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# Chapter 17

## Major Accidents, Interrelationships and Cumulative Impacts

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## Chapter 17 Major Accidents, Interrelationships and Cumulative Impacts

### 17.1 Introduction

This chapter presents the vulnerability of the proposed development to risks of major accidents and/or disasters. In addition, the interrelationships between individual topics discussed in previous chapters of this Environmental Impact Assessment Report (EIAR) have been considered in this chapter. The predicted interactions between these environmental topics are presented in Table 17.1. The cumulative impacts of the proposed development with those of previous development, current development in planning, and proposed future developments which are reasonably foreseeable have also been assessed and are described in this chapter. Potential transboundary impacts are also assessed.

### 17.2 Methodology

#### 17.2.1 Vulnerability to Risks of Major Accidents and/or Disasters

A major accident is defined as an event that threatens human health, welfare and/or the environment. Major accidents can result in the loss of life, permanent injury or long-lasting damage to an environmental receptor. This section comprises an assessment of the vulnerability of the proposed development to risks of major accidents and/or disasters.

An understanding of the potential consequences of major accidents and disasters due to the proposed development was gained through a desktop study comprising reviewing available documentation and legal and regulatory requirements. This desktop study was carried out to identify potential hazards associated with major accidents and/or disasters, their likelihood, and the potential resulting consequences. During the desktop study, an understanding of common region-specific accident and/or disaster events was obtained in order to predict the potential consequences of such major events in the context of the proposed development. As the assessment of major accidents and disasters is a new requirement of the EIA Directive 2014/52/EU and national guidelines are not yet available, the desktop study consulted Highways England's (equivalent body to Transport Infrastructure Ireland (TII)) guidance.

The proposed development has been designed in accordance with best practice guidelines to ensure that it will be built, operated and maintained safely and without risk to health, in compliance with all relevant health and safety legislation, thereby mitigating many risks.

During this assessment, hazards were identified and screened, the impacts were defined and the likelihood of impacts occurring were assessed. Mitigation measures were considered and the remaining risks were then assessed. Only risks with a feasible source-pathway-receptor model were considered as part of the assessment. Risk events which do not have all three components were screened out from the assessment. Environmental receptors considered for this assessment included members of the local public, the built environment, the natural environment and the historic environment. For this assessment, a significant adverse effect is considered to mean the loss of life or permanent injury, and/or permanent or long-lasting damage to an environmental receptor. The significance of the effect takes the extent, severity, duration of harm, and the sensitivity of the receptor into account.

### 17.2.2 Interrelationships

The determination of interrelationships was facilitated through an iterative design process that included meetings between designers and specialists where strong interrelationships exist. In addition, the process was informed by consultation with statutory and non-statutory consultees and in particular with the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (National Monuments Service and National Parks and Wildlife Service) and Inland Fisheries Ireland (IFI). Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken these into account when making their assessment. Where necessary, mitigation measures have been proposed.

### 17.2.3 Cumulative Impacts

The geographical boundary selected for assessment of cumulative impacts comprises a viable Study Area holding potential for feasible cumulative impacts whilst excluding those areas which are non-viable because of issues such as topography and distance.

Cumulative impacts are impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the River Suir Sustainable Transport Bridge. Cumulative impacts were assessed by looking at all previous plans and projects, current plans and projects in planning and proposed future plans and projects within 15km of the proposed site location from 2008 to the present. There is too much uncertainty associated with development proposals beyond 5 years into the future and this EIAR can only be based on data that is readily available. This cumulative assessment has considered cumulative impacts that are:

- (a) Likely;
- (b) Significant; and
- (c) Relating to a future event which is reasonably foreseeable

Data sources included the following:

- Waterford City and County Council (planning and roads sections);
- Kilkenny County Council (planning and roads sections);
- An Bord Pleanála website (planning searches);
- Web search of windfarm projects in Waterford City and County and Co. Kilkenny;
- Web search for major infrastructure projects in Waterford City and County and Co. Kilkenny;
- Waterford City Development Plan 2013-2019;
- Waterford County Development Plan 2011-2017;
- Kilkenny County Development Plan 2014-2020;
- Ferrybank Belview Local Area Plan 2009-2020 (including Amendment 1);
- Coillte Website;
- IFI website; and
- The National Spatial Strategy 2002-2020.

### 17.3 Major Accidents and/or Disasters

It is considered that the three main areas of potential for major accidents and/or disasters relevant to the project are:

- Proximity to Seveso sites;

There is one Seveso (Control of Major Accident Hazards (COMAH)) site in proximity to the proposed development. Trans Stock Warehousing and Cold Storage Ltd. is a chemical warehouse, located approximately 1km to the east of the proposed development. As the proposed development is outside the 700m consultation radius for the site, the proposed development was not required to be referred to the Health and Safety Authority. Therefore, due to the distance of from the site, it is predicted that there will be no likely significant impact as a result of the proposed development.

- Weather Events;

The assessment identified that weather events are the principal hazards encountered with respect to bridge operation, including rainfall, wind and ice and their potential contribution to natural disasters and major accidents such as collisions. Flooding is a likely event that may occur in the vicinity of the River Suir and impacts associated with flooding are examined in Chapter 10 Hydrology of this EIAR.

The principal objectives for the proposed drainage system include:

- To provide improved water quality by means of treatment prior to discharge;
- To ensure that the impact of the drainage outfalls on the receiving River Suir is negligible; and
- To minimise the impact of runoff on the receiving environment.

The bridge deck elevation has been profiled to allow a freeboard for both the combined 1% Annual Exceedance Probability (AEP) fluvial and 0.5% AEP tidal flood level (obtained from "*Suir CFRAM Study, Hydraulics Report, July 2015*") and the design flood level (200 year tide + 100 year fluvial flood) obtained by the hydraulic model developed for the North Quays Strategic Flood Risk Assessment (SFRA) by Roughan & O'Donovan Consulting Engineers, "*Waterford North Quays, Strategic Flood Risk Assessment*", document no. 16.169.10/SFRA 001 Rev D, dated 6<sup>th</sup> October 2018. The calculated 200-year tide combined with 100-year fluvial flood is +3.47mOD.

At the northern approach of the bridge, the deck elevation is flat, and has its highest point at the North Quay abutment (+8.00 mOD, measured at the top of the deck). The lowest point of the deck elevation is at the South Quay abutment (+4.42 mOD, measured at the top of the deck). The proposed deck elevation over the majority of the 207m span is significantly higher than the calculated extreme flood events. An OPW Section 50 report, "*Hydraulic Modelling of Proposed River Suir Sustainable Transport Bridge for OPW Section 50 Approval*", prepared for Roughan & O'Donovan Consulting Engineers by Hydro Environmental Ltd, dated December 2018, Report No. HEL212203 v1.1, has been prepared for the proposed scheme based on the bridge characteristics presented in the figures in Volume 3 of this EIAR. The conclusions of that report state: - "*The effect of the proposed Bridge and support piers is found to have no perceptible impact on flood levels and flood risk under a range of combined tide and fluvial flood events*".

- Risk of Slope Failure

Karstified rock is not present in the project area which eliminates the impact of failures from karstification. There are no significant slopes associated with the proposed bridge location other than very minor slopes at the south plaza at the south abutment. Rock slopes on the northern shoreline of the River Suir near the existing train station are too distant from the bridge site to have an adverse effect. Therefore, the likelihood of slope failure resulting in impacts on the bridge is negligible.

- Vessel collision with the bridge

The AASHTO Guide Specification and Commentary for Vessel Collision Design of Highway Bridges was used to determine the most appropriate bridge protection system. The design of a vessel protection system is particularly important given the light nature of this opening sustainable transportation bridge. Bridges with opening spans are particularly susceptible to interrupted service as a result of vessel collision, as even a minor collision event on the substructure or superstructure could cause failure of its electrical or hydraulic equipment. Regarding this, the proposed vessel collision protection system shall be completed independent of the bridge itself. The design of the protection system will ensure that there is no contact of the vessel with the sustainable transport bridge substructure or superstructure when the protection system is in the fully deformed position and the vessel has fully stopped. See the vessel collision protection system presented in Figures 4.2, 4.4 and 4.5 of Volume 3 of this EIAR.

In addition to the main protection system to the main piers, secondary vessel collision protection systems will be required at the intermediate pier locations. The design ship impact effects at these locations can be reduced based on the lower probability of occurrence due to the greater distance from the navigational channel. The bridge navigational span will be provided with a fender protection system, which prevents vessels from laterally contacting with the bridge deck while the vessel is transiting through. The protection system will be primarily made of steel piles with concrete infill, embedded into rock beneath the river bed. Three no. 1200mm diameter piles will be installed close to each other in proximity of the central pier and 2 no. piles in proximity of the intermediate piers. Because of the reduced probability of collision further from the centre of the navigational channel, a larger number of piles is provided in front of the two central piers. The collision protection system will also be designed in order to reduce their visual impact. In addition, a system of smaller fenders will be installed to provide a visual guide to the ships passing through the bridge.

Therefore, with all of the above measures in place likelihood major collisions with the bridge deck is considered not significant.

