



Donabate

Appendices 2 - 5
March 2016

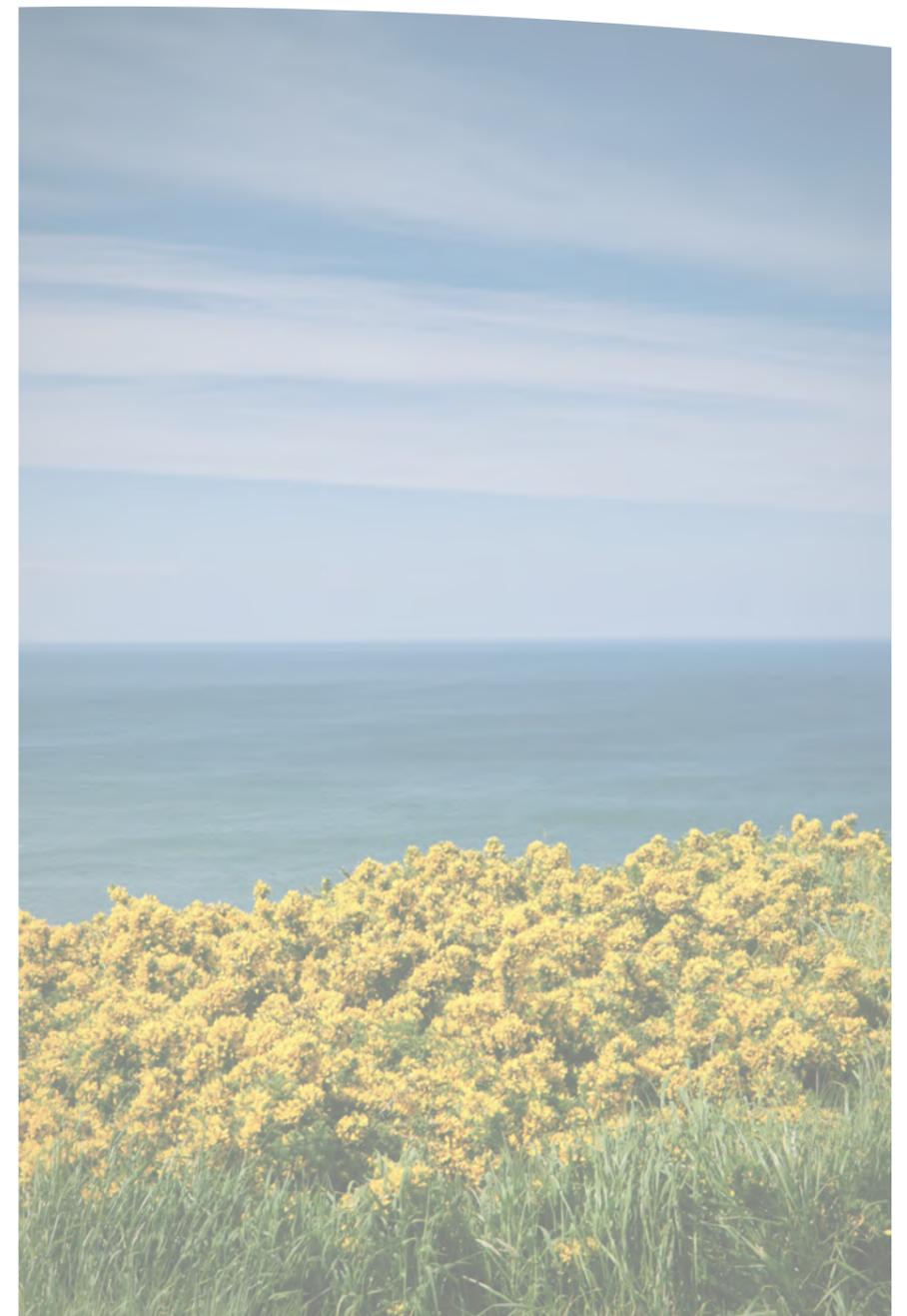


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Donabate

Appendix 2

Environmental Report (SEA)



**Brady Shipman
Martin**

**Built.
Environment.**

Strategic Assessment **Built Environment**

**DONABATE LOCAL AREA PLAN
2016-2022**

**Strategic Environmental Assessment
Environmental Report**

For Fingal County Council

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Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Prepared by	Checked by
01		Draft Environmental Report	04-11-15	ST	TB
02		Final Environmental Report	05-04-16	ST	TB

Glossary

<i>Appropriate Assessment</i>	An assessment of the effects of a plan or project on the Natura 2000 network. The Natura 2000 network comprises Special Protection Areas under the Birds Directive, Special Areas of Conservation under the Habitats Directive and Ramsar sites designated under the Ramsar Convention (collectively referred to as European sites).
<i>Baseline environment:</i>	A description of the present state of the environment of the P/P area.
<i>Birds Directive:</i>	Council Directive of 2nd April 1979 on the conservation of wild birds (79/409/EEC).
<i>Cumulative effects:</i>	Effects on the environment that result from incremental changes caused by the strategic action together with other past, present, and reasonably foreseeable future actions. These effects can result from individually minor but collectively significant actions taking place over time or space.
<i>Data:</i>	Includes environmental data, proxy data, and any other relevant statistical data.
<i>Designated authority</i> <i>(Designated environmental authority):</i>	An organisation that must be consulted in accordance with the SEA Regulations. For Ireland these are the Environmental Protection Agency (EPA), the Department of the Environment, Community and Local Government (DoECLG) and the Department of Agriculture, Food & the Marine (DoAFM).
<i>Environmental Assessment:</i>	The preparation of an environmental report, the carrying out of consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision (in accordance with Articles 4 to 9 of the SEA Directive).
<i>Environmental Characteristics:</i>	Environmental resources, issues and trends in the area affected by the P/P.
<i>Environmental indicator:</i>	An environmental indicator is a measure of an environmental variable over time, used to measure achievement of environmental objectives and targets.
<i>Environmental objective:</i>	Environmental objectives are broad, overarching principles which should specify a desired direction of environmental change.
<i>Environmental receptors:</i>	Include biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage (including architectural and archaeological) and landscape as listed in the SEA Directive. This list is not exhaustive, and can include other receptors which may arise for a particular P/P.
<i>Environmental Report (ER):</i>	A document required by the SEA Directive as part of an environmental assessment which identifies, describes and evaluates the likely significant effects on the environment of implementing a plan or programme.
<i>Environmental targets:</i>	A target usually underpins an objective often having a time deadline that should be met and

<i>Evolution of the baseline:</i>	should be accompanied by limits or thresholds. A description of the future state of the baseline in the absence of a plan or programme assuming 'business as usual' or 'do nothing' scenarios, depending on which is more reasonable for the P/P being proposed.
<i>Habitats Directive:</i>	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
<i>Hierarchy of Plans:</i>	Both higher and lower level P/P relevant to the P/P being assessed.
<i>Indirect effect:</i>	Any aspect of a P/P that may have an impact (positive or negative) on the environment, but that is not a direct result of the proposed P/P. May also be referred to as a secondary effect
<i>Interrelationships:</i>	Associations or linkages, related to environmental impact of the proposed P/P usually on environmental receptors.
<i>Issues Paper:</i>	Paper produced as part of the consultation process, usually for Land Use Plans, to facilitate consultation with stakeholders on key issues.
<i>Key environmental issues:</i>	Those significant environmental issues, which are of particular relevance and significance within a P/P area and/or the zone of influence of that P/P. These issues should be identified during SEA Scoping process.
<i>Key environmental receptors:</i>	Aspects of the environment likely to be significantly impacted by the proposed P/P.
<i>Material Assets:</i>	Critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment transportation etc.
<i>Member States:</i>	Those countries that belong to the European Union.
<i>Mitigation measures:</i>	Measures to avoid/prevent, minimise/reduce, or as fully as possible, offset/compensate for any significant adverse effects on the environment, as a result of implementing a P/P.
<i>Monitoring:</i>	A continuing assessment of environmental conditions at, and surrounding, the plan or programme. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted.
<i>Monitoring Programme:</i>	The primary purpose of monitoring is to identify significant environmental effects which arise during the implementation stage against those predicted during the plan preparation stage. A detailed description of the monitoring arrangements to be put in place to carry out the monitoring of the impact of the proposed P/P on the environment including; frequency of monitoring, who has responsibility for monitoring, and responses if monitoring identifies

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	significant negative impacts.		
<i>Non-technical summary:</i>	A summary of the findings of the ER, summarized under the headings listed in Annex 1 of the SEA Directive that can be readily understood by decision-makers and by the general public. It should accurately reflect findings of ER.		<ul style="list-style-type: none">- how environmental considerations have been integrated into the P/P- how the ER, the opinions of the public and designated authorities, and the results of transboundary consultations have been taken into account- the reasons for choosing the P/P as adopted in the light of other reasonable alternatives.
<i>Plan or Programme:</i>	Including those co-financed by the European Community, as well as any modifications to them: <ul style="list-style-type: none">- which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and- which are required by legislative, regulatory or administrative provisions. In accordance with the SEA Directive, P/P that require SEA are those that fulfil the conditions listed in Article 2(a) and Article 3 of the SEA Directive.	<i>Secondary effect:</i>	Effects that are not a direct result of the P/P, same as indirect effect.
		<i>Short-term effects:</i>	These are typical of those effects that may occur during construction stage of a development, for example, the increased traffic going to and from a site during construction, or, the noise associated with construction activities.
		<i>Significant effects:</i>	Effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.
<i>Post-mitigation residual impacts:</i>	Environmental effects that remain after mitigation measures have been employed.	<i>Statutory authority:</i>	The authority by which or on whose behalf the plan or programme is prepared.
<i>Proxy data:</i>	Is a measure of activity resulting from a P/P which provides information on environmental impact without the need for a direct measure of an environmental receptor for example, an increase in the number of vehicles (activity resulting from a P/P) can provide information on the impact on air quality and greenhouse gases without having to measure the concentration of these parameters in the receiving environmental receptor.	<i>Statutory Instrument (S.I.):</i>	Any order, regulation, rule, scheme or bye-law made in exercise of a power conferred by statute.
		<i>Synergistic effect:</i>	Effects that, when totalled, result in a greater or lesser effect than the sum of the individual effects.
<i>Public:</i>	One or more natural or legal persons and, in accordance with national legislation or practice, their associations, organisations or groups.		
<i>Reasonable alternatives:</i>	Alternatives should take into account the objectives and geographical scope of the P/P. There can be different ways of fulfilling the P/P objectives, or of dealing with environmental problems. The alternatives should be realistic, capable of implementation and should fall within the legal and geographical competence of the authority concerned.		
<i>Scoping:</i>	The process of deciding the content and level of detail of an SEA, including the key environmental issues, likely significant environmental effects and alternatives which need to be considered, the assessment methods to be employed, and the structure and contents of the Environmental Report.		
<i>Screening:</i>	The determination of whether implementation of a P/P would be likely to have significant environmental effects on the environment. The process of deciding whether a P/P requires SEA.		
<i>SEA Directive:</i>	Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment'.		
<i>SEA Statement:</i>	A statement summarising:		

1.0 Non-Technical Summary

1.1 Introduction and Background

The core objective of the process is to assess the Plan in terms of its overall environmental impact, both positive and negative and to indicate where necessary how improvements can be incorporated into the plan to improve the plans' environmental performance.

This section of the Environmental Report is a non-technical summary. The purpose of the Non-Technical Summary is to ensure that the key findings of the Environmental Report are readily understood by both decision makers and the general public. To this end technical jargon has been avoided wherever possible.

The Planning and Development Act 2000-2014 require that a Strategic Environmental Assessment, (pursuant to the SEA Directive) and an Appropriate Assessment (pursuant to the EU Habitats Directive) be carried out as Part of the Local Area Plan process.

The preparation of the Donabate Local Area Plan 2016-2022 runs in parallel with the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) and both these processes have significantly influenced the preparation of the Local Area Plan.

In this regard environmental considerations have been considered throughout the plan process and have been incorporated in the Plan ensuring a continuation of a qualitative environment.

The Draft Environmental Report is the primary element in the SEA process and shall be published alongside the Donabate Local Area Plan 2016-2022.

1.2 Steps in the SEA Process

Table 1 below highlights the key stages in the SEA process and the progress made to date:

Table 1: Key Stages in SEA process

Stage	Description	
Scoping	<p>The Scoping of the Draft Donabate Local Area Plan 2016-2022 was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC).</p> <p>The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are given and consideration in the Environmental Report and ultimately in the Local Area Plan itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and objectives of the Plan and reduces the possibility of relevant issues not being addressed.</p>	<p>Completed</p> 

Stage	Description	
Consultation with the Environmental Authorities	<p>Submissions were received:</p> <ul style="list-style-type: none"> Environmental Protection Agency Department of Communications, Energy and Natural Resource Geological Survey of Ireland Irish Water National Parks & Wildlife Service National Roads Authority (now Transport Infrastructure Ireland) 	<p>Completed</p> 
Scoping Report	Submissions received from Environmental Authorities were incorporated into the Scoping Report and baseline data was amended.	<p>Completed</p> 
Preparation of draft ER & BLMEDM LAP	<ul style="list-style-type: none"> A multi-disciplinary team was established to create policy consistent documents and to examine the effects on the environment of implementing the objectives and policies. Objectives created in Local Area Plan assessed in ER and proposed zonings for the plan area examined. Feedback from on-going Plan preparation process & ER preparation Mitigation measures discussed and chosen. Monitoring incorporated into existing methods. 	<p>Completed</p> 
Consultation	Consultation on the Draft Local Area Plan and associated Environmental Report and Natura Impact Report.	<p>Completed</p> 
Evaluation of submissions	Evaluation of submissions and observations made on the Draft Local Area Plan, Environmental Report and Natura Impact Report.	<p>Completed</p> 
SEA Statement	Preparation of an SEA Statement identifying how environmental considerations and consultation have been integrated into the Adopted Local Area Plan.	<p>Completed</p> 
Monitoring the Local Area Plan	Monitoring significant environmental effects over the lifetime of the Donabate Local Area Plan 2016-2022	<p>On-going</p>

1.3 Content of Environmental Report

The Environmental Report considers all of the following in accordance with the requirements of the SEA Directive:

1. Population, Human Health and Quality Of Life
2. Biodiversity
3. Soil & Geology
4. Water

5. Air Quality and Climate Change
6. Material Assets
7. Cultural Heritage
8. Landscape

Table 2 below summarises the content of the Environmental Report. In the first instance the Environmental Report details the Current State of the Environment of Donabate within each of the sub headings set out above, and interrelationships between each of the environmental topics. The Environmental Report examines significant environmental pressures that may affect each of the environmental topics and the current (Baseline) State of the Environment.

Table 2: Content of Environmental Report

Section	Description
Non-Technical Summary	A brief summary of the Environmental Report, its main points and conclusions.
Introduction	Provides a description of the type of plan involved and a summary of its key aims and objectives. The purpose of the SEA process, SEA requirements, and its benefits and how the LAP and Environmental Reports have progressed are outlined.
SEA Methodology	Highlights the steps taken in preparation of the SEA, the methods used and technical difficulties encountered.
Relationship of the Plan with Other Relevant Plans and Programmes	The relationship of the LAP to other relevant plans and programmes is highlighted.
Baseline	A description of the current environment of the plan area is given, highlighting any existing environmental problems in the plan area. This exercise results in a comprehensive baseline against which the likely effects of implementing the LAP can be examined.
Strategic Environmental Objectives	A number of environmental protection objectives which have been established at international, EU or national Level and are relevant to the plan are listed. Following this a description of how the objectives and any environmental considerations have been taken into account in the preparation of the plan is given.
Alternatives	An assessment of proposed development alternatives in the plan area are considered at this stage.
Assessment	The proposed LAP policies and objectives are examined in terms of their potential effects on the various Environmental parameters.
Mitigation Measures	Should potentially significant effects be discovered, measures to prevent, reduce or offset these effects are proposed and integrated into the LAP.
Monitoring	Proposals for monitoring the significant effects of the LAP on the environment are put forward. A number of indicators of change and targets are identified and existing monitoring arrangements are utilised.
Conclusion	A conclusion with regard to the overall impact on the environment resulting from the implementation of the Local Area Plan.

1.4 Policy Context

The preparation of the Local Area Plan must be considered within the context of a hierarchy of policies, plans and strategies of international, national, regional and local level as detailed in Chapter 4 of the Environmental Report. Other relevant Plans, policies and programmes were considered in this report and are referenced throughout.

1.5 Appropriate Assessment

An Appropriate Assessment (AA) has also been carried out in accordance with Article 6 of the EU Habitats Directive and as required under the Planning and Development Acts 2000-2013. The AA is a separate but parallel process that has overlapped significantly with the SEA process in the preparation of the Local Area Plan, not least because of the prevalence of Natura 2000 sites within and adjacent to the plan area. The Appropriate Assessment specifically assesses the potential impact on Natura 2000 sites (and their conservation objectives) of the implementation of the Plan based on the Natura Impact Report and other supplementary information; the ultimate aim being to avoid significant adverse impacts on these sites. The Natura Impact Report determined that there is no requirement to proceed to Stage 3 of the AA as there is no significant detrimental effect identified as the result of implementation of the Plan to the integrity of any European Site. The Natura Impact Report shall be published parallel to the Local Area Plan and Environmental Report.

1.6 Contents and Objectives of the Donabate Local Area Plan 2016-2022

The Donabate Local Area Plan 2016-2022 has been prepared by Fingal County Council and under the provisions of the Planning and Development Acts 2000-2015.

The vision statement for Donabate as set out in the Local Area Plan is:

The ambition of the LAP is to provide for the structured development of the identified new residential areas of Donabate such that they integrate into the established Village and support the continued growth of a vibrant and attractive town for existing and future residents. New development will be accompanied by the required community, educational, transport, drainage and recreational infrastructure to ensure the protection and enhancement of local amenities and the continued growth of local services in Donabate.

Donabate has its own unique sense of place, largely defined by its relationship to the coast and its proximity to Newbridge Demesne. This LAP proposes a vision for the future of Donabate as it continues to grow, so as to ensure its inherent character and natural assets are protected and enhanced in tandem with new housing and residents. The existing settlement will expand into adjoining new housing areas in a planned and coherent geographical basis where connectivity and infrastructure are clearly provided, to ensure the sustainable development of Donabate Village and surrounds.

This vision statement for the plan area is backed up by five strategic aims which provide a foundation for the Local Area Plan policies and objectives.

- Provide a framework for a growing population with phased development of new housing and supporting infrastructure
- Protect and enhance the existing natural amenities and environmental character of Donabate
- Support Donabate Village as the focus for successful commercial, retail, community and cultural development.
- Provide Infrastructural investment to address traffic, pedestrian safety and movement challenges.
- Improve access to established local amenity areas through the creation of a network of designated green routes across the locality in tandem with new housing development

The Local Area Plan will be the guiding document for development within the Plan area over the next 6 years.

The Local Area Plan will be the guiding document for development within the Plan area over the next 6 years. Environmental aspects have been considered throughout the plan-making process and have been incorporated into the Plan with the aim of improving the environment of the plan area. The Environmental Report is the primary element in the SEA process and is published alongside the Donabate Local Area Plan 2016-2022.

1.7 Current State of the Environment

The Fingal County Development Plan (CDP) 2011–2017 sets out the overall strategy for the proper planning and sustainable development of the county over a six year period. The plan has a critical role to play in ensuring that the needs of future population growth are planned for. The CDP settlement strategy has been informed by the Regional Planning Guidelines (RPGs) and the environmental sensitivities of the county. It is based on building strong urban centres while protecting the rural hinterlands. The plan also emphasises the need to protect the built heritage, unique landscape, natural heritage and biodiversity of the county for their intrinsic value and as a resource for the tourist economy of the future.

The previous Donabate LAP 2006-2012 identified a number of major infrastructural projects and planned large scale residential development for Donabate. However this LAP coincided with the downturn in the national economy and the collapse of the property market, which has resulted in residential development in Donabate remaining relatively unchanged since 2006. No development has occurred on the Corballis or Ballymastone lands.

In addition, since 2006, several planning policy considerations have changed which have a bearing on the formulation of a new development strategy for Donabate. These considerations include a new Fingal Development Plan (FDP) 2011-17 and revised national guidance in relation to residential development, density, core strategies, flooding and local area plans.

The absence of development on these lands and the various infrastructural and planning policy changes which have occurred over the last 8 years has facilitated and in some instances seeks a number of changes to the LAP.

Chapter 5 of the Environmental Report describes in detail the current Environmental Baseline of the County using available environmental data. The current state of the environment and its evolution is described as well as any existing environmental problems affecting the area.

Table 3: Summary of Main Environmental Issues within the Plan Area

Topic	Environmental Issue/Pressures
Biodiversity, Fauna and Flora	The natural heritage of County Fingal and Donabate is an important asset and a unique resource. Within the plan area there are a number of areas designated for protection under the Natura 2000 network. Most relevant to the plan area is tourism and recreation pressures along the coast, which are highly sensitive and could lead to the significant loss of protected habitats. A fundamental challenge in the preparation of the Donabate LAP is how to achieve a balance between the need to develop a new high quality urban residential environment, whilst also protecting and enhancing the existing biodiversity features of the plan lands and wider Peninsula area, and maintaining the integrity of the Estuaries, Beaches, Nature Reserve and Newbridge Demesne.
Population and Human Health & Quality of Life	There are no significant environmental issues existing with regard to the current population of the plan area. The potential demand for development which may arise from the adoption of this plan could place considerable strain on the areas physical and social infrastructure needed to support its increased population.
Soil & Geology	Soil is lost annually through the development of agricultural land. The number of hectares, which are rezoned annually on a countrywide basis is not known, nor is the quantity of soil loss through surface sealing. Urban environments have greatly changed in Ireland with the centres of population and towns being subjected to depopulation with growth focused on the periphery of these areas. With urban expansion, agricultural land surrounding towns and settlements as well as green areas within them are subjected to increasing pressures.
Water	Donabate / Portrane is currently served via a single 12" AC Main which was laid in the 1970's and runs along the Hearse Road. In order to improve the quality and security of the water supply, a second connection is required.
Air and Climate	Air quality within the Plan area is generally good. Increased greenhouse gas emissions have been linked with climate change resulting in increases in the intensity and frequency of flooding. Of particular concern is the high dependency on the use of the private car within the plan area.
Material Assets – Transportation	The residents of the plan area rely heavily on the use of private cars for transport. Travel patterns show that a high proportion of residents commute long distances by car to school, work, mostly to Dublin however good quality rail and bus services also increase the sustainable modal mix. There is a need to improve cycling and pedestrian facilities to provide for the sustainable development of the area. Increasing movements within the area in this regard should be a priority.

- Waste Management	Both public and private waste collectors have a responsibility with regards to meeting Waste Management targets. Increased facilities for recycling should be provided to reduce the levels diverted to landfill.
- Water Supply	Donabate / Portrane is currently served via a single 12" AC Main which was laid in the 1970's and runs along the Hearse Road. In order to improve the quality and security of the water supply, a second connection is required.
- Wastewater	Current capacity in the wastewater treatment plant, including existing committed load, is sufficient to meet the needs of this LAP. However the provision of a new expanded foul sewer network and associated new foul pumping stations will be required for the LAP lands. New Pump Stations (PS) have been constructed in Donabate (Donabate PS) and on the R126 between Donabate and Portrane (Portrane PS).
- Energy	County Fingal is overly reliant on external and non-renewable energy sources. While the potential for renewable energy within the plan area is consider limited, any such proposals are to be welcomed and must be carefully sited and designed so as to avoid negative impacts on the protected views and landscapes of the plan area.
Cultural Heritage	Currently the most immediate threat to the cultural heritage is development pressure which can lead to a loss or impairment of a feature of importance. Furthermore it is recognized that heritage has an economic value particularly in terms of recreation/tourism.
Landscape	Urban areas particularly within commuting distance of the capital have grown rapidly which has eroded the essential character of these towns. Generally the volume of large development within these towns is not in keeping with their character or scale and has created a series of autonomous developments with no reference to their rural setting. Also many settlements have grown at a rate that the historic centres have become detached from the majority of their populations and the relationship between urban areas and landscape setting has been largely lost. Given the significance of the coastal/estuarine landscape within the plan area development must be considered in terms of its potential impact on landscape and views.
Interrelationship	Cumulative impacts and interaction of above mentioned items can give rise to increased pressure on the environment. The impacts and interactions will obviously vary in extent and nature. In particular, issues regarding water quality, climate change and flooding cross a number of environmental areas. Population increase and changes in peoples' activities and settlement patterns can also impact on a wide range of the topics mentioned above.

1.8 Strategic Environmental Objectives, Targets and Indicators

Strategic Environmental Objectives (SEOs) assist in the prediction, description and monitoring of impacts on the environment as a result of the Local Area Plan. The Objectives are based on the overall strategy of the Planning

Authority to safeguard the environmental integrity of the plan area and to develop in a sustainable manner. The Strategic Environmental Objectives are set out in **Table 4** below.

Table 4: Strategic Environmental Objectives (SEOs)

Environmental Parameter		Objective
Biodiversity	B1	Conserve and where possible enhance the diversity of habitats and protected species avoiding irreversible losses
	B2	Promote measures to protect biodiversity by creating and improving habitats, where possible
	B3	Provide opportunities for sustainable public access to wildlife and wild places at appropriate locations
	B4	Avoid damage by development to designated wildlife sites and protected species, and associated ecological corridors/ linkages
Population	P1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns
Human Health	H1	Minimise noise, vibration and emissions from traffic, industrial processes and extractive industry
Soil	S1	Maintain the quality of soils
	S2	Maximise the sustainable re-use of brownfield lands, and maximise and prioritise the use of the existing built environment rather than developing greenfield lands
	S3	Minimise the consumption of non-renewable sand, gravel and rock deposits
	S4	Minimise the amount of waste to landfill
Water	W1	Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems
	W2	Promote sustainable water use based on a long-term protection of available water resources
	W3	Reduce progressively discharges of polluting substances to waters
	W4	Mitigate the effects of floods and droughts including vulnerability to climate change. (extreme weather, sea level rise, coastal erosion)
Air	A1	Reduce all forms of air pollution
	A2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change

	A3	Reduce waste of energy, and maximise use of renewable energy sources
	A4	Assess, plan and manage adaptation to climate change impacts
	A5	Reduce the need to travel
Environmental Parameter		Objective
Material Assets	MA1	Maximise use of the existing built environment
	MA2	Avoid flood risk and/or coastal erosion in selecting sites and zoning of lands for development
	MA3	Maintain water abstraction, run-off and recharge within carrying capacity (including future capacity) at environmentally sustainable levels.
	MA4	Maintain the quality of and access to assets such as aquifers, aggregates, ports, motorways, and all physical and social infrastructures.
Cultural Heritage	CH1	Promote the protection and conservation of the cultural, including architectural and archaeological, heritage
Landscape	L1	Conserve and enhance valued natural and historic landscapes and their character and features within them

1.9 Alternative Plan Scenarios

The SEA Directive requires the consideration of SEA Alternatives. This consideration is outlined in Chapter 7 of the Environmental Report.

Particular reference is drawn to the Core Strategy and the Zoning objectives of the Fingal County Development Plan which must be complied with. Donabate is included within the Metropolitan area of the RPG and the anticipated population increase is linked to levels of natural increase or natural expansion. The total number of units envisaged for the Donabate LAP is approximately 3,300, which is consistent with the Core Strategy of FDP 2011-2017 and the RPG's 2010-2022.

Given the requirement to comply with the Core Strategy two alternative scenarios were considered realistic. Each of the alternatives were assessed on the basis of environmental criteria of the SEA Environmental Objectives as set out in Chapter 8 of this ER in order to identify any potential negative environmental effects in relation to these sites.

This assessment was undertaken to identify any potential issues in relation to these alternatives that may not have been identified as part of the initial alternatives assessment ranking procedure. The alternatives reviewed represent choices that are available to the planning authority in delivering the same balance of residential growth across the plan area.

1.10 Strategic Environmental Assessment of the Plan

The SEA aims to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Plan with the Strategic Environmental Objectives. Furthermore, the assessment examines the

potential impact arising from the implementation of the Plan's policies and objectives on sensitive environmental receptors.

The process of SEA and Local Area Plan formulation is an iterative one and environmental considerations have informed all stages of plan preparation carried out in order for the potential for significant adverse effects arising from implementation of the plan to be minimised. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts. Where prevention is not possible, the plan seeks to lessen or offset those effects through mitigation measures.

In some instances there is little or no relationship between the various Plan Policies/Objectives and the respective environmental receptor. Where this occurs no further discussion is deemed necessary. This has been determined through an initial screening of the Local Area Plan policies and objectives which ascertains if policies are likely to have a positive, negative or neutral impact on the environment. This screening process allows the assessment to focus more efficiently on the pertinent issues.

The preliminary phase of this assessment identifies the quality of the potential impact on the environment as a result of the policies and objectives of the Local Area Plan. Table 17 in the Environmental Report highlights where the impact may be either potentially positive (green); neutral (white); potentially negative (yellow); or uncertain (blue). Where a neutral impact is identified no further discussion is deemed necessary. However it is acknowledged localised issues may arise depending on site specific issues and the type of development proposed. The assessment contained herein deals with strategic issues alone, for potential localised impacts the Mitigation section contained in Chapter 9 should be consulted.

It has been determined that there are a number of policies/objectives where the impact is potentially negative. The significant issues are discussed in the following sections. A comprehensive and detailed set of mitigation measures are provided in Chapter 9 which effectively reduces or eliminates identified negative impacts. Similarly, monitoring the implementation of the plan, as discussed in Chapter 10, will ensure that if any negative impact becomes a reality it will be identified at an early stage and appropriate actions taken by the relevant authority/agency to remedy the situation.

In general terms the Plan, in its current form will have a positive effect on the environment as a whole.

1.11 Mitigation Measures

While every effort will be taken to ensure that the impact of the plan on the environment is neutral to positive, certain unavoidable negative impacts may occur as a result of the implementation of the plan. The Environmental Report details mitigation measures to reduce or eliminate identifiable adverse impacts.

Similarly, monitoring of the plan, in accordance with the Planning and Development Act, 2000 – 2014 will incorporate proposals to monitor various environmental receptors. A schedule of monitoring and reporting is proposed in order to ensure that any unforeseen negative impact is identified at the earliest opportunity and subsequently appropriate mitigation measures are put in place to eliminate or at a minimum limit the level of impact to an acceptable degree. Environmental Indicators, as prescribed in the EPA publication "Ireland's Environment – An Assessment 2012" are provided where relevant to this plan and presented as a yardstick against which the plans success can be monitored.

In general terms, all proposals for development will be required to have due regard to the environmental considerations outlined in the Local Area Plan. Proposals for development which are deemed contrary to the objectives and policies contained within the Plan will not normally be permitted, and if permitted, not without the

appropriate site and development specific mitigation measures. In addition, certain individual applications for developments within the County may be subject to individual Environmental Impact Assessments and Appropriate Assessments.

1.12 Local Area Plan Monitoring

Monitoring of the Local Area Plan and its implications on the environment is paramount to ensure that the environment of the plan area is not adversely affected through the implementation of the plan.

While considerable environmental data is directly available to the County Council such as water quality, recycling rates etc, other sources of information will be accessed to provide a comprehensive view of the effect of the Plan. In this regard the Local Authorities will work with other agencies with environmental mandates to gather data for the purposes of monitoring the implementation of the Plan. Therefore, while monitoring specific elements of the environment is not strictly the preserve of the Council, the Council will continue to liaise and work with the Environmental Protection Agency, The National Parks and Wildlife Service etc., as well as others in the pursuit of environmental conservation and protection through existing environmental monitoring procedures.

It is proposed to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels.

The indicators aim to simplify complex interrelationships and provide information about environmental issues which can be easily understood.

2.0 Introduction and Background

Pursuant to the provisions of Sections 18, 19 and 20 of the Planning and Development Acts 2000 to 2014 Fingal County Council has prepared a Local Area Plan (LAP) for Donabate.

Pursuant to Article 13B of the Planning and Development (SEA) Regulations 2004 and 2013 and Articles 6(3) and (4) of the Habitats Directive, Fingal County Council have also carried out a Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) as part of the Local Area Plan preparation process.

Consequently, this SEA Environmental Report has been prepared in tandem with the preparation of the Local Area Plan. In addition the Habitats Directive Assessment has been carried out in parallel with the preparation of the LAP and SEA and is presented as a separate document.

2.1 Introduction and Terms of Reference

The EU Directive on Strategic Environmental Assessment or SEA (Directive 2001/42/EC) came into force in July 2001. The SEA Directive was subsequently transposed into Irish law through S.I. No. 435 of 2004 (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011) and S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.

Under this legislation member States of the EU are obliged to assess the likely significant environmental effects of plans and programmes prior to their adoption thus providing for the assessment of strategic environmental considerations at an early stage of the decision making process.

Article 1 of the SEA Directive states:

“The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.”

The Directive came into effect in an Irish context in July 2004. Since then SEA must be prepared for plans and programmes, including:

- Regional Planning Guidelines;
- City and County Development Plans;
- Development Plans made by Town Councils, where the population of the area is 10,000 or more; or
- Local Area Plans for towns with a population of 5,000 or more.

The Regulations state that SEA is mandatory for certain plans while screening for SEA is required for other plans that fall below the specified thresholds. Where plans or programmes fall below or outside of the specified thresholds, a screening report is required to be carried out to determine whether the making and implementation of a particular plan will or will not, lead to significant environmental consequences for the plan area.

Given that the population of the area subject to the Donabate LAP 2016-2022 (i.e. 6778 persons in Census, 2011) is greater than the threshold of 5,000 population, the carrying out of SEA for the Donabate LAP 2016-2022 is mandatory and therefore, a screening report is not required.

The following document is an Environmental Report prepared as part of the Strategic Environmental Assessment (SEA) of the Donabate Local Area Plan 2016-2022. The purpose of this Environmental Report is to identify, describe and evaluate the likely significant effects on the environment of implementing the proposed Donabate Local Area Plan 2016-2022 and should be read in conjunction with the Plan. The aim of the Environmental Report is to identify:

- Existing environmental issues in the Plan area;
- The likely significant effects on the environment resulting from implementation of the Local Area Plan;
- How the impact(s) on the environment can be prevented or reduced; and
- How to monitor environmental impacts over the lifetime of the Local Area Plan.

This Environmental Report forms an integral part of the SEA process which is carried out in parallel with the preparation of the Local Area Plan and of the Appropriate Assessment of the Plan. The SEA review process also comprises a Scoping Report, a Non-Technical Summary and an Environmental Statement. The Scoping Report was prepared in order to determine the baseline environmental parameter data and issues to be considered in the Environmental Report – this is discussed in more detail in Chapter 3.

The purpose of this Environmental Report is to document the process that has been followed in carrying out the SEA. The SEA process has guided the preparation of objectives and development scenarios for the Local Area Plan with an ultimate goal of achieving sustainable development in the area, and the avoidance of negative impacts on the environment. This Environmental Report provides an explanation of the process of conducting the SEA, identifies the key environmental effects, highlights mitigation and monitoring measures, and provides an opportunity for interested parties to comment on the environmental issues associated with the new Plan.

2.2 The Plan Area

The Core Strategy sets out how the Settlement Strategy including the County’s population allocation, the Housing Strategy and the Retail Strategy objectives within the Development Plan are consistent with the development objectives of the National Spatial Strategy 2002-2020 (NSS), the Regional Planning Guidelines (RPG) and the NTA Transport Strategy. The Core Strategy therefore provides a policy framework for the County at a local level and includes details which set out the settlement hierarchy, population/housing targets for all towns, villages and the open countryside and transport linkages. It also provides a policy framework for LAPs. Fingal’s Core Strategy is detailed in Section 1.5 of the FDP 2011-2017.

Donabate had a pop of 6,778 in the 2011 Census of Population (based on a Population of Towns Ordered by County and Size), which represents an increase of approximately 8% on the 2006 figure of 5,499. There has not been a significant change in the population in the intervening period (2011 to date), with a low level of new homes being developed. Donabate can be characterised as a commuter village, given the existing residential land use pattern and lack of employment opportunities on the peninsula. Dublin City Centre, Swords and Dublin Airport are the primary locations for employment in the wider area.

The total housing stock in 2011 in Donabate was stated as 2,487 no. dwellings with vacant housing accounting for 163 no. units. The average rate per household is 2.9 persons, with the population density for Donabate being 2350 no. persons per square kilometre. The Donabate E.D. has a stated population of 8,733 in the 2011 Census. The DED boundary incorporates the entire Peninsula area (including Portrane) and stretches from the Swords Road east to the coast.

This LAP proposes to establish a framework for the planned, co-ordinated and sustainable development of undeveloped lands zoned Objective RA – ‘Provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure’ comprising approx. 138 hectares (340 acres) in four land parcels at Corballis, Ballymastone, Rahillion and at Turvey, for the period of 2016-2022.

The LAP will seek to achieve the successful integration of the new development areas into the existing settlement and it will provide for the supporting infrastructure to ensure that Donabate continues to be a successful and attractive place for current and future residents.

Donabate has a number of designated sites both of EU and national importance. These sites form part of the Natura 2000 European network of designated sites and are safeguarded under legislation.

2.3 Donabate Local Area Plan 2016-2022

This LAP has been prepared under the provisions of the Planning and Development Acts 2000-2014. The LAP consists of a written statement and maps. Once adopted, the LAP will provide a 6 year statutory framework for guiding development and will assist in ensuring that future development is appropriately managed and occurs in a sustainable manner. The full Plan area is shown in Map A.

The vision statement for Donabate as set out in the Local Area Plan is:

The ambition of the LAP is to provide for the structured development of the identified new residential areas of Donabate such that they integrate into the established Village and support the continued growth of a vibrant and attractive town for existing and future residents. New development will be accompanied by the required community, educational, transport, drainage and recreational infrastructure to ensure the protection and enhancement of local amenities and the continued growth of local services in Donabate.

Donabate has its own unique sense of place, largely defined by its relationship to the coast and its proximity to Newbridge Demesne. This LAP proposes a vision for the future of Donabate as it continues to grow, so as to ensure its inherent character and natural assets are protected and enhanced in tandem with new housing and residents. The existing settlement will expand into adjoining new housing areas in a planned and coherent geographical basis where connectivity and infrastructure are clearly provided, to ensure the sustainable development of Donabate Village and surrounds.

This vision statement for the plan area is backed up by five strategic aims which provide a foundation for the Local Area Plan policies and objectives.

- Provide a framework for a growing population with phased development of new housing and supporting infrastructure

- Protect and enhance the existing natural amenities and environmental character of Donabate
- Support Donabate Village as the focus for successful commercial, retail, community and cultural development.
- Provide Infrastructural investment to address traffic, pedestrian safety and movement challenges.
- Improve access to established local amenity areas through the creation of a network of designated green routes across the locality in tandem with new housing development

The Local Area Plan will be the guiding document for development within the Plan area over the next 6 years.

2.4 SEA Definition and Role

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant effects of implementing a plan or programme. It is undertaken during the preparation period of the plan or programme, and before a decision is made to formally adopt it. The SEA process thereby assists in and improves the quality of the plan making process by:

- Facilitating the identification and appraisal of alternative plan strategies;
- Raising awareness of the environmental impacts of the plan’s implementation; and
- Encouraging the inclusion of measurable targets and indicators to aid monitoring.

The objective of SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development throughout the member states of the EU.

2.5 Legislative and Guidelines Context

In 2001 the European Community passed the Strategic Environmental Assessment (SEA) Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. This piece of legislation established the necessity for SEA to be carried out on plans and programmes, including those of land use planning.

Article 1 of the SEA Directive states:

The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.

The EU Directive on Strategic Environmental Assessment or SEA (Directive 2001/42/EC) came into force in July 2001. The SEA Directive was subsequently transposed into Irish law through S.I. No. 435 of 2004 (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment)

Regulations 2011) and S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.

In terms of guidance relating to this legislation the EPA published “Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland – Synthesis report” in 2003. Further to this in 2004, the Department of the Environment, Heritage and Local Government published “Implementation of SEA Directive 92001/42/EC: Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Local Authorities and Planning Authorities” and the Environmental Protection Agency “EPA Pack” (updated in 2013) have guided this review process.

2.6 SEA Process

The process of carrying out the Strategic Environmental Assessment of the Donabate Local Area Plan 2016-2022 is documented throughout this Environmental Report. The methodology employed is discussed in detail in Chapter 3. The structure of this Environmental Report (from hence referred to as the Report), which is the result of the Strategic Environmental Assessment, is in accordance with Article 1 of the Directive which provides a broad basis for the content of the environmental report. This report therefore identifies, describes and evaluates the likely significant effects on the environment of implementing the plan’s objectives and policies. This report also identifies the reasonable alternatives and in broad terms assesses the alternative ‘philosophies’ guiding the preparation of the Local Area Plan. Annex 1 of the EU Directive (Directive 2001/42/EC) details the information to be included in the report and in broad terms this Environmental Report provides the following:

- An outline of the content and main objectives of the Local Area Plan and the relationship between this and other relevant plans or programmes;
- The environmental characteristics of the area affected by the plan;
- Any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (Directive for the Conservation of Wild Birds) and 92/43/EEC (Conservation of Natural Habitats and of Wild Fauna and Flora);
- The environmental protection objectives, established at International, Community or Member State level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;
- The likely significant effects on the environment, including issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage and landscape;
- The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan;
- An outline of the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- A description of the measures envisaged concerning monitoring in accordance with Article 10;
- A non-technical summary of the information provided under the above headings.

2.7 Integration of the Local Area Plan, SEA and Habitats Directive Assessment

The legislation and guidelines governing the SEA process state that the processes of preparing the Local Area Plan, SEA and Appropriate Assessment (AA) should be integrated and prepared in an iterative manner. The Environmental Report outlines how the SEA process was carried out in tandem with the preparation of the Donabate Local Area Plan 2016-2022 and its accompanying Natura Impact Report (NIR). The SEA process ensured that the Plan was informed by environmental considerations from the outset. The SEA Team were fully involved in the preparation of policies and objectives and were in a position to make suggestions throughout the process of plan preparation to ensure that environmental considerations and environmental effects were considered in the formulation of strategic goals and development objectives. Figure 1 below summarises the integrated nature of the LAP preparation and SEA process.

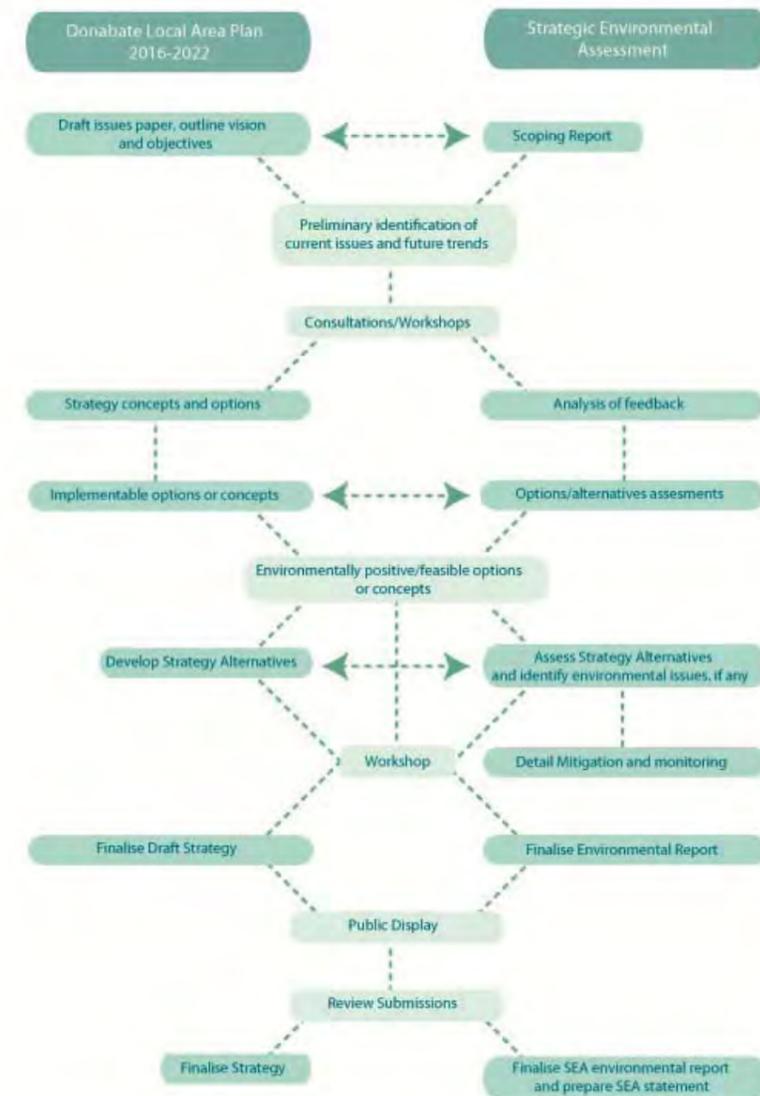


Figure 1: Integrated Local Area Plan and SEA Process

2.8 Implications of SEA for the Plan

This Environmental Report, which identifies the likely significant effects on the environment of implementing the Local Area Plan should be read in conjunction with the Local Area Plan and the Natura Impact Report. The results of the Environmental Report and Habitats Directive Assessment must be fully taken into account before the Local Area Plan is adopted.

3.0 Methodology

3.1 Introduction

Two amending SEA Regulations were signed into Irish law on 3rd May 2011, amending the original SEA Regulations: European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), and Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011, (S.I. No. 201 of 2011), amending the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004).

The methodology used to carry out the Strategic Environmental Assessment (SEA) of the Donabate Local Area Plan 2016-2022 reflects the requirements of the SEA Directive (2001/42/EC) and SEA Regulations (S.I. 435 & 436 of 2004 and as amended by S.I. 200 & 201 of 2011) and other SEA guidance documentation. The requirements of the recent European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), have also been taken into account in implementing the Plan. These Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgements.

Guidance documentation utilised in the preparation of this SEA includes “Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Regional Authorities and Planning Authorities” published by the Department of the Environment, Heritage and Local Government, “Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland – Synthesis Report”, published by the EPA in 2003 and the EPA SEA Pack 2013. In addition the EPA Drinking Water Report 2104 (EPA, 2015) was considered in the preparation of the ER.

This section of the report outlines the key stages in the development of the assessment in accordance with the Directive and the aforementioned regulations.

Stage	Description
Screening	The screening process is the first stage of the Strategic Environmental Assessment. Screening assesses the need to undertake a Strategic Environmental Assessment. Under the Planning and Development Act 2000-2014 full Strategic Environmental Assessment is mandatory for the Donabate Local Area Plan 2016-2022. Therefore no Screening was undertaken.
Scoping	The Scoping of the Donabate Local Area Plan 2016-2022 was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC). The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are given and consideration in the Environmental Report and ultimately in the Local Area Plan itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and objectives of the

Stage	Description
	Plan and reduces the possibility of relevant issues not being addressed.
Consultation with the Environmental Authorities	Submissions were received: <ul style="list-style-type: none"> • Environmental Protection Agency • Department of Communications, Energy and Natural Resource • Geological Survey of Ireland • Irish Water • National Parks & Wildlife Service • National Roads Authority (now Transport Infrastructure Ireland)
Scoping Report	Submissions received from Environmental Authorities were reviewed and incorporated into the process where warranted.
Preparation of ER & Local Area Plan	<ul style="list-style-type: none"> • A multi-disciplinary team was established to create policy consistent documents and to examine the effects on the environment of implementing the objectives and policies. • Objectives created in Local Area Plan assessed in ER and Development options examined. • Feedback from on-going Plan preparation process & ER preparation. • Mitigation measures discussed and chosen. • Monitoring incorporated into existing methods.
Monitoring the Local Area Plan	Monitoring significant environmental effects over the lifetime of the Donabate Local Area Plan 2016-2022.

Table 5: Key Stages of SEA

3.2 Screening

Screening assesses the need to undertake a Strategic Environmental Assessment. Under the Planning and Development Act 2000-2014 full Strategic Environmental Assessment is mandatory for the Donabate Local Area Plan 2016-2022. Therefore no Screening was undertaken.

3.3 Scoping

The Scoping of the Donabate Local Area Plan 2016-2022 was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC).

The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are

given and consideration in the Environmental Report and ultimately in the LAP itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and objectives of the Plan and reduces the possibility of relevant issues not being addressed.

The scoping aspect involved consultation with the statutory consultees, providing an opportunity to comment on the highlighted issues and the proposed methodology. Under the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 the list of statutory consultees includes:

- The Environmental Protection Agency.
- The Minister for Environment, Community and Local Government.
- The Minister for Arts, Heritage and Gaeltacht Affairs.
- The Minister for Agriculture, Food and the Marine.
- The Minister for Communications, Energy and Natural Resources.
- Any adjoining planning authority whose area is contiguous to the area of a planning authority which prepared a draft plan, – in this case counties includes Dublin City, Meath, Kildare.

In compliance with the SEA (Amendment) Regulations 2011 Fingal County Council gave notice to the aforementioned Environmental Authorities of its intention to prepare a new LAP for the area. A Scoping Report was prepared in order to facilitate consultation with statutory consultees and consultees were requested to review the content of the report and to comment on aspects they believe may require particular emphasis in the Local Area Plan and associated SEA Environmental Report and Appropriate Assessment documentation.

3.4 Statutory Consultation

Submissions were received from the following statutory consultees:

- Environmental Protection Agency
- Department of Communications, Energy and Natural Resource
- Geological Survey of Ireland
- Irish Water
- National Parks & Wildlife Service
- National Roads Authority (now Transport Infrastructure Ireland)

Table 6 below outlines the issues raised and the response or how the issue was addressed within the preparation of the Environmental Report of the Draft Local Area Plan:

Consultee and Comments	Response
Environmental Protection Agency	
Acknowledges Scoping for Local Area Plan and draws attention to EPA Checklist, Guidance on SEA and SEA Scoping Pack as well as updated SEA Regulations / Circulars. The Agency also lists the Environmental Authorities to be notified.	Noted.
<ul style="list-style-type: none"> • The protection, and where possible, the enhancement of surface and groundwater quality. • The integration of the recommendations of the Eastern CFRAM Study upon adoption. 	Noted. Noted.

<ul style="list-style-type: none"> • The incorporation of Flood Risk Assessment and SUDS • The protection, and where possible the enhancement, of designated (and non-designated) habitats and species and ecological corridors/linkages. • The inclusion of appropriate and relevant habitat mapping for the Plan area where possible. • The promotion and incorporation of energy and water conservation measures • The integration of the County Green Infrastructure Strategy as appropriate in the Plan area. Appropriate zoning in line with Core Strategy and Regional Planning Guidelines. • The potential for cumulative effects with other plans/programmes. The provision of adequate and appropriate critical infrastructure. Integration of the requirements of other higher level plans including those in areas such as Water (Eastern CFRAMS), Land Use (Regional Planning Guidelines and Core Strategy), Transport (Greater Dublin Area Transport Plan and National Transport Authority Draft Greater Dublin Area Cycle Network Plan and associated SEA), Waste Management (proposed new Regional Waste Management Plans-these may be in place prior to adoption of the Plan). 	Noted. Noted. Noted. Noted. Noted.
<ul style="list-style-type: none"> • Reference should be made to the water quality of the relevant water bodies. • Commitment should be made, as appropriate, the relevant recommendations set out in <i>The Provision and Quality of Drinking Water in Ireland – A Report for the Year 2011, (Office of Environment Enforcement- EPA, 2012).</i> • Reference should be made that Geological Survey of Ireland has identified areas of high and extreme groundwater vulnerability within the Plan area. • The Blue Flag status of the bathing waters at Brook, Balcarrick, Malahide and Velvet Strand Beaches should all be taken into account in the preparation of the Plan. • Reference should be made to OPW identified recurring flood events within or adjacent to the Plan area at Ballisk Lane, Balleally Lane, Cobb Lane and Corballis Road. 	Agreed. Agreed. Agreed. Agreed. Agreed.
Department of Communications, Energy and Natural Resources: Geological Survey of Ireland	

Acknowledges Scoping for Local Area Plan. Draws attention to online resource for Geological Heritage Data. Offer to discuss and possible mitigation measures, if applicable. Notes geological data gaps. GSI would welcome complementary data collected as well as copies of reports detailing any site investigation be made available to GSI.	Noted.
Department of Agriculture, Food & the Marine: Climate Change Section	
Acknowledges Scoping for Local Area Plan. Consideration should be given to Harvest 2020 and the Marine Strategy Framework Directive	Noted.
Irish Water	
Irish Water would welcome an indication of the phasing of proposed development in order to ensure that required water services can be provided in the relevant areas in a timely fashion and would be happy to discuss with the Council appropriate phasing with respect to water services. Note and agree with your Strategic Environmental Objectives 52, W2, W3, MA1 and MA3.	Noted
National Roads Authority (now Transport Infrastructure Ireland)	
Give proximity of plan area to M1, the plan should have regard to the provisions of the DoECLG Spatial Planning and National Roads Guidelines for Planning Authorities (2012). The Local Area Plan and accompanying Environmental Report should assess the potential impacts of local development traffic associated with the proposed local area plan lands on the M1 and associated junctions.	Noted
National Parks & Wildlife Service	
Request for a copy of the Draft Plan	Noted.

Table 6: Summary of Scoping Comments

3.5 Non- Statutory Public Consultation

Pre-Draft Non Statutory Public Consultation

The preparation of the Draft LAP included a number of opportunities for members of the public’s involvement and input by making written submissions on the LAP. Section 20 of the Planning Act states that:-

‘a Planning Authority shall take whatever steps it considers necessary to consult the Minister and the public before preparing’... “a local area plan, including consultations with any local residents, public sector agencies, non-governmental agencies, local community groups and commercial and business interests in the area’.

The following measures were taken to consult with the public at this stage of the plan making process.

In 2011, Fingal County Council published a Strategic Issues Paper entitled ‘Having Your Say’. This Paper was published to assist the public in making a submission and invited the local community and various stakeholders to submit their views regarding the shaping of the future development of Donabate (18 no. submissions were received).

Though preliminary work on the new LAP commenced in 2011, it was subsequently paused due to the continued uncertainty in the national economy. Work recommenced in 2013 and the Planning Department held an Information Evening / Workshop for the local community and interested stakeholders on Tuesday 10th December 2013 in Donabate Community College. Public notices were placed in local newspapers and in strategic locations within the village. Notification regarding the consultation period was also placed in the Donabate-Portrane Community Council newsletter, which was distributed to all households on the Peninsula. The Planning Department also contacted those parties who had previously made submissions in 2011. The Information Evening / Workshop was well attended and 30 no. submissions were received.

These measures assisted in providing insights into the local issues and helped to shape the Draft LAP and Environmental Report for the area.

3.6 Draft Stage Consultation

The Draft LAP was published and placed on display from Tuesday 1st December, 2015 to Thursday 21st January, 2016 during which time submissions and observations were invited from the public and the interested parties. A report summarising the issues raised and the Chief Executive’s recommendation was presented to the Elected Members. The Elected Members considered the report and adopted the Local Area Plan on Monday 14th March 2016. The LAP came into effect four weeks from that date.

The Strategic Environmental Assessment Environmental Report and Appropriate Assessment Natura Impact Report accompanied the draft LAP during the public display periods. Submissions with regards to the SEA were received from the EPA and the Department of Arts, Heritage and the Gaeltacht.

3.7 Environmental Baseline Data

The baseline data, assists in assessing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the plan. Thus, this information creates a platform whereby existing problems relevant to the Plan area can be quantified (where possible) or qualified thereby ensuring that the implementation of the Plan does not exacerbate these problems.

Baseline data has been collected based on the various broad environmental topics described in the SEA Directive i.e. biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage including architectural and archaeological heritage and landscape. The Directive requires that

information be focused upon relevant aspects of the environmental characteristics of the area likely to be significantly affected by the plan and the likely change, both positive and negative terms where applicable. The baseline data was collated from currently available, relevant data sources the SEA Directive does not require major new research to be carried out. Where deficiencies or gaps in the information available are identified this is noted.

3.8 Environmental Report

The type of information to be provided in the Environmental Report is set out in Annex I of the SEA Directive - reproduced in Schedule 2B of the Planning and Development Regulations 2001 (as inserted by article 12 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004). This report contains the sections as outlined in Table 7.

Section	Description
Non-Technical Summary	A brief summary of the Environmental Report, its main points and conclusions.
Introduction	Provides a description of the type of plan involved and a summary of its key aims and objectives. The purpose of the SEA process, SEA requirements, its benefits and how the LAP and Environmental Reports have progressed are outlined
SEA Methodology	Highlights the steps taken in preparation of the SEA, the methods used and technical difficulties encountered.
Relationship of the Plan with Other Relevant Plans and Programmes	The relationship of the LAP to other relevant plans and programmes is highlighted.
Baseline	A description of the current environment of the plan area is provided, highlighting any existing environmental problems in the Plan area and outlining evolution of the environment in the absence of the new Plan. This exercise results in a comprehensive baseline against which the likely effects of implementing the new LAP can be examined.
Strategic Environmental Objectives	A number of environmental protection objectives which have been established at international, EU or national Level and are relevant to the plan are listed. Following this a description of how the objectives and any environmental considerations have been taken into account in the preparation of the Plan.
Alternatives	An assessment of proposed development alternatives in the Plan area are considered at this stage. Scenarios are tested against the environmental objectives and the most appropriate strategy is selected.
Assessment	The proposed LAP policies and objectives are examined in terms of their potential effects on the various Environmental parameters.
Mitigation Measures	Where potentially significant adverse effects are discovered, measures to prevent,

	reduce or offset these effects are proposed and integrated into the LAP.
Monitoring	Proposals for monitoring the significant effects of the LAP on the environment are put forward. A number of indicators of change and achievable targets are proposed and monitoring arrangements detailed.

Table 7: SEA Report Structure

3.9 Consideration of Alternatives

The SEA Directive (Article 5) recommends that alternative development scenarios for the plan are included for assessment. Alternatives need to be *'realistic and capable of implementation'* and should represent a range of different approaches within the statutory and operational requirements of the particular plan.

The consideration of alternatives was restricted by the statutory requirement to comply with the Core Strategy of the Fingal County Development Plan 2011-2017. On this basis, two alternative approaches were considered for the future development of Donabate and assessed against the SEOs established in the SEA. Following consideration and assessment of the three alternatives put forward it was concluded that Alternative 2 was the most appropriate and environmentally protective to the future development of Donabate. This approach has formed the basis for the zoning, policies and objectives contained with the Local Area Plan.

3.10 Environmental Assessment of the Local Area Plan

The assessment described within this Environmental Report aims to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Plan with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the Plan's implementation of its policies and objectives on sensitive environmental receptors.

Key to assessing the policies and objectives of the Plan is setting a specific set of environmental objectives for each of the environmental topics. The objectives are provided in Chapter 6 and include all aspects of the environment such as Human Beings, Flora and Fauna, Soil, Water, Air and Climate Change, Noise, Material Assets, Cultural Heritage including Architectural and Archaeological Heritage and Landscape.

It is worth reiterating that the process of SEA and Local Area Plan formulation is an iterative process and as such environmental considerations have informed all stages of plan preparation in order for potential for significant adverse effects arising from plan implementation to be minimised. Nonetheless, it is possible that some individual plan objectives will potentially lead to adverse effects of varying severity. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts; where this is not possible for stated reasons, to lessening or offsetting those effects.

In accordance with SEA guidelines the assessment identifies 'impact' under the quality of impact using the following terms:

- Potential Positive impact:** A change which improves the quality of the environment.
- Potential Neutral impact:** A change which does not affect the quality of the environment.
- Potential Negative impact:** A change which reduces or lessens the quality of the environment.
- Uncertain impact:** The nature of any impact cannot be ascertained at this stage.

The initial stage aims to ascertain the quality, if any, of the potential impact. Each of the Plan's policies and objectives have been screened for their impact and where a neutral impact is noted no further discussion is provided within this report. This format allows for the ER to focus on the negative and positive impacts and proceed to a discussion on their significance and duration. Thus it is a more robust, more focused approach to understanding the potential impact associated with the Plan's implementation.

Finally where it has been determined that a policies/objectives may potentially result in a negative impact on an environmental receptor appropriate level mitigation measures are proposed.

Preparation of the Local Area Plan has followed an iterative process to date, involving the environmental and forward-planning team of Fingal County Council, the public, Fingal County Council councillors, statutory consultees and the SEA and AA team.

3.11 Mitigation

Section (g) of Schedule 2B of the SEA Regulations require information on the mitigation measures that will be put in place to minimise/eliminate any significant adverse impacts due to the implementation of the Local Area Plan. Chapter 9 of this document highlights the mitigation measures that will be put in place to counter identified significant adverse impacts due to the implementation of the Plan. As stated previously the formulation of the Plan and the development of the SEA is an iterative process and therefore many of the potential negative aspects of the Plan have been removed.

Thus the objectives and policies contained within the Plan are considered robust and environmentally sustainable. However some unavoidable residual issues may remain and therefore mitigation measures are required. Chapter 9 details the mitigation measures necessary to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan.

3.12 Monitoring

Article 10 of the SEA Directive sets out the requirement that monitoring is to be carried out of the significant environmental effects of the implementation of the Donabate Local Area Plan 2016-2022 in order to identify at an early stage any unforeseen adverse effects and to be able to undertake appropriate remedial action.

This section outlines the monitoring requirements for the Donabate Local Area Plan 2016-2022. Methods of monitoring and indicators of change in the environment have been proposed with set targets to be reviewed over the duration of the LAP.

The Fingal Development Plan is currently under review and the Draft Fingal Development Plan 2017-2023 including Environmental Report is on public display. It is considered that, if appropriate, that the monitoring programme for the Donabate Local Area Plan 2016-2022 is integrated with the monitoring programme for the adopted Fingal County Development Plan 2017-2023.

3.13 Technical Difficulties Encountered

A sizeable volume of information was available given the data collected in the previous review of the County Development Plan. Recent National and County level studies on various aspects of the environment (water, cultural heritage etc) also resulted in a significant amount of data becoming available. However gaps do remain.

3.14 Report Preparation

This report has been prepared by Brady Shipman Martin, Planning and Environmental Consultants and Scott Cawley Ecologists on behalf of Fingal County Council.

4.0 Review of Relevant Policies Plans and Programmes

4.1 Introduction

The Donabate Local Area Plan 2016-2022 is framed within a hierarchy of spatial plans which range from the international to a site specific context. These plans are formed by International, National and Regional level policy guidelines. This hierarchy of plans, programmes, policies, strategies, etc. sets out the legislative and policy framework by which the Local Area Plan (LAP) must be formulated. The National, Regional and County strategies and policies play a central role in establishing higher level agendas and the county level plan objectives. The Donabate Local Area Plan 2016-2022 is required to conform to and translate the objectives of these higher levels plans, in particular the Fingal County Development Plan 2011-2017, and the next Development Plan 2017-2023, to a town level basis.

The SEA Directive requires that the SEA process should include a review and discussion of other plans or programmes, which are associated to and concern the assessment of the Local Area Plan. This could include plans or programmes in the same geographical area or in the same sector at different levels. Paragraph (e) of Schedule 2B of the Planning and Development (SEA) Regulations 2004 states that the SEA Report must contain: 'the environmental protection objectives, established at International, European Union or National level, which are relevant to the plan, and the way those objectives and any environmental considerations have been taken into account during its preparation'.

This chapter summarises the International, National, Regional and local legislative, policy documents, strategies and guidelines that are relevant to this SEA process and the Donabate Local Area Plan 2016-2022. The purpose of this review is to take into consideration the contextual legislative and policy framework to which the Local Area Plan must comply. The key issue relevant to this section of the SEA is to ascertain whether the plan has taken due consideration of the objectives set out in the legislative and policy framework.

4.2 National Plans and Policy

4.2.1 National Development Plan (NDP) Transforming Ireland: A Better Quality of Life for All 2007-2013

The NDP 2007-2013 provides for an indicative investment of €184 billion in the broad areas of infrastructure, enterprise, human capital and social inclusion, as well as health services, social housing, education, roads, public transport, rural development, industry, and water and waste services. The vast bulk of this investment (some €143 billion) is being provided by the central exchequer. The objective of this ambitious investment plan is to deliver a better quality of life for all within a strong and vibrant economy that maintains International competitiveness and promotes regional development, social justice and environmental sustainability. The investment priorities are carefully aligned with the specific objectives of the National Spatial Strategy in achieving balanced regional development.

4.2.2 National Spatial Strategy 2002-2020

The National Spatial Strategy (NSS) is a coherent national planning framework for Ireland for the next 20 years. The Strategy aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning. The NSS aims to achieve this by setting out a range of measures to be implemented at the national, regional, county and local level.

The Strategy seeks to establish a framework for appropriate development at a regional level, which makes provision for strategically located urban centres, particularly 'Gateways' and to unlock potential for progress, growth and development in a more balanced way across Ireland, supported by more effective planning. The strategy identifies a limited number of Regional Gateways and Hubs. The Metropolitan Area of Fingal, forms part of the Dublin Gateway which includes the towns and areas of Blanchardstown, Swords, Donabate, Malahide, Portmarnock, Sutton, Baldoyle and Fingal's South Fringe.

It is noted that in Feb 2013 the Department of the Environment, Heritage and Local Government announced their intention to abandon the National Spatial Strategy and replace it with a revised strategy.

4.2.3 Smarter Travel – A New Transport Policy for Ireland (2009-2020)

Smarter Travel: A New Transport Policy for Ireland 2009 - 2020 sets out Government's policy objectives with respect to promoting a significant modal shift from private transport to public transport and sustainable transport modes over the period up to 2020. Although the Policy contains 49 actions, they can be grouped into essentially four overarching objectives:

- Actions to reduce distance travelled by private car and encourage smarter travel, including focusing population growth in areas of employment and to encourage people to live close.
- proximity to places of employment and the use of pricing mechanisms or fiscal measures to encourage behavioural change,
- Actions aimed at ensuring that alternatives to the car are more widely available, mainly through a radically improved public transport service and through investment in cycling and walking,
- Actions aimed at improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies, and actions aimed at strengthening institutional arrangements to deliver the targets.

4.2.4 National Heritage Plan (2002)

This Plan aims to set out a clear and coherent strategy and framework for the protection and enhancement of our heritage. Every action in this Plan is founded on the principle of sustainable development, which states that the needs of the present generation must be met without compromising the ability of future generations to meet their own needs. The Plan seeks to ensure the protection of Ireland's heritage and to promote its enjoyment by all. The policies of the National Heritage Plan are inherent in the Strategic Environmental Appraisal of the Local Area Plan.

4.2.5 SEA Guidelines 2004 and 2011 Local Area Plan Guidelines for Planning Authorities 2013

Planning Authorities are now required to assess the consistency of existing LAPs with the core strategies of Development Plans and to review them where necessary, with a view to aligning local planning with strategic city and county development objectives. The aims of these Guidelines is to:

- Highlight best practice and improve the quality of LAPs.
- Improve community and institutional participation in the process of preparing / amending LAPs, and
- Enhance the co-ordination and provision of essential public infrastructure within the planning process.

The Donabate LAP has been prepared having regard to the Core Strategy as outlined in Fingal Development Plan 2011-2017.

4.2.6 Actions for Biodiversity 2011-2016 – Irelands National Biodiversity Plan

In 2002, Ireland published its first National Biodiversity Plan which contained 91 actions. The implementation of that Plan was reviewed as part of the process of developing this document. Actions for Biodiversity 2011-2016 builds upon the achievements since 2002. It focuses on actions that were not fully completed and addresses emerging issues. The main biodiversity actions identified are as follows: Taking responsibility; Strengthening knowledge and raising awareness; Protecting and restoring biodiversity in Ireland; Protecting and restoring biodiversity internationally. Amongst the most important means of providing for the conservation and sustainable use of biodiversity in the wider countryside is the planning system. A number of recent developments in planning legislation, in particular the Planning and Development (Amendment) Act, 2010, provide significantly improved measures for the conservation of biodiversity. The Planning and Development Act 2000-2011 provides that: -

'Development Plans must have mandatory objectives for the conservation of European and nationally important sites and for the conservation of biodiversity in general. The new Amendment Act 2010 has introduced for the first time, the requirement to carry out Appropriate Assessment for individual development proposals.'

A Stage 1 (Appropriate Assessment) Screening Report has been carried out as part of the preparation of the Local Area Plan.

4.2.7 National Action Plan for Social Inclusion 2007-2016

This Plan identifies a range of targets, interventions and high level strategic goals in certain key priority areas in order to achieve the overall objective of reducing consistent poverty. This Plan and the National Development Plan 2007-2013 'Transforming Ireland – A Better Quality of Life for All', highlight these goals which are aimed at making a decisive impact on poverty.

The Donabate LAP includes provisions which focus on children, working age people, people with disabilities, etc, to build a viable and sustainable community as supported by this National Action Plan for Social Inclusion.

4.2.8 Sustainable Residential Development in Urban Areas Guidelines 2009 and Urban Design Manual

These Guidelines supersede the 'Residential Density Guidelines 1999' and contain policies and guidance for development within larger urban centres, towns and villages as well as individual homes and their surroundings. They promote increased density in appropriate locations, such as close to public transport nodes. The Guidelines emphasise the qualities which make for successful places and the need for high quality, sustainable design and layout and good quality living environments including the availability of adequate shopping, social, childcare, transport and leisure infrastructure. The Urban Design Manual accompanies these Guidelines and these two

documents set out 12 criteria for sustainable residential development which seek to ensure a good quality of life through provision of well-designed homes in the right location.

Sustainable residential development was a key theme in the preparation of the Donabate LAP and policies and guidance for sustainable residential development are essential to the success of the Donabate LAP. The twelve criteria outlined in the best practice design manual will be incorporated into new development within the LAP lands.

4.2.9 Retail Planning Guidelines for Planning Authorities 2012.

This proposed LAP document is to act as a companion to The Retail Planning Guidelines 2012. Both the Guidelines and the Manual are intended to provide a planning framework for future development of the retail sector in a way which meets the needs of modern shopping formats while contributing to protecting, supporting and promoting the attractiveness and competitiveness of city and town centres as places to live, work, shop and visit.

Donabate is identified as a Level 4 retail centre in Fingal's Retail Hierarchy. (Other level 4 centres include Rush, Baldoyle, Howth etc.) These areas provide 'basic convenience shopping, either in small supermarkets or convenience shops and in some cases, also provide comparison shopping e.g. small-scale hardware, retail pharmacies and clothes shops.'

4.2.10 National Climate Change Strategy (2007-2012)

The National Climate Change Strategy 2007 - 2012 sets out a range of measures, building on those already in place under the first National Climate Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. The Strategy provides a framework for action to reduce Ireland's greenhouse gas emissions

The Framework for Climate Change Bill published in December 2009 provides for a statutory obligation on the Minister to propose to the Government a National Climate Change Strategy on a 5 year cycle and to review the previous Strategy at the end of this time. The Strategy will set an overall reduction target for the 5-year period within the context of the long-term and annual reduction targets set out in the Bill (as subject to review by the Minister). It will also set the policy context for the Carbon Budget and set out requirements in terms of policy objectives for the various sectors in the economy.

4.2.11 National Renewable Energy Action Plan, (NREAP) 2010

Submitted under Article 4 of Directive 2009/28/EC this plan sets out Ireland's renewable energy targets to be achieved by 2020. Ireland's overall target is to achieve 16% of energy from renewable sources by 2020. Member states are to achieve their individual target across the heat, transport and electricity sectors and apart from a sub-target of a minimum of 10% in the transport sector that applies to all Member States, there is flexibility for each country to choose how to achieve their individual target across the sectors.

4.2.12 Architectural Heritage Protection - Guidelines for Planning Authorities (2011)

The 2004 guidelines were reissued in 2011 following the transfer of architectural heritage protection functions to the Department of Arts, Heritage and the Gaeltacht.

Part IV of the Planning and Development Acts 2000 – 2011 sets out the legislative provisions for the protection and conservation of our architectural heritage. The main features of the act in this respect are:

- Local authorities must create and maintain a Record of Protected Structures (RPS) which is to include all structures within the administrative area which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The RPS must form part of the Development Plan for each county.
- Local authorities must also protect the character of places and townscapes which are comply with the special interests listed above. This is done through the designation of Architectural Conservation Areas (ACAs) which are also to be contained within Development Plans.
- Development plans must include objectives for the protection of such structures and the preservation of the character of such areas to ensure proper and sustainable planning and development.
- Owners and occupiers of protected structures can be held responsible in ensuring that buildings are not endangered either directly or through neglect.

4.2.13 The Planning System and Flood Risk Management Guidelines (and Technical Appendices) for Planning Authorities (DoEHLG, OPW), 2009

These guidelines require the planning system at national, regional and local levels to:

- Avoid development in areas at risk of flooding, particularly floodplains, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level without increasing flood risk elsewhere;
- Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk; and
- Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals

In relation to planning, the guidelines require planning authorities to:

- Introduce flood risk assessment as an integral and leading element of their forward planning functions at the earliest practicable opportunity.
- Align strategic flood risk assessment (SFRA) with the SEA process.
- Establish flood risk assessment requirements as part of the preparation of statutory land use plans.
- Assess planning applications against the guidance set out in the Guidelines.
- Ensure development is not permitted in areas of flood risk except where there are no suitable alternative sites.

A Strategic Flood Risk Assessment was carried out on the Donabate LAP lands to assess the risk of flooding. This assessment was prepared having regard to the Department of the Environment, Community and Local Government and OPW issued Guidelines to identify flood risk areas together with mitigation measures to be implemented.

4.2.14 A National Landscape Strategy for Ireland (2015 – 2025)

The Department of Arts, Heritage and the Gaeltacht has issued a National Landscape Strategy for Ireland, which sets out objectives to implement the European Landscape Conventions by integrating landscape into our approach to sustainable development.

The strategy provides a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local community levels to protect, manage and properly plan through high quality design for the sustainable development of our landscape.

The will establish and embed a public process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape.

4.3 Regional Plans and Policies

4.3.1 Regional Planning Guidelines for the Greater Dublin Area (2010-2022)

The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 gives effect to the national planning framework put forward in the National Spatial Strategy (NSS) and National Development Plan (NDP) at a regional level. The Guidelines aim to enhance the unique national position of the Greater Dublin Area (GDA) and defines a Metropolitan and a Hinterland Area. The settlement strategy for the GDA directs new housing to the area within the existing footprint of the Metropolitan Area with expansion of the footprint only as part of an integrated plan. The RPGs promote development adjacent to multi-modal transport facilities.

Donabate is identified as being located within a Metropolitan Area in the Regional Planning Guidelines for the Greater Dublin Area 2010-2022. These Metropolitan towns have a strong role as commuter locations and growth should be strongly related to the capacity of high quality public transport connections and the capacity of social infrastructure. The anticipated long term growth is linked to levels of natural increase or economic expansion. The development of lands adjoining high quality public transport links is relevant in the context of the Donabate LAP where the lands adjoin a suburban / inter-region rail line and there is potential expansion of the DART line.

4.3.2 Greater Dublin Area Transport Strategy (2016-2035)

The Greater Dublin Area (GDA) Transport Strategy constitutes a strategic transport plan for the GDA for the period up to 2035. A number of fundamental tenets underlie the draft strategy objectives. These include the adoption of a hierarchy of transport users with pedestrians, cyclists and public transport users at the top of the hierarchy and consequently these users should have their safety and convenience needs considered first. A second key principle is the requirement that land use planning and transport planning need to be considered together in the overall development of the GDA region.

The vision of the strategy comprises five key objectives which seek to:

- 1) Build and strengthen communities.
- 2) Improve economic competitiveness.
- 3) Improve the built environment.
- 4) Respect and sustain the natural environment.
- 5) Reduce personal stress.

The Strategy in respect of Donabate states:

- *There is a significant amount of population and employment growth planned for the larger urban areas within this corridor, including Swords, Balbriggan, South Drogheda, Clongriffin, Ballymun, Donabate and the Airport environs*

- *From a roads perspective, it is intended to develop a distributor road on the western side of Swords, in addition to a distributor road around Donabate.*

The Donabate LAP supports the policies and objectives contained within the GDA Transport Strategy and details are contained within Chapter 3 of the LAP 'Movement and Transport Strategy'.

4.3.3 Retail Strategy for the Greater Dublin Area 2008 – 2016

This Retail Strategy for the Greater Dublin Area (GDA) guides the activities and policies for retail planning. The strategy sets out a co-ordinated, sustainable approach to the assessment and provision of retail within the GDA so that retail provision is made to meet the needs of the growing and changing population, is suitably located and provided within existing growth areas and public transport investment. The revitalisation of town centres is a key aim, so that significant overprovision is avoided.

The Strategy proposes a five-tier hierarchy of retail centres. The Donabate LAP aims to achieve higher levels of sustainability by encouraging local shopping provision for lower order goods and the consolidation of Donabate Village, in accordance within the retail strategy.

Donabate is identified as a Level 4 Retail Centre, which generally provides for 'one supermarket or discount foodstore ranging in size from 1,000-2,500 sq m with a limited range of supporting shops'

4.3.4 Eastern River Basin District River Basin Management Plan (2009 – 2015)

The Eastern River Basin District (ERBD) covers the majority of Fingal and is one of eight river districts within the island of Ireland formed to aid the implementation of the requirements of the EU Water Framework Directive 2000/60/EC. The Directive requires the preparation of management plans for each district.

The ERBD River Basin Management Plan (RBMP) sets out the objectives for the water bodies within the plan area and outlines actions necessary to achieve these objectives. In compliance with the WFD these are to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwaters which:

- a) Prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- b) Promotes sustainable water use based on a long-term protection of available water resources;
- c) Aims at enhanced protection and improvement of the aquatic environment, including through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- d) Ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and
- e) Contributes to mitigating the effects of floods and droughts.

4.3.5 Eastern Midlands Waste Management Plan (2015-2020)

The Eastern Midlands Regional Waste Management Plan (RWMP) provides a framework for waste management for the next six years and sets out a range of policies and actions in order to meet the specified mandatory and performance targets. Most importantly, the plan seeks to assist and support the community and local business to develop resource efficiency and waste prevention initiatives. The Plan comprises a framework for the prevention

and management of wastes in a safe and sustainable manner and acknowledges the use of waste at cement kilns as taking on an increasingly significant role.

The Donabate LAP addresses waste in Chapter 7 and Donabate should aim to meet and improve upon waste and recycling targets.

4.4 Local Plans and Policies

4.4.1 Fingal Development Plan (FDP) 2011-2017

The Fingal Development Plan 2011-2017 sets out Fingal County Council's policies and objectives for the development of the plan over a six year period. The county has a diverse and interesting character including both urban and rural areas, the coast, river valleys and upland areas. Donabate comprises one of twelve main urban areas within the Development Plan Area and it is a strategic policy of the Plan to consolidate development in Donabate and protect the unique identity of the settlement.

The relationship of the LAP with the Fingal Development Plan can be considered within the wider context of the existing zonings of the subject sites and the surrounding land use zonings.

While Donabate has experienced substantial housing development in recent years, there remain extensive areas of undeveloped residential zoned lands (circa 144 hectares).

Under the current development plan the lands are zoned 'RA' – *'Provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure'* in the Fingal Development Plan 2011-2017. The vision for this zoning objective is to *'Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.'*

To ensure that the development of necessary public infrastructure and implementation of strategic planning policies are implemented correctly, the LAP must comply with the Core Strategy which is contained within the FDP.

Reflecting the development themes of the FDP, the function of the Core Strategy is to set out how the Settlement Strategy, Housing Strategy and Retail Strategy objectives within the Development Plan are compliant, in as far as practicable, with the development objectives of the National Spatial Strategy 2002-2020 (NSS), the Regional Planning Guidelines (RPG) and the NTA Transport Strategy (which in any event is required to be consistent with the RPG). With regard to Donabate, the strategy outlined in the FDP categorises the town as a *'Moderate Sustainable Growth Town'*. Moderate Sustainable Growth Towns are seen as being strong edge of Metropolitan Area district service centres with high quality linkages and increased densities at nodes on public transport corridors. Donabate falls within this category of town within the Metropolitan Area. These towns are expected to continue to have a strong role as a commuter location and growth should be strongly related to the capacity of high quality public transport connections and the capacity of social infrastructure.

With regard to the town of Donabate, there are seven objectives within the core strategy to:

- Channel and concentrate the development of additional commercial, social and civic facilities within the town centre and promote high quality urban design in such development.
- Provide for the further development of recreational, community and educational (primary and second level) facilities.

- Develop a continuous network of signed pathways around Donabate Peninsula and linking the Peninsula to Malahide and Rush via the Rogerstown and Malahide Estuaries whilst ensuring the protection of designated sites through HDA Screening.
- Provide for a comprehensive network of pedestrian and cycle ways linking residential areas to one another, to the town centre and the railway station subject to an HDA Screening.
- Promote the development of a shuttle bus service linking Donabate and Portrane to the Metro terminus at Belinstown and to mainline commuter bus services in Swords.
- Maintain a strong visual and physical separation between Portrane and Donabate.
- Provide a library in the town.

These objectives have informed the preparation of the LAP.

4.4.2 Fingal Local Economic and Community Plan (LECP) 2016-2021

This Plan was adopted in December 2015 and it is the first integrated economic and community development plan for the County. The plan is built upon the understanding that economic, local and community development are mutually supportive in building sustainable communities with strong local economies. The plan promotes a collaborative leadership approach across a broad range of publically funded agencies and civil society stakeholders to achieve improved outcomes and impacts for citizens, businesses and communities. This is the first LECP for the Fingal local authority area. It is designed to promote and support the economic and the local and community development of Fingal over the period 2016-2021. Fingal LECP is designed to identify and prioritise the objectives and actions needed to promote and support the economic development and the local and community development of the county. The LECP is not an operational plan, but seeks to achieve its objectives by working in partnership with all of the key economic and community development stakeholders that serve the county, including Fingal County Council.

The LECP has a six year time frame and its contents are required to align with Fingal Development Plan. It is envisaged that the LECP will provide a focussed emphasis on local economic development including actions and measures to ensure its promotion and facilitation. One of the objectives of the LECP is to 'Consolidate the development and protect the unique identities of the settlements of Howth, Sutton, Baldoyle, Portmarnock, Malahide, Donabate, Lusk, Rush and Skerries' which is consistent with policies and objectives included within this LAP and with the Draft Fingal Development Plan 2017-2023.

4.4.3 Fingal East Fingal Flood Risk Assessment and Management Study 2012 (FEM FRAMS)

Fingal County Council along with project partners Meath County Council and the Office of Public Works (OPW) commissioned the Fingal East Fingal Flood Risk Assessment and Management Study (FEM FRAMS) in 2008 to investigate the high levels of existing flood risk in the Fingal East Fingal area. The study included detailed hydraulic modelling of 23 rivers and streams, 3 estuaries and the Fingal and Fingal coastline. The watercourses are defined as High Priority Watercourses (HPW) or Medium Priority Watercourses (MPW) and modelled in according detail.

The FEM FRAMS models consist of 1D river models, 1D-2D linked models and 2D coastal models. The model results were used to map flood outlines for a range of scenarios, including the current and future, defended and undefended scenarios.

4.4.4 Rogerstown Estuary Inner Management Plan

Rogerstown Inner Management Plan devises a coherent strategy to manage the rehabilitation of the landfill and estuary, to provide for the recreation of the future residents of the area and achieve the management objective of the Rogerstown Estuary Study.

Rogerstown Estuary Outer Management Plan is under preparation. This Management Plan corresponds with the Donabate LAP objectives to provide strong connections and good accessibility in this area.

4.4.5 Fingal Heritage Plan (2011-2017)

This Plan presents an integrated approach to heritage services and heritage management for Fingal. The Heritage Plan provides a firm basis for the delivery of heritage services in Fingal and fully supports interagency working in this regard. The Heritage Plan also aims to enable the whole community to take part in the work of caring for and managing our local heritage.

The preparation of the Donabate LAP has been done in careful consideration with the Heritage officer, Conservation Officer and Biodiversity Officer who have helped to shape and guide the relevant policies and objectives. One of Donabate's key strengths is its rich heritage and biodiversity and the protection and management of this resources has been a central theme in the preparation of the LAP.

4.4.6 Fingal Biodiversity Action Plan (2010-2015)

The FBAP puts forward a programme of actions to protect the habitats, plants and animals that can be found in our County. The Plan identifies the detailed steps that need to be taken to protect the natural environment in Fingal.

Donabate has a rich biodiversity resource with its coast and estuaries, countryside, Newbridge Demesne and Donabate urban centre itself. The FBAP is a key document in providing a framework for biodiversity action for the future. Specialist consultants have been employed to assist in the preparation of Donabate LAP in the fields of SEA and AA.

4.4.7 Fingal Growing Places 2009-2014

This document forms part of the Biodiversity Plan and Tree Strategy in the developing strands of Green Infrastructure in the County. Areas which were traditionally mowed open grass areas will now be changed to wildflower meadow and woodland. Routine maintenance of all street trees will be carefully planned. Outdoor sports facilities will be sustained and where possible, improved. Green Infrastructure is a strong theme within the Donabate LAP. Large areas of open space, sports facilities and existing and proposed trees will be maintained in accordance with the Fingal Growing Places document.

4.4.8 Fingal Open Space Strategy

An open space strategy for the County is currently being prepared.

4.4.9 Fingal Tree Strategy 2009

The 'Forest of Fingal' is the strategy for the trees, hedges and woodlands in the county. A series of actions have been developed. The aim of the Tree Strategy is to:

- Establish an action plan of things we need to do to develop the strategy;
- Establish detailed policies for trees and tree work in Fingal; and

- Define Fingal policy regarding the management of the Council's own trees.

The importance of the trees, hedgerows and woodlands in the County has been noted in the Donabate LAP and policies and objectives to protect our natural heritage have informed the preparation of the LAP.

4.4.10 Fingal North Dublin Transport Study (Nov 2014)

The NTA reviewed six options to link Swords and the airport with Dublin city centre. They included a revised Metro North, two different DART links, a Luas link, a BRT system or a combination of DART and LUAS. The overall objective of this Study is to identify the optimum long term public transport solution to connect Dublin City Centre, Dublin Airport and Swords. As part of the Draft Transport Strategy 2016-2035 for the Greater Dublin Area the NTA has determined that a revised Metro North will be progressed.

4.4.11 Fingal Tourism Strategy 2015-2018

The objective of the Draft Fingal Tourism Strategy 2015-2018 is to develop a comprehensive strategy for the development of tourism with support and buy-in of relevant public, private and community tourism stakeholders. The Draft Fingal Tourism Strategy 2015-2018 notes strategic objectives to improve the visitor experience at Newbridge Demesne. A €1.5m investment programme is underway at Newbridge Demesne to provide a new visitor reception area, an enlarged, upgraded coffee shop and an educational facility to cater for school tours. The Strategy also contains strategic objectives relating to the completion of the Fingal Coastal Way and the Broadmeadow Way linking Malahide to Donabate.

4.4.12 Donabate Urban Centre Strategy 2010

The UCS sets out a development strategy for Donabate town centre, which examines its future potential and identifies development opportunities required to support the population growth envisaged for the town centre and its catchment. Key sites are identified and the strategy examines their future development potential and provides guidance on their future layout and design. Whilst the town centre is not technically included within the identified LAP zoned lands, the UCS addresses a number of issues which are of importance to the town centre and wider Donabate area, including recommendations relating to traffic management and car parking in the area, pedestrian and cycling activities, environmental improvements to the urban realm, etc.

4.4.13 Donabate Local Area Plan 2006 and Donabate Strategic Environmental Assessment

The Donabate LAP 2006 set out the optimal development strategy for the planning and sustainable development of the residentially zoned lands at Corballis, Ballymastone, Turvey and Rahillion to accommodate approximately 5,000 no. units. The proposed density of development was consistent with the housing boom which was ongoing at this time and a phasing plan for development was envisaged. The exact alignment of the proposed Distributor Road was unconfirmed when the 2006 LAP was adopted and the construction of the Donabate-Portrane Wastewater Treatment Plant had not commenced.

As outlined in Chapter 1 of the LAP – 'Introduction', there are a number of key changes in this updated LAP including a reduction in the number of potential housing units, the granting of planning permission for the new Donabate Distributor Road and the construction of the Donabate-Portrane Wastewater Treatment Plant. The Donabate LAP 2006 laid the foundations for this updated LAP and many of the key issues identified in the 2006 Plan are still relevant today. The SEA forms the basis and provided a lot of baseline information for the Donabate SEA 2016-2022.

4.4.14 Historical Landscape Characterisation Study – Donabate / Portrane, 2007

This project produced a distinctive and historic dimension of the Donabate-Portrane peninsula (semi-rural and coastal) using GIS to define the historical elements within the present landscape and the human processes that have formed it. This study provides information on the landscape character of the Donabate LAP area and informs land use planning and the ongoing conservation of RMP and RPS databases.

4.4.15 St Ita's Portrane Feasibility Study (Nov 2013)

A feasibility study for the long term future of St Ita's Demesne was completed jointly by Fingal County Council and the HSE in 2013. This study identified the St Ita's Hospital complex and Demesne as a suitable location for the development of new modern psychiatric health care and ancillary facilities (to include the provision of a National Forensic Mental Health Service Hospital). It also prioritised the re-use of the existing hospital buildings [including Protected Structures] together with their maintenance and management into the future; the ongoing maintenance and management of existing trees and woodland and the maintenance and provision for an appropriate level of public accessibility through the site.

It is an objective of *St Ita's Feasibility Study* to maintain pedestrian access from the LAP lands through the Demesne. Fingal County Council wish to maintain this established amenity link, to preserve the connectivity for pedestrians traversing the Demesne lands for recreational purposes. Walkways through St Ita's Demesne are proposed as part of the green infrastructure strategy, with more details given in Chapter 3 'Movement and Transport Strategy'.

As part of the Woodland Management Strategy at St Ita's and in the wider Peninsula area, way-finding and signage will be given due consideration and the prioritisation of specific works will be set out in any development applications at St Ita's and on the LAP lands.

4.4.16 Draft Newbridge House and Demesne Conservation Management Plan (May 2015)

This document devises an Action Plan for Newbridge Demesne and makes recommendations for improvements in this area. A Conservation Plan is seen as the first step in preparing management proposals, planning major repairs or restoration schemes and new developments and managing a programme of regular maintenance and day to day operations.

Fingal County Council recognise that Newbridge needs significant investment if it is to fulfil its potential as a community resource and at the same time protect the significance of the heritage of the site. The Conservation Plan has been taken into account in the preparation of the Donabate LAP. Any proposed walking and cycling routes illustrated in the LAP have been carefully considered in the context of this Conservation Plan.

4.5 Environmental Legislation and Plans

4.5.1 Water Framework Directive (2000/60/EC) as amended

The Water Framework Directive (WFD) (2000/60/EC) seeks to improve or maintain the ecological and physico-chemical quality of all waterbodies – rivers, lochs, groundwater, transitional waters (estuaries) and coastal waters. When fully operational, the WFD will achieve the level of protection afforded by a number of existing directives, including the Shellfish Waters Directive (and Freshwater Fish Directive), which is scheduled to be repealed in 2013. These objectives will be achieved through the operation of River Basin Management Plans (RBMPs), which

incorporate the improvement actions specified within the Shellfish Water PRPs. Its ultimate objective is to achieve “good ecological and chemical status” for all Community waters by 2015.

4.5.2 Floods Directive (2007/60/EC)

Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007. The Directive aims to establish a common framework for assessing and reducing the risk that floods within the European Union pose to human health, the environment, property and economic activity. This Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. This includes the preparation and implementation of flood risk management plans for each river basin district. This Directive also reinforces the rights of the public to access this information and to have a say in the planning process.

4.5.3 EC Freshwater Fish Directive, (78/659/EEC) 1978

The aim of the EU Freshwater Fish Directive (78/659/EEC) is to protect fish life from pollution discharge into waters and lays out water sampling and monitoring procedures and definitions. The Directive was ratified by Ireland by S.I. No. 293 of 1988, and aims to protect those fresh waterbodies identified by Member States as waters suitable for sustaining fish populations. The Directive is due to be repealed in 2013 by the EU Water Framework Directive.

4.5.4 The Groundwater Directive, (2006/118/EC) 2006

This directive establishes a regime which sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater. The directive establishes quality criteria that takes account local characteristics and allows for further improvements to be made based on monitoring data and new scientific knowledge. The directive thus represents a proportionate and scientifically sound response to the requirements of the Water Framework Directive (WFD) as it relates to assessments on chemical status of groundwater and the identification and reversal of significant and sustained upward trends in pollutant concentrations. Member States will have to establish the standards at the most appropriate level and take into account local or regional conditions.

The groundwater directive complements the Water Framework Directive. It requires:

- groundwater quality standards to be established by the end of 2008;
- pollution trend studies to be carried out by using existing data and data which is mandatory by the Water Framework Directive (referred to as "baseline level" data obtained in 2007-2008);
- pollution trends to be reversed so that environmental objectives are achieved by 2015 by using the measures set out in the WFD;
- measures to prevent or limit inputs of pollutants into groundwater to be operational so that WFD environmental objectives can be achieved by 2015;
- reviews of technical provisions of the directive to be carried out in 2013 and every six years thereafter;
- compliance with good chemical status criteria (based on EU standards of nitrates and pesticides and on threshold values established by Member States).

A public consultation on the review of Annexes I and II of the Groundwater Directive was carried out in 2013 with the aim of collecting opinions on different policy options for the review of the Annexes, and to identify missing options and gather data on impacts.

4.5.5 EC Bathing Water Quality Directive, (2006/7/EC) 2006

This Directive strengthens the rules guaranteeing bathing water quality. It supplements Directive 2000/60/EC on water protection and management.

Each year, the Member States are required to identify the bathing waters in their territory and define the length of the bathing season.

They shall establish monitoring at the location most used by bathers or where the risk of pollution is greatest. Monitoring shall take place by means of sampling:

- four samples, including one before the start of the bathing season.
- three samples only if the season does not exceed eight weeks or if the region is subject to special geographical constraints.

Member States shall communicate the results of their monitoring to the European Commission with a description of the water quality management measures. Monitoring may be suspended exceptionally once the Commission has been informed.

4.5.6 Shellfish Directive, (2006/113/EC), 2006

The Directive concerns the quality of shellfish waters, i.e. the waters suitable for the development of shellfish (bivalve and gastropod molluscs).

It applies to those coastal and brackish waters which need protection or improvement in order to allow shellfish to develop and to contribute to the high quality of shellfish products intended for human consumption.

The Directive establishes parameters applicable to designated shellfish waters, indicative values, mandatory values, reference methods of analysis and the minimum frequency for taking samples and measures.

The parameters applicable to shellfish waters are set for pH, temperature, coloration, suspended solids, salinity, dissolved oxygen and the presence or concentration of certain substances (hydrocarbons, metals, organohalogenated substances).

Responsibility for the Shellfish Waters Directive in Ireland transferred from the Department of Agriculture, Fisheries and Food to the Department of the Environment, Community and Local Government on 5 November 2008.

4.5.7 EU Directive on the Conservation of Wild Birds, (2009/147/EC) 1979

This Directive ensures far-reaching protection for all of Europe's wild birds, identifying 194 species and sub-species among them as particularly threatened and in need of special conservation measures. There are a number of components to this scheme:

Member States are required to designate Special Protection Areas (SPAs) for 194 particularly threatened species and all migratory bird species. SPAs are scientifically identified areas critical for the survival of the targeted species, such as wetlands. They are part of the Natura 2000 ecological network set up under the Habitats Directive 92/43/EEC.

A second component bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds (with a few exceptions).

A third component establishes rules that limit the number of bird species that can be hunted and the periods during which they can be hunted. It also defines hunting methods which are permitted (e.g. non-selective hunting is banned).

4.5.8 EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, (92/43/EEC), 1992

In conjunction with the Birds Directive, the Habitats Directive forms the backbone of EU nature protection legislation.

Known as the Habitats Directive (92/43/EEC) this legislation was transposed into Irish law by the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997). The main goal of the Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain, protect or restore natural habitats, animal and plant species to a favourable conservation status, introducing robust protection for those habitats and species of European importance. For Ireland, these habitats include raised bogs, active blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. The Directive provides for a network of protected sites known as The Natura 2000 network, which limits the extent and nature of development which may have a detrimental effect on the flora or fauna identified therein. Special Areas of Conservation (SACs) are part of the Natura 2000 Network and as such Ireland is required to propose relevant areas for designation as SACs to ensure the natural habitats and species habitats are maintained and restored if necessary to a favourable conservation status. Animals and plant species that are in need of strict protection are listed in Annexes to the Directive. The Habitats Directive is considered the most important EU initiative to support National and International biodiversity.

4.5.9 European Communities (Birds and Natural Habitats) Regulations 2011

These regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgements.

Articles 6(1) and (2) of the Regulations require Member States to take appropriate conservation measures to maintain and restore habitats and species, for which a site has been designated, to a favourable conservation status. Furthermore the Regulations require Member States to avoid damaging activities that could significantly disturb these species or deteriorate the habitats of the protected species or habitat types. Under these regulations any plan or project likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, shall undergo an Appropriate Assessment to determine its implications for the site.

The competent authorities can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site concerned. In exceptional circumstances, a plan or project may still be allowed to go ahead, in spite of a negative assessment, provided there are no alternative solutions and the plan or project is considered to be of overriding public interest. In such cases the Member State must take appropriate compensatory measures to ensure that the overall coherence of the Natura 2000 Network is protected. Article 12 of the Regulations is also important as it affords protection to specific species regardless of their location.

4.5.10 SEA Directive - Assessment of the effects of certain plans and programmes on the Environment, (2001/42/EC) 2001

This Directive requires plan-makers to carry out an assessment of the likely significant environmental effects of implementing a plan or programme before the plan or programme is adopted. There are two statutory instruments which transposed the SEA Directive into Irish Law:

The SEA Directive (2001/42/EEC) came into force in 2004 and was subsequently transposed into Irish law through S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 and S.I. No. 201 of 2011 Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 respectively.

4.5.11 Environmental Impact Assessment Directive (85/337/EEC) (97/11/EC), 1985

The EIA Directive (85/337/EEC) came into force in 1985 and applies to a wide range of defined public and private projects, which are defined in Annexes I and II of the Directive. The Directive has been amended three times, in 1997, 2003 and 2009. Under the Directive Member States are required to carry out Environmental Impact Assessments (EIA) of certain public and private projects, before they are authorised, where it is believed that the projects are likely to have a significant impact on the environment.

The initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011.

4.5.12 Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities (2009)

Formulated to assist with compliance with Article 6 of the Habitats Directive Article 6(3) states that:

Any plan or project not directly connected with or necessary to the management of a Natura 2000 site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

Appropriate Assessment is a focused and detailed impact assessment of the implications of the plan or project, alone and in combination with other plans and projects, on the integrity of a Natura 2000 site in view of its conservation objectives.

4.5.13 Wildlife Acts 1976 to 2012

The Wildlife Act is Ireland's primary national legislation for the protection of wildlife. It covers a broad range of issues, from the designation of nature reserves, the protection of species, regulation of hunting and controls in wildlife trading. It is implemented by a series of regulations. The Act provides strict protection for nearly all birds, 22 other animal species, and 86 plant species. These species are protected from injury, or from disturbance / damage to their breeding or resting place wherever these occur.

The main objectives of the Wildlife Acts are to:

- provide a mechanism to give statutory protection to NHAs;
- provide for statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs;
- improve some existing measures, and introduce new ones, to enhance the conservation of wildlife species and their habitats;

- enhance a number of existing controls in respect of hunting, which are designed to serve the interests of wildlife conservation;
 - broaden the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act;
 - introduce new provisions to enable regulation of the business of commercial shoot operators;
 - ensure or strengthen compliance with international agreements and, in particular, enable Ireland to ratify the Convention on International Trade in Endangered Species (CITES) and the African-Eurasian Migratory Waterbirds Agreement (AEWA).
 - increase substantially the level of fines for contravention of the Wildlife Acts and to allow for the imposition of prison sentences;
 - provide mechanisms to allow the Minister to act independently of forestry legislation, for example, in relation to the acquisition of land by agreement;
 - strengthen the provisions relating to the cutting of hedgerows during the critical bird-nesting period and include a requirement that hedgerows may only be cut during that period by public bodies, including local authorities, for reasons of public health or safety;
 - strengthen the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites;
- and give specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

5.0 Environmental Baseline of the Plan Area

5.1 Introduction

The purpose of this section of the Environmental Report is to describe the relevant aspects of the current state of the environment within the Plan area. This baseline information outlines the environmental context within which the Donabate Local Area Plan 2016-2022 will be implemented.

The aim of this chapter is therefore to identify the following parameters;

- The key environmental baseline resources and sensitivities;
- The key environmental threats and trends; and
- The likely evolution of the environment in the absence of the Local Area Plan.

The baseline data allows for the “State” of the environment to be identified in objective terms. Where possible and where data exists, a quantitative measurement of the environmental conditions is provided, however where such information is absent, qualitative descriptions of environmental themes are provided instead. Where important information deficits are noted, recommendations are provided in the mitigation measures section to ensure that any absence of critical information will be addressed as part of the ongoing monitoring and review of the Local Area Plan.

The headings provided are in accordance with the legislative requirements of the SEA Directive. An emphasis is placed on the strategic elements of each aspect and where potentially relevant to Plan policy.

The topics addressed are:

- Population and Human Health
- Noise
- Biodiversity, Flora & Fauna
- Soil & Geology
- Water
- Air Quality and Climate Change
- Material Assets
- Cultural Heritage
- Landscape

** Human health is not considered directly in this report, but is instead dealt with through consideration of other environmental issues such as air quality, water quality etc.*

5.2 Technical Difficulties Encountered and Information Gaps

A sizeable volume of information was compiled and collated in relation to the environment of the plan area during the preparation of this SEA. Recent National and County level studies on various aspects of the environment (water, cultural heritage etc) have resulted in a significant amount of data becoming available. However gaps do remain in information available, for instance in relation to complete ecological coverage, e.g. habitats, trees, hedgerows etc.

5.3 Study Area Overview

The Fingal County Development Plan (CDP) 2011–2017 sets out the overall strategy for the proper planning and sustainable development of the county over a six year period. The plan has a critical role to play in ensuring that the needs of future population growth are planned for. The CDP settlement strategy has been informed by the Regional Planning Guidelines (RPGs) and the environmental sensitivities of the county. It is based on building strong urban centres while protecting the rural hinterlands. The plan also emphasises the need to protect the built heritage, unique landscape, natural heritage and biodiversity of the county for their intrinsic value and as a resource for the tourist economy of the future.

The town of Donabate is located on the Donabate Peninsula approximately 25 kilometres north of Dublin City Centre, situated near the eastern seaboard in Fingal County Council. Donabate is close to a number of nationally important transport links including the M1 Dublin-Belfast, the Dublin-Belfast Railway Line, Dublin Port and Dublin Airport.

The Donabate peninsula characterised by its beach, a number of golf courses and two demesnes. It is bound on the north and south by the Rogerstown and Malahide Estuaries which form part of the Natura 2000 network and is an important natural areas. The Newbridge Demesne to the west of Donabate Town is a public park and the Portrane Demesne located to the east of Donabate is characterised by extensive woodland and the St. Ita’s Hospital Buildings.

Donabate Village is surrounded by agricultural, residential and recreational use and the town is well connected by road and public transport. Lands surrounding Donabate Village are zoned Greenbelt, High Amenity and Open Space.

The main areas of existing residential development in Donabate are concentrated to the north, west and east of the Village and the town has a population of approximately 6,779 (Census 2011). Donabate is categorised as a ‘Moderate Sustainable Growth Town’ is outlined in the Core Strategy of the Fingal Development Plan.

5.4 Population, Human Health and Quality Of Life

5.4.1 Introduction

This section discusses the impact of the Local Area Plan on the population of the plan area. An overview of the current and estimated future population and the issues affecting quality of life are discussed. Human health data for the area is not readily available. However, impacts on human health and quality of life may be derived from the environmental parameters discussed throughout this Chapter. Ultimately, all of the effects of a development on the environment impact upon human beings and their quality of life. Direct effects relate to matters such as water and air quality, noise, and landscape change. Indirect effects relate to such matters as flora and fauna. Accordingly, the topic of human beings and their quality of life is addressed by means of an appraisal of the indirect effects, etc. of the Local Area Plan on the other environment parameters, of which human beings and their quality of life are an

integral part. Where appropriate, mitigation measures to reduce/avoid adverse impacts are identified and incorporated into this Report and the Plan under the other environmental parameters.

5.4.2 Population Trends

Donabate is designated as a ‘Moderate Sustainable Growth Town’ in both the Regional Planning Guidelines for the Greater Dublin Area 2010-2022 (RPG’s) and the Fingal Development Plan 2011-2017. The Village is located on the edge of metropolitan area district service centres, high quality linkages and increased densities at nodes on public transport corridors

Three major trends determine population change, namely; the number of births, the number of deaths and migration to and from a location. The 2011 Census results recorded a population of 6,778 in Donabate. This constitutes an increase of 23.26% since the previous census in 2006. This compares to the 8.2% increase experienced across the entire County. Table 8 below shows the actual and percentage population growth within the Plan area relative to the County, Province and State.

	Population 2006	Population 2011	Actual Population Change	% Pop Change
State	4239848	4588252	348404	8.2
Leinster	2295123	2504814	209691	9.1
Fingal	162831	184135	21304	13.1
Donabate Plan Area	5,499	6,778	1279	23.26

Table 8: Actual and Percentage Population Growth 2006-2011

5.4.3 Household Sizes

The national trend is one of falling household size from an average of 3.14 persons per household in 1996 to 2.7 in 2011 (Census 2011). Fingal has recorded a slightly higher average of 3 persons per household in 2011 which constitutes the highest average of the counties in the Greater Dublin Area. This suggests family units and demonstrates the County’s desirability to this group both as an attractive place to live but also due in part to its relative affordability and proximity to Dublin.

5.4.4 Settlement Strategy

Reflecting the development themes of the Fingal CDP 2011-2017, the purpose of a Core Strategy is to provide a medium to longer term quantitatively based strategy for the spatial development of the towns and villages within the County. With regard to Donabate, the strategy outlined in the FDP 2011-2017 provides that this Town is a Moderate sustainable Growth town within the metropolitan area. The overarching goal of the Core Strategy is to protect and enhance the natural amenities and heritage of the peninsula by consolidating future development within well-defined town boundaries. This entails the promotion of development of a vibrant town core by providing a high quality living environment for the existing and future population and providing for the development of the necessary community, commercial, cultural and social facilities in tandem with new residential development.

The strategy for the future development of Donabate focuses on the principles established in the Core Strategy as contained in the FDP 2011-2017.

5.4.5 Commuting Patterns and Transport Network

A persons’ journey to their place of work or school is a factor in determining their quality of life. The village is served by Dublin Bus (routes 33B & 33D) which operate half hourly services from Portrane via Donabate, through Swords and north Dublin suburbs to Dublin city centre.

Donabate has a centrally located train station in the village which is within walking of all LAP lands. This is a critical element in contributing to sustainable development. There are a number of daily train services to/from Donabate and the City Centre and also regular services to Dundalk (northbound) and Pearse Street (southbound). There are trains approximately every 20 mins on the Bray to Drogheda / Dundalk route, with stops at Donabate.

The DART extension north of Malahide remains a key part of the NTA’s Integrated Implementation Plan 2013-2018. One of the key deficiencies with the current DART network is its need to share track space with other longer distance services, which require large time intervals between DART services, particularly in the peak hours.

The towns of Portrane and Donabate are connected to the R132 (old N1) and the M1 Dublin-Belfast motorway via the R126 Hearse Road and a local road named Turvey Avenue. The Hearse Road connects to the R132 and the M1 at the Lissenhall interchange, a grade separated junction. Turvey Avenue connects to the R132 approximately 2km north of Lissenhall interchange in the townland of Turvey.

Direct high quality pedestrian/cycle routes to and from the station will play an important role in encouraging residents within the adjoining plan lands to use this high quality public transport service.

5.4.6 Radon

Radon is a radioactive gas which is naturally produced in the ground from the uranium present in small quantities in all rocks and soils. Tiny radioactive particles are produced by the gas which when inhaled can cause lung cancer. The risk of contracting lung cancer as a result of Radon depends on how much Radon a person has been exposed to over a period of time. Radon levels in the County have been collated from the Radiological Protection Institute of Ireland. The plan area is in lowest risk area in regards to Radon however a high radon level can be found in any home in any part of the country.

5.4.7 Noise

Environmental noise is described as unwanted or harmful outdoor sound created by human activities, including road, rail, air traffic and industry. EC Directive 2002/49/EC deals with the regulation of environmental noise. It does not apply to domestic noise. The directive is implemented in Ireland by the Environmental Noise Regulations 2006 (SI 140/2006).

The Regulations allow for action to be taken by each member state, with a view to preventing and reducing environmental noise, particularly where exposure levels can induce harmful effects on human health and to preserving environmental acoustic quality where it is good.

The Regulations have designated the relevant local authorities as the bodies charged with development and making of Noise Action Plans. There is no noise mapping available for the plan area.

However it can be reasonably assumed that the noise environment in the plan area varies by location and proximity to the town and village centre and main roads. Noise which would be influenced by local noise sources such as building services equipment, serving shops and restaurants, traffic in rural areas where the noise environment would be influenced by community noise sources such as local traffic, agricultural activity etc.

5.5 Biodiversity

5.5.1 Introduction

The natural heritage of the plan area is an important asset and a unique resource. The habitats distributed throughout the area are focused around the Rogerstown Estuary and Malahide Estuary and along the short coastline which supports a wide range of rare or threatened flora and fauna species. Protecting and conserving these habitats is critically important, not just to the residents of the plan area and the county but also in a national and international context.

Also referred to as flora and fauna; biodiversity has been defined by the Convention of Biological Diversity as:

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

Biodiversity supports life on earth; it is a crucial part of all our lives and its economic value is being increasingly recognised. Not only does it underpin important economic sectors such as tourism and agriculture but it provides many other benefits which can be grouped into four main categories:

- **Provisioning services** (production of food and water, etc.)
- **Regulating services** (e.g. the control of climate and disease)
- **Supporting services** (e.g. nutrient cycling and crop pollination)
- **Cultural services** (such as spiritual and recreational benefits)

The importance of protecting our natural heritage has been recognised at an international level and takes into account that the condition of biodiversity within any particular nation cannot be seen in isolation. Changes to biodiversity in one country can have international transboundary implications. (For instance deforestation in one country can lead to flooding in another or loss of habitats for migratory birds).

5.5.2 Designated Habitats

The EU has provided a basis for the legal protection of certain important ecological sites throughout Europe. Natura 2000 was established under the 1992 E.C Habitats Directive and is an EU wide network of protected areas. It provides for the designation and protection of sites that support annexed habitats and species by requiring, among other things, their favourable conservation status to be maintained or restored. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. The Natura 2000 network is comprised of two main designations:

- **Special Areas of Conservation (SAC);** designated by Member States under the Habitats Directive, these sites are established for the protection and conservation of habitats and species listed in Annex I (habitats) and Annex II (species – not birds) of the EU Habitats Directive.
- **Special Protection Areas (SPA);** established under the 1979 Birds Directive these sites are designated for the protection and conservation of Annex 1 (rare and threatened bird species) and regularly occurring migratory species, and for bird habitats.

In addition to SPA and SAC designations Irish legislation contains a further designation for areas that are considered important for their habitats or which hold species of plants and animals whose habitats needs protection – these

areas are known as NHAs (Natural Heritage Areas) and are designated under the Wildlife (Amendment) Act, 2000. NHAs are also designated to conserve and protect nationally important landforms, geological or geomorphological features.

Depending on their quality and importance, sites may carry multiple designations such as SAC, SPA, NHA, Ramsar site, Statutory Nature Reserve or Refuge for Fauna. Planning Authorities are obliged by law to ensure that these sites are protected and conserved. The designated habitats within and adjacent to the plan area are shown in Map B, and listed in Table 9.

Designated Site	Site Code	Location	Approximate Distance from Plan Boundary	Reasons for Designation
Rogerstown Estuary SPA	004015	Adjacent to the plan area	Approximately 400m	Rogerstown Estuary is an important winter waterfowl site and supports a population of Pale-bellied Brent Goose of international importance. A further 14 species have populations of national importance and the site contains good examples of a number of estuarine and coastal habitats listed on Annex I of the E.U. Habitats Directive.
Rogerstown Estuary SAC	000208	Adjacent to the plan area	Approximately 400m	The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive – Estuaries, Tidal Mudflats and Sandflats Mud, Atlantic Salt Meadows, Mediterranean Salt Meadows, Marram Dunes (White Dunes), Fixed Dunes (Grey Dunes)* This site is a good example of an estuarine system, with all typical habitats represented, including several listed on Annex I of the E.U. Habitats Directive.. The presence within the site of three rare plant species adds to its importance.
Rogerstown Estuary pNHA		Adjacent to the plan area	Approximately 400m	
Malahide Estuary pNHA	000205	Adjacent and within the plan area	Approximately 400m	
Malahide Estuary SAC	000205	Adjacent to and within the plan area	Approximately 400m	The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive - [1140] Tidal Mudflats and Sandflats, Salicornia Mud, Spartina Swards, Atlantic Salt Meadows, Mediterranean Salt Meadows, Marram Dunes (White Dunes) Fixed Dunes

				(Grey Dunes)*. The estuary is an important wintering bird site and holds an internationally important population of Brent Goose and nationally important populations of a further 15 species.
Malahide Estuary SPA	004025	Adjacent to and within the plan area the plan area	Approximately 400m	The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Light-bellied Brent Goose, Shelduck, Pintail, Goldeneye, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Table 9: Areas Protected under EU and National Legislation

Additional European and non-European sites which fall within 15km of the plan boundary are listed in Table 10 below.

Candidate Special Areas of Conservation	Special Protection Areas	Proposed Natural Heritage Areas	Natural Heritage Areas
Rogerstown Estuary SAC	Rogerstown Estuary SPA	Rogerstown Estuary pNHA	
Malahide Estuary SAC	Malahide Estuary SPA	Malahide Estuary pNHA	
Rockabill to Dalkey Island SAC	Broadmeadow/Swords Estuary SPA	Feltrim Hill pNHA	
Lambay Island SAC	Baldoyle Bay	Sluice River Marsh	
Balydoyle Bay	Irelands Eye	Baldoyle Bay	
Howth Head	North Bull Island	Santry Demesne	
Irelands Eye		Knock Lake	
North Dublin Bay		Bog of the Ring	
		Howth Head	
		Irelands Eye	
		North Dublin Bay	

Table 10: Additional Areas Protected under EU and National Legislation

The qualifying features for the designated sites have been obtained through a review of the Conservation Objectives available from the National Parks and Wildlife Service (NPWS). The importance of these sites is recognised in the existing plan and they will continue to be afforded protection through enforcement of current legislation and through the support of the Local Authority working in conjunction with other state/non-state organisations.

The protection of the integrity of Natura 2000 sites has been further legislated for under Article 6(3) of the Habitats Directive. Under this legislation any plan or project not directly connected with or necessary to the management of a Natura 2000 site but that is likely to have a significant effect on such a site, either individually or in combination with other plans or projects, shall be subject to an Appropriate Assessment of its implications for the site in view of the site's conservation objectives.

For a proposed plan or project to be approved its Appropriate Assessment must establish beyond reasonable scientific doubt that it will not have an impact on a Natura 2000 site.

5.5.3 Other Habitats

In addition to the areas protected by legislation many other important habitat types exist within the plan area and these sites play a significant role in the natural environment.

The main terrestrial habitat types encountered in the LAP area include hedgerows, wet grassland, arable crops, improved agricultural grassland and depositing/lowland rivers.

The majority of the proposed Donabate Distributor Road passes through habitats that have been much altered by human activities such as improved agricultural grassland and arable crops. These types of habitats have little or no ecological value. The hedgerow and wet grassland habitats contain a greater diversity of tree and plant species and provide a locally important feeding and roosting habitat for a variety of species of birds and bats. These habitats are of moderate ecological value

These habitats have an important function in providing shelter and refuge to a host of animal and plant species alike. There is a wide range and type of species that are supported by these habitats in the Plan area.

5.5.4.1 Existing Environmental Issues

Biodiversity has become an integral part of the conservation of our wild areas. Ireland is one of 193 countries which are party to the Convention on Biological Diversity along with the other EU Member States and the EU itself. In its recent assessment, the Commission states that Europe is seeing the constant loss, degradation and fragmentation of natural habitats and entire ecosystems are also being pushed to the point of collapse.

Nationally, although significant progress has been made in the past decade, biodiversity loss has not been halted in Ireland. The status of many of our habitats and some of our species is judged to be poor or bad (Ireland's Second National Biodiversity Plan).

There are five main pressures causing biodiversity loss:

- habitat change
- overexploitation
- pollution
- invasive alien species
- climate change

The primary mechanism for conserving, protecting and enhancing biodiversity in Ireland is through the Actions for Biodiversity 2011-2016, Ireland's Second National Biodiversity Plan¹, of which a key concept is that local authorities (and other agencies) share responsibility for the conservation and sustainable use of biodiversity.

The Plan states that the principal target is: *"That biodiversity loss and degradation of ecosystems are reduced by 2016 and progress is made towards substantial recovery by 2020."*

It is European and national policy to protect designated areas from development thus ensuring their long term protection. Therefore restrictions must be provided within the plan and indeed close to such areas where such development is incompatible with the site's long term protection. The National Parks and Wildlife Service is preparing management plans for the nations natural assets which is likely to take some time to complete but will become a valuable tool in assessing the issues relevant to each site. The management plans will also provide mechanisms for their effective protection. Designated areas will form the basis of controlled development within the plan area and restrictions imposed on further development, which may adversely impact on the overall integrity of the protected area.

As stated previously, under the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), an Appropriate Assessment is required for all plans or projects which may impact on sites designated as either Special Areas of Conservation or Special Protection Areas. The Local Authority will be obliged to seek such an assessment where the need arises.

Most relevant to the plan area is tourism and recreation pressures along the coast, which are highly sensitive and could lead to the significant loss of protected habitats. A fundamental challenge in the preparation of the Donabate LAP is how to achieve a balance between the need to develop a new high quality urban residential environment, whilst also protecting and enhancing the existing biodiversity features of the plan lands and wider Peninsula area, and maintaining the integrity of the Estuaries, Beaches, Nature Reserve and Newbridge Demesne.

The Natura Impact Report prepared separately identifies of the types of threats to the integrity of the European sites. These can then be related to the consequences of implementing the Local Area Plan to see if there is any risk of likely significant effects.

The following generic potential threats were identified:

Urban, Economic and Infrastructural Development

- Golf Courses;
- Roads, motorways;
- Coastal protection works;
- Sewage outflows;
- Housing developments;
- Communications Networks;
- Quarries;
- Canalisation;
- Landfill land reclamation;
- Disposal of household waste;
- River Channel Maintenance, and;
- Invasive Alien Species.

Recreation and Leisure

- Walking, horse riding and non-motorised vehicles;
- Offshore motorised vehicles;
- Bait Digging, and;
- New Paths and Tracks.

In order to protect the rich diversity of birds using the coastal habitats it is important that the different habitats used for breeding, feeding and roosting be protected in and outside the designated areas (SACs, SPAs and NHAs). The most important threat to the summer breeding, migratory and wintering birds is disturbance by recreational activities such as walking.

¹ Actions for Biodiversity 2011-2016, Ireland's Second National Biodiversity Plan

5.6 Soil and Geology

5.6.4 Introduction

The upper most layer of the earth's surface is generally termed "Soil". It comprises for the most part organic matter, minerals and fine to coarse grained weathered rocks. The variability in the constituent parts and the percentage content of each in the soil matrix results in differing characteristics. This has implications for suitable land use and the appropriateness for differing land use practices.

Geology encompasses the understanding and study of the solid and liquid matter that constitutes the earth and the processes by which they are formed, moved and changed. Its understanding is necessary to fully appreciate the geological factors that shape and influence the world and its particular structure.

5.6.5 Soils

Soil can be defined as the top layer of the earth's surface. It consists of fine to coarse grained rock and mineral particles, organic matter (the remains of plants and animals) and the living organisms that reside in the soil.

The Plan area has a varied soil profile, see Map C. The soil in Donabate generally consists of Limestone Till and Gleys with some Aluvium in the flood plain of the Turvey River overlying Red coarse Sandstone and Conglomerate to the south and Argillaceous bioclastic limestone and shale to the north and west of the town. Results from trial pits in the town centre obtained from GSI records show that the depth to bedrock is greater than 2.0m. Localised ground investigation will need to be undertaken to determine the depth to bedrock at each development area. The aquifer vulnerability is typically classed as Low in the area.

5.6.6 Geology

The local bedrock consists of three different formations: the Malahide Formation; the Donabate Formation; and the Portrane Volcanic Formation. The Malahide Formation consists of calcareous shales, siltstones and sandstones, and thin limestones. The Donabate Formation consists of red coarse lithic sandstone and quartz-pebble conglomerate. The Portrane Volcanic Formation consists of basalt to andesite sheets, tuffaceous sedimentary rocks, pebbly mudstone, limestone breccias and black shale. Map D shows the Geology of the plan area.

According to the GSI online map facility, the majority of the site is underlain by tills derived from limestones. Marine/estuarine silts and clays underlie that area surrounding Rogerstown Estuary. Previously carried out site investigation results indicate that subsoils consist of stiff to very stiff, brown, sandy/ gravely Clay.

5.6.7 Coastal Erosion

Coastal erosion is a natural process which results from the motions of the sea, the impacts of which are often seen on coastal and estuarine shores in the form of shifting sand and storm damage to public roads and footpaths. In some cases human activities interfere with the sea's natural motion causing the effects to change and to impact on different stretches of shore-line. In addition climate change will in the future lead to sea level change and a greater risk of both coastal flooding and erosion.

5.6.8 Existing Environmental Problems

The soil environment is a much overlooked aspect of the natural environment. However soils are an intrinsic part of the environment and perform a range of uses benefitting the wider environment. Soils have an economic value in terms of agricultural production, their type and quality dictating the type and intensity of production.

In addition soils also have an ecological value, their status being a critical factor in determining botanical diversity and ultimately the range of fauna which feed upon or live within those species of plant life.

Changes in soil result from both natural processes and human activities which contribute to their dynamic and evolving nature. Such changes are matters of concern if they result in the physical, biological or chemical degradation of soils. This can result in the impairment of ecologically-essential soil processes, the reduction in productive capacity, the depletion of soil quality and biodiversity and the direct loss of soil. Many of the changes arise as a result of pressures from human activities.

Urban environments have greatly changed in Ireland with the centres of population and towns being subjected to depopulation with growth focused on the periphery of these areas. With urban expansion, agricultural land surrounding towns and settlements as well as green areas within them are subjected to increasing pressures.

The type and depth of soil has direct implications on water movement which can lead to increased pollution threats if not properly considered.

5.7 Water

5.7.4 Introduction

For the purposes of this section of the Environmental Report, the water environment is taken to include natural features such as lakes, rivers, streams and groundwater. In addition flooding is also dealt with in this section. Wastewater treatment and drinking water may be referred to in this section, but are discussed in more detail under the Material Assets section.

Water is fundamental to all life; for humans, plants and animals alike. It is also critical in economic terms in generating and sustaining wealth in a number of key areas such as agriculture, fishing, power generation, industry transport and tourism. However it is also a fragile resource requiring continued protection. In general terms Ireland's waters are of good quality, however preserving the high standard of water is essential for human health and the natural environment.

Since 2000, Water Management in the EU has been directed by the Water Framework Directive (WFD) 2000/60/EC which was transposed into Irish law under the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003). This legislation requires governments to take a holistic approach to managing all their water resources based on natural geographic boundaries, i.e. the river catchment or basin. The WFD establishes a common framework for the sustainable and integrated management of all waters covering groundwater, inland surface waters, transitional waters and coastal waters.

For the purpose of implementing the WFD, Ireland has been divided into eight River Basin Districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine/ coastal areas. The management of water resources is divided into these River Basin Districts. The plan area is located in the Eastern River Basin District (ERBD).

A River Basin Management Plan (RBMP) for the Eastern River Basin District was prepared and adopted in 2010. The RBMP provides objectives for River Basin Districts in order to implement the requirements of the WFD. Donabate is included as one of nine River Water Management Units (RMU) located within Fingal, which sets out the water quality priorities for the plan area. All of the transitional waters (Estuaries) within Fingal are classified as being of 'moderate status' and the principal pressures identified are agriculture, wastewater and industrial discharges.

5.7.5 Surface Water

Donabate lies between the Rogerstown Estuary to the north and the Malahide Estuary to the south. The Peninsula is drained by a combination of watercourses and surface water drainage networks. The two surface water drainage networks from Donabate Village out falling directly to the Rogerstown and Malahide Estuaries.

The primary watercourse in Donabate is the Beaverstown Stream which flows from the centre of Donabate Village to Rogerstown Estuary, approximately 750m to the northwest. The catchment area of this stream is approximately 274 Ha with a main channel length of approximately 1.5km. The majority of the surface water drainage network serving Donabate outfalls to this stream and flows to a pumping station at the north-west corner of the village. Due to the low lying topography of the study area pumping of this watercourse is required to lift the gravity fed surface water to higher channels before draining to the Rogerstown Estuary. A pumping station is located on the Beaverstown Stream, immediately east of the railway.

The Turvey stream flows along the southern boundary of the study area before out falling to the Malahide Estuary. The catchment area of the river is approximately 13km² with a main channel length of approximately 9.6km (Catchment 2). The agricultural lands in the south-western section of the LAP study area drain to this river.

The Portrane Canal has a catchment area of approximately 70 Ha and drains mainly agricultural lands (Catchment 4). The canal has a main channel length of 890m and outfalls to the Rogerstown Estuary approximately 850m north east of Donabate Village.

At the eastern boundary of the study area, a network of open ditches flowing through Donabate and Balcarrick Golf Clubs are drained by the Ballalease Stream out falling to the Malahide Estuary (Catchment 1). GSI Subsoils mapping show a band of Alluvium through Corballis East which suggests that historically the stream extended west as far as Hearse Road.

There are two surface water drainage networks from Donabate Village out falling directly to the Rogerstown and Malahide Estuaries respectively. A 1350mm diameter pipe which conveys the surface water runoff from the north eastern section of Donabate Village outfalls to the Rogerstown Estuary approximately 650m north of Donabate.

A 450mm diameter pipe, draining The Strand on the southern boundary of the village outfalls to the Malahide Estuary approximately 935m to the south of the village.

New development has the potential to add to flood risk in an area if it increases surface water run-off. In keeping with the Greater Dublin Strategic Drainage Study (2005), Sustainable Drainage Systems (SuDS) techniques will be incorporated into the development of the LAP lands. SuDS offer a comprehensive design approach to the management of water on a site, to delay run-off and encourage filtration through the use of porous surfaces, detention ponds, green roofs, rainwater harvesting etc. in ways which enhance amenity and biodiversity and minimise pollution effects. Therefore, the use of SuDS provides benefits in what is described as the SuDS triangle; water quality, water quantity and amenity/biodiversity.

A SuDS Strategy for Donabate, prepared by Roughan O'Donovan Consulting Engineers on behalf of the Council, identifies various measures that may be employed throughout the development taking into account the existing surface water infrastructure in place across the site. These SuDS measures shall, where feasible, be incorporated into the development in line with appropriate sustainable drainage practices.

5.7.6 Groundwater

Groundwater is the water stored underground in formations of saturated rock, sand, gravel, and soil. Surface water and groundwater are intimately linked to each other within the hydrological cycle and is an important source of water for streams, rivers and lakes. Ground water resources are an invaluable source of water supply for the public, industry and agriculture and also perform an important role in sustaining base flows in the rivers within the plan area and their tributaries. In Ireland groundwater provides between 20% and 25% of drinking water supplies. Thus the protection of groundwater quality from the impact of human activities is a high priority; resources are susceptible to pollution with long term consequences both for humans and the natural environment.

The Geological Survey of Ireland (GSI) has completed ground water mapping for Fingal. Groundwater resources are assessed in terms of their vulnerability to pollution. The groundwater in the plan area is currently identified as being of Good Status, however, groundwater in this location is identified as having a mostly Moderate to Low Vulnerability with points of High to Extreme Vulnerability around the town centre. The objective is therefore to protect these resources from status deterioration.

As a result of the proposed development in the LAP, there will be a significant increase in the area of hardstanding, resulting in a loss of surface water infiltration to the underlying subsoil. Where possible, infiltration SuDS techniques will be implemented to minimise the effect of the development and replicate the natural hydrological process.

5.7.7 Aquifers

Aquifers are underground layers of rock which contain water and which are capable of yielding it to surface waters such as streams and rivers. The northern half of Donabate is underlain by Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones. The southern half is underlain by a Locally Important Aquifer – Bedrock which is Generally Moderately Productive. This suggests a reasonable depth to groundwater. This is expected based on the coastal location of the area. There are no GSI or EPA Source Protection Zones in the vicinity of the LAP area. GSI records show one well to the south west of the town. There are no details on the use or depth of the well.

5.7.8 Flooding and Flood Risk

The underlying causes of flooding, heavy rain and high sea levels are, essentially uncontrollable. However, factors affecting the extent and severity of the flood can be addressed. The most influential of these factors is development, in particular development in flood plains i.e. areas adjacent to rivers that tend to become flooded following periods of heavy rain.

Flood risk can be defined as the probability of flooding multiplied by the consequences of flooding. The FRA for the LAP contains Flood Zone Mapping for the plan area which highlights those parts of the area that are at a higher risk of flooding.

A Flood Risk Assessment (FRA) was undertaken as part of this LAP preparation. This assessment were prepared in accordance with requirements of the DoECLG and OPW Planning Guidelines, The Planning System and Flood Risk Management. Roughan O'Donovan, who were commissioned to carry out the FRA consulted with Fingal County Council Drainage Operations Department to discuss the areas within the LAP Study area where recurrent flooding occurs and remediation works undertaken. The primary area of flooding identified Beaverstown Road and the adjacent lands. Flooding was experienced on Beaverstown Road in October 2011 during a period of heavy rainfall and extended from Ballisk Common to the newly constructed astro-turf field in front of Colaiste Pobail Domhnach Beatach. However, no flooding to residential properties occurred.

Another area of flooding highlighted was on the road connecting Beverton Walk and Portrane Road. This is an underpass of the Dublin-Belfast railway line and flooding occurs during heavy rainfall at the sag point in the road. Other areas identified within the LAP study area that experience flooding are the New Road to the east of Donabate Village and Turvey Avenue to the west of the village. All of the above areas require further assessment prior to development.

The majority of the LAP area is within Flood Zone C where the probability of flooding from rivers and the sea is low, less than 1 in 1000 years, and therefore, most lands are appropriate for of development in the context of their flood risk.

In relation to fluvial flooding, the Assessment identified three sources, namely the Turvey River, the Beaverstown Stream and the Ballalease Stream. Recurrent flooding, within the catchment of the Beaverstown Stream, occurs on Beaverstown Road at the entrance to Ballisk Common. The drainage network in this area, including the Beaverstown Stream was modelled as part of this study. When the pumping station is operational, the stream has adequate hydraulic capacity to convey the 1% AEP (+20% for climate change) rainfall event within the channel.

Since the recurring minor flooding in this area is caused by blockages in the drainage network and as the October 2011 event described above was caused by a power failure of the pumping station, flooding in this area is better classified as pluvial rather than fluvial.

Flooding has also been noted near the LAP study area along the Ballalease Stream and the network of drainage ditches flowing from west to east through Balcarrick Golf Club. As no topographical survey of this watercourse has been provided by Fingal County Council, the fluvial flood extent and depths have not been established. Therefore, planning applications lodged on or adjacent to these lands should require a site specific flood risk assessment.

The Fingal East Meath Flood Risk Assessment and Management Study (FEM-FRAMS) tidal flood extent map indicates the southern section of the LAP study area, adjacent to the Turvey River, is within the tidal flood extent. The flooded areas are agricultural lands but are zoned as Residential Areas (RA) which seeks to “provide for new

residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the FDP.

Therefore, the FRA has concluded the following assessment on the Development Areas within Donabate:

- Rahillion is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies.
- Turvey is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies.
- Ballymastone is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies
- Corballis is impacted by potential fluvial and tidal flooding from the Turvey River and the Ballalease Stream at Balcarrick Golf Club. The area is zoned as RA “provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the current Fingal Development Plan. It is recommended that the zoning of lands subject to the 0.1% AEP fluvial or tidal flood extent (Flood Zone A or B) be reviewed in the preparation of the FDP 2017-2023 and the zoning changed to a more appropriate agricultural or amenity zoning in accordance with ‘The Guidelines’. Development in Corballis East adjacent to Balcarrick Golf Club and Flood Zone B should be constructed above the 0.1% Peak Tide Level of 4.43mOD.

5.7.9 Existing Environmental Issues

The principal threat to water is pollution which can adversely impact on all parts of the water cycle from groundwater to rivers, lakes estuaries and coastal waters. In simple terms pollution means the presence of a harmful substance such as a poisonous metal or pesticide, a nutrient or indeed silt.

Groundwater status within the Plan area is shown in Map X. It shows the status of the majority of the plan area as being ‘Good’ in 2010. However, there are areas of the plan where the groundwater resource is classified as being of low to high vulnerability. This presents significant challenges in terms of appropriate land use and the long term protection of vulnerable resources.

Groundwater flooding is caused by the emergence of water originating from the subsurface, and is particularly common in karst landscapes. This source of flooding can persist over a number of weeks and poses a significant but localised issue that has attracted an increasing amount of public concern in recent years. In most cases groundwater flooding cannot be easily managed or lasting solutions engineered.

There is an increased risk of flooding due to development, climate change and rainfall patterns. Development can exacerbate the problems of flooding by accelerating and increasing surface water runoff, altering watercourses and removing floodplain storage. It is now recognised that flood risk management must be treated as a central issue in the development of the area. Areas of floodplain and wetlands should therefore be recognised and preserved as natural defences against flood risk.

A Flood Risk Assessment (FRA) has been carried out as part of the preparation of the Local Area Plan. Where development is proposed within an area of potential flood risk, a flood risk assessment of appropriate scale will be required and this assessment must take into account climate change and associated impacts.

The Planning System and Flood Risk Management guidelines recommends that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. Climate change may result in increased flood extents and therefore caution should be taken when zoning lands in transitional areas.

5.8 Air and Climate

5.8.1 Air Quality

Air quality monitoring in Ireland is undertaken largely to implement EC Directives. In 2008 the EC Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the CAFE Directive) entered into force. This piece of legislation placed the previous air quality framework legislation into a single directive. It sets out air quality objectives and targets

The Environmental Protection Agency is involved in air quality monitoring and has installed a number of air quality monitoring stations throughout Ireland. The EPA Report *Air Quality in Ireland 2014* provides an overview of the air quality in the country for 2014 based on data obtained from the 28 monitoring stations. The Dublin Regional Air Quality Management Plan 2009 – 2012 also provides a plan for the preservation of the improvement of air quality in their functional area.

Ambient air quality monitoring is carried out in the Dublin Region by the four local authorities under the direction of the Environmental Protection Agency. This involves monitoring for a range of air pollutants specified under European Union rules to ensure that legal standards for air quality are met. For the purposes of air quality classification, the Dublin conurbation is designated as one Zone i.e. Zone A, which includes the Plan lands.

The overall air quality in Zone A is considered to be 'Good'. (Four bands are used in the Irish index – Good, Fair, Poor and Very Poor). The index is based on the latest available measurements of ozone, nitrogen dioxide, PM10 and sulphur dioxide in Zone A. Monitoring is done using continuous monitors for nitrogen oxides. The closest monitoring station located throughout Fingal is Swords. The current air quality status is 2-Good.

5.8.2 Climate Change

It is now largely recognised that tackling the issue of climate change must take centre stage on policy agendas around the world. The UN's Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (UNEP, IPCC, 2007), concluded that if left unchecked, the world's average temperature could rise by as much as 6°C by the end of the century, causing serious harm to economies, societies and ecosystems worldwide.

Climate Change is a phenomenon that has widespread economic, health and safety, food production, security, and other dimensions. It is also widely recognised that Climate Change is occurring as a result of the build up of atmospheric Greenhouse Gases (GHG's) such as carbon dioxide. Most GHG emissions are related to the energy generation, transport, agriculture, and industry sectors.

The National Climate Change Strategy 2007-2012 states that there is now scientific consensus that global warming is occurring as a result of manmade greenhouse gases. In order to avoid the devastating effects that climate

change is predicted to have, action must be taken to stabilise and reduce these harmful emissions.² The EPA states that global warming is the primary environmental challenge of this century.³ The actions in these documents are considered in the LAP.

5.8.3 Existing Environmental Issues

Air Quality

The most relevant aspects of the Plan for assessment in the context of air quality and climatic factors are Traffic Generation and Energy Use. Overall, road traffic has now become the greatest source of air pollution generally. In urban areas, concern has clearly shifted to a range of pollutants associated with this source which may be considered relatively new in the context of air quality control. The most important of these pollutants are NO₂, particulate matter less than 10 microns in diameter (PM₁₀), carbon monoxide (CO) and a wide variety of Volatile Organic Compounds (VOC), including carcinogens such as benzene.

Movement to and around Donabate is a key consideration. The LAP has adopted a sequential approach to development, whereby lands which are most accessible by public transport are prioritised for growth (i.e. proximate to the Donabate Railway Station). Efficient use of land by developing key areas that encourage sustainable movement patterns such as walking, cycling and public transport must be promoted to reduce traffic generation.

Climate Change

Land use changes can and will have far-reaching implications for climate change that could include changes to commuter patterns with the building of further housing developments and the resultant increase in GHGs, SO₂, NOx, VOC and other pollutant emissions.

5.9 Material Assets

5.9.1 Introduction

Material assets can be defined as the critical infrastructure essential for the functioning of society such as: electricity generation and distribution; water supply; wastewater treatment; and transportation. Whilst this infrastructure is essential its usage can lead both directly and indirectly to adverse environmental impacts. This section will discuss the following:

1. Transportation (road and rail)
2. Waste Management
3. Water Supplies
4. Wastewater Treatment Infrastructure
5. Energy

5.9.2 Transportation

² National Climate Change Strategy 2007-2012, Page 7

³ www.epa.ie

Transportation is an essential element to the functioning of the Irish economy and will continue to be promoted as a crucial component to the further sustainable development of the plan area. Nonetheless, the role of the Local Authority is somewhat limited with respect to the provision of transportation infrastructure. Transport Infrastructure Ireland (TII) is directly responsible for the national road network, Iarnród Éireann is directly responsible for the rail network and Bus Éireann and other private operators are responsible for public bus services. The Local Authority will continue to liaise with the relevant authorities in enhancing service provision to the inhabitants of the Plan area.

The National Transport Authority (NTA) is a statutory body formed in 2009 with responsibility for securing the provision of public passenger land transport services; it also has responsibility for the development of an integrated transport system within the Greater Dublin Area (GDA). The NTA has produced a draft Strategic Transport Plan for the GDA up to the period of 2035. The Strategy considers public transport accessibility as a key factor in influencing the scale, density and location of future development in the GDA and views Donabate as a suitable location for higher density, mixed used development, with an emphasis on residential development. The Draft Strategy outlines a number of land use planning recommendations which should be considered when preparing the LAP. The National Transport Authority (NTA) has advised that the Donabate LAP would be strengthened through the following principles which have informed the LAP:

- A sequential approach to development, whereby, lands which are most accessible by public transport are prioritised for growth (i.e. proximate to the Donabate Railway Station) taking into account existing and partially completed developments and extant planning permissions.
- A phasing of development to ensure that cycling and pedestrian infrastructure and public transport infrastructure/services are delivered simultaneously with the construction of new residential units, commercial development and community facilities.
- A strong focus on pedestrian and cycling movements for local trips.
- Local services are located and provided in a manner which ensures that access for the local community by walking and cycling is direct, safe and convenient.
- Severance within local catchments is avoided to the extent practicable.
- A mix of dwelling types be provided to facilitate and encourage mixed residential communities to establish.

The village of Donabate is served by Dublin Bus routes 33B & 33D which operate services from Portrane via Donabate, through Swords and north Dublin suburbs to Dublin city centre. Services generally operate every 30 minutes during peak periods and hourly off-peak.

Donabate also has a centrally located train station in the village which is within walking of all LAP lands and is critical in contributing to sustainable development. There are a number of daily train services to/from Donabate and the City Centre and also regular services to Dundalk (northbound) and Pearse Street (southbound). There are trains approximately every 20 mins on the Bray to Drogheda / Dundalk route, with stops at Donabate.

The Fingal Development Plan 2011-17 provides for a new road which follows an alignment from Hearse Road eastwards across the railway line, to the south east of the existing village before continuing northwards to join to the Portrane Road west of St. Ita's Demesne. This proposed road infrastructure forms an important alternative road crossing of the railway line and aims to serve the designated new development lands to the south and east of the existing settlement (Corballis and Ballymastone). This infrastructure is considered a vital component in the future development of Donabate and is necessary to facilitate significant new housing east of the railway line.

5.9.3 Waste Management

Fingal County Council promotes waste prevention and minimisation through the Development Plan having regard to 'The Waste Management Plan for the Dublin Region 2005-2010'. The Dublin Region continues to perform well in line with the targets and objectives of the Dublin Waste Management Plan. However, the region remains overly reliant on landfill with 57% of household waste and 49% of commercial waste sent for disposal. There is a definite need to develop recovery alternatives for residual waste (Waste Management Plan for the Dublin Region Annual Progress Report, April 2012).

The LAP will seek to implement the objectives of the Waste Management Plan through the development management process, in particular requiring the inclusion of recycling facilities within new developments.

Provision of well-designed and conveniently located bin storage and recycling facilities will be a requirement through the LAP. Apartment complexes and areas of terraced / duplex housing shall include designated communal bin storage, composting and recycling facilities, all of which shall be suitably screened.

Refuse storage, recycling and composting areas shall also be detailed and agreed at the design stage, with locations for such facilities clearly incorporated into new development layouts.

Developer(s) will be required to submit a *Construction and Demolition Waste Management Plan* setting out a planned programme for the management / recovery / disposal of construction / demolition waste material generated at the site during the excavation and construction phases of development, in accordance with the relevant national waste management legislation at planning application stage. This shall include provision for the management of all construction and demolition waste arising on site, and make provision for the re-use of said material and / or the recovery or disposal of this waste to authorised facilities by authorised collectors. Where appropriate, excavated material from development sites shall be re-used for landscaping, land restoration or for preparation for development on the planning application site.

5.9.4 Water Supply

The provision of safe potable water is a basic human necessity. Within Ireland, drinking water is supplied either by the Local Authority, a Group Water Scheme or by private borehole. Irish Water is now directly responsible for the improvement and maintenance of public water services in the County. The quality of both surface and groundwater reserves are an important element of the area's supply of water and it is critical that resources contributing to the water supply network remain free from contamination.

Supply and demand for high quality drinking water is finely balanced across the region and this will remain the case in the short to medium term pending the delivery of a number of projects to increase production, storage and delivery capacity. The '*Water Supply Project Eastern and Midlands Region*' is currently at the project planning stage with Irish Water and there is a need for a new water supply to service projected demand in Irish Water's Eastern and Midlands Region. The need for a water supply from a new source has therefore been established, with the aim to have a Phase 1 scheme in place by 2021 (Irish Water: A Working Paper on Options Appraisal).

Donabate / Portrane is currently served via a single 12" AC Main which was laid in the 1970's and runs along the Hearse Road. In order to improve the quality and security of the water supply, a second connection is required. The Donabate Augmentation Scheme provides for a 300mm Diameter watermain from the 21" AC trunk main along the R132 at Turvey Avenue to connect to the existing system adjoining the Railway Station at Turvey Avenue. This scheme has not been completed to date. Any water supply scheme required to meet the anticipated water requirements to serve this area will be subject to SEA and AA, as required.

5.9.5 Waste Water

The safe treatment and disposal of sewerage is fundamental to the sustainable development of our society. The treatment of waste water is either through wastewater treatment plants or individual septic tank units.

Phase 1 of the overall 'Portrane-Donabate Rush and Lusk (PRDL) Waste Water Treatment Scheme' has been completed and as part of this scheme, a new Portrane Wastewater Treatment Plant (WWTP) has been constructed immediately south of St Ita's Hospital. It has the provision to cater for 65,000 population equivalent. At present the loading is approximately 35,000pe. The Donabate LAP lands are included within the Portrane Wastewater Treatment Plant (WWTP) catchment. Wastewater generated from the development of the LAP lands will be directed into this new WWTP facility.

The provision of a new expanded foul sewer network and associated new foul pumping stations will be required for the LAP lands. New Pump Stations (PS) have been constructed in Donabate (Donabate PS) and on the R126 between Donabate and Portrane (Portrane PS). These pump stations are fully automated and are linked by telemetry to the operators of the WWTP.

Phase II of the PDRL Waste Water Treatment Scheme includes a proposal for the Ballalease PS to be constructed on Balcarrick Road adjacent to the proposed Relief Road crossing. The preliminary design also indicates that another pump station would be required south of the proposed Ballalease PS, provisionally called the Donabate South PS. No size has been given for this PS and it will be required to deliver the effluent from the zoned lands at Corballis East and West to the Ballalease PS. It is expected that the proposed pump stations will be constructed to the same high standard as the Donabate and Portrane pumping stations and will cater for storm flows in such a manner as to severely curtail any overflows.

All development shall be drained on completely separate systems, i.e. foul and surface water flows shall be directed to separate pipes. This reduces the possibility of flooding of the foul pipelines during times of extreme rainfall events as the foul network should only contain foul flows and not surface water. All surface water run-off must be attenuated to greenfield run-off rates and a Management Train approach to sustainable drainage systems utilised.

Although the development of the LAP lands will increase the potential impact of any overflow to the Estuary areas, the provision of the storage tanks will substantially reduce the likelihood of an overflow, thereby substantially reducing the risk of pollution. The provision of an overflow pipe is still required for those exceptional events where a combination of failures occur. The detailed design of new pumping stations and associated outfalls will be subject to planning approval, Appropriate Assessment and Foreshore License, where appropriate.

5.9.6 Energy

Electricity is provided in Ireland through a national grid system which is made up of a network of high voltage (110,000 volts, 220,000 volts and 400,000 volts) transmission stations, power lines and cables. The system includes approximately 6,000 km of overhead lines and underground cables and over 100 transmission stations. Power is generated by power plants throughout the country, utilising a variety of fuel or energy sources – including gas, oil, coal, peat, hydro-electricity, wind turbines and other sources including biomass and landfill gas.

Technologically advanced societies such as Ireland have become increasingly dependent on external energy sources for transportation, the production of many manufactured goods, and the delivery of energy services. As the problems of climate change and peak oil production become more prevalent, societies are increasingly turning

to renewable energy sources for power. To this end the Government have set a target for 40% of electricity consumed to be generated from renewables by the year 2020.

5.9.7 Existing Environmental Issues

Transport

One of the key deficiencies with the current DART network is its need to share track space with other longer distance services, which require large time intervals between DART services, particularly in the peak hours.

The GDA Draft Transport Strategy 2015-2035 notes that in order to achieve the full benefits of DART extension projects, additional tracks to separate Intercity, Regional and DART heavy rail services will be required on the northern and south-western corridor approaches to DART underground. This will facilitate faster and more frequent intercity, regional and DART services on this corridor. The provision of additional tracks between Connolly Station and Balbriggan would facilitate the required service segregation between DART and other services. In addition, it is intended that the electrification of the northern Line will be extended as far as Balbriggan (including Donabate), to enable the future extension of DART operations. This will also facilitate a potential future extension of electrification north of Balbriggan.

The National Transport Authority has requested that Irish Rail progress the planning for the extension of the DART rail service along the northern rail line, to include Donabate. Appropriate Assessment of this strategy has identified the possibility that the implementation of additional tracks on the northern Line may have impacts in relation to 'Natura 2000' sites. This will be further addressed through project-level Appropriate Assessment.

Waste Management

Both public and private waste collectors have a responsibility with regards to meeting Waste Management targets. Increased facilities for recycling should be provided to reduce the levels diverted to landfill.

Water Supply

New development and/or works will need to demonstrate that the existing network and associated wayleaves are protected from impacts which could put the network at risk of damage. Any proposal to develop site(s) not immediately adjacent to existing water supply infrastructure will have to address the issue of providing a suitable water supply.

The Donabate / Portrane area is a pressure controlled zone and buildings over two-storeys or at a high elevation may require internal boosting. The Strand Estate is the critical point in the District Metering Area. Any future high level development (i.e. above two storeys or higher than The Strand Estate) could be problematic to supply.

Any development with a high water demand will have drawdown conditions attached which may prescribe the time and duration of drawdown. This issue should be dealt with at planning application assessment stage, where applicants will be required to demonstrate capacity.

The delivery of a number of measures to sustainably manage water demand is also important. In order to limit unnecessary water usage, leakage and excessive consumption, new developments should, where feasible, install suitable water conservation measures. The use of rainwater harvesting will be encouraged.

Wastewater

Donabate / Portrane is currently served via a single 12" AC Main which was laid in the 1970's and runs along the Hearse Road. A second connection is required to maintain and improve the quality and security of the water supply. The Donabate Augmentation Scheme provides for a 300mm Diameter watermain from the 21" AC trunk main along the R132 at Turvey Avenue to connect to the existing system adjoining the Railway Station at Turvey Avenue. This scheme has not been completed to date.

New development and/or works will need to demonstrate that the existing network and associated wayleaves are protected from impacts which could put the network at risk of damage. Any proposal to develop site(s) not immediately adjacent to existing water supply infrastructure will have to address the issue of providing a suitable water supply.

Urban runoff is the surface runoff of rainwater caused by urbanization. The pollution potential of the surface water run-off is becoming increasingly of concern particularly its cumulative impact over entire catchment areas. Any increase in impervious surfaces such as roads, carparks, and roofed areas will increase the amount of runoff accumulated during precipitation events, and in turn decrease the level of waters percolating naturally through the soil.

5.10 Cultural Heritage

5.10.1 Introduction

Cultural heritage can be defined as the legacy of physical objects and intangible attributes of a group or society that are inherited from past generations, preserved in the present and maintained for the benefit of future generations.

Within the LAP settlements there are monuments, groups of buildings and sites of extreme importance in cultural heritage terms. In addition to the intrinsic value of the cultural heritage of Fingal, the County also benefits economically through the tourism value of these sites and their ability to attract visitors.

5.10.2 Archaeological Heritage

The archaeological heritage of an area includes structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other types as well as their context, whether situated on or under land or water.

The National Monuments Acts 1930 – 2004 provides for the protection of archaeological heritage. The Record of Monuments and Places (RMP) was established under Section 12 of the National Monuments (Amendment) Act 1994 and structures, features, objects or sites listed in this Record are known as recorded.

5.10.3 Architectural Heritage

At the heart of the planning system is a statutory requirement that the protection of buildings of artistic, architectural, historical, cultural, archaeological, scientific, technical or social interest be a mandatory objective of the Development Plan of each Local Authority. These buildings and structures are compiled on a register known as the "Record of Protected Structures" (RPS). There are a number of protected structures in Donabate, some of which are located within the LAP lands.

The relevant structures within the LAP area are the Railway Bridge and Vernacular House and Former Forge.

Section 81 of the Planning & Development Act 2000-2011 places a statutory obligation on Planning Authorities to ensure that all development plans must now include objectives to preserve the character of a place, area, group of structures or townscape that of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures. As part of the background research for the Donabate LAP in 2006, Fingal County Council commissioned an archaeological and cultural heritage assessment of the LAP lands revealed a number of potential archaeological features and sites. Any applications for development on the LAP lands should be accompanied by an Archaeological Impact Assessment to ensure the policies and objectives contained within the LAP reinforce the protection of these structures.

The County Development Plan identifies two Architectural Conservation Area on the Donabate Peninsula. Newbridge Demesne ACA (Newbridge Demesne and Newbridge Square) borders the western Corballis LAP boundary. Portrane Demesne ACA (St Ita's Hospital) includes the north-eastern portion of the Ballymastone LAP lands.

5.10.4 Existing Environmental Issues

Cultural Heritage, including all its various elements, represents a finite resource, one which must be protected in order to enrich future generations. Thus, development which is deemed to adversely impact on structures, features, historical areas etc must not be permitted. A proactive approach needs to be maintained by the Local Authority, working in conjunction with the various state agencies and departments as well as stakeholders to ensure the ongoing protection of this element of the environment.

Currently the most immediate threat to the cultural heritage is development pressure which can lead to a loss or impairment of a feature of importance. Furthermore it is recognized that heritage has an economic value particularly in terms of tourism. However, unsustainable tourism must be avoided and care taken to ensure a balance is achieved between the economic gain that cultural heritage can bring and the preservation of the structures / sites of interest.

5.11 Landscape

5.11.1 Introduction

The concept of landscape encompasses all that can be seen by looking across an area of land, i.e. it is the visible environment in its entirety. Landscape is the context in which all change takes place and helps to create a unique sense of place or identity within an area. The landscape supports a wide range of ecological habitats despite the rapid growth in its resident population. It is the interaction of all of these elements that influences landscape character for future generations.

Fingal's coastline and countryside are an important wildlife resource with protected sites and wildlife species found along Fingal's shores and estuaries. Its landscapes is continually changing and is driven not just by natural forces (e.g. climate) but largely by population growth and associated development. Fingal has, and is changing very rapidly as a result of the recent historically high rates of economic and population growth.

5.11.2 Landscape Character Types

The Development Plan's Landscape Character Assessment (LCA) provides for the classification of Fingal's landscapes into the following (1) types and values and (2) sensitivities.

The Landscape Character Assessment for Fingal divides the County into 6 Landscape Character

Types. Each landscape type is given a value through the consideration of such elements as aesthetics, ecology, historical, cultural, religious or mythological. A value can range from low to exceptional.

- Rolling Hills Character Type
- High Lying Character Type
- Low Lying Character Type
- Estuary Character Type
- Coastal Character Type
- River Valleys and Canal Character Type

The LAP lands are fall into three categories. Lands at Turvey and west of the railway line at Corballis are classified as 'Low-Lying Agricultural' lands. These have a modest landscape Value and low sensitivity.

The LAP lands at Rahillion, Ballymastone and the lands east of the railway line at Corballis are classified as 'Coastal'. The landscape value is exceptional and highly sensitive. A small section of the southern tip of the Corballis LAP lands are included within the 'Estuary' designation which are also of exception landscape value and highly sensitive.

Fingal has established principles for new development in these landscape character areas which aims to protect the character of the coastal visual compartment and its special overall character by preventing inappropriate development. The LAP encourages the use of trees and woodlands to contain new development and encourages retention and active management of trees and woodland blocks. The Plan also promotes the selection of sites with natural boundaries, rather than elevated or open parts of fields.

5.11.3 Views and Prospects

It is an objective of FDP 2011-2017 and LAP to preserve views along the Corballis coast road, which runs from the railway line east along the coast towards The Island Golf Club. This road provides views over the Malahide Estuary. There is also a Development Plan objective to preserve views from the coast road in Malahide looking north over the Estuary towards Donabate.

There is a need to protect and conserve views and prospects adjoining public roads throughout the County for future generations. In assessing views and prospects it is not proposed that this should give rise to the prohibition of development along these routes, but development, where permitted, should not hinder or obstruct these views and prospects and should be designed and located to minimise impact.

5.11.4 Existing Environmental Issues

The Landscape Character Assessment for Fingal identifies the unprecedented population growth experienced in the County as a threat to its landscapes and historic settlement structure. Modern unsympathetic development is also a threat to the landscape quality.

Planning applications in sensitive visual locations shall be accompanied by a Visual Impact Assessment, including cross sections and photomontages to assist the Planning Authority in determining the full visual impact of proposed development on the plan lands and on the high amenity lands adjoining. This should form part of the overall urban design appraisal.

5.12 Interactions

The environment is both complex and dynamic and the various elements of the environment interact in an equally complex and dynamic manner. The permutations can be numerous; however at a simplistic level the principal interactions can be either qualified or quantified in most instances.

These interactions can be either benign or unfavourable; can be either proportionate or synergistic; can be short lived or permanent. In addition an event, an individual action or an ongoing activity can have an effect on one or more aspects of the environment. This effect may differ in magnitude, type and duration across several different aspects of the environment.

For example the potential exists for discharges of treated effluent from wastewater plants to surface water systems to impact negatively on water quality. Similarly the use of septic tanks can impact negatively on the quality of ground water resources if working inefficiently or inappropriately sited. This report has attempted to deal with the issues at a 'root' level thereby diminishing the necessity to discuss further the possible and numerous interactions between the various environmental receptors.

This environmental report has approached each of the environmental receptors on an individual basis though it is fully cognisant of the relationship between the various elements. The report has therefore attempted to present the data in such a way as to indicate fully the potential for impacts on other aspects of the environment where they may occur or indeed are likely to occur.

quality environment; people are collectively responsible for the adverse impacts that can occur; and people are most seriously affected by deterioration in environmental quality.

To highlight the extent of the relationship between the various elements of the environment the matrix presented in Table 14 provides an indication of the interactions present between environmental receptors.

		Human Beings - Quality of Life	Biodiversity - Flora and Fauna	Soil and Geology	Water Quality - Surface and Ground	Flooding	Landscape and Visual Issues	Material Assets - Wastewater Treatment	Material Assets - Water Supplies	Material Assets - Transportation	Material Assets - Waste Management	Material Assets - Energy	Cultural Heritage	Air Quality	Noise
Is this aspect of the environment likely to interact with other aspects of the environment?	Human Beings - Population	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Biodiversity - Flora and Fauna	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Soil and Geology	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Water Quality - Surface and Ground	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Flooding	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Landscape and Visual Issues	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Wastewater Treatment	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Water Supplies	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Transportation	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue
	Material Assets - Waste Management	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue
	Material Assets - Energy	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue
	Cultural Heritage	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue
	Air Quality	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue
	Noise	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey

Table 11: Environmental Interactions

The significant aspect of the matrix (Table 14) is the relationship between human beings and all aspects of the environment. There are three simple conclusions to be drawn from the matrix; people benefit most from a high

6.0 Strategic Environmental Objectives Targets and Indicators

6.1 Introduction

The primary objective of the SEA is to provide for a high level of environmental protection and to contribute to the integration of environmental considerations into the preparation and adoption of the Donabate Local Area Plan 2016-2022

Article 5 of the SEA Directive requires the identification of environmental protection objectives. These Strategic Environmental Objectives (SEOs) assist in the prediction, description and monitoring of impacts on the environment as a result of the Local Area Plan. Indicators allow impacts to be assessed and highlighted in a simple and effective manner. Indicators can also be used to form the basis of a monitoring programme for the Plan, (outlined in Chapter 10 of this Environmental Report) the results of which will inform the next Plan Review and other studies.

Thus to achieve the aim of assessing and improving the environmental performance of the Local Area Plan, a number of Environmental Objectives, specific to each environmental topic have been formulated, see Table 15. These SEOs are a fundamental part of the SEA process. The Objectives are derived through consultation between the Planning Authority, the report authors (guided by SEA guidelines, incorporating where relevant international, national and regional policies which govern environmental protection/conservation) and are based on the overall strategy of the Planning Authority to safeguard the environmental integrity of the Local Area Plan area and to develop its functional area in a sustainable manner.

SEOs are distinct from the objectives and policies contained in the plan, though the process of preparing the Local Area Plan in conjunction with the SEA allows for the incorporation of environmental themes at an early stage of the process. The Environmental Objectives are used to assess the proposed development strategies of the Local Area Plan, its policies and objectives, in order to evaluate and identify where conflicts may occur. The assessment is contained in Chapter 8.

Allied to the development of the Strategic Environmental Objectives are Environmental Indicators and targets. Indicators facilitate the monitoring aspect of the SEA, while targets provide a realistic and achievable target to which the Local Authority can work towards. The indicators are discussed in more detail in Chapter 10.

Environmental Parameter		Objective
Biodiversity	B1	Conserve and where possible enhance the diversity of habitats and protected species avoiding irreversible losses
	B2	Promote measures to protect biodiversity by creating and improving habitats, where possible
	B3	Provide opportunities for sustainable public access to wildlife and wild places at appropriate locations
	B4	Avoid damage by development to designated wildlife sites and protected species, and associated ecological corridors/ linkages

Environmental Parameter		Objective
Population	P1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns
Human Health	H1	Minimise noise, vibration and emissions from traffic, industrial processes and extractive industry
Soil	S1	Maintain the quality of soils
	S2	Maximise the sustainable re-use of brownfield lands, and maximise and prioritise the use of the existing built environment rather than developing greenfield lands
	S3	Minimise the consumption of non-renewable sand, gravel and rock deposits
	S4	Minimise the amount of waste to landfill
Water	W1	Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems
	W2	Promote sustainable water use based on a long-term protection of available water resources
	W3	Reduce progressively discharges of polluting substances to waters
	W4	Mitigate the effects of floods and droughts including vulnerability to climate change. (extreme weather, sea level rise, coastal erosion)
Air	A1	Reduce all forms of air pollution
	A2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change
	A3	Reduce waste of energy, and maximise use of renewable energy sources
	A4	Assess, plan and manage adaptation to climate change impacts
	A5	Reduce the need to travel
Material Assets	MA1	Maximise use of the existing built environment
	MA2	Avoid flood risk and/or coastal erosion in selecting sites and zoning of lands for development
	MA3	Maintain water abstraction, run-off and recharge within carrying capacity (including future capacity) at environmentally sustainable levels.
	MA4	Maintain the quality of and access to assets such as aquifers, aggregates, ports, motorways, and all physical and social infrastructures.
Cultural Heritage	CH1	Promote the protection and conservation of the cultural, including architectural and archaeological, heritage
Landscape	L1	Conserve and enhance valued natural and historic landscapes and their character and features within them

Table 112: Strategic Environmental Objectives

7.0 Alternatives

7.1 Introduction

The issue of alternatives is a critical function of the SEA process and is necessary to evaluate the likely environmental consequences of a range of alternative development strategies for the county within the constraints imposed by environmental conditions. The alternatives were considered at an early stage of the process and through an iterative process with the Local Area Plan, SEA and AA teams the most appropriate scenario was selected.

7.2 Legislative context

Article 5 of the SEA Directive requires the consideration of reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme and the significant environmental effects of the alternatives proposed. It states under Article 5(1) that;

Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I.

In accordance with SEA guidelines the alternatives put forward should be reasonable, realistic and capable of implementation. They should also be in line with the appropriate strategic level at which the Plan will be implemented within the national and county planning hierarchy. The Donabate Local Area Plan 2016-2022 will be framed within a policy context set by a hierarchy of National, Regional and County level strategic plans as well as the Irish and European legislative framework. Therefore the options for alternatives are limited, and a scenario such as the 'do-nothing' situation has not been included as it is neither reasonable nor realistic.

The alternatives proposed have been assessed against the relevant Strategic Environmental Objectives (SEOs) established for the key aspects of the environment likely to be affected by the Plan's implementation. The evaluation process resulted in the identification of potential impacts and informed the selection of the preferred development scenario for the Donabate Local Area Plan 2016-2022. This determination sought to understand whether each alternative was likely to improve, conflict with, or have a neutral interaction with the environment of the plan area.

7.3 Methodology for the Selection of Alternatives

The plan is based on the principles of sustainable development which means that development will be promoted in accordance with the appropriate international, national, regional and county guidelines.

Particular reference is drawn to the Core Strategy of the Fingal County Development Plan which must be complied with. The following factors have been used to determine the suitability of specific lands for residential development which constitute the proper planning and sustainable development of the town:

- Proximity to the Donabate town centre;
- Proximity to the schools;
- Availability of Public Transport - to maximise public transport investment, it is important that land use planning underpins its efficiency by sustainable transport patterns. This includes promoting higher densities within 400m metres walking distance of a bus stop and proximity to the rail station (800m);
- Regeneration/Renewal of residential areas or other brownfield sites;
- Environmental Constraints – proximity to and potential impact on the qualifying interests of the adjoining designated sites;
- The need to provide new roads infrastructure to facilitate development
- Consideration as to whether a site could be considered an infill opportunity as opposed to extending the urban footprint further from the town centre.
- Leapfrogging beyond other available sites will not be considered favourably.

These policies of the underlying Fingal County Development Plan 2011-2017 set the context for the development of the county and limit the range of alternatives that are available for consideration and their method of selection in the preparation and assessment of the Donabate Local Area Plan.

7.4 Possible Alternatives

Given the restrictions in complying with the County Development Plan, as outlined above, the following are put forward as possible alternatives which could be considered:

Alternative 1: No Phasing of Lands

Critical Evaluation	
<ul style="list-style-type: none"> No phasing could result in lands removed from the town centre, existing residential communities and social and physical infrastructure, developing in advance in infrastructure required. Impact on the road network with increased residential and creating traffic congestion at key junctions. Underutilises the potential to consolidate the existing centre by not phasing the more efficient use of land on identified lands closer to the centre. Has potential to lead to an uncoordinated use of lands with disconnected neighbourhoods. 	

This approach would involve placing no restrictions on development sequence of LAP lands. This could have potential pressures on infrastructure, services and environmental habitats.

Alternative 2: Sequential Phasing in line with Infrastructure Provision

Critical Evaluation	
<ul style="list-style-type: none"> This alternative allows for a consolidation strengthening and expansion of Donabate in an orderly and sustainable manner through the development required infrastructural upgrades. Strengthening the town centre by increasing connectivity and permeability between the town centre and the existing and proposed residentially zoned lands Requires significant upgrading of infrastructural links to town centre and surrounding residential areas. Requires specific local planning and urban design guidance for the development of zoned lands and clear guidance on the density and quality of new residential development in areas identified for expansion. Responds to the relevant national/regional planning strategies including the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area. Accords with national guidance e.g. Urban Design Guidelines, Design Manual for Urban Roads and Streets, 	

This approach would involve phasing development subject to most appropriate/desirable locations in tandem with any necessary physical infrastructure upgrades and increased social infrastructure provision.

7.5 Consideration against the SEOs of the Local Area Plan

This assessment is undertaken to identify any potential issues in relation to the alternative development scenarios proposed and to identify which is most suitable. This essentially is a thorough review of the approaches from an environmental perspective. This assessment was used to inform the overall approach towards the future development of Donabate as would be pursued and facilitated by the Local Area Plan zonings, policies and objectives.

	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
Alternative 1	Green			Yellow	Yellow	Yellow		Blue		Yellow			Blue		Blue	
Alternative 2	Green		Green				Green			Yellow					Green	
	Potential Positive Impact		Potential Neutral Impact			Potential Negative Impact		Uncertain Impact								

Table 13: Assessment of Alternatives against SEOs

The potential uncertainties or negative impacts identified in the assessment relate to localised impacts which may occur as a result of the development of these alternatives. However these potential uncertainties will be dealt with at planning application stage and are mitigated against by protective policies contained in the Plan with regards to transport, biodiversity and landscape etc.

Conclusions

The alternatives reviewed represent choices that are available to the planning authority in delivering the same balance of residential growth across the plan area.

The density and location of future residential development requires a balance between the desire to increase the number of people close to local services and the need to ensure adequate infrastructure in place to accommodate growth. The option chosen in the proposed variation represents an appropriate balance between the competing environmental objectives.

8.0 Strategic Environmental Assessment of Plan

8.1 Introduction

In its Introduction chapter the Draft Donabate Local Area Plan 2016-2022 states:

The ambition of the LAP is to provide for the structured development of the identified new residential areas of Donabate such that they integrate into the established Village and support the continued growth of a vibrant and attractive town for existing and future residents. New development will be accompanied by the required community, educational, transport, drainage and recreational infrastructure to ensure the protection and enhancement of local amenities and the continued growth of local services in Donabate.

Donabate has its own unique sense of place, largely defined by its relationship to the coast and its proximity to Newbridge Demesne. This LAP proposes a vision for the future of Donabate as it continues to grow, so as to ensure its inherent character and natural assets are protected and enhanced in tandem with new housing and residents. The existing settlement will expand into adjoining new housing areas in a planned and coherent geographical basis where connectivity and infrastructure are clearly provided, to ensure the sustainable development of Donabate Village and surrounds.

The SEA process ensures that the environment is central to all decisions on the future development of the plan area.

The purpose of this section of the Environmental Report is to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Plan with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the Plan's implementation of its policies and objectives on sensitive environmental receptors.

The process of SEA and Local Area Plan formulation is an iterative one and as such environmental considerations have informed all stages of plan preparation carried out to date in order for the potential for significant adverse effects arising from implementation of the plan to be minimised. Nonetheless, it is possible that some individual plan objectives or policies will create such effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts; where this is not possible for stated reasons, to lessening or offsetting those effects through mitigation measures outlined in Chapter 9 of this report.

In some instances there is little or no relationship between the various Plan Policies/Objectives and the respective environmental receptor. Where this occurs no further discussion is deemed necessary. This has been determined through an initial screening of the Local Area Plan policies and objectives which ascertains if policies are likely to have a positive, negative or neutral impact on the environment. This screening process allows the assessment to focus more efficiently on the pertinent issues. The assessment matrices are provided indicating where the screening process has in the first instance identified an impact which may potentially arise due to the implementation of policy/objective contained within the Plan. Similarly where a conflict exists between a Strategic Environmental Objective and a Policy/Objective this is noted and discussed.

This initial stage aims to ascertain the quality, if any, of the potential impact. Each of the Plan's policies and objectives have been screened for their impact and where a neutral impact is noted no further discussion is provided within this report. This format allows for the ER to focus on the positive and negative impacts and proceed to a discussion on their significance and duration. Thus it is a more robust, more focused approach to understanding the potential impacts associated with the Plan's implementation.

8.2 Environmental Assessment

The preliminary phase of this assessment identifies the quality of the potential impact on the environment as a result of the policies and objectives of the Local Area Plan. Table 17 below highlights where the impact may be either potentially positive (green); neutral (white); potentially negative (yellow); or uncertain (blue). Where a neutral impact is identified no further discussion is deemed necessary. However it is acknowledged localised issues may arise depending on site specific issues and the type of development proposed. The assessment contained herein deals with strategic issues alone, for potential localised impacts the Mitigation section contained in Chapter 9 should be consulted.

It has been determined that there are a number of policies/objectives where the impact is potentially negative. The significant issues are discussed in the following sections. A comprehensive and detailed set of mitigation measures are provided in Chapter 9 which effectively reduces or eliminates identified negative impacts. Similarly, monitoring the implementation of the plan, as discussed in Chapter 10, will ensure that if any negative impact becomes a reality it will be identified at an early stage and appropriate actions taken by the relevant authority/agency to remedy the situation.

In general terms the Plan, in its current form will have a positive effect on the environment as a whole.

8.3 Human Beings

The purpose of the Local Area Plan in broad terms is to promote, manage and control development within the plan area over the lifetime of the plan in order to achieve a balance between social, economic and environmental considerations thereby benefitting the residents of the area both now and in the future. The initial screening aspect of the assessment presented in Table 17 indicates the Plan will impact positively on the area's residents. However the assessment of the Plan's implementation on other receptors fully considers the consequences of the Plan's implementation on Human Beings. For instance where an aspect of the environment relates to or overlaps with the broad issue of human health such as air quality or water quality, this aspect of 'human health' is addressed under that topic.

The potential impacts for Population and Human Health are predominantly positive as it is proposed to provide for new residential communities, improve infrastructure, social and community facilities and integrate land use and transport.

8.4 Soil and Geology

The assessment reveals that the majority of policies and objectives are neutral on Soils & Geology. A number of the objectives and policies contained within the Strategic Vision, Core Strategy and Themes chapter of the Plan will result in a positive effect at a strategic level on the soil and geology aspect of the environment.

The overall reduction in lands zoned within the plan area reduces the requirement of development on greenfield sites thus protecting potentially valuable agricultural resource. The implementation of these strategic objectives will contribute positive impact on the soil and geology element of the environment.

The screening assessment identified a positive impact on this aspect of the environment due to the implementation of the Plan's policies and objectives in relation to the natural environment.

8.5 Biodiversity

The plan area is situated in a highly sensitive environment for flora and fauna. As such the assessment has raised a number of potential negatives and uncertainties as a result of the policies and objectives contained within the plan.

The primary concerns relate to the interaction between recreation proposals, transport objectives, transport proposals, possible flood risks and green infrastructure proposals and reference to policies and objectives relating to the protection of designated sites. Many of these are screened as uncertain at this stage and would be subject to detailed environmental assessment during the planning process. The possible interactions are dealt with in more detail in the accompanying Natura Impact Report.

8.6 Water Quality

The screening assessment identified a generally neutral impact on water quality (water, groundwater, surface water and flooding) due to the implementation of the Plan's policies. Development will be subject to necessary infrastructure in place to accommodate the needs of that development. This will therefore result in a positive impact on the quality of waters within the plan area.

The Plan provides considerable protection of vulnerable and valuable water resources and thus the effect of the Plan's policies and objectives contained within this section of the Plan will result in a positive impact on water resources.

The Council has provided specific policy and objectives relating to water quality, both ground and surface.

In order to ensure both public health and environmental protection, it is essential that any new dwelling is served by drainage arrangements that meet the Council's requirements and standards. Therefore the following policies are encouraged as they are likely to have profound positive impacts on the water environment of the plan area.

Proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the justification test outlined in the "Planning System and Flood Risk Management – Guidelines for Planning Authorities".

In those areas where the Initial Assessment indicated a risk of minor localised flooding, the SFRA recommended that site-specific Flood Risk Assessment be carried out for any proposals for development of these lands. These

site-specific assessments should be appropriate to the nature and scale of the development being proposed. In a number of cases, the Initial Assessment indicated a more significant flood risk in lands which were being considered for types of development not generally compatible with flood risk areas. The SFRA recommended that Detailed Flood Risk Assessment (Detailed FRA) be carried out for these lands.

8.7 Material Assets – Transport

Broadly speaking the policies and objectives relevant to the Transport (Material Assets) aspect of the environment are positive and will assist in increasing the sustainable movement of people and goods throughout the County. The promotion of sustainable travel patterns through reduced requirement on cars and the increased provision of cycling and pedestrian routes will have positive impacts.

The adoption of a sequential approach to development of zoned lands will ensure the viability of transport infrastructure and provision of alternatives to the private car.

Implementation of the above policies and the supporting objectives regarding transport will in general have a positive or neutral impact and will have secondary positive impacts on climate change and air quality. There are a number of identified indirect uncertainties with regard to flooding and impact on biodiversity and landscape.

8.8 Material Assets – Waste Services

This section of the assessment ascertains how the policies and objectives of the Local Area Plan are likely to impact on the supply of water and disposal of wastewater and waste management throughout the Plan Area.

Wastewater

The upgraded wastewater infrastructure is secure and sufficient to cater for the proposed future expansion of Donabate. The inclusion of policies and objectives to ensure wastewater infrastructure is maintained is a positive for wastewater. This assessment has identified a likely neutral to positive impact in this regard through the implementation of policies and objectives contained within the Water and Drainage Section of the Plan.

Waste Management

With regard to waste management the policies of the Plan which support the reduction of the amount of waste that ends up in landfill / incineration have a positive to neutral impact on the plan area. Additionally they will have secondary positive impacts on climate change and human beings.

8.9 Noise

In overall terms the policies and objectives of the Plan have been found likely to have a positive to neutral impact on this aspect of the environment. While implementation of policies and objectives contained in the plan are likely to have a positive impact on noise the potential exists for site specific impacts to occur as a result of development. This of course will be dependent on the nature and specifics of that development and where it will be located. Any potential negative impacts will be mitigated for and will be dealt with on a site specific basis through the development management process.

8.10 Air Quality

The potential impacts on Air Quality are positive or neutral as the Plan proposes to concentrate development to zoned lands.

The Plan acknowledges there is an increase in private car use, however it also aims to promote more sustainable modes of transport which will impact positively on air quality. The plan also promotes sustainable travel modes and seeks to reduce the requirements of long distance commuting to Dublin.

The plan is committed to the promotion of sustainable means of travel, and the encouragement of modal change from the private car. The emphasis will be on achieving a situation where the residents of the plan area are within reasonable walking/cycling distance of local services and public transport. The strategy proposes the improvement of cycling and pedestrian infrastructure.

8.11 Energy

Energy infrastructure is critical for the sustainable development of the plan area. The assessment of the policies and objectives contained within the Plan has resulted in a generally neutral impact on the environment of the plan area.

8.12 Climate Change

The fundamental objective of fostering sustainability and reducing the levels of pollution and emissions caused through development is central to the formulation of the policies and objectives of the LAP.

Thus the need to reduce the amount of energy generated as a result of transportation has been to the fore in the proposed transportation and settlement strategies pursued in this Local Area Plan.

Flooding is a natural phenomenon of the hydrological cycle which is predicted to increase as a result of ongoing climatic changes. An increase in rainfall intensity as a result of climate change could have severe consequences for flooding and in particular the severity of flood events.

Fingal is committed to pursuing sustainable energy policies in accordance with the White Paper, 'Towards a Sustainable Energy Future for Ireland 2007-2020'. Improving energy efficiency is a key step in a sustainable energy policy. Energy efficiency is internationally recognised as the most cost-effective means of reducing dependence on fossil fuels.

8.13 Cultural Heritage

In general the policies and objectives contained within the LAP are positive to neutral for impacts on Cultural Heritage however the interaction between recreation objectives and cultural heritage had indicated uncertain or potential negative impacts. Development (i.e. residential, commercial etc.) therefore should be in keeping with the character of Donabate and with particular reference to the two adjacent ACAs at Newbridge and St.Ita's. This is considered vital to protecting the heritage of the plan area.

The assessment identified the potential for localised impacts associated with the provision or improvement of transport and recreation infrastructure and this should be considered on a case by case basis at the planning stage.

8.14 Landscape

The screening assessment identified potential impacts on the landscape arising from the implementation of the Plan's policies and objectives on this aspect of the environment.

Planning applications in sensitive visual locations shall be accompanied by a Visual Impact Assessment, including cross sections and photomontages to assist the Planning Authority in determining the full visual impact of proposed development on the plan lands and on the high amenity lands adjoining. This should form part of the overall urban design appraisal.

As with Biodiversity and Cultural Heritage potential negatives or uncertainties have been identified from the interaction between recreation and green infrastructure policies and objectives. Additionally Energy and communications and transport infrastructure can and do have an impact on the landscape.

Development proposals that arise as a result of these policies and objectives will be assessed on a case by case basis and any potential negative impacts on this aspect of the environment will be assessed during the planning process.

Table 14: Strategic Environmental Assessment of Policies and Objectives

Town Plan Objective/Policy	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
1.1	Green						Green	Green								
1.2	Green	Green		Green			Green				Green	Green				
1.3	Green		Green				Green									
3.1	Green														Green	
3.2	Green														Green	
3.3										Green						
3.4	Green		Yellow							Blue	Blue				Green	
3.5	Green														Green	
3.6	Green		Yellow												Green	
3.7	Green														Green	
3.8	Green														Green	
3.9	Green														Green	
3.10	Green		Yellow							Yellow	Yellow				Green	
3.11	Green		Yellow												Green	
3.12	Green														Green	
4.1	Green		Yellow												Green	
4.2	Green		Green							Green					Green	
4.3	Green		Yellow												Green	
4.4	Green		Green							Blue					Green	
4.5	Green		Yellow							Blue					Green	
4.6	Green															
4.7	Green															
4.8	Green															
4.9			Green													
4.10	Green		Yellow				Green									
4.11	Green									Green						
4.12	Green															
4.13			Green													

Potential Positive Impact	Potential Neutral Impact	Potential Negative Impact	Uncertain Impact
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Table 14: Strategic Environmental Assessment of Policies and Objectives contd.

Town Plan Objective/Policy	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
5.1										Green	Green					
5.2										Green	Green					
5.3										Green	Green					
5.4			Green							Green						
5.5			Green							Green						
5.6			Green							Green						
5.7											Green					
5.8											Green					
5.9											Green					
5.10											Green					
5.11			Green													
6.1	Green															
6.2	Green															
6.3	Green															
6.4	Green														Green	
6.5	Green															
6.6	Green					Green										
6.7	Green															
6.8	Green															
6.9	Green															
6.10	Green									Yellow						
6.11	Green															
6.12	Green															
6.13	Green										Green					
6.14	Green										Green					
6.15	Green															
6.16	Green									Green					Green	
6.17	Green															
6.18	Green	Yellow		Blue	Blue										Blue	

Potential Positive Impact Potential Neutral Impact Potential Negative Impact Uncertain Impact

Table 14: Strategic Environmental Assessment of Policies and Objectives contd.

Town Plan Objective/Policy	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
7.1	Green													Green		
7.2	Green													Green		
7.3	Green			Green										Green		
7.4	Green													Green		
7.5	Green												Green	Green		
7.6				Green									Green			
7.7													Green			
7.8	Green															
7.9	Green		Green		Green									Green		
7.10			Green		Green									Green		
7.11			Green		Green									Green		
7.12			Green		Green											
7.13			Green		Green											
7.14			Green		Green											
7.15			Green		Green											
7.16		Green		Green		Green								Green		
7.17			Green		Green											
7.18			Green		Green						Green			Green		
7.19			Green		Green											
7.20			Yellow	Green	Green											
7.21			Green		Green											
7.22			Green											Green		
7.23			Green	Green		Green								Green		
7.24			Green											Green		
7.25			Green											Green		
7.26			Green	Green										Green		
7.27	Green		Yellow							Yellow		Green				
7.28	Green															Green
7.30	Green									Green						Green
7.31																Green
7.32																Green
7.33	Green						Green	Green	Green						Green	Green

Potential Positive Impact
Potential Neutral Impact
Potential Negative Impact
Uncertain Impact

Table 14: Strategic Environmental Assessment of Policies and Objectives contd.

Town Plan Objective/Policy	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
8.1.1	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
8.1.2										Green						
8.1.3	Green															
8.1.4			Green													
8.1.5										Green						
8.1.6										Green					Green	
8.1.7			Green							Green						
8.1.8															Green	Green
8.1.9										Yellow					Green	
8.1.10	Green									Green					Green	
8.1.11	Green									Green					Green	
8.2	Green										Yellow					
8.3	Green														Green	
8.4	Green		Yellow							Yellow	Yellow				Green	
8.5			Green							Green						
8.6										Green	Green					
8.7			Green							Green						
8.8										Green						
8.9	Green									Green					Green	
8.10	Green														Green	
8.11	Green														Green	
8.12	Green															
8.13	Green															
8.14										Blue						
8.15	Green														Green	
8.16	Green										Green					
8.17	Green															
8.18	Green									Green						

Potential Positive Impact
Potential Neutral Impact
Potential Negative Impact
Uncertain Impact

9.0 Mitigation Measures

9.1 Introduction

The quality of the environment within plan area is an important issue for consideration by Fingal County Council. The area contains a rich coastal landscape of significance within Fingal and the region. These form the basis for a high level of amenity and recreation potential in the area. This has been recognised throughout the SEA and Local Area Plan process and the Plan is framed within ideals of sustainability throughout its vibrant communities, recreation and unique natural heritage.

Article 5 of the SEA Directive requires that mitigation measures be proposed for all significant adverse effects on the environment as a result of the implementation of the Local Area Plan. The SEA is an iterative process prepared in tandem with the formulation of the policies and objectives of the Local Area Plan. While not always possible to achieve, it is the aim of the process to ensure that sensitive environmental receptors are given adequate and appropriate consideration throughout.

9.2 How the SEA has Influenced the Plan

As environmental considerations have informed all stages of the preparation of the Donabate Local Area Plan, the policies and objectives of the Plan have been framed to ensure that potential adverse impacts are avoided, eliminated or lessened to an acceptable level. As a result of this informed iterative process, it is the finding of the assessment of the Local Area Plan as presented in Chapter 8 of this SEA Report, that the full implementation of the Plan, will have a neutral to positive impact on the environment as a whole.

Integration between SEA, AA and the preparation of the Plan was achieved through reviews of the emerging pre-Plan and through workshop meetings at the key stages with relevant SEA, AA and Plan team members. This process allowed for an iterative and proactive approach to the preparation of the plan with preliminary and on-going assessment and review of the emerging plan.

9.3 Mitigation Measures

Given the plan area’s environmental designations and landscape sensitivities there were a number of uncertain and potential negative impacts identified as a result of interactions between the plan policies and objectives and the Strategic Environmental Objectives. In most instances potential uncertainties or negative impacts could be mitigated against by the protective policies already contained within the Plan.

A detailed assessment of the Plan policies/ objectives was undertaken (as per Chapter 8) and the proposed mitigation is presented in Table 18.

LAP Objective	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management	Comments / Mitigation
3.4	Green		Yellow							Blue	Blue						Mitigated by Obj 3.3, 5.1, 5.2
3.6	Green																Mitigated by Obj 4.9, 5.2
3.10	Green		Yellow								Yellow						Mitigated by Obj 4.9, 5.1, 5.2
3.11	Green		Yellow														Mitigated by Obj 4.9
4.1	Green		Yellow														Mitigated by Obj 4.9
4.3	Green																Mitigated by Obj 4.9
4.4	Green		Green							Blue							Mitigated by Obj 5.1, 5.2
4.5	Green		Yellow														Mitigated by Obj 4.9, 5.1, 5.2
4.10	Green		Yellow			Green											Mitigated by Obj 4.9
6.10	Green									Yellow							Mitigated by Obj 4.4, 4.9, 5.1, 5.2
6.18	Green	Yellow		Blue	Blue										Blue		Mitigated by Obj 6.18, 7.9, 7.11, 7.014
7.20			Yellow	Green		Green											Mitigated by New Obj 5.12
7.27	Green		Yellow							Yellow		Green					Mitigated by Obj 5.1, 5.2, 5.12
8.1.9																	Mitigated by Obj 5.1, 5.2
8.2	Green										Yellow						Mitigated by Obj 5.8
8.4	Green		Yellow							Yellow	Yellow						Mitigated by 4.9, 5.1, 5.8, 5.12
8.14										Blue							Mitigated by Obj 5.1

Table 15: Mitigation Measures

In instances where mitigation was not deemed possible through existing policies or objectives mitigation measures were proposed in the form of the insertion of new policies/ objectives and/or amendments to the text of policies/objectives as can be seen in Table 19.

The mitigation included assumes requirements for environmental assessment in accordance with the normal development management process and EIA Directive as a given. These proposed amendments have been incorporated into the final LAP and as such there are no residual impacts from these policies and objectives.

Chapter	Objective /Policy	Type	Comments/Amendments	Residual Impact
3	3.3	Amend	Ensure that all future rail improvement proposals including associated works such as overhead wires, access roads, maintenance yards and car-parks are designed and developed having regard to the environmental and visual sensitivities of the area, and subject to Appropriate Assessment as required.	n/a
5	5.12	Insertion of New Policy	To recognise the importance of the Natura 2000 and environmentally designated sites within the plan area with particular reference to the coastline, beaches and connecting waterbodies and to ensure that any proposals for development or uses which could compromise these natural assets are carefully considered and subject to Appropriate Assessment as required.	n/a
8	8.1	Amend	light spill assessment where proposed developments will involve public lighting or recreational lighting and are within 100m of unlit areas at the time of application – in order to correctly assess the potential impacts on sensitive receptors.	n/a

Table 16: Proposed Amendments/Additions to draft Policies & Objectives

10.0 Local Area Plan Monitoring

10.1 Introduction

Under the Planning and Development Act, 2000 - 2013, the Local Authority is required to prepare a progress report on the implementation of the Plan. Given the environment is a significant consideration then the progress report will include the key findings of the environmental monitoring programme as outlined in this chapter of the Environmental Report.

Monitoring of the Donabate Local Area Plan and its implications on the environment is paramount to ensure that the environment is not adversely affected through the implementation of the Plan. Under Article 10 of the SEA Directive monitoring must be carried out of the significant environmental effects directly related to the implementation of the Plan *“in order to, inter alia, identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action.”* The Department of the Environment, Community and Local Government Guidelines on SEA recommends that monitoring does not require new research activity; existing sources of information can be used and the task of data collection can be shared.

While considerable environmental data is directly available to the Council such as water quality, recycling rates etc, other sources of information will be accessed to provide a comprehensive view of the impact of the Plan. In this regard the Local Authority will work with other agencies with environmental mandates to gather data for the purposes of monitoring the implementation of the Plan. Therefore, while monitoring specific elements of the environment is not strictly the preserve of the Council, the Council will continue to liaise and work with the Environmental Protection Agency and The National Parks and Wildlife Service, as well as others in the pursuit of environmental conservation and protection through existing environmental monitoring procedures.

10.2 Monitoring Indicators

It is proposed to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels. The indicators aim to simplify complex interrelationships and provide information about environmental issues which is easy to understand. A list of environmental indicators is provided in the table overleaf. The indicators are based on the Strategic Environmental Objectives presented in Chapter 6 and have been derived from knowledge of the existing environmental issues within the Plan area and also from legislation, guidelines and higher level Plans.

Furthermore it is proposed to use a Geographical Information System (GIS) based monitoring system to monitor and assess the implementation of the Plan. This GIS based system will attempt to overcome any limitations in spatial analysis, to achieve an improved and better informed decision-making process, and provide data for future Development Plan reviews and the associated SEA process requirements.

Environmental indicator assessment during monitoring can show positive/neutral impacts or negative impacts on the environment. Where an indicator value highlights a positive/neutral impact on the environment, it is likely that the policies and objectives of the Plan are well defined with regard to the environment. Conversely where the objectives of the Plan have a negative impact on the environment, it may be necessary to review the objectives of the Plan or to take some other form of intervention. For example, if an objective or policy is having a significant adverse impact, a variation may be considered during the lifetime of the Plan.

The Fingal Development Plan is currently under review and the Draft Fingal Development Plan 2017-2023 including Environmental Report is on public display. It is considered that, if appropriate, that the monitoring programme for the Donabate Local Area Plan 2016-2022 is integrated with the monitoring programme for the adopted Fingal County Development Plan 2017-2023.

Environmental Category	Targets	Selected indicators	Data Sources, Responsibility and Frequency (subject to available resources)
Biodiversity	No loss of important and/or designated habitats	Reported/ Estimated levels of damage to designated sites/ species/ habitats as identified	Fingal County Council/National Parks and Wildlife Service/Fisheries Board (depending on available information from relevant statutory authorities)
	No deterioration in the quality of protected areas	Number of sites containing rare or threatened species.	Fingal County Council Parks Department /National Parks and Wildlife Service (Annually)
	No loss of protected species	Number of rare or threatened species.	Fingal County Council Parks Department/National Parks and Wildlife Service (Annually)
	No of Appropriate Assessments carried out	Number carried out	Fingal County Council Planning Department (Annually)
	All actions contained within the Biodiversity Plan to be achieved during the lifetime of the LAP	Number of actions achieved.	Fingal County Council Planning/Parks Department (Annually)
	No net loss of green linkages established under the Green Infrastructure Strategy.	Net area of new green infrastructure established through the development management process.	Fingal County Council Planning/Parks Department (Annually)
Population & Human Health	Decrease in journey times to work, education and recreation.	Distance and mode of transport to work	Fingal County Council (Annually)
	No increase in population above core strategy population targets	% change in population based on core strategy targets based on RPG figures.	CSO (In line with Intercensal frequency)
Soil	No incidences of soil contamination	Number/severity of recorded pollution incidences	Fingal County Council & EPA (Annually)
	Limited and controlled development of greenfield sites	Area of land lost through greenfield development as per LAP	Fingal County Council (Annually)
Water	Implement fully the recommendations of the three relevant River Basin Districts River Basin Management Plans.	Number of recommendations achieved.	Fingal County Council/EPA/Irish Water (Annually)
	Achieve 'good' quality status of surface waters in line with WFD	Percentage increase in the overall quality of surface waters.	Fingal County Council/EPA/Irish Water (Annually)
	Comply and implement fully the most recent EPA guidelines on Septic Tank use and siting as well as other on-site treatment facilities.	Number of permissions granted complying with the guidelines..	Fingal County Council/EPA (Annually)
	Maintain and upgrade where necessary all Local Authority operated WWT plants to comply with the relevant legislation.	Compliance with discharge parameters.	Fingal County Council/EPA/Irish Water (Annually)
	Improvement in bathing water quality	Achieve and maintain Green Flag status on all beaches.	Fingal County Council/EPA (Annually)

Table 17: Proposed Monitoring Indicators

Environmental Category	Targets	Selected indicators	Data Sources, Responsibility and Frequency (subject to available resources)
Air Quality	Improvement in the concentrations of measured parameters such as Particulate Matter, Sulphur Dioxide and nitrogen oxides.	Measurable reductions in concentrations.	EPA (per EPA frequency)
Climate change	Increase in permissions granted for residential development within acceptable distance of public transport hubs.	Percentage of housing developments within specified distance to transport hubs.	Fingal County Council (Annually)
Material Assets	Increase access to public transport from households.	Travel and Traffic Surveys at individual planning application level.	Fingal County Council (Annually)
	Increase re-use of brownfield sites for development in preference to greenfield sites.	Ratio of brownfield site development to greenfield sites.	Fingal County Council (Annually)
	Improved treatment at established wastewater treatment facilities	Compliance with discharge limits	Fingal County Council/EPA (Annually)
	Reduction in the tonnage of overall waste produced and an increase in the percentage of waste recycled.	Tonnage of waste produced and recycled.	Fingal County Council/EPA (Annually)
Cultural Heritage	No loss of features of architectural or archaeological importance	Number of recorded features lost.	Fingal County Council, The Archaeological Survey monitoring programme, Ireland; Buildings at Risk Register - Heritage Council Ireland (Annually)
	No deterioration in the quality of Architectural Conservation Areas	Condition of ACAs	Fingal County Council (Annually)
	No impact on the integrity or setting of monuments contained on the Record of Monuments by development granted planning permission.	Number of protected structures impacted by new development.	Fingal County Council (Annually)
	No protected structures to be lost through neglect or misuse.	Number of deletions to the RPS.	Fingal County Council (Annually)
Landscape	No diminution in the quality of important landscapes.	Number of developments permitted within landscapes of exceptional value and high sensitivity as per the LCA.	Fingal County Council (Annually)
	Implement in full the recommendations of the Landscape Character Assessment for Co. Fingal.	Number of recommendations implemented.	Fingal County Council (Annually)

Table 17: Proposed Monitoring Indicators contd.

11.0 Conclusion

The Donabate Local Area Plan 2016-2022 and its policies and supporting objectives are key to the future sustainable development of Donabate and its surrounding area. The Plan aims to balance the needs of the future population with the preservation and conservation of environment as prescribed in the County Development Plan. The Plan has a strong focus towards sustainability.

The Strategic Environmental Assessment process has been carried out in conjunction with the Appropriate Assessment of the Plan and the preparation of the Plan itself. This allows for an early indication of the potential environmental effects likely to occur as a result of the implementation of the Plan. As a result changes or alterations to the Plan are made throughout the course of its preparation. Through this process of assessment and re-assessment, it was identified that particular objectives or policies could potentially have a negative environmental impact on particular environmental receptors or indeed on a number of them simultaneously. The benefit therefore of preparing the Plan, the Natura Impact Report, and the Environment Report ensures that these issues are highlighted at an early stage in the process. This allows the potential negative impacts of the Plan to be addressed early on and effectively eliminated from the Plan.

The objectives contained within the Plan were assessed against the Strategic Environmental Objectives and indicate that the full implementation of the Plan will not result in a significant negative or adverse impact on the environmental resources within the Plan area. It has been shown in this report that the Plan's policies and objectives are generally consistent with this summary and as a result the Plan will have a neutral to positive impact on the environment as a whole.

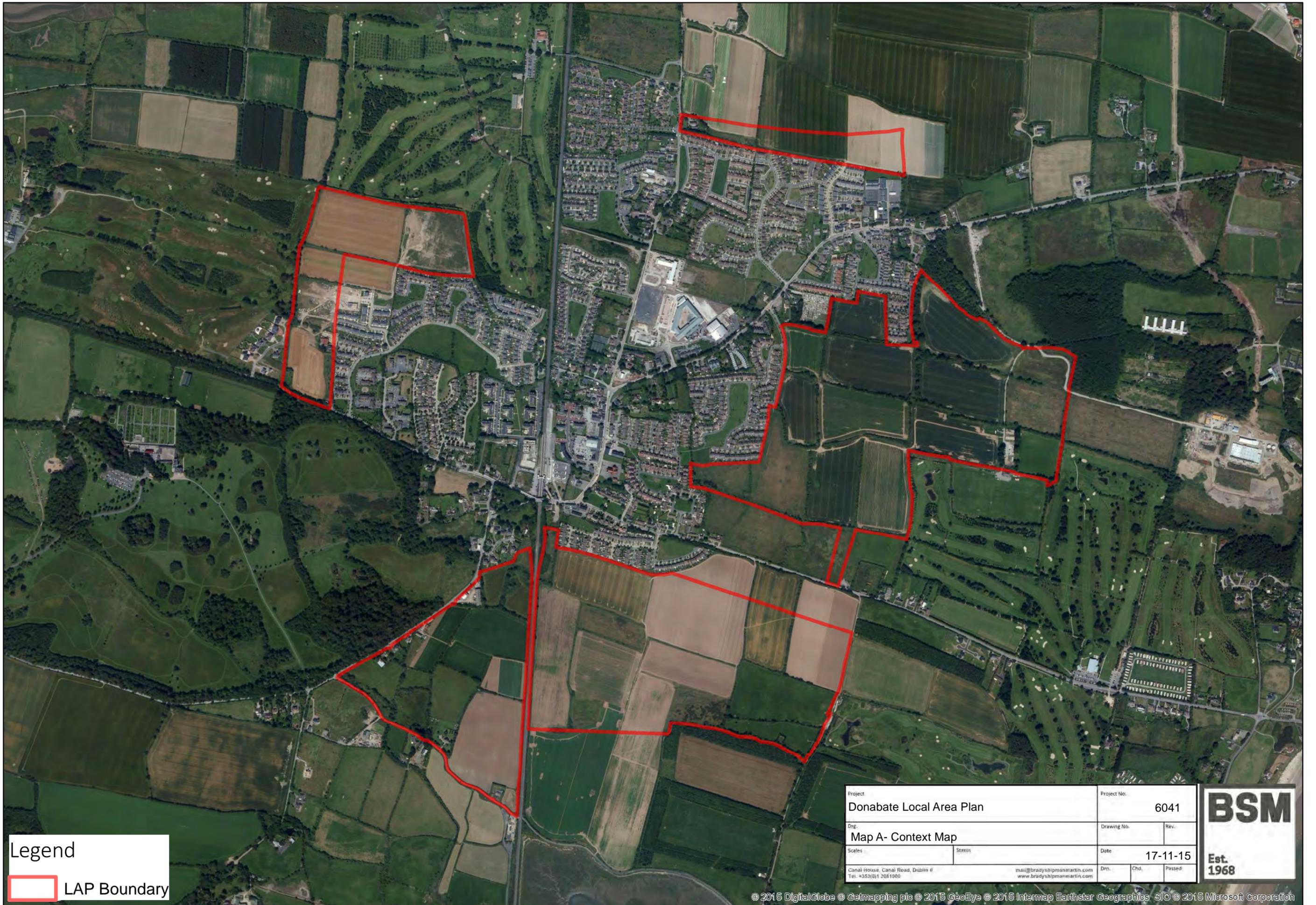
Where the SEA has found potential for negative impacts on the environment as a result of the Plan's implementation, mitigation as well as enhancement measures have been proposed. The implementation of these

measures, coupled with the monitoring procedures will ensure the Local Area Plan is acceptable from an environmental perspective.

In addition the Natura Impact Report of the Local Area Plan was prepared to give information on and assess the potential of the Local Area Plan to impact on sites of European-scale ecological importance. This Natura Impact Report records the decisions that were taken during the preparation of the Donabate Local Area Plan 2016-2022. It determines that, assuming the successful implementation of the Policies and Objectives, there will be no likely significant effects on the European sites in the zone of influence of the Plan in isolation or in combination with other Plans and Projects acting in the same area.

Finally at the outset of the assessment process, a number of environmental issues were identified. While these are and remain the key environmental challenges facing the Council over the lifetime of the plan, they also have complex interrelationships with other environmental receptors. Therefore, the imperative is to promote a holistic, all-inclusive response towards the protection of the natural assets within the Plan area. For example groundwater for human consumption can be improved if restrictions on inappropriate land uses and surface based activities are applied. Subsequently, efforts made to improve water quality also have beneficial impacts on soil quality, habitat conservation, landscape and visual quality etc. The potential synergies at play, if appropriately addressed, will lead to an improvement in the quality of life for the residents of the plan area.

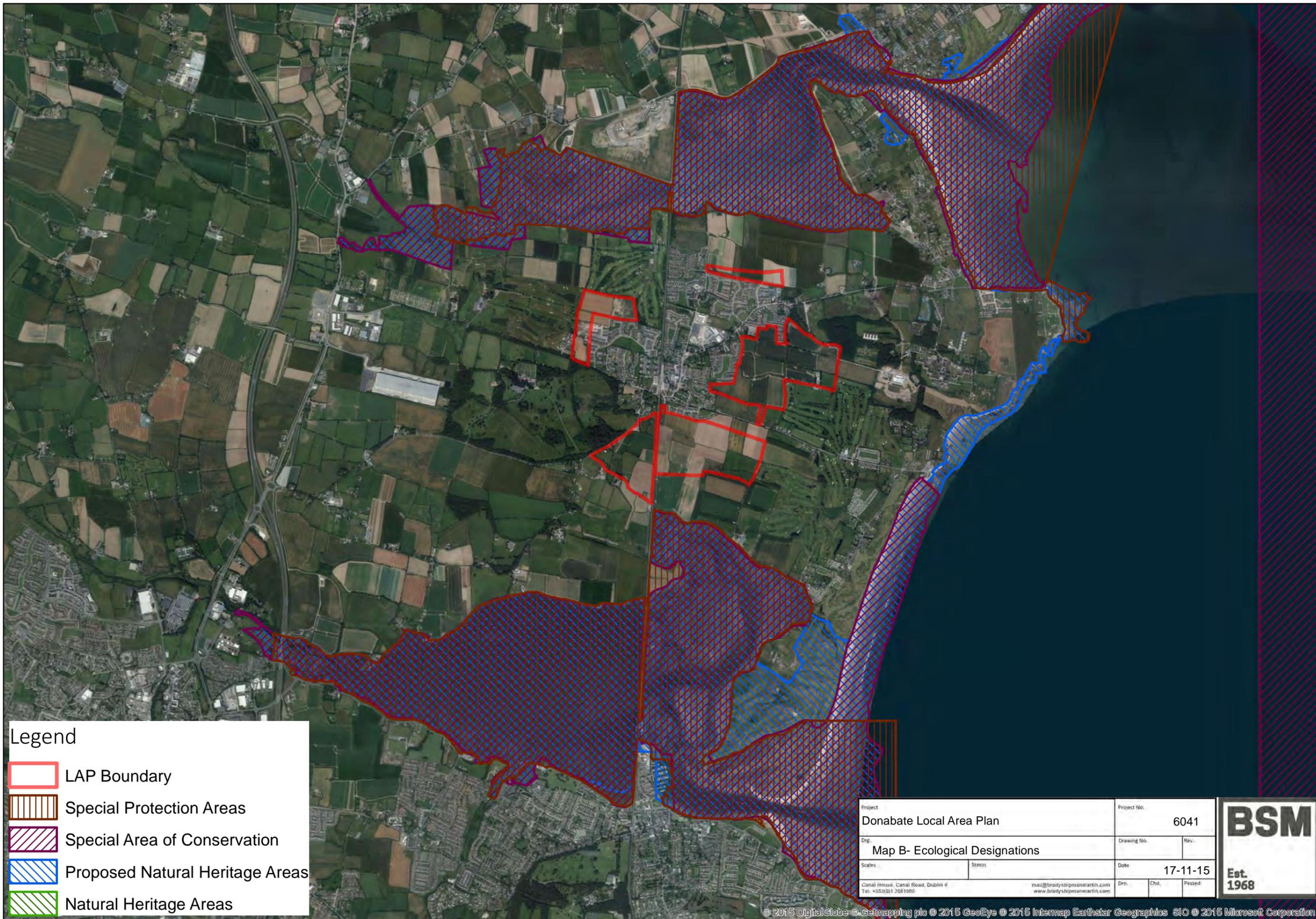
In summary, the assessment of the Plan has concluded that its policies and objectives are acceptable and represent a balanced and fair approach to the sustainable development of Donabate. Monitoring of the Plan throughout its lifetime will ensure that any potential adverse environmental impacts, unforeseen at this stage will be identified early, so as to prevent any deterioration of the environment. This Plan, as currently presented, balances growth with environmental protection and can deliver a sustainable future for the inhabitants of the area.



Legend
 LAP Boundary

Project Donabate Local Area Plan		Project No. 6041	
Drg. Map A- Context Map		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, Dublin 6 Tel: +353(0)1 2081900		Drn.	Chd. Passed
mail@bradyshiptonmartin.com www.bradyshiptonmartin.com			





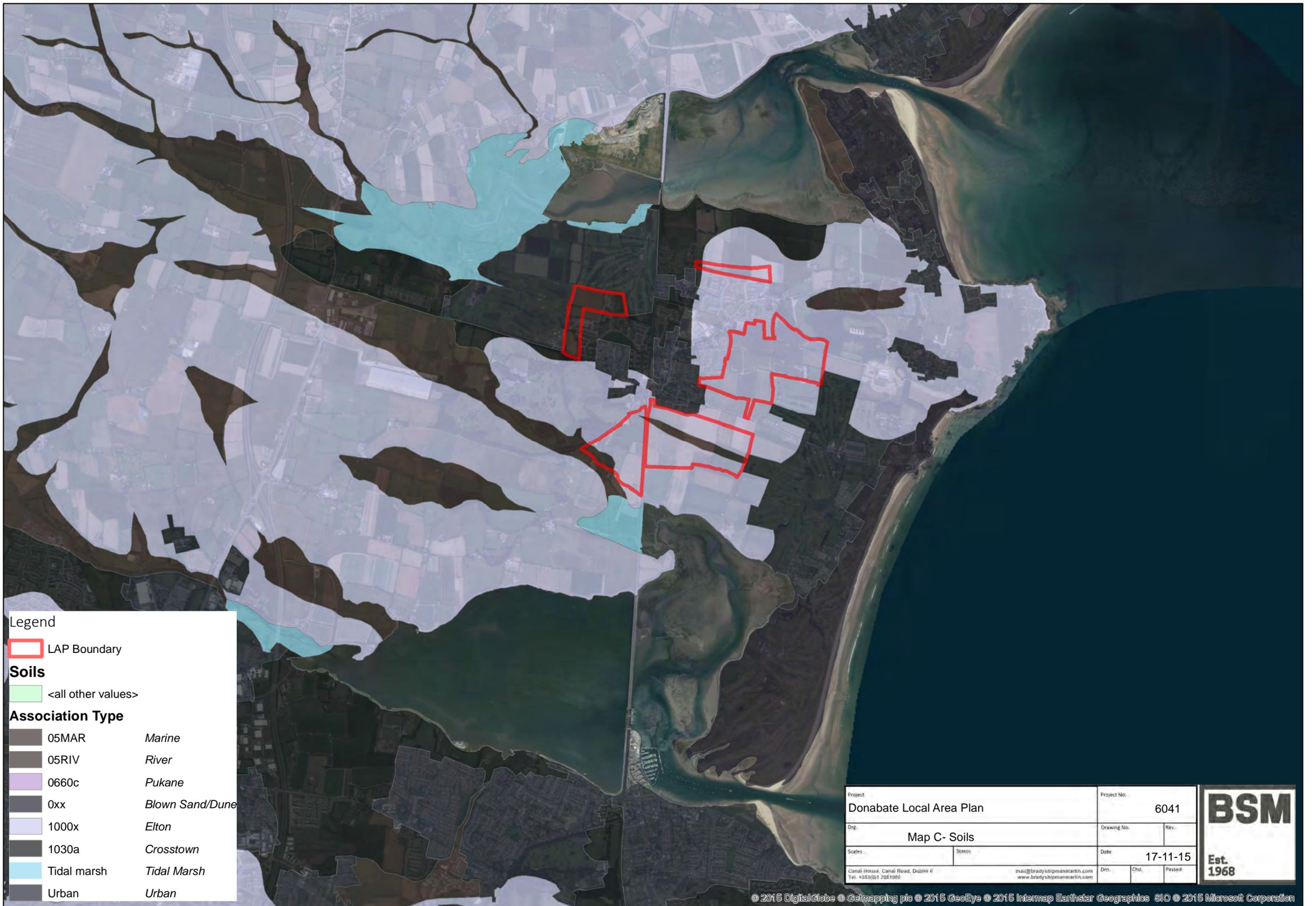
Legend

- LAP Boundary
- Special Protection Areas
- Special Area of Conservation
- Proposed Natural Heritage Areas
- Natural Heritage Areas

Project Donabate Local Area Plan		Project No. 6041	
Drg. Map B- Ecological Designations		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, Dublin 6 Tel: +353(0)1 2081900		Drn.	Chd. Passed
mail@bradyshtpmanmartin.com www.bradyshtpmanmartin.com			

BSM

Est. 1968



Legend

LAP Boundary

Soils

<all other values>

Association Type

	05MAR	Marine
	05RIV	River
	0660c	Pukane
	0xx	Blown Sand/Dune
	1000x	Elton
	1030a	Crosstown
	Tidal marsh	Tidal Marsh
	Urban	Urban

Project Donabate Local Area Plan		Project No. 6041	
Drg. Map C- Soils		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, DUBLIN 6 Tel: +353(0)1 2081900		Drn.	Chd. Passed

BSM

Est. 1968



Legend

 LAP Boundary

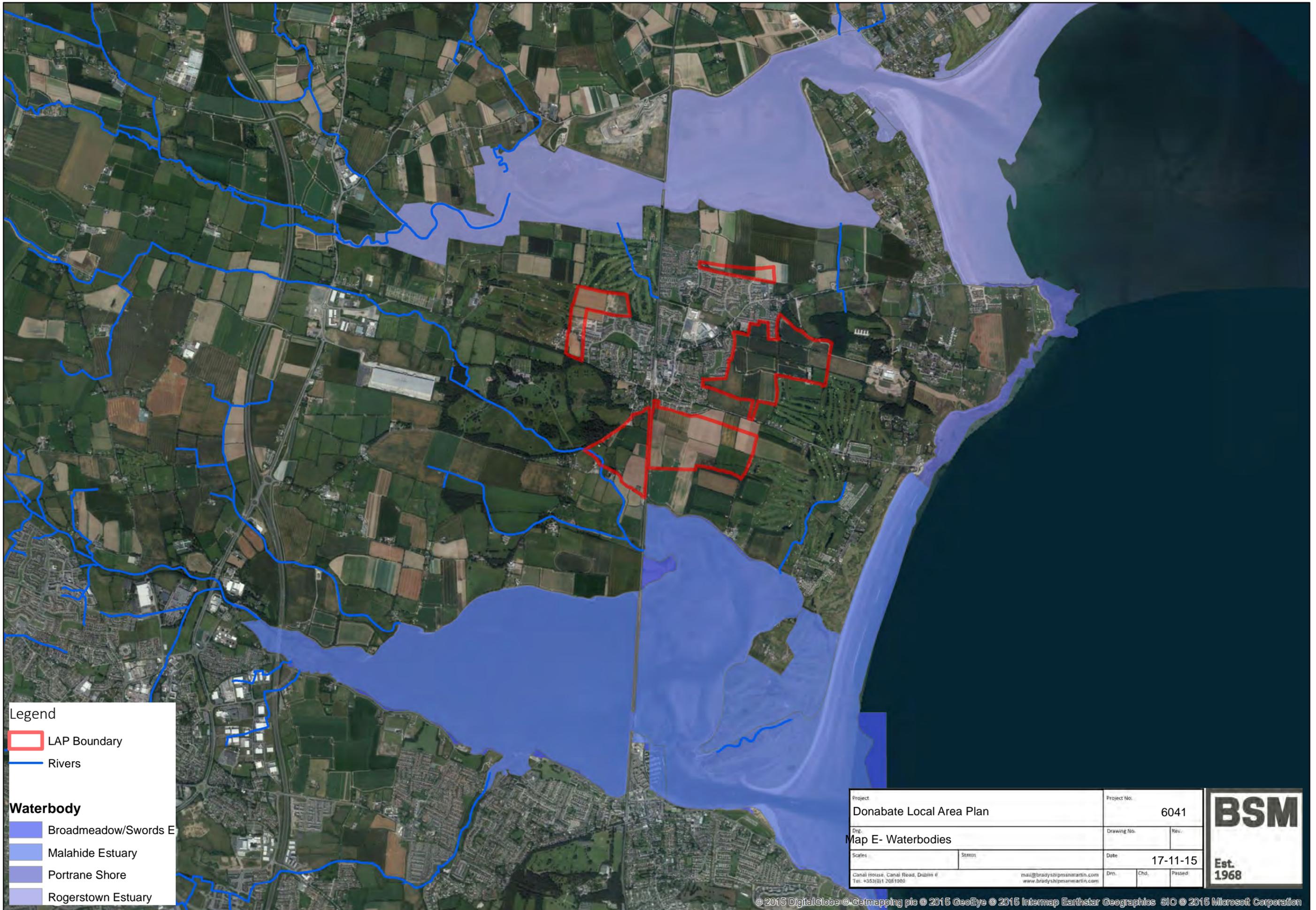
Bedrock

Type

-  Donabate Formation
-  Lucan Formation
-  Malahide Formation
-  Portrane Limestone Formation
-  Portrane Volcanic Formation
-  Rush Conglomerate Formation
-  St. Itas Formation
-  Tober Colleen Formation
-  Waulsortian Limestones

Project Donabate Local Area Plan		Project No. 6041	
Dwg. Map D- Geology		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, Dúibhir é Tel: +353(0)1 208 1900		Drn.	Chd. Passed
mail@bradyshtpmanmartin.com www.bradyshtpmanmartin.com		Est. 1968	





Legend

LAP Boundary

Rivers

Waterbody

Broadmeadow/Swords E

Malahide Estuary

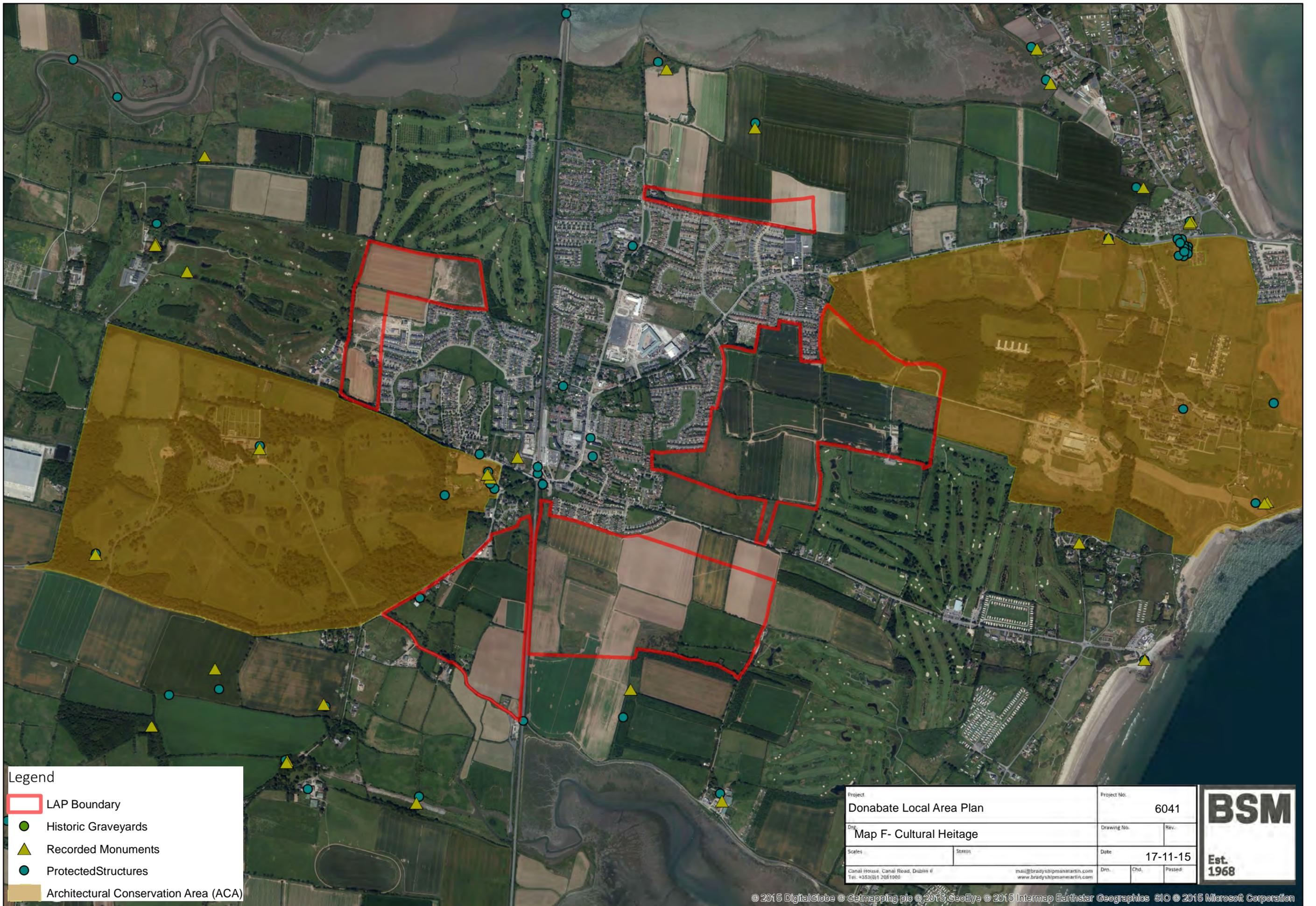
Portrane Shore

Rogerstown Estuary

Project Donabate Local Area Plan		Project No. 6041	
Dwg. Map E- Waterbodies		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, DUBLIN 6 Tel: +353(0)1 2081900	mail@bradyshtpmanmartin.com www.bradyshtpmanmartin.com	Drn.	Chd. Passed

BSM

Est.
1968



Legend

- LAP Boundary
- Historic Graveyards
- ▲ Recorded Monuments
- Protected Structures
- Architectural Conservation Area (ACA)

Project Donabate Local Area Plan		Project No. 6041	
Dwg. Map F- Cultural Heitage		Drawing No.	Rev.
Scales	Status	Date 17-11-15	
Canal House, Canal Road, DUBLIN 6 Tel: +353(0)1 2081900		Drn.	Chd. Passed
mail@bradyshiptonmartin.com www.bradyshiptonmartin.com			

BSM

Est. 1968

Donabate

Appendix 3

Natura Impact Report (AA)



**APPENDIX 3: NATURA IMPACT REPORT
DONABATE LOCAL AREA PLAN 2015-2021**

FINGAL COUNTY COUNCIL

Project Reference:		130163			
Rev.	Status	Author	Reviewed By	Approved By	Issue Date
rev1	Final	KMOC/PS	PS	PS	6/04/16

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1 INTRODUCTION

1.1 Legal Requirement for Habitats Directive Assessment

This Natura Impact Report (NIR) was prepared by Scott Cawley Ltd. for Fingal County Council. It provides information on and assesses the potential for the proposed development plan to impact on sites of European-scale ecological importance. This is the final version of the NIR and is published alongside the adopted Donabate Local Area Plan 2015-2021 (LAP) and serves as a documented record of the process of the Appropriate Assessment (AA) of the Plan throughout its preparation.

The responsibility for carrying out the Assessment lies with Fingal County Council and this NIR facilitates the AA by the Council. The Council's AA decision at the adopted Plan Stage is also published alongside the adopted LAP.

The preparation of the LAP has regard to Article 6 of the Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the Habitats Directive). This is transposed in Ireland by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (hereafter referred to as the Habitats Regulations) and Part XAB of the Planning and Development (Amendment) Act 2010.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to affect Natura 2000 sites (Annex 1.1).

Article 6(3) establishes the requirement to screen all plans and projects and to carry out a further assessment if required (Appropriate Assessment (AA)):

Article 6(3): "Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

The subsequent paragraph allows proposed plans and projects to be approved in certain conditions.

Article 6(4): "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of the Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to the beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

This Natura Impact Report has informed the Appropriate Assessment process for the Donabate Local Area Plan 2015-2021.

1.2 Statement of Authority

The preparation of the Natura Impact Report was carried out by Paul Scott, Kate-Marie O'Connor and Ashling Cronin of Scott Cawley Ltd. The results of the AA were integrated into the Draft LAP in Fingal County Council via Sarah Ryan, Executive Planner. Additional information was obtained during the AA process from other Sections in the Planning Department such as Water, Waste and Transport. Following the period of public display of the Draft LAP, the proposed amendments to the Draft LAP were analysed by Paul Scott and the Draft NIR updated to reflect any changes to the Draft Plan prior to adoption.

Paul Scott is Director with Scott Cawley Ltd. Paul holds a first class honours degree in Environmental Biology from the University of Liverpool and a Masters in Pollution and Environmental Control at the University of Manchester. He is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Full Member of the CIEEM. He is an experienced environmental scientist, specialising in impact assessment and ecology. He has experience in a wide variety of environmental assessment and management projects and also has acted as a member of environmental assessment Expert Panels. Paul has prepared guidance on Strategic Environmental Assessment and Environmental Impact Assessment to UK and Irish central government and local authorities. Paul has prepared ecological guidance notes designed for planners and developers on behalf of the four Dublin local authorities. Paul has been involved in several Appropriate Assessments of complex projects and land-use plans including the Cherrywood SDZ, Ennis Local Area Plan, Meath County Development Plan, East Meath Local Area Plan and variations to the Meath, Dublin, Ennis and Kildare Development Plans. Paul developed a review package for Appropriate Assessment as part of the EPA STRIVE funded project Integrated Biodiversity Impact Assessment. He lectures on EIA and Appropriate Assessment practice at University College Dublin, Trinity College Dublin and NUI Galway.

Kate-Marie O'Connor holds an honours degree in Natural Sciences from Trinity College Dublin, specialising in Botany, and obtained a first class honours in her Master's degree in Environmental Modelling, Monitoring and Reconstruction from the University of Manchester. Her experience as a graduate and junior ecological consultant has focused on the preparation of ecological assessments, most frequently for EIA and AA, with all the key elements of those processes including planning for an undertaking ecological baseline surveys, desktop studies, analysis and presentation of data and results, undertaking assessment of impacts and identifying appropriate mitigation measures. She has worked on a range of public and private sector schemes in the UK and Ireland. Kate-Marie has a specialist interest in botany but is also competent in a range of fauna surveys (e.g. mammals including bats and newts). Kate-Marie regularly prepares information for Appropriate Assessment reports, either as lead or co-author, depending on the project requirements.

Ashling Cronin holds an honours degree in Applied Ecology, and a first class honours Master's degree in Ecological Assessment from University College Cork. She is a Graduate Member of the CIEEM. Ashling has experience in the survey and assessment of a range of habitats and species including: Phase I habitat survey and mapping (including Annex I habitats), mammal surveys (including bats, badgers, and otters), bird and ground beetle surveys and impact assessment. She has conducted river corridor habitat surveys including assessment of fisheries potential, and is experienced in biological and physiochemical water quality monitoring. She also has experience of Strategic Environmental Assessment (SEA) and Appropriate Assessment having conducted research in collaboration with the Environmental Protection Agency and was involved in the production of the SEA Process Checklist (EPA, 2008).

2 ASSESSMENT METHODOLOGY

2.1 Formal Guidance

The AA process has taken account of guidance contained in the following documents:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision).
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 and PSSP 2/10.
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission Environment Directorate-General, 2001); hereafter referred to as the EC Article 6 Guidance Document. The guidance within this document provides a non-mandatory methodology for carrying out assessments required under Article 6(3) and (4) of the Habitats Directive.
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (EC Environment Directorate-General, 2001); hereafter referred to as MN2000. Note that a revised version of this Guidance is due for publication in 2016 and will be taken into account when appropriate.
- *Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence.* Opinion of the European Commission (European Commission, January 2007).
- *Guidelines for Good Practice Appropriate Assessment of Plans Under Article 6(3) Habitats Directive* (International Workshop on Assessment of Plans under the Habitats Directive, 2011)

2.2 Sources of Information Used

Information relied upon included the following information sources, which included maps, ecological and water quality data:

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie;
- Online data available on European sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie;
- Information on land-use zoning from the online mapping of the Department of the Environment, Community and Local Government <http://www.myplan.ie/en/index.html>;
- Information on water quality in the area available from www.epa.ie;
- Information on the Shannon International River Basin District from www.wfdireland.ie;
- Information on soils, geology and hydrogeology in the area available from www.gsi.ie;
- Information on the status of EU protected habitats in Ireland (National Parks and Wildlife Service, 2013a and 2013b);
- Information on the conservation status of birds in Ireland (Colhoun and Cummins, 2014);
- Fingal Development Plan 2011-2017;
- Fingal Development Plan 2011 – 2017 Natura Impact Statement;
- Draft Fingal Development Plan 2017-2023;
- Fingal Development Plan 2017-2023 Natura Impact Statement;
- Baldoyle-Stapolin Local Area Plan 2013-2019;
- Clongriffin–Belmayne (North Fringe) Local Area Plan 2012-2018;
- Portmarnock South Local Area Plan 2013-2019;
- Dublin City Council Development Plan 2011-2017; and,
- Ecological reports and EIS reports for proposed developments within LAP lands.

2.3 Appropriate Assessment: Purpose and Process

Fingal County Council has prepared the Local Area Plan 2015-2021. This Plan sets out objectives and technical guidance which will be used to guide the development of the area.

All land use plans, such as the Donabate Local Area Plan 2015-2021 (hereafter referred to as “the LAP”), must be prepared and examined to ensure that there will not be any adverse effects on sites that are designated for their special habitats and wildlife. These particular sites are regarded to be of European importance and are part of the European Commission’s Natura 2000 network of sites. They are termed candidate Special Areas of Conservation (SAC) under the E.C. Habitats Directive and Special Protection Areas (SPA) under the E.C. Birds Directive. The Irish Government and local planning authorities have a legal obligation to protect these sites.

The process of assessing the LAP was a structured exercise with a series of steps. The overall purpose of the process was to ensure that the LAP, when implemented, does not result in adverse effects on the “integrity” of the European sites within the Natura 2000 network. The first step was to look at the overall LAP in principle and to answer the questions: is it likely that the implementation of this Plan could result in likely significant effects on the European sites within the Natura 2000 network? It does not matter where these sites may be – impacts can occur across administrative boundaries. This step is known as “Screening”. In order to ensure that the Draft LAP complied fully with the requirements of Article 6 of the Habitats Directive and all relevant Irish transposing legislation, Scott Cawley Ltd, on behalf of Fingal County Council carried out the screening of the Draft LAP at the Issues Paper stage to see if the Draft LAP that would follow would require an AA. The outcome of this Screening Stage was that it was determined¹ that due to the types of development that could arise as a result of implementing the LAP, that significant effects could not be ruled out and that the Plan would need further assessment during its preparation. At the time of screening the Draft Plan, the detail of the development objectives were not known so the screening was undertaken in a very precautionary and strategic manner. The documented output of the AA Screening stage was an AA Screening Report and an AA Screening Determination by Fingal County Council. This was published alongside the Draft LAP and the Draft NIR.

The AA process then moved to full Appropriate Assessment as required under Section 177V, Part XAB, 2000 Planning and Development Act, as amended.

The AA and SEA team held several meetings with FCC in 2014 and 2015 to discuss issues of concern including the proposed greenways, SUDS and flood risk, water services and transport and the overall approach to the preparation of the Plan and elements within the Plan.

To inform the preparation of the Draft LAP, a Policy Guidance Note (included in Appendix B) was prepared by the Appropriate Assessment Team. This Note highlighted the ways in which the Plan may result in impacts on the individual European sites and provided recommended Objectives to be included in the Draft Plan.

The AA involved analysing the relationship between the proposed elements of the Draft LAP (as it was being prepared) and the Conservation Objectives of the European sites. Where there was the potential for an adverse impact to occur, then the assessment team recommended changes to elements of the Draft LAP to avoid or mitigate the potential impact. These recommendations were integrated into the various elements of the Draft LAP so that the implementation of the LAP would not result in any significant effects on European sites.

¹ Under Section 177U, Part XAB, 2000 Planning and Development Act, as amended.

Fingal County Council provided the Scott Cawley AA team with draft Chapters during their process of preparing the Draft LAP. These Chapters were reviewed and revised by the Council in an iterative process of assessment. A summary of the results of this review of the Draft LAP are provided in Section 3.4.

The Draft Plan was then put on public display from 1st December 2015 to 21st January 2016. A total of 65 no. submissions were received during the public display. All submissions were scrutinised by the AA team for implications for European sites and the impact on the conclusions made in the Draft NIR. On the basis of these submissions, Fingal County Council proposed a series of amendments to several Chapters in the Draft LAP. A Chief Executive's Report was prepared, consisting of a summary of the issues raised and the report and recommendations of the Chief Executive on the submissions received on the Draft Donabate Local Area Plan. **This was put to the Councillors on 14th March and the proposed amendments were adopted.**

2.4 Overlap with the Strategic Environmental Assessment of the Local Area Plan.

The Strategic Environmental Assessment (SEA) of the LAP was carried out concurrently with the AA. There were several areas of overlap and in accordance with good practice in terms of the following stages:

- Sharing of baseline data gathering and sharing, data on European sites and potential sensitivities and threats.
- Settlement zoning maps were scrutinised by the AA team for potential adverse effects on integrity of the European Sites in terms of their Conservation Objectives but also any other ecological impacts outside of the European site-scale were highlighted to the SEA team for them to address in the SEA process.
- SEA team were able to highlight potential interactions between other environmental issues such as water quality and infrastructure and the sensitivities of European sites to the AA team.

2.5 Consultation Strategy

Whilst consultation is not an obligatory part of the Appropriate Assessment process, it provides important information on the state of the European sites and any specific concerns that key stakeholders may have. The Council met with the Department of Arts, Heritage and the Gaeltacht on 5th December 2014. The Appropriate Assessment Screening stage has taken full account of these observations.

In addition, this NIR was used for the purposes of undertaking consultation with the National Parks and Wildlife Services (NPWS) as well as Inland Fisheries Ireland (IFI), BirdWatch Ireland (BWI), and the Environmental Protection Agency (EPA) to inform the Appropriate Assessment process.

The Department of Arts, Heritage and the Gaeltacht also submitted observations on the Draft LAP (Ref FP2015/113 dated 19th January 2016). These observations were analysed by the AA and SEA teams and the Council have responded by making several amendments to the text and the Objectives in the final version of the LAP.

2.6 How the AA process is applied within the Planning Hierarchy

The AA process takes place at several stages within the land use planning hierarchy. In the case of Donabate, the LAP must take cognisance of the Fingal Development Plan (FDP) 2011-17. The LAP will then provide a framework for AA of individual planning applications which will have to take this NIR into account.

The Appropriate Assessment requirements of Part XAB of the Planning and Development (Amendment) Act 2010 applies to all levels of the planning hierarchy. At each stage the nature of the assessment will match the level of the hierarchy. As actions pass from the County Plan-level to the local plan level and then to individual planning applications, the following aspects become expressed at a sharper and more detailed level:

- Geographic specificity (i.e. from non-specific actions in CDP, to actions proposed for identifiable land parcels in the LAP).
- Duration and timing of impacts (usually not known at the plan level).
- Raw materials required, wastes and energy generated (can be predicted in a generic sense at plan level but precise constituents and quantities usually only known at the project level).

In order to address this hierarchy of level of detail, the current AA of the LAP has ensured that where the certain aspects are not predictable at the LAP level but may pose a risk to the European site when project details are known, that this is highlighted in the AA process and appropriate safeguards or capture mechanisms are proposed.

Table A3.3 in the Appendix identifies which Qualifying Interests and targets are covered by these assessment criteria.

2.7 How AA was applied to various components of the LAP.

AA has been applied to the current LAP and this NIR documents the output of the process. Within the LAP itself there are different levels at which the AA has been applied. The overarching objectives in Sections 1-9 were reviewed by the AA team and any adverse effects on integrity of European Sites were highlighted to the Plan authors. As with most strategic plans, the general nature of the strategic objectives was such that site-specific impacts could not always be accurately predicted and it would depend on where and how the Objective was applied. In such cases the text was revised to reinforce the need to carry out AA at lower, site specific levels. The AA team had already briefed the CDP authors on the need to avoid certain Objectives that could give rise to adverse effects on integrity of European Sites so in practice there were few Objectives that required revision.

Maps were reviewed to analyse any map-based proposals that had geographic specificity that could be assessed as posing adverse effects on integrity of European Sites.

3 OVERVIEW OF THE DONABATE LOCAL AREA PLAN

3.1 Overview

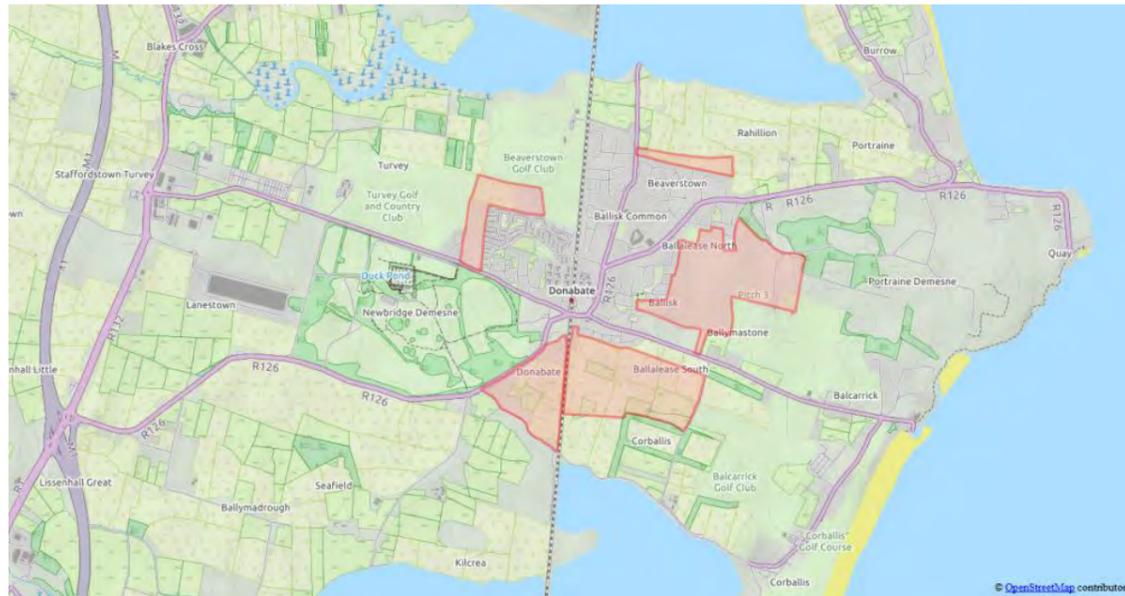


Figure 1: Overview of lands covered by the LAP

The LAP is informed and implemented by a hierarchy of planning policies, including the Fingal Development Plan 2011-2017. The Fingal Development Plan 2011-2017 was also subject to an AA in accordance with the EC Habitats Directive and it is assumed that the LAP will be implemented in the context of the County Development Plan and its assessment. The Donabate LAP has also taken cognisance of the emerging Fingal Development Plan 2017-2023.

The previous LAP for Donabate was adopted in June 2006 and had a lifespan of six years. A number of major infrastructural projects and planned large scale residential developments, which were identified in the previous LAP, have remained unchanged since the adoption of the plan in 2006 as a consequence of the economic downturn and the collapse of the property market. The LAP will seek to address this as well as a number of key strategic changes, which have occurred since 2006, such as the adoption of the new Fingal Development Plan (FDP) 2011-17 and the revision national guidance. The LAP will be in effect for six years (i.e. 2015 to 2021). It will establish a framework for the planned, co-ordinated and sustainable development of undeveloped lands zoned in Donabate.

The Donabate LAP 2015-2021 will provide a statutory framework for the proper planning and sustainable development of substantial undeveloped residential lands in the Fingal County Development Plan 2011-17. These lands are in four separate parcels totalling c.144 hectares and are zoned Objective RA – ‘to provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure’. These lands were designated in the previous Donabate LAP 2006 to have a potential for approx. 5,000 new dwelling units. These four zoning parcels are referred to as Turvey, Corballis, Ballymastone and Rahillion. Whilst the focus of the LAP is on the development of these areas, these are set in the context of upgrading of existing infrastructure and to provide new greenways and open space as part of the LAP.

It is not the purpose of this Natura Impact Report to reproduce the text of the LAP and the reader is directed to *Chapter 1: Introduction to Donabate* and *Chapter 2: Vision and Development Strategy* of the LAP where an overview of the format and scope of the LAP is provided.

3.2 Proposed Residential Zonings

Section 1.4 of the LAP states:

“The LAP lands are zoned Objective ‘RA’, which seeks to ‘Provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure’ in the FDP 2011-2017. The vision for this zoning objective is to ‘Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.”

It is highlighted for the purposes of the AA process that all of the four zoning parcels at Turvey, Corballis, Ballymastone and Rahillion are not directly adjacent to any of the European sites. Further details regarding the receiving environment are provided in Section 4 of this NIR.

3.3 Proposed Greenways

It was highlighted early in the preparation of the LAP that one of the consequences of increasing the residential population in Donabate could be a corresponding increase in pressure on sensitive coastal sites as a result of more pedestrian movements and use of such areas for passive recreation. There is evidence for adverse effects at some locally-important sites such as the Burrow at Portrane. The *Beach Management Plan for the Burrow, Portrane, Co. Dublin*² states:

“...there is evidence that the roost site at the northern tip of the beach has been disturbed by visitor traffic and dogs. The sand and shingle banks off the northern tip of the peninsula, where the ground-nesting Little Tern was last known to have bred in 1991, have also been eroded away by the tide. The Ringed Plover is another beach nesting bird that is now absent, most likely due to disturbance.” p12.

In order to relieve visitor pressure on such sites as the Burrow at Portrane Beach and near bird roosting and feeding sites near Corballis and Turvey, it was proposed to increase the footpath network around Donabate and provide access to looped walks of various lengths. Several greenways have been proposed, the routes of which are indicative but in some cases will link with existing trails so their start and end points are relatively fixed. As stated in Section 4.1 there are three main greenways being proposed within the LAP:

- Turvey / Newbridge Loop: Connecting Turvey and Corballis LAP lands, Donabate Village and Train Station, Newbridge Demesne, Turvey Nature Reserve 4.5km to be constructed.
- Rahillion / St Ita’s Loop: Connecting Portrane Village and Beach, St Ita’s, Rahillion and Ballymastone LAP lands, Fingal Coastal Way (Rogerstown Estuary north of Rahillion), Donabate Village and Train Station, 4km to be constructed.
- Fingal Coastal Way (Malahide and Rogerstown Estuary): This route will run along the length of the entire coastline of Fingal. The section running along the Donabate Peninsula will connect Malahide Estuary to Donabate and Portrane Beaches and northwards to the bridge over the Rogerstown Estuary, 3.5km to be constructed. As stated in Section 4.1.7 in the LAP, the Broadmeadow Way is a proposed pedestrian/cycle trail between Donabate and Malahide. It is a

² Fingal County Council (2007) Beach Management Plan for the Burrow, Portrane, Co. Dublin. http://www.fingalbiodiversity.ie/resources/fingal_coast/2007%20Beach%20Manage%20Portrane.pdf

critical link in the Fingal Coastal Way route as it spans the Malahide Estuary, thereby linking two peninsulas. The Council is currently progressing this project through the required statutory planning and environmental approvals process.

The current receiving environment and the relationships to European Sites are provided in Section 4 of this NIR.

3.4 Proposed Open Space

The LAP identifies the existing open space resources used by the local population including Newbridge Demesne and Turvey allotments and the beaches at Portrane and Donabate. The LAP proposes to include additional open space resources such as:

- Ballymastone Education and Recreational Hub;
- Corballis Nature Park; and
- Turvey Linear Park.

Other resources include pocket parks and civic and public space.

As stated in Section 4.3.1, *“Corballis Park will be managed as a natural landscape to ensure that the lands continue to play host to a variety of bird/wildlife with controlled public access to this open parkland given its sensitivity. SUDS features will be incorporated into the parkland in the form of a regional wetland area to provide a suitable habitat for wildlife, as well as a pleasant amenity.”*

As stated in Section 8 in the LAP, a cattle grazing programme is also proposed for this wetland site together with its use as a Nature Park with managed public access. This Nature Park will be developed in tandem with development and will be important in providing a managed buffer between urban development and the important coastal habitats.

Boundary fencing at this location will be limited to a low timber post and rail with mesh fence (c.1.2 metre) with associated planting of native hedge species. Gates for closing off this wetland zone during the winter months when the migratory birds are visiting shall also be provided. Section 6 in this NIR identifies indicative habitat protection measures and design principles to be adhered to during the detailed design and construction. This park shall be fully developed and transferred to Council ownership prior to the occupation of any units in Phase 2.

4 OVERVIEW OF RECEIVING ENVIRONMENT

Donabate is located in east Fingal c. 15km north-east of Dublin City Centre on the Donabate Peninsula. The peninsula is bound to the north and south by the Rogerstown and Malahide estuaries respectively, by the coast to the east and M1 to the west. The Dublin to Belfast rail line runs through the two estuaries and the centre of Donabate town. Swords is located south-west of the subject lands and a distance of c. 3 km separates the development boundaries. The rural hinterland surrounding the town is mainly in agricultural and recreational uses. There are 5 golf courses and two Demesnes at Newbridge and St. Ita's.

4.1 Groundwater and Geology

According to the EPA Envision Map Viewer, the LAP zoning lands are located within the ‘Swords’ groundwater body, which is described as ‘*Poorly productive bedrock*’ and ‘*Expected to achieve good status*’. According to the GSI Map Viewer, the level of vulnerability to groundwater contamination from human activities is generally ‘*Low*’; however there are areas of ‘*Moderate*’, ‘*High*’ and ‘*Extreme*’ vulnerability located primarily within Beaverstown Golf Club and within the Village centre.

The bedrock of the four LAP zoning lands is generally classified as ‘*Malahide Formation – Argillaceous bioclastic limestone, shale*’. There are also sections of ‘*Donabate Formation – Red coarse sandstone and conglomerate*’, located within the south-eastern section of the Rahillion zoning lands, the centre of Ballymastone zoning lands and the south-eastern sections of the Corballis zoning lands and small sections of ‘*Portrane Volcanic Formation Andesite, tuff, pebbly mudstone and shale*’ located within the northern sections of both the Ballymastone and Corballis zoning lands.

4.2 Receiving environment within proposed Zoned lands

4.2.1 Turvey Zoning Lands

Turvey Zoning lands are located within the Eastern River Basin District and within the Delvin-Coastal river catchment. According to the EPA Envision Map Viewer, the nearest watercourse to the Turvey zoning lands is the Turvey Stream, which is located c. 145m south of the zoning land and has a catchment size of c. 13km². It flows for c. 1.6km downstream of the zoning area until it reaches Malahide Bay Coastal Waterbody, which is located adjacent to the Broadmeadow Water Transitional Waterbody. The water quality of the Turvey Stream is currently unknown. The Rogerstown Estuary Transitional Waterbody is located c. 640m north of the zoning lands. The water quality of the Rogerstown Estuary Transitional Waterbody is classified as ‘*Eutrophic*’, while the water quality of Malahide Bay is classified as ‘*Intermediate*’. The water quality of the Broadmeadow Water Transitional Waterbody is currently unknown.

Habitats located within the Turvey zoning lands consist primarily of improved agricultural fields, hedgerows, treelines, patches of scrub and drainage ditches. The zoning lands are connected to adjacent terrestrial habitats via a network of hedgerows and treelines, which border each individual field. A hedgerow/treeline (c. 615m in length) stretches along the western boundary of the zoning lands and the western and northern boundaries of the Beaverstown Golf Club to Rogerstown Estuary. The drainage ditch located along the north-eastern boundary of the zoning lands appears to be connected with water features located within the golf club.

Although no birds of Species of Conservation Interest have been within the Turvey zoning lands, roosting and feeding Light-bellied Brent Geese were noted at lands located adjacent to the north-western boundary of the zoning lands. Lands located adjacent to the north-western boundary of the Turvey zoning lands were identified as a primary roosting area and a secondary feeding area for waders and Brent Geese during surveys undertaken to inform the SEA of the previous Donabate LAP (Fingal County Council, 2005). See Figure 2 below for the location of the lands surveyed and their proximity to the zoned land at Turvey.

4.2.2 Rahillion Zoning Lands

Rahillion Zoning lands are located within the Eastern River Basin District and within the Delvin-Coastal river catchment. According to the EPA Envision Map Viewer, the Rahillion/Beaverstown Stream is located c. 605m west of the zoning lands, while the Ballalease Stream is located c. 435m east. Both these streams flow into the Rogerstown Estuary, which is located c. 390m north of the zoning lands. The water

quality of both these streams is currently unknown. The eastern zoning lands are drained by the Ballalease Stream and a network of open ditches, which flow through both Donabate and Balcarrick Gold Clubs before discharging to the Malahide Estuary.

Habitats located within the Rahillion zoning lands consist primarily of improved agricultural fields, hedgerows and treelines. The zoning lands are connected to adjacent terrestrial habitats via a network of hedgerows and treelines, which border each individual field and extend out to adjacent fields to lands located adjacent to Rogerstown Estuary.

During wintering bird surveys undertaken from November 2014 to 2015 in the outer Rogerstown Estuary, 35 Greylag Goose were observed feeding in a field located c. 190m north of the Rahillion zoning land boundary. These were the only bird species of significance recorded on the southern side of Rogerstown Estuary (Fingal County Council, 2015). Lands located c. 250m to the north of the Rahillion zoning lands on the northern side of the estuary were identified as a primary roosting area and secondary feeding area for waders and Light-bellied Brent Geese during surveys undertaken for the SEA of previous Donabate LAP (Fingal County Council, 2005). See Figure 2 below for the location of lands surveyed and their proximity to the Rahillion zoning lands.

During surveys undertaken by Scott Cawley in 2015, Otter spraint was noted at the sluice gate where the Ballalease Stream flows into the estuary, c. 520m north-east of the Rahillion zoning lands.

4.2.3 Ballymastone Zoning Lands

Ballymastone Zoning lands are located within the Eastern River Basin District and within the Delvin-Coastal river catchment. According to the EPA Envision Map Viewer, the nearest watercourse to the Ballymastone zoning lands is the Ballalease Stream, which is located c. 400m north of the zoning lands.

Habitats located within the Ballymastone zoning lands consist primarily of improved agricultural fields, hedgerows, treelines, patches of scrub and drainage ditches. The zoning lands are connected to adjacent terrestrial habitats via a network of hedgerows and treelines, which border each individual field. The hedgerows located along the north-eastern boundary of the zoning lands connect to the adjacent woodland, located within Portrane Demesne. The hedgerows located along the eastern boundary connect to a network of hedgerows and patches of woodland located within Donabate Golf Club, which extends out towards the coast. The drainage ditch located along the eastern boundary of the zoning lands appears to be connected with water features located within the golf club.

Lands located partially within Ballymastone zoning lands were surveyed as part of an ecological assessment undertaken to inform the SEA of the previous Donabate LAP. No bird Species of Conservation Interest were noted during these surveys. See Figure 2 below for the location of lands surveyed in relation to the Ballymastone zoning lands.

4.2.4 Corballis Zoning Lands

Corballis Zoning lands are located within the Eastern River Basin District and within the Delvin-Coastal river