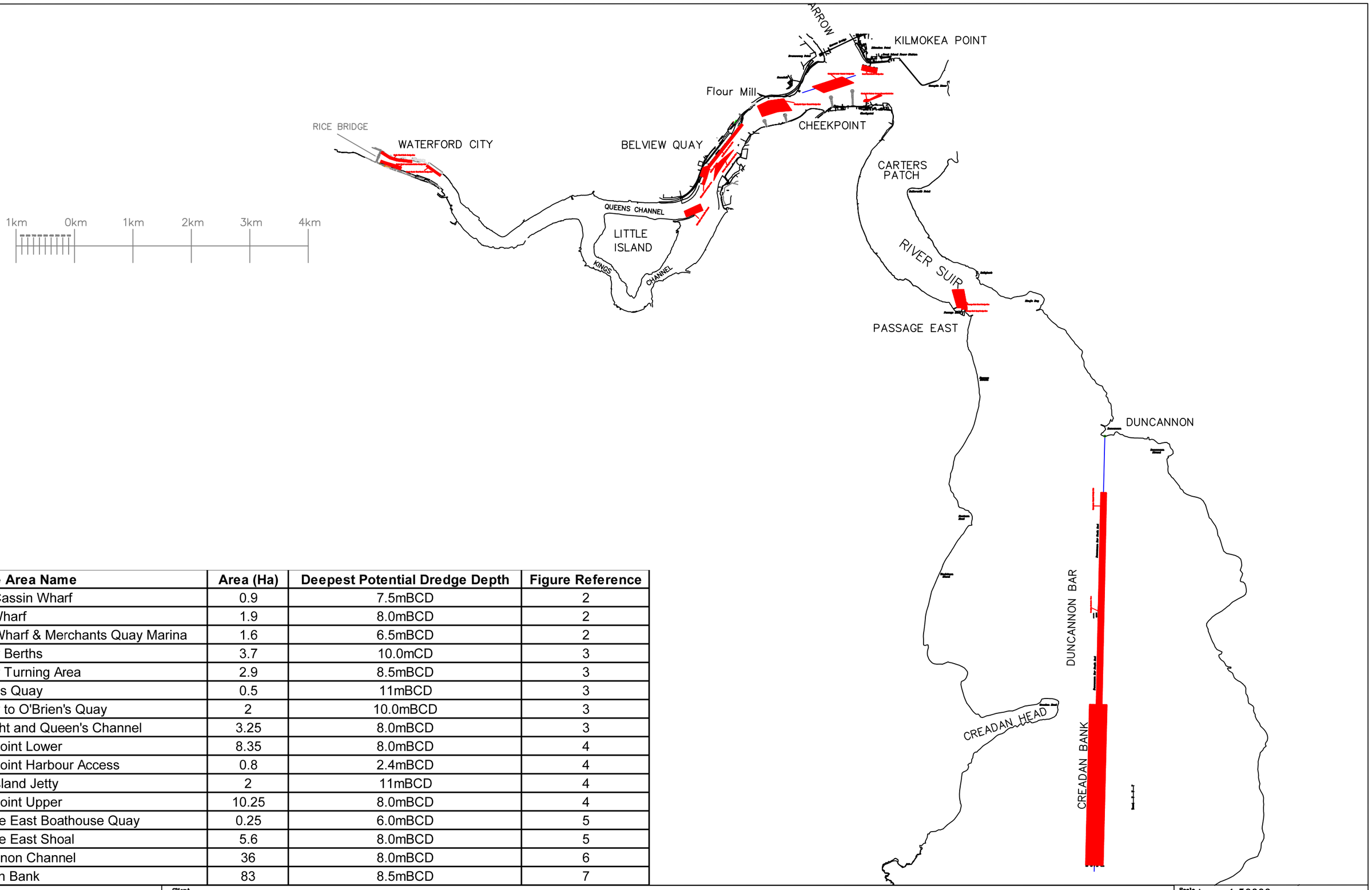
OpenStreetMap Contributors © 2019

APPENDIX B



Dredge Area Name	Area (Ha)	Deepest Potential Dredge Depth	Figure Reference
Frank Cassin Wharf	0.9	7.5mBCD	2
North Wharf	1.9	8.0mBCD	2
Forde Wharf & Merchants Quay Marina	1.6	6.5mBCD	2
Belview Berths	3.7	10.0mCD	3
Belview Turning Area	2.9	8.5mBCD	3
O'Brien's Quay	0.5	11mBCD	3
Belview to O'Brien's Quay	2	10.0mBCD	3
Spit Light and Queen's Channel	3.25	8.0mBCD	3
Cheekpoint Lower	8.35	8.0mBCD	4
Cheekpoint Harbour Access	0.8	2.4mBCD	4
Great Island Jetty	2	11mBCD	4
Cheekpoint Upper	10.25	8.0mBCD	4
Passage East Boathouse Quay	0.25	6.0mBCD	5
Passage East Shoal	5.6	8.0mBCD	5
Duncannon Channel	36	8.0mBCD	6
Creadan Bank	83	8.5mBCD	7

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PORT OF WATERFORD

Title

FIGURE 1 – DREDGE AREA OVERVIEW
EPA DUMPING AT SEA APPLICATION

Scale : 1:50000
Dwg Date : June 2017
DECLG FILE NUMBER: N/A
Drg.No. 453_EPA_APP_01
Certified By: Colm Sheehan PhD CEng MIEI
15/06/2017