Ensuring the proposed development is resilient to major accidents and disasters includes the provision of warning systems to warn users of incidents in advance of hazards, and the management and operation of the proposed development. The likelihood of the proposed development causing major accidents and/or disasters is negligible. During construction, workers will be vulnerable to accidents while working on site, however the contractor will have a safety statement and safety plan in place which will include procedures to protect their employees while on site.

## 17.4 Interrelationships

Interrelationships are interactions between the impacts and proposed mitigation for one discipline to either reduce or increase the impact on another associated discipline when considered in combination. An example of this would be the provision of noise barriers to mitigate the impacts of noise on the surrounding environment could have a negative impact in terms of landscape and visual impact.

The impacts of the mitigation provided have been considered by all disciplines to ensure all the interactions have been fully considered within this EIAR.

Table 17.1 shows a matrix of interactions likely to occur for the River Suir Sustainable Transport Bridge. The boxes ticked in Table 17.1 indicate that a potential relationship exists between the two environmental topics.

**Table 17.1 Matrix Summarising Key Interrelationships**

Receptor Activity	Traffic and Transport	Population and Human Health	Biodiversity	Soils and Geology	Hydrogeology	Hydrology	Landscape and Visual	Noise and Vibration	Air Quality and Climate	Archaeological and Cultural Heritage	Architectural Heritage	Material Assets
Traffic and Transport		✓	✓			✓	✓	✓	✓		✓	✓
Population and Human Health	✓											
Biodiversity								✓				
Soils and Geology	✓	✓	✓		✓	✓	✓	✓	✓	✓		
Hydrogeology		✓				✓						✓
Hydrology		✓	✓	✓								✓
Landscape and Visual		✓									✓	✓
Noise and Vibration		✓										✓
Air Quality and Climate		✓	✓									✓
Archaeological and Cultural Heritage		✓										
Architectural Heritage		✓										
Material Assets		✓										

### 17.4.1 Traffic and Transport

Traffic and transport will interact and / or interrelate with the following:

## **Population and Human Health**

The removal of 150 car parking spaces from the Clock Tower car park will remove a facility for road users. To minimise the impact, additional parking has been provided across Waterford City in recent years. During construction, the haulage of materials to and from the site will create a significant temporary impact to both road users and to residents living along haul roads due to the increase in traffic. To minimise these impacts a Traffic Management Plan will be prepared and adhered to for the duration of construction works.

There is likely to be positive long-term cumulative effects on journey characteristics, journey amenity, time and reduction in severance as a result of city-wide improvements in the pedestrian and cycle network that will be linked via the proposed development. This includes the Waterford to New Ross Greenway, public realm improvements including green routes proposed in the Waterford City Development Plan.

During the operational phase, positive effects on the population will result due to improved connectivity between Ferrybank and the City Centre, and a general improvement in journey safety, amenity and facilities for public transport, cyclists and pedestrians.

The promotion of walking, cycling and using public transportation will have a significant positive human health effect by improving access for businesses, schools, residents and tourists whilst also realising improved safety and the environmental amenity due to the reduced traffic volumes.

## **Biodiversity**

Increased construction traffic may cause impacts on biodiversity within the River Suir as a result of dust and vehicular emissions during the construction stage, however these impacts will be short term in nature. During the operation stage, emphasis on pedestrian, cycling and sustainable transport traffic will result in positive impacts on biodiversity due to reduced levels of dust and vehicular emissions.

## **Hydrology**

As a result of the provision of a new bridge across the River Suir, there is a risk to water quality through pollution and spillage accident risk. Best practice guidelines will be adhered to during the construction phase to minimise these risks. During the operation of the proposed bridge, the risk of spillage and pollution will be negligible as the bridge will only accommodate pedestrians, cyclists and an electric vehicle.

## **Landscape and Visual**

The increase in construction traffic related to piling rigs, cranes and other plant and machinery will result in temporary negative visual impacts. These impacts will be mitigated through the use of high quality hoarding around the construction site. During operation, the removal of vehicular traffic from Rice Bridge, the encouragement of sustainable modes of transport and the removal of car parking spaces from the Clock Tower car park will represent positive landscape and visual impacts.

## **Noise and Vibration**

During construction, the impact on noise sensitive locations due to construction traffic is likely to be moderate, negative and short term. The temporary nature of the construction period and the variety of machinery used will ensure that no construction

activity is operational for long periods. The TII derived guidance limits will be followed as an appropriate target criterion for this assessment and relevant noise mitigation measures will be followed during construction.

The proposed bridge will encourage sustainable modes of transport rather than private vehicles, thereby having a positive noise and vibration impact on the city centre.

### **Air Quality and Climate**

During construction, there is potential for impacts due to dust emissions from construction vehicles. Standard, good practice mitigation measures will be implemented on-site to control emissions of dust and PM<sub>10</sub> during the earthworks. Such measures are in common use on all well-managed construction sites and will control emissions so that a significant effect does not occur.

During operation, the planned reduction in the use of private car through the encouragement of sustainable modes of transport will have a positive air quality impact on Waterford City and the Ferrybank area.

Climate standards, agreements, policies and strategies will be adhered to during the construction and operation phases and therefore, impacts on climate due to emissions from construction vehicles are not expected as a result of the proposed development.

### **Architectural Heritage**

During operation, the diversion of pedestrians and cyclists across the River Suir at the proposed location will enhance views of buildings of architectural heritage, particularly the Clock Tower.

### **Material Assets**

The removal of 150 car parking spaces from the Clock Tower car park will have a significant negative effect on material assets by reducing access for customers of surrounding businesses. However, alternative car parks have opened across the city in recent years to accommodate this loss of parking facility. During operation, there will be significant positive impacts on tourism due to the new walking and cycling transport option.

## **17.4.2 Population and Human Health**

Population and Human Health will interact and / or interrelate with the following:

### **Traffic and Transport**

The provision of pedestrian and cycle routes connecting to public transport and Waterford City Centre will provide the opportunity for the surrounding population to access these locations by alternative non-motorised forms of transport.

Interactions are also expected due the proposed connection with the existing city centre and the North Quay Strategic Development Zone (NQ SDZ), which will likely increase the population of the area and result in increased traffic in the area.

## **17.4.3 Biodiversity**

Biodiversity will interact and / or interrelate with the following:

## **Noise and Vibration**

It is expected that biodiversity will reduce noise and vibration impacts as the sensitivity of the biodiversity of the River Suir, particularly Twaite Shad, Salmon, River Lamprey and Otter, to noise and vibration impacts has resulted in the implementation of noise and vibration mitigation measures. For example reduced working hours for piling operations are required to reduce noise and vibration impacts on the biodiversity of the River Suir.

### **17.4.4 Soils and Geology**

Soils and Geology will interact and / or interrelate with the following:

#### **Traffic and Transport**

During construction, the export and import of materials will increase the volume of heavy goods vehicles travelling in and out of Waterford City. The implementation of the Traffic Management Plan will minimise traffic impacts.

#### **Population and Human Health**

With regards to impacts towards the population, the construction of the proposed development will involve the storage of materials. There is potential to create adverse impacts on the local community due to transportation of materials to and from the site due to the resultant air quality, noise and vibration and traffic impacts. Controls and mitigation have been proposed in respective chapters to mitigate these impacts.

#### **Biodiversity**

Construction works have the potential to result in disturbance to species during construction through pollution incidents if not fully managed. An outline Environmental Operating Plan has been prepared to provide the minimum level of intervention that would be required by the contractor in the event of a spillage incident, as presented in Appendix 4.2 of this EIAR. Mitigation measures are outlined in Chapter 7 Biodiversity of this EIAR.

#### **Hydrogeology**

Piling during the construction of the bridge piers has the potential to reduce the overburden to the aquifer, creating a pathway for pollution. These potential impacts have been assessed and mitigated in Chapter 9 Hydrogeology of this EIAR.

#### **Hydrology**

During the construction phase there is the potential for sediment laden run-off from the site to enter the River Suir. As part of the outline Environmental Operating Plan developed, an outline Incident Response Plan and an outline Construction and Demolition Waste Management Plan have also been developed detailing the mitigation that the contractor shall implement to avoid sediment from entering the River Suir during construction.

#### **Landscape and Visual**

The construction of the proposed development will involve the transportation of materials to and from the site which will have the potential to have a negative landscape and visual impact. The proposed development addresses landscape and visual impacts on sensitive receptors. Where possible unacceptable excavated material will be reused in landscaping of the development.

### **Noise and Vibration**

The construction of the proposed development will involve construction activities and the transportation of materials. These activities have potential to create noise and vibration impacts. Controls and mitigation have been proposed in Chapters 8 Soils and Geology and Chapter 12 Noise and Vibration to mitigate these impacts.

### **Air Quality and Climate**

The construction of the proposed development will involve construction activities and the transportation of materials. These activities will have the potential to create air quality impacts for the surrounding receptors. Controls and mitigation have been proposed in Chapters 8 Soils and Geology and Chapter 13 Air Quality and Climate to mitigate these impacts.

### **Archaeological and Cultural Heritage**

During the construction phase and as soil is disturbed, there is the potential to discover previously un-recorded archaeological and cultural heritage artefacts. As a result, a qualified archaeologist will be presented during construction works to identify and resolve any previously undiscovered sites of archaeological potential, both terrestrial and underwater.

#### **17.4.5 Hydrogeology**

Hydrogeology will interact and / or interrelate with the following:

##### **Population and Human Health**

The potential risk of pollution to groundwater from routine run-off and a spillage event has the potential to contaminate the ground water. The drainage system incorporates a treatment prior to discharge to minimise the potential for pollution. Furthermore, construction best practice guidelines will be followed to reduce the risk of spillage events and the contamination of groundwater. Therefore, when considered in conjunction with the overburden to the aquifer, there is a negligible risk of groundwater contamination.

##### **Hydrology**

Potential changes to aquifers or unsaturated zones may result in changes to existing baseflow to watercourses within the Study Area. The proposed development represents a negligible impact on the saturation zone of the aquifer recharge area.

##### **Material Assets**

The potential risk of pollution to groundwater from routine run-off would have a resultant impact on water quality and therefore material assets. The drainage system incorporates treatment prior to discharge to minimise the potential for pollution. Therefore, in conjunction with the overburden to the aquifer, there is a very slight risk of groundwater pollution impacting material assets.

#### **17.4.6 Hydrology**

Hydrology will interact and / or interrelate with the following:

##### **Population and Human Health**

The proposed development has been designed to avoid the potential for impeding the flood flow of the River Suir through the sequencing of construction works and minimising the width of bridge piers.

### **Biodiversity**

During construction, activities pose a risk to watercourses, particularly as contaminated surface water runoff enter nearby watercourses. The outline Environmental Operating Plan (EOP) sets out measures to avoid the runoff of contaminants during construction. Therefore, pollution events of the River Suir which would have the potential to impact on the ecology, are considered unlikely during the construction phase.

During operation, drainage outfalling from the development to the River Suir could potentially negatively impact on the receiving water quality, causing disruption to aquatic ecology. The proposed drainage system has been designed to avoid or minimise the water quality impact to the River Suir by means of appropriate treatment prior to discharge.

### **Soils and Geology**

During the construction earthworks, heavy rainfall events have the potential for run-off to impact on the usability of materials stored onsite. This could therefore require the importation of additional material from external sources. In conjunction with this, the run-off from the site would have the potential to increase the sediment loading to the adjacent watercourses. The draft Environmental Operating Plan (EOP) has been developed which sets out measures to avoid the silt laden runoff from contaminating the receiving watercourses.

### **Material Assets**

During construction there may be temporary impaired drainage prior to reinstatement of such drainage works. In cases where impeded drainage during construction will cause obvious difficulty, temporary measures will be looked at on a site specific basis.

## **17.4.7 Landscape and Visual**

Landscape and Visual will interact and / or interrelate with the following:

### **Population and Human Health**

The visual receptor, as described in the Landscape and Visual EIAR Chapter 11, is the population, and therefore all the impacts described in the visual impact section of the EIAR relate directly to the changes to views experienced by residents, those working in the area and users of the development. Mitigation measures have been incorporated into the design to reduce impacts on properties as detailed in Chapter 11 Landscape and Visual.

### **Architectural Heritage**

The reduction in vehicular traffic in Waterford City will have a positive impact on the setting of architectural heritage in the area. The paving and steps proposed at the South Quay Plaza will provide an improved setting for the Clock Tower.

### **Material Assets**

During construction, the proposed development site may have an impact on material assets by discouraging tourists from visiting the area. However, during operation, landscape mitigation measures will enhance, rather than detract from, material assets and will attract visitors to the area.

### 17.4.8 Noise and Vibration

Noise and Vibration will interact and / or interrelate with the following:

#### Population and Human Health

The sensitive receptor, as described in the Noise and Vibration EIAR Chapter 12, is the population, and therefore all noise and vibration impacts relate directly to the residents, those working in the area, visitors and users of the development. Mitigation measures have been incorporated into the design to reduce such impacts on sensitive receptors.

#### Material Assets

The activity of earth moving machinery, transport lorries and other ancillary vehicles will generate additional noise emissions in the immediate vicinity of the proposed development construction. Noise can be of significance for sensitive receptors during both the operation and construction phases. Measures to mitigate noise impacts on sensitive receptors include good communication between the contractor and adjacent business owners and residents during the construction phase. This is particularly pertinent when excessively loud activities are programmed in order to prevent undue disturbance during construction.

### 17.4.9 Air Quality and Climate

Air Quality and Climate will interact and / or interrelate with the following:

#### Population and Human Health

A key objective of this assessment is the consideration of potential for human health impacts related to airborne emissions from the construction and operational phase of the proposed development. Accordingly, a sufficiently detailed assessment (as presented within Chapter 13 Air Quality & Climate of this EIAR) has been undertaken to estimate pollutant concentrations (i.e. Nitrogen Dioxide (NO<sub>2</sub>) and fine particulates (PM<sub>10</sub> & PM<sub>2.5</sub>)) at specific locations that could change as a result of the scheme. These concentrations were then compared with air quality criteria set with the aim of avoiding, preventing and reducing harmful effects on human health.

#### Biodiversity

As well as impacts on human health, some air pollutants also have potential to impact on the surrounding biodiversity. Concentrations of pollutants in air and deposition of particles can impact biodiversity directly or affect plant health and productivity. Deposition of pollutants to the ground and vegetation can alter the characteristics of the soil, affecting the pH and nitrogen availability that can then affect plant health, productivity and species composition. Increased greenhouse gas emissions on a global scale can affect the climate, such that the ability of existing species to tolerate local conditions can change. Accordingly, a sufficiently detailed assessment (as presented within Chapter 13 Air Quality and Climate of this EIAR) has been undertaken to estimate pollutant concentrations (i.e. Oxides of Nitrogen (NO<sub>x</sub>)) at ecologically designated sites that could change as a result of the scheme. These concentrations were then compared with the vegetation criterion for NO<sub>x</sub> and the critical load levels for Nitrogen Deposition, as reported in the Air Quality and Climate chapter.

#### Material Assets

Dust generated from the construction activities may cause annoyance or nuisance to business owners which may reduce productivity and numbers of tourists and visitors.

Measures to control the production of dust will be put in place by the contractor. Good communication between the contractor and business owners in the proximity of construction activities will facilitate on-going operations.

#### **17.4.10 Archaeological and Cultural Heritage**

Archaeological and Cultural Heritage will interact and/or interrelate with the following:

##### **Population and Human Health**

During operation, the redistribution of traffic will reduce the volumes of vehicular traffic through Waterford City centre, enhancing the amenity, setting and access to the archaeological and cultural heritage sites within Waterford City, improving the experience for visitors to these sites.

#### **17.4.11 Architectural Heritage**

Architectural Heritage will interact and/or interrelate with the following:

##### **Population and Human Health**

The redistribution of vehicular traffic and the focus on sustainable modes of transport resulting from the construction of the proposed development will enhance the amenity, setting and access to the architectural heritage sites within Waterford City, improving the experience for visitors to these sites.

#### **17.4.12 Material Assets**

Material Assets will interact and/or interrelate with the following:

##### **Population and Human Health**

This is primarily concerned with the impact on boat owners due to the relocation of the floating jetty and the removal of 150 car parking spaces from the Clock Tower car park. Mitigation in the form of relocating the marina and the provision of alternative car parking across Waterford City, respectively, have been considered during the assessment.

### **17.5 Cumulative Impacts**

In addition to the plans and projects listed, a number of small scale developments, including dwelling houses and extensions were identified from the wider area surrounding the River Suir Sustainable Transport Bridge.

Plans which were identified from this search are listed and discussed below.

#### **Plans**

- Waterford North Quays Strategic Development Zone Planning Scheme;
- Waterford City Development Plan 2013- 2019 (incorporates the Housing Strategy) and SEA Environmental Report for Waterford City Development Plan;
- Waterford County Development Plan 2011-2017;
- Kilkenny County Development Plan 2014-2020;
- Waterford Planning, Land Use and Transportation Study (PLUTS) (2004);
- Economic Strategy for Waterford City and County (2013);
- Waterford North Quays - Urban Design Framework Plan (2008);

- Ferrybank-Belview Local Area Plan 2017;
- One Waterford: Local Economic & Community Plan 2015-2020;
- Report of the Waterford Re-Organisation Implementation Group and Economic Strategy for Waterford City and County, One Waterford – Delivering Jobs, Efficiency and Growth (2013);
- Waterford City & County Council Corporate Plan 2014-2019;
- Waterford City Retail Strategy (2012);
- Waterford Climate Change Strategy (2011);
- Waterford Kilkenny Advisory Regional Strategic Plan 2015-2020;
- Strategic Plan 2014-2017 Waterford – Active People, Active Place;
- Waterford City Centre Urban Renewal Scheme (2015);
- Kilkenny City and Environs Development Plan 2014-2020 – Appendix A Retail strategy;
- Fisheries Local Action Group (FLAG) Local Development Strategy 2016;
- Waterford Children & Young People's Services Committee Children & Young People's Plan 2015-2018;
- Regional Planning Guidelines for the South East Region 2010-2022;
- Regional Spatial and Economic Strategies;
- River Basin Management Plans and Programme of Measures (2nd Cycle in preparation Department of Communications, Climate Action and Environment);
- Catchment Flood Risk Assessment and Management (2011);
- Draft Flood Risk Catchment Management Plans for the South East;
- South East Region Employment Action Plan 2011;
- Southern Regional Waste Management Plan 2015-2021;
- River Basin Management Plan 2018-2021;
- Southern and Eastern Regional Operational Programme 2014-2020; and
- South East Economic Development Strategy (SEEDS) 2013-2023.

### 17.5.1 Waterford North Quays Strategic Development Zone

The North Quays Strategic Development Zone (SDZ) Planning Scheme was adopted by Waterford City and County Council in February 2018. The Planning Scheme sets out a Vision to include:

- *"To create a sustainable, compact extension to the City Centre that will serve a future population of 83,000 people*
- *A regeneration catalyst for the City and Region and the establishment of a sustainable modern city quarter.*
- *Creation of an integrated multi-modal transport hub designed to sustainably meet the access requirements of The City.*
- *Building on the context and the riverside location of the site to create a high quality urban quarter as a natural extension of the City Centre."*

It also has as a Principal Goal:

*“To link the north and south side of the city by providing a new sustainable transport bridge crossing and improve accessibility and connectivity by creating an environment that facilitates internal pedestrian and cycle movements.”*

The proposed development is consistent with the Planning Scheme and will support the future development and social integration with the NQ SDZ Planning Scheme that includes the development of a new urban quarter with commercial, residential developments, a transport hub and tourism infrastructure that will be connected via the proposed development to the existing city centre urban core.

Furthermore, the proposed development is likely to have significant positive long-term cumulative effects due to increased economic activity as a result of the proposed development and future developments associated with the NQ SDZ. Therefore, it is predicted that there will be positive cumulative impacts as a result of the proposed development and the NQ SDZ Planning Scheme. The proximity to the Lower River Suir SAC is a key concern in the development of the SDZ and any future applications to develop the SDZ lands are required to strictly adhere to the mitigation measures proposed in the Waterford North Quays SDZ Natura Impact Report and Strategic Environmental Assessment to ensure the avoidance of adverse effects on the SAC.

#### **17.5.2 Waterford City Development Plan 2013-2019 and SEA Environmental Report for Waterford City Development Plan**

The Waterford City Development Plan 2013-2019 sets out an overall strategy for the proper planning and sustainable development of the functional area of Waterford City. 4,800 units of housing (240 ha) is required for the plan period. The Plan requires housing to be located as close as possible to employment opportunities and public transport routes and that are readily accessible to the City Centre. Waterford City Development Plan 2013-2019 supports the development of the proposed Sustainable Transport Bridge. The South Quays lie within an Architectural Conservation Area (ACA) and Trinity Within ACA. These areas are “*designated as being the subject of a future urban design framework*” which would address, among other issues:

- Roads and links, both internally and from the city centre;
- New sustainable transport bridge;
- New development and infrastructure; and,
- Traffic and movement, parking.

As the proposed development supports the Waterford City Development Plan, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.3 Waterford County Development Plan 2011-2017**

The Waterford County Development Plan 2011-2017 sets out the overall strategy for the proper planning and sustainable development of the County for the period 2011-2017. Key strategic sites supporting and fostering entrepreneurship are promoted. The proposed development supports the Waterford County Development Plan and it is therefore considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.4 Kilkenny County Development Plan 2014-2020**

This Development Plan sets out Kilkenny County Council's policies and objectives for the proper planning and sustainable development of the County from 2014 to 2020. The proposed development will assist with allowing the sustainable development objectives of the Plan to be realised by encouraging sustainable modes of transport. The proposed development will also allow South Kilkenny to grow by connecting the region with Waterford City centre. As the proposed development supports the Kilkenny County Development Plan, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.5 Waterford Planning, Land Use and Transportation Study (PLUTS) (2004)**

The Waterford Planning, Land Use and Transportation Study (PLUTS) (2004) recognises the potential of the North Quays as an extension of the city centre and prioritises a new city centre sustainable transport bridge and a new public transport interchange at North Quay. Key recommendations of the PLUTS include:

- A new city centre bridge for pedestrians and cyclists which will link the redeveloped North Quays with the existing City Centre;
- Provision of a rail-passenger platform on the North Quays as part of a new Public Transport Interchange; and,
- A future third bridge crossing downstream on the River Suir which would complete the loop around the system connecting the N25 Bypass, the River Suir Bridge and the Outer Ring Road. The PLUTS is an integrated framework of plans and solutions to address the needs of the City in both land use and transportation terms up to the year 2020. The study aims to achieve a more balanced growth between north and south sides of the River Suir, incorporating a new City Centre Bridge for pedestrians and cyclists and the provision of a rail passenger platform on the North Quays.

The proposed development will satisfy the proposals outlined in the PLUTS by providing a bridge for pedestrians and cyclists, easing and improving accessibility between the city centre and the future redevelopment of the North Quays through an additional river crossing. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.6 Economic Strategy for Waterford City and County (2013)**

The strategy includes a number of proposals for Waterford City redevelopment of the North Quarter and waterfront. Key long term economic objectives (2018) outlined in the report include:

- Assess the roles of South and North Quays and to better connect with the waterfront. Agree demolition of much of North Quays silos and develop an amenity area, open up stretches of South Quays, less parking and more defined zones of different activity.
- Potential for a self-contained river-side village – south-facing and often sheltered from the prevailing winds. Waterside restaurants, festival shopping, boutique hotels, apartments, offices, ateliers and galleries beside a riverside boardwalk. Scope for development (probably residential and hotel-led) that benefits from the
- south facing aspect and views to the core city centre. Look to upgrade and diversify the existing hotel offer in Waterford City to provide more variety and higher quality service and experience. For example, long term serviced apartments (whether for corporate lets or holiday lets), a genuine boutique

hotel and perhaps an international brand to benefit from their marketing databases.

The strategy aims to identify measures to maximise the economic development of Waterford and its wider hinterland/region and, in particular, to enhance the role of Waterford City as a generator of growth and a strong and dynamic focus for development of the wider region. The proposed River Suir Sustainable Transport Bridge will assist the economic strategy reach its objectives by improving connectivity of Waterford City with residential areas in South Kilkenny and with the proposed North Quays Strategic Development Zone. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.7 Waterford North Quays – Urban Design Framework Plan (2008)**

The Urban Design Framework Plan for the North Quays presents a broad vision for the North Quays, providing basic development concepts and key urban design guidelines, bringing together an integrated framework plan for the area. The Plan outlines the need for more balanced growth between north and south sides of the River Suir, a new city centre pedestrian and cycle bridge, the provision of a rail platform on the North Quays and the development of a mix of uses on the site. The proposed development is a key enabler of the Waterford North Quays Urban Design Framework Plan and the proposed expansion of the City Centre. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.8 Ferrybank – Belview Local Area Plan 2017**

The Ferrybank- Belview Local Area Plan (LAP) 2017 outlines a strategy for the proper planning and sustainable development of an area of land stretching from Grannagh to Belview and from the River Suir to the line of the Waterford bypass, adjacent to the SDZ. The policies, objectives and zoning objectives for existing and future development of the Ferrybank area have been considered as part of the Planning Scheme proposals. The LAP re-emphasises the PLUTS requirement for a *“new city centre bridge for pedestrians and cyclists which will link the redeveloped North Quays with the existing City Centre”*. The Plan also highlights that the Ferrybank/Belview area is in close proximity to Waterford City which *“means that many opportunities exist for the promotion of walking, cycling and public transport”*. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.9 One Waterford: Local Economic & Community Plan 2015-2020**

The Plan identifies and delivers positive step changes that will deliver the economic and social transformation of Waterford, to grow the local and regional economy, strengthen Waterford's role as the regional leader of the South East, ensure that our communities are strong and engaged, and ensure that all people have an excellent quality of life. An objective of the Plan is to revitalise, regenerate and improve the urban environment, including realising the economic potential of the North Quays by 2019. The proposed River Suir Sustainable Transport Bridge is necessary in order for these objectives to be realised. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.10 Report of the Waterford Re-Organisation Implementation Group and Economic Strategy for Waterford City and County, One Waterford – Delivering Jobs, Efficiency and Growth (2013)**

The Plan outlines an Economic Strategy for Waterford City and County. The Plan determines that certain key interventions are needed to enable the sustainable growth and recovery of the economy of Waterford and the South East and addresses the inhibitors of growth. The development, improvement of public realm and commercial opportunities of the North Quays are recommended to help develop the critical mass of Waterford as a Gateway City. The proposed River Suir Sustainable Transport Bridge is necessary in order for the strategy to be realised. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.11 Waterford City and County Council Corporate Plan 2014-2019**

The Corporate Plan outlines strategic priorities and objectives for the Council for its lifetime and is reflective of the needs and priorities of all the communities and citizens of Waterford. It is considered that the proposed River Suir Sustainable Transport Bridge will represent a positive cumulative impact with the Corporate Plan.

#### **17.5.12 Waterford City Retail Strategy 2012**

The Retail Strategy provides a quantitative and qualitative analysis of the potential of Waterford City to accommodate further retail development. The strategy outlines policies with the aim of meeting the City's shopping needs in a way that is efficient, equitable and sustainable. Additional convenience and comparison retail floor space is required for Waterford City. As the proposed River Suir Sustainable Transport Bridge will allow the connectivity of the proposed North Quay shopping area with Waterford City centre, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.13 Waterford Climate Change Strategy 2011**

The Waterford City & County Council's Climate Change Strategy aims to implement a series of measures that will result in Green House Gas reductions. Climate change measures will be addressed under the Strategic Environmental Objectives (SEOs). As the proposed River Suir Sustainable Transport Bridge will encourage sustainable modes of transport, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.14 Waterford Kilkenny Advisory Regional Strategic Plan 2015-2020**

The Teagasc Strategic Plan for the Waterford Kilkenny Advisory Region outlines ways to help farmers exploit their natural advantages and become world leaders in sustainable agricultural production. It is not expected that there will be cumulative impacts as a result of the proposed development with the Strategic Plan as the proposed River Suir Sustainable Transport Bridge is located in an urban, city centre location.

#### **17.5.15 Strategic Plan 2014-2017 Waterford – Active People, Active Place**

The Plan's objective is the development and delivery of sport and physical activity opportunities in County Waterford. As the proposed River Suir Sustainable Transport Bridge will encourage sustainable and active modes of transport including cycling and walking, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.16 Waterford City Centre Urban Renewal Scheme (2015)**

The Urban Renewal Scheme outlines public realm upgrades, alterations to traffic circulation and the demolition of a number of old buildings in the hope to upgrade the urban centre. The Urban Renewal Scheme focuses on the city centre. As the proposed River Suir Sustainable Transport Bridge will encourage the continued upgrade and regeneration of Waterford City, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.17 Kilkenny City and Environs Development Plan 2014-2020 – Appendix A Retail strategy**

The City and Environs Development Plan looks at the 2008 update to the Kilkenny City and County Retail Strategy and takes into account the economic changes in the city since. The 2008 update reviewed population figures and forecasts, updated floor space, household and shopper's surveys and carried out a broad capacity assessment for the requirement of additional retail floor space. Indicative floor space requirements for Kilkenny for 2020 are 1,599m<sup>2</sup> convenience and 16,502m<sup>2</sup> comparison. Ferrybank has permitted convenience floor space of 4,577m<sup>2</sup> and comparison floor space of 4,341m<sup>2</sup> yet to be developed. Waterford is identified within the strategy as the Gateway of the region. As the proposed River Suir Sustainable Transport Bridge will allow the connectivity of Waterford City Centre with the proposed North Quays shopping facilities in the SDZ, it will encourage the growth of retail in the city. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.18 Fisheries Local Action Group (FLAG) Local Development Strategy 2016**

The Strategy assesses the development needs of the FLAG area, outlining objectives and actions to further develop the industry within the area. The strategy does not relate specifically to the site proposed. The nearest location included in the strategy is Cheekpoint, 4km downstream. Therefore, it is not expected that there will be significant cumulative impacts as a result of the proposed development.

#### **17.5.19 Waterford Children & Young People's Services Committee Children & Young People's Plan 2015-2018**

The Plan identifies the needs of children and young people and lays out a set of priority actions which are intended to improve service delivery and achieve better outcomes for all children in the area. It is not expected that there will be significant cumulative impacts as a result of the proposed development.

#### **17.5.20 Regional Planning Guidelines for the South East Region 2010-2022**

The Regional Planning Guidelines are intended to constitute a strategic planning framework for the period 2010-2022 for the development of each region and for interregional cooperation. The strategic policies and objectives set out in the Regional Planning Guidelines will form the backdrop for socio-economic planning by national and regional agencies and will constitute the policy framework within which county, city, town and local area development plans will be made. The Regional Planning Guidelines support the re-development of the North Quays was included as a Critical Enabling Investment Priority in the Regional Planning Guidelines in 2004. A rail passenger platform on the North Quays and a river crossing to provide a link across the river are outlined as objectives. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

### **17.5.21 Southern Regional Spatial and Economic Strategy**

A Regional Spatial and Economic Strategy (RSES) is currently being prepared by the Southern Regional Assembly (SRA). The main statutory purpose of the RSES is to support the implementation of the draft National Planning Framework (NPF), also known as Ireland 2040 - Our Plan, and the economic policies and objectives of the Government by providing a long-term strategic planning and economic framework for the development of the three regions: Eastern & Midland; Southern; and Northern & Western. The Southern RSES will be a strategic plan which identifies regional assets, opportunities and pressures and will provide appropriate policy, objective and target responses. It will put in place policies and recommendations that will better manage regional planning and economic development throughout the region. It is not expected that there will be significant cumulative impacts as a result of the proposed development.

### **17.5.22 River Basin Management Plans and Programme of Measures**

The River Basin Management Plans, once produced, will ensure the Rivers Suir and Barrow achieve "good" status by 2027. It is not expected that there will be significant cumulative impacts as a result of the proposed development. The proposed development will not reduce the water quality of the River Suir and therefore, it is not expected that there will be significant cumulative impacts as a result of the proposed development.

### **17.5.23 Catchment Flood Risk Assessment and Management (2011)**

The Catchment Flood Risk Assessment and Management (CFRAM) Programme was brought into place in Ireland in 2011, as a strategy for medium to long term flood risk reduction and management. The Programme is led by local authorities as well as the OPW, and it incorporates core components of the National Flood Policy (2004) and requirements of the Floods Directive. The Programme is made up of three phases as follows: The Preliminary Flood Risk Assessment (PFRA) 2011; The CFRAM Studies and parallel activities 2011-2015; Implementation and Review 2016 onwards. The outcomes thus far from the project are: Preliminary Flood Risk Assessment 2011; Flood Hazard Mapping 2014; Flood Risk Management Plans 2015. The South Eastern River Basin District CFRAM Study was the third CFRAM Study to be commissioned. The Natura Impact Statement for the proposed draft Suir Flood Risk Management Plan (FRMP) undertaken in September 2016 concluded that the FRMP will not have a significant adverse impact on the screened in European Sites of Hook Head SAC, Lower River Suir SAC and River Barrow and River Nore SAC provided the mitigation measures outlined in Chapter 6 of the NIR are adopted in the FRMP and at project stage. Elements of the plan that are likely to have impacts on Natura 2000 sites are the alteration of the North Quay Wall, artificial lighting of the North Quay, light spill onto the River Suir and disturbance associated with construction. Having regard to elements of the proposed development that are likely to result in such impacts, it is considered that, with mitigation in place, there will be no significant in-combination effects on the River Suir as a result of the proposed development.

### **17.5.24 Draft Flood Risk Catchment Management Plans for the South East**

The objectives of the Draft Flood Risk Catchment Management Plans for the South East are to identify flood risk, to identify structural and non-structural measures and options for managing flood risk. As the proposed development will not increase the flood risk for the area, it is not expected that there will be significant cumulative impacts as a result of the proposed development.

#### **17.5.25 South East Region Employment Action Plan 2011**

The Plan revisits the Regional Competitiveness Agendas for the South East region, taking account of recent developments and analysis, and outlines specific actions that can be taken to maximise employment creation in the region in the short and medium-long-term. It promotes Waterford as a gateway, taking action to maximise employment creation. The proposed River Suir Sustainable Transport Bridge will increase visitor numbers to the area and will therefore indirectly promote employment creation. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.26 Southern Regional Waste Management Plan 2015-2021**

The Plan is a guide to help us manage our wastes in a safe and compliant manner, through policies and actions. It provides policy direction in a broad manner, setting out what we want to achieve and a roadmap of actions to get us there. The proposed development will comply with best practice guidelines for managing waste produced by the development. Therefore, it is not expected that there will be significant cumulative impacts as a result of the proposed development.

#### **17.5.27 River Basin Management Plan 2018-2021**

The River Basin Management Plan 2018-2021 aims to protect all waters within the district and where necessary, improve waters and achieve sustainable water use. The SEOs have included an objective to maintain the water quality standards in the South East River Basin Management Plan. The proposed development will not reduce the water quality of the River Suir and therefore, it is not expected that there will be significant cumulative impacts as a result of the proposed development.

#### **17.5.28 Southern and Eastern Regional Operational Programme 2014-2020**

The Southern and Eastern Regional Operational Programme 2014-2020 is intended to support and facilitate Member States and Managing Authorities in the implementation of the partnership principle. A priority objective is to revitalise, regenerate and improve the urban environment in the designated urban centres as part of integrated urban strategies. Waterford Gateway was awarded funding in 2014 through the Designated Urban Centres Grant Scheme 2014-2020, with aims to regenerate substantial brownfield sites in the city centre, while improving accessible public realm and transport modes. The proposed development supports the Programme as it will improve accessibility, promotes sustainable mobility and will regenerate the surrounding area. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

#### **17.5.29 South East Economic Development Strategy (SEEDS) 2013-2023**

The SEEDS aims to identify the economic needs of the South East, with the objective of considering what steps can be taken to improve the employment situation, examining the region's particular circumstances and making specific proposals to create jobs and grow the regional economy. The proposed development will enhance economic development within the Southeast region, providing connectivity and access between Waterford City centre and the proposed transport hub that is proposed as part of the North Quays SDZ. This will aid the development of the North Quays as a Key Strategic Site, which will provide employment through mixed use developments. Therefore, it is considered that there will be positive cumulative impacts as a result of the proposed development.

Projects which were identified from this search are listed and discussed below.

## Projects

- River Suir Sustainable Transport Bridge Ground Investigations;
- Newgate Properties Ltd.;
- Waterford-New Ross Greenway;
- ESB 110KV Station;
- Kilkenny and Carlow Education and Training Board;
- CHI Environmental;
- Waterford Flood Alleviation Scheme Phase 1;
- Waterford Greenway Cycle and Pedestrian Route - Kilmeaden to Bilberry;
- Stafford Bonded Warehousing Ltd;
- Uptown Property Development Ltd – Industrial Unit;
- Roadstone Ltd;
- Seed Technology Ltd;
- Glanbia Ingredients Ireland DAC;
- Target Fertilisers Ltd.;
- Glanway Ltd.;
- Highfield Solar Ltd.;
- Kent Quarries Ltd.;
- Abbey Community College Extension
- Dredging;
- Demolition of former R&H Grain Store;
- Waterford City Public Infrastructure Project: Rock Stabilisation and Rock Protection Works Part VIII Application;
- Waterford City Public Infrastructure Project SDZ Access and Public Road Infrastructure Part VIII Application;
- WCCC Transportation Hub: Dock Road & NQ SDZ Application;
- WCCC Flood Defence Project; and
- Residential Units

### 17.5.30 River Suir Sustainable Transport Bridge Ground Investigations

Ground Investigations were undertaken in 2017 within the proposed development location to inform the bridge design. Appropriate Assessment (AA) screening was carried out for the works to assess the potential impacts of the investigation works on the Lower River Suir SAC. No likely significant cumulative impacts are predicted due to the GI works which were completed in 2017.

### 17.5.31 Newgate Properties Ltd. [Planning Ref.: 16175]

Permission was granted for the proposed development by Newgate Properties. The project is to include (i) a shopping centre principally bounded by Alexander St to the north; Michael St to the east; Stephen's St to the west and New St to the south, and (ii) a multi-storey car park accommodating 385 spaces on four levels, linked to the shopping centre by a glazed pedestrian bridge and (iii) demolition works. The shopping centre will have a total gross floor area of 10,030 sqm and cafe/ restaurants will have gross floor area of 635 sq.m. An EIS was submitted with the application

and permission was granted in February 2017 subject to conditions following appeal by a third party. The decision found that the scheme would not have unacceptable adverse effects on the environment. The proposal by Newgate Properties is situated 400m from the proposed River Suir Sustainable Transport Bridge.

Due to the highly developed nature of the area and the conclusion of the EIS submitted with the application, cumulative effects are not expected to occur as a result of the Newgate Properties development and the proposed Sustainable Transport Bridge.

### **17.5.32 Waterford – New Ross (Kilkenny) Greenway**

The proposed development comprises of the disused railway line on lands which extend from within Waterford City and County Council's administrative boundary through to Rosbercon, New Ross as a cycle and pedestrian route. The route which is 22km in length will begin at Abbey Road, Ferrybank, Waterford and will follow the disused line through or in close proximity to the townlands of Abbeylands, Rathculliheen, Gorteens, Drumdowney Lower, Rathpatrick, Luffany, Curraghmore, Ballyrowragh, Scartnamoe, Rathinure, Rochestown, Aylwardstown, Carrickcloney, Ballyverneen, Forestalstown, Shanbogh Upper and Raheen (Rosbercon), Co. Kilkenny. Positive cumulative impacts are predicted as the proposed Waterford to New Ross Greenway will connect with the existing Waterford Greenway by utilising the proposed sustainable transport bridge.

The development received Part 8 planning in 2018. An EIA Screening, EclA and AA Screening were submitted with the Part 8 for the Greenway, concluding that no significant impacts will occur to the protected sites as a result of the development. It is expected that there will be positive cumulative impacts as a result of the proposed development and the Waterford to New Ross Greenway. The potential to connect the Waterford to New Ross line with the South Quays will improve connectivity in the area, having positive impacts for the local area.

### **17.5.33 ESB 110KV Station [Planning Ref.: 16768]**

The development consists of alterations to the existing 110KV station consisting of one 38KV MV module, one MV GIS module, one house transformer, 2 no. cable chairs, new internal gates in existing fence, associated drainage and site works at the ESB Waterford 110 kV station at Gracedieu Road. The site is located 950m upstream of the proposed footbridge on the south side of the River Suir. Planning permission was granted in January 2017 (Planning Reference: 16768). An AA Screening determined that there are no likely significant cumulative impacts expected due to the development of the ESB station. No cumulative impacts are perceived as a result of the proposed development.

Permission was granted in 2017 for the ESB development consisting of alterations to the existing 110KV station consisting of one 38KV MV module, one MV GIS module, one house transformer, 2 no. cable chairs, new internal gates in existing fence, associated drainage and site works. ESB Waterford 110 kV station at Gracedieu Road, Waterford, 900m upstream of the proposed development, on the south side of the River Suir. Due to the distance from the proposed River Suir Sustainable Transport Bridge and the lack of a pathway, no likely significant cumulative impacts are predicted.

#### **17.5.34 CHI Environmental [Planning Ref.: 15647]**

Planning permission was granted in 2016 for change of use of existing industrial site and buildings, formerly used as an aluminium paint manufacturing facility, to a materials recovery and transfer facility and civic amenity centre, alterations to the external elevations of buildings and all associated site works. An Environment Impact Statement and Appropriate Assessment (Stage 1) were submitted with the application and therefore no likely significant cumulative impacts are predicted.

#### **17.5.35 Waterford Flood Alleviation Scheme Phase 1**

Flood protection works were completed in 2014 along the River Suir upstream at its confluence with John's River at Scotch's Quay/George's Quay along the length of the South Quay to Rice Bridge and on John's River from its confluence with the River Suir at Scotch Quay/ George's Quay. The flood protection works are in immediate proximity to the proposed development. As the flood protection works were subject to the relevant environmental and ecological assessments at the planning stage, no likely significant cumulative impacts are predicted.

#### **17.5.36 Waterford Greenway Cycle and Pedestrian Route – Kilmeaden to Bilberry**

A 9.6km Greenway between Kilmeaden and Bilberry, Waterford, 600 m upstream of the proposed development, on the south side of the River Suir, is open to the public. The route forms part of the Waterford to Dungarvan "Déise Greenway". Due to the distance from the proposed River Suir Sustainable Transport Bridge, no likely significant cumulative impacts are predicted.

#### **17.5.37 Stafford Bonded Warehousing Ltd [Planning Ref.: 1624]**

Permission was granted in 2016 to Stafford Wholesale Ltd. for the erection of a 11.2m high approximately twin portal industrial warehouse unit (approximately 1,984m<sup>2</sup> floor area) for the bonded storage of spirits with associated office, canteen and toilet facilities, parking, external lighting, boundary fencing and associated site development works was granted in April 2016. The site is located approx 10km south of the proposed River Suir Sustainable Transport Bridge. Due to the distance from the proposed River Suir Sustainable Transport Bridge, no likely significant cumulative impacts are predicted.

#### **17.5.38 Uptown Property Developments Ltd. [Planning Ref: 16392]**

A ten-year planning permission was granted in September 2016 for 6 no. light industrial/warehouse units comprising of ground floor storage, office, canteen, reception, toilets, together with storage area on mezzanine level and associated external signage, 3 no. pavement area for external storage and associated boundary treatments; two no. vehicular access points, car-parking, access roads, landscaping and boundary treatment and all other associated site works. The proposed development is located in Waterford Airport Business Park, Kilowen, approximately 9km south east of the proposed River Suir Sustainable Transport Bridge. An AA Screening was carried out for the proposed development which found there to be no significant adverse impacts anticipated. Due to this in combination with the conclusion of the NIS and EIAR for the proposed River Suir Sustainable Transport Bridge and the considerable distance between the two sites, no cumulative impacts are expected as a result of the proposed development.

#### **17.5.39 Roadstone Ltd. [Planning Ref.: 16700]**

Permission was granted in March 2017 to Roadstone Ltd for the continuation of quarrying activities and to include the extension of the existing excavation by an

additional 2 x 15m high benches from the current floor level of ca.-15m AOD to -45 m AOD within the permitted extraction footprint area of 27.06 ha. The proposed development will involve the continuation of stripping of overburden and its storage for use in site restoration; the extraction of rock by means of blasting, the crushing of blasted rock on the quarry floor, and subsequent processing of crushed rock in the existing aggregate plant to produce a range of aggregates. The proposed development will also include the continuation of use of the existing wheel-wash and associated hardstanding area, bunded fuel tank and associated refuelling area. An Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) were submitted to the Planning Authority with the planning application. These stated that no adverse impacts are expected on the environment including the Lower River Suir SAC. Due to the considerable distance of 5.5km between the sites, and the conclusion of the environmental assessments and the Appropriate Assessment (AA) from both projects, no cumulative impacts are expected.

#### **17.5.40 Seed Technology Ltd. [Planning Ref.: 15397]**

Permission was granted in 2015 to Seed Technology Ltd. for a seed processing and storage building (4,836m<sup>2</sup>), fertilizer bagging and storage building (6,094m<sup>2</sup>), 2 No. external dust extraction silos, single storey office building and car parking (156m<sup>2</sup>), weighbridge, external fertilizer pallet storage yard, 4No. external fire-water storage tanks, storm water attenuation pond, on site borewell and associated pump house, wastewater treatment system and percolation area, extension of existing site access road, infilling of low lying portion of site with excavated material from the development, signage, boundary fencing and landscaping together with all associated site development works. No AA or EIA was required, however conditions were attached by the Local Authority to provide further protection of the environment. Due to the distance of 4.9km between the proposed development and the processing and storage building, and the likelihood of having no significant effects, no cumulative impacts are expected as a result of the proposed River Suir Sustainable Transport Bridge.

#### **17.5.41 Glanbia Ingredients Ireland DAC [Planning Ref.: 17153 & 1777]**

Two planning permission applications were granted to Glanbia Ingredients Ireland DAC in 2017. Permission was granted in June 2017 for extensions to an existing dairy processing facility (Planning Ref: 17153). The proposed extensions will incorporate a new Warehouse, five storey Production Building, Evaporator Building, Wet Process, extension to the Utility Building, New Boiler Building (with new exhaust stack 45m), new Dairy Intake Building, single storey extension to the Sprinkler Building, as well as some additional other items of external plant and machinery, pipe bridges, ingredient silos and refrigeration plant. The proposed extensions also includes landscaping, internal road changes with lighting and ancillary external works. The total new building area is approx. 12,043sqm. An Environment Impact Statement and a Natura Impact Statement was submitted to the planning authority with the application. Permission was granted subject to conditions including the provision of a Construction Environmental Management Plan and Waste Management Plan. No cumulative impacts are expected as a result of the proposed River Suir Sustainable Transport Bridge.

The second planning permission (Planning Ref: 1777) was for an extension to the existing milk powder processing plant, extensions to the existing Administration Building to accommodate an enlarged food preparation area, additional personnel facilities, offices and a laboratory. The development will also include alterations to existing roads, car parks, drainage system, services and landscaped areas, a new 97 space car park, truck loading and unloading bays, paved areas and all associated

drains and services including site lighting and landscaping works. The proposed extension is located in IDA Science & Technology Park, Gorteens, 4km east of the proposed development. No cumulative impacts are expected as a result of the proposed River Suir Sustainable Transport Bridge.

#### **17.5.42 Target Fertilisers Ltd. [Planning Ref: 1646]**

Target Fertilisers Ltd were granted permission for the proposed erection of an Industrial Warehouse Building for the storage and bagging of fertiliser products superseding a previous Application for a similar building on this site which was Granted Permission under Planning Reg No.15/263. The permission also includes alterations to site boundaries including new boundary wall and fencing and all associated site works and ancillary services. The proposed warehouse location is approximately 4km east of the proposed River Suir Sustainable Transport Bridge. Therefore, due to the distance between the projects, no cumulative impacts are expected as a result of the proposed River Suir Sustainable Transport Bridge.

#### **17.5.43 Glanway Ltd. [Planning Ref.: 1591]**

Permission for an extension of use including additional processing and an increase in throughput up to 95,000 tonnes per annum of municipal waste material at the waste facility. Permission was also sought for a prefabricated building with an office, canteen and toilet; alterations to site works and retention of existing doors on the north elevation of Store No.5 (P11/397) and on the east elevation of Store No.6 (P13/585). The Application was accompanied by an Environmental Impact Statement, Further Information and a Habitats Directive assessment which concluded that no adverse impacts would occur as a result of the proposed development. The site is located at Belview Port, 4km east and on review of the EIAs and NISs for both developments, no cumulative impacts are expected as a result of the proposed River Suir Sustainable Transport Bridge and the additional processing at Glanway Ltd.

#### **17.5.44 Kent Quarries Ltd. [Planning Ref.: 15366]**

Permission was sought within part of an existing quarry for a recycling facility for the recycling of construction and demolition waste and for the importation and recovery of non-hazardous soils, subsoil and other similar material. Material will be crushed and screened using existing mobile quarry plant and machinery and non hazardous soils will be used in the existing rehabilitation scheme for the quarry. The planning application was accompanied by a Natura Impact Statement and an Environmental Impact Statement. The application was appealed to An Bord Pleanála and was granted permission by the Board in March 2017 with 8 no. conditions. The quarry is located approximately 8.3km north of the proposed River Suir Sustainable Transport Bridge and due to this considerable distance and the results of both of the AA and EIS, no cumulative impacts are expected.

#### **17.5.45 Abbey Community College Extension**

Permission for the construction of 3,240m<sup>2</sup> standalone 2-storey extension to existing school, provision of new staff & visitors carpark, reorientation of existing grit pitch, alterations to the existing school building, provision of new on-site bus and car set down facilities, new paved external social space, works to existing site entrance and all associated site works. This application is part of a joint application with Kilkenny County Council (with part of the proposed development located in County Kilkenny). A separate application is being made in parallel to both planning authorities for the relevant section of development in their area. Proposed works located within Waterford City are as follows: Alterations to existing entrance to provide new filter

lane, provision of new kerbing to delineate access to site, demolition and reinstatement of front boundary wall and entrance piers to facilitate sight lines, provision of new entrance gates, provision of additional new on site bus and car set down facilities and all associated site works. The college extension is located approximately 550m east of the proposed development. As there is no pathway between the projects, no likely significant cumulative impacts are expected due to the construction and operation of the extension.

#### **17.5.46 Dredging**

An application was made for the disposal of a maximum of 18,200 tonnes of dredge material (consisting of sands, silts & mud) from maintenance dredging from the Waterford City Marinas along the South Quays in Waterford. The application involved the disposal of dredged material 2.3km west of Hook Head. This application was made to facilitate Tall Ships Race on 30<sup>th</sup> June 2011. A permit was granted with conditions by the Environmental Protection Agency (EPA) for the dumping at sea of dredged material arising from maintenance dredging by Port of Waterford Company at a number of discrete locations in the Suir Estuary/ Waterford Harbour over an eight-year timeframe (2014-2021). A Natura Impact Statement was submitted as part of the permit application. On 20<sup>th</sup> February 2018 the Port of Waterford gave notice to the EPA under condition 2.5 of the permit to commence maintenance dredging with a trailer suction hopper dredger to start on 20<sup>th</sup> March 2018 for approximately 25 days. The latest dredging activity which was notified to the EPA was carried out in March 2018 under this application.

The Port of Waterford's current 8 years Dumping at Sea Permit runs until 2021 (ref: S0012-02). However, after consultation with the EPA regarding amendments to the current practices and allowable tonnages, a new application needs to be submitted to ensure the proposed amendments are appropriately assessed and considered.

An application was made in December 2017 for the dredging of accumulated sediments to maintain navigation areas 2.5km south west of Hook Head in the River Suir and Waterford Estuary.

As all dredging works are subject to the required environmental assessments and EPA licence, no likely significant cumulative impacts are expected due to the proposed development.

#### **17.5.47 Demolition of Former R&H Grain Store**

The nine storey, reinforced concrete former R&H grain store on the North Quays in Waterford City was demolished in July 2018. The demolition works were carried out to facilitate the future redevelopment of the Waterford North Quays. The demolition works were subject to the required environmental assessments and no likely significant cumulative impacts are expected due to the demolition of the grain store.

#### **17.5.48 Waterford City Public Infrastructure Project: Rock Stabilisation and Rock Protection Works Part VIII Application**

The rockface running parallel to the railway line behind Plunkett station requires works to reduce the risk of global slope instability and of rockfalls which could affect railway infrastructure, Irish Rail personnel or the public. The project comprises of approximately 380 metres of rockface remedial works consisting of a combination of rock face stabilisation measures (rock bolting and netting) and rock fall protection systems (metal rockfall barriers fixed to the rockface or rockfall strengthened earth embankments). Other works which are anticipated to be required to facilitate the

construction include the temporary removal of the existing signal cabin adjacent to the rockface (to be reinstated following the works), construction of a temporary access embankment from imported & site won material in front of sections of the rockface to enable rockface reprofiling, installation of a cut off drain at the top of the rockface and its connection into the existing station drainage network, excavation of existing rockfall debris at the place of the proposed rockfall embankment and de-vegetation of the rock face where required.

There are no significant effects predicted to arise from the combination of the proposed cliff works with the Project.

#### **17.5.49 Waterford City Public Infrastructure Project SDZ Access and Public Road Infrastructure Part VIII Application**

The proposed road and access infrastructure will consist of modifying and upgrading the existing R711 dual carriageway and Abbey Road to facilitate the connection of the existing and proposed future planned road, cycling and pedestrian network with a future planned internal road, cycle and pedestrian network within the NQ SDZ.

Connection into the SDZ is proposed through two bridge access points located at the eastern and western ends of the SDZ respectively. The eastern access will connect into a realigned Abbey Road and the western access will connect to the R711 opposite the currently unoccupied 'Ard Rí Hotel' entrance. The site is set back from the existing Dock Road and adjacent properties and is also set back from the River Suir.

There are no significant effects predicted to arise from the combination of the proposed road infrastructure with the Project.

#### **17.5.50 WCCC Transportation Hub: Dock Road & NQ SDZ Application**

Construction of a new transport hub to accommodate the relocation of the existing passenger terminus from Plunkett train station. The project has not yet been fully defined or designed at this stage. However, the site is defined and the works are likely to comprise of the following; site clearance (including the demolition of the existing railway overbridge at the site); Two number 200m long station platforms; A train station building at the eastern end of the platform which will comprise of a concourse/waiting Area and a footbridge/ plaza bridge over the railway line connecting into the SDZ development; A footbridge at the western end of the platforms connecting into the SDZ development; Hard landscaping of the area between the Project (access infrastructure) drop-off/ set-down area and the station/platforms to facilitate safe access and egress into the station and NQ SDZ. The site is set back from the existing Dock Road and adjacent properties and is also set back from the River Suir.

There are no significant effects predicted to arise from the combination of the proposed transportation hub with the Project.

#### **17.5.51 WCCC Flood Defences Project**

The aim of this future project is to provide flood protection to the west of Rice Bridge. This project will be developed between Irish Rail, the Office of Public Works and Waterford City and County Council and is currently at preliminary discussion stage. In the absence of any design or even design options, an assessment of cumulative effects with this project cannot be undertaken at this stage. Once developed, this project will be required to undertake the appropriate assessments including EIA

Screening and AA Screening and consider the cumulative effects resulting from all other projects as appropriate.

An assessment of cumulative effects with this project without detail on location, scale and design is not feasible at this stage and is not included as part of this assessment.

### **17.5.52 Residential Units**

Planning applications have been submitted for a number of residential developments within the Waterford area from 2008 to 2018. The largest of these proposed residential developments include the following:

#### **Sisters of the Sacred Heart of Mary**

Planning permission for the construction of a Sheltered Residential Care Home for the Sisters of the Sacred Heart of Mary was granted in January 2018. Accommodation will consist of 8 no.1 bedroom independent living units, communal living accommodation, oratory and all associated ancillary accommodation in 2 no. single storey blocks. All of the above works will be undertaken with new site car parking, alterations to internal site road access and all associated site works. The proposed care home will be located on Abbey Road, 700m east of the proposed River Suir Sustainable Transport Bridge. The planning authority sets out requirements which must be followed by the developer to ensure best practicable means are implemented to prevent and minimise impacts due to surface water run-off during construction and operation of the development. Therefore, no likely significant cumulative impacts are expected due to the construction and operation of the care home.

#### **McInerney Homes Ltd. – Housing Development (Planning Ref: 14500067)**

Extension of the duration of a previous planning permission under planning ref: 09/500006 was granted in July 2014 and will be valid until May 2019. The development consists of the construction of 22 no. semi detached homes to replace 18 no. detached houses on site numbers 58 - 75 granted under Planning Permission No. 04/500131, minor adjustments to the approved road layout and all associated site works. The proposed housing development is located 1.8km upstream of the proposed River Suir Sustainable Transport Bridge. The proposed residential developments are in discrete geographical locations. Therefore, no likely significant cumulative impacts are expected due to the proposed residential development.

#### **Michael Hanrahan [Planning Ref: 17222]**

An extension in duration of the planning application 12/500066 was granted in May 2017. The development comprises building 36 houses consisting 3 & 4 bedroom detached and semi-detached two storey and/or dormer style three storey houses. The three storeys of the dormer style house is created by a full or partial lower ground floor, estate entrances are provided from Gracedieu Road and Quarry Road and together with all associated site development works and all associated services installation. An AA Screening was carried out under planning application 12/500066 and no further AA was required, resulting in a conclusion that no adverse impacts on a Natura 2000 site would occur as a result of the development. The site is located 1.7km upstream of the proposed River Suir Sustainable Transport Bridge, adjacent to the Bilberry Industrial Estate.

These proposed residential developments are in discrete geographical areas and will be, or have been, subject to environmental requirements by the planning authority. The planning authority sets out requirements which must be followed by the

developer to ensure best practicable means are implemented to prevent and minimise impacts due to surface water run-off during construction and operation of the development. Therefore, no likely significant cumulative impacts are expected due to the proposed residential developments.

**Dermot Fitzpatrick – Prospect Lodge & Grounds, Gracedieu Road, Waterford [Planning Ref.: 9500222]**

A mixed use development was granted permission in October 2010 on a site of 3.4ha. at Prospect Lodge (protected structure) and attendant grounds, Gracedieu Road, Waterford. The development consists of 97 no. dwelling units and construction of a two storey creche (216 sq.m.), change of use of part of Prospect Lodge from existing residential to office use (242sq.m.) and part residential 4 bed dwelling incorporating adjoining garden to west, including demolitions, renovations and alterations to existing building and walled garden. Together with associated site works, outfall sewers to Bilberry Road and River Suir, open spaces, landscaping, boundary treatments, car parking, and new vehicular access from Gracedieu Road west of Prospect Lodge. The development is located 1km upstream from the proposed development. Due to the distance from the proposed River Suir Sustainable Transport Bridge and the lack of a pathway, no likely significant cumulative impacts are predicted.

**Respond! Housing Association**

Permission was granted in May 2014 for the demolition of existing building and construction of 10 no. 2-bedroom sheltered housing units in 1 and 2 storey buildings and all associated site development works. The site is located approx 550m east of the proposed footbridge, on Abbey Road. The development is subject to environmental requirements by the planning authority which must be followed by the developer to ensure best practicable means are implemented to prevent and minimise impacts due to construction and operation of the development. Therefore, no likely significant cumulative impacts are expected due to the proposed housing development. An AA Screening completed by Waterford City Council found there to be no significant adverse impacts anticipated on the Lower River Suir SAC as a result of the proposed development. No likely significant cumulative impacts are expected.

**S.E. Construction (Kent) Limited [Planning Ref.: 16675]**

Permission was granted in 2017 for the construction of Phase 3: 44 No. dwelling houses at Cluain Lárach, Knockenduff, Tramore including alternations to existing services. This project is 12km south west of the proposed development. The proposal includes modifications to the layout, and to the services associated to such modifications, for Phase 3 which is part of that as was granted planning permission under planning ref. no. 10/439 and being extended under Ref.No.16/390 for 98 houses. This phase 3 is for 44 houses\_no.113 to 119 and 124 to 149, with 120 to 123 omitted due to their location relative to the residential zoned parcel of these lands as is included in the current Development Plan. The portion of the public green area and the portion of the estate road and path fronting houses 120 to 123 is included as part of this planning application. The layout includes 3 & 4 bedroom, two storey, semi detached & detached houses & all as a follow-on from Phase 1 (20 houses under construction) and Phase 2 (14 houses the subject of planning application being processed under ref. 16/538). No likely significant cumulative impacts are expected due to the distance of the proposed development from the residential development and due to the scale of the construction works involved.

### **Noel Frisby, Carrickphierish, Gracedieu [Planning Ref.: 16/534]**

Permission was granted in 2017 for the construction of 18 no. two storey houses and 2 No. two storey apartment blocks located 3km from the proposed River Suir Sustainable Transport Bridge. Block 1 will contain 6 No. 2 bedroom apartments. Block 2 will contain 5 No. 2 bedroom and 2 No. 1 bedroom apartments. Permission was also granted in 2017 for all associated site works. No likely significant cumulative impacts are expected due to the distance of the proposed development from the residential development.

## **17.6 Residual Impacts**

Based on the above, it can be objectively concluded that, in view of best scientific knowledge, the River Suir Sustainable Transport Bridge will not result in any likely significant residual effects on the environment either alone or in combination, provided the prescribed mitigation is in place.

## **17.7 Conclusions**

### **Major Accidents and Natural Disasters**

There are no "Seveso" sites (establishments within the meaning of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015) in close proximity to the proposed development. The closest establishment is at least 1km east of the proposed development.

The design of the proposed development has taken account of the potential for flooding and it is considered that there is minimal flood risk as a result of the proposed development. In relation to accidents resulting in a spillage of polluting material, the risk of these occurring will be significantly reduced and if a spillage should occur the proposed development incorporates drainage to allow the spilled material to be contained and treated prior to discharge.

### **Interrelationships**

The interrelationships between the individual environmental disciplines have been considered and assessed. It is concluded that once relevant mitigation measures are implemented, no residual likely significant effects will exist as a result of the construction or operation of the River Suir Sustainable Transport Bridge.

### **Cumulative Impacts**

It is considered that the scale of the works and implementation of effective environmental control measures will avoid all likely significant effects on environmental parameters. There is no potential for cumulative impacts arising in combination with any other plans or projects and therefore no potential for in combination effects on environmental parameters.

Based on the above, it can be objectively concluded, in view of best scientific knowledge, on the basis of objective information and provided effective mitigation is in place, that the Project, individually or in combination with other plans and projects, will not have a significant adverse effect on the receiving environment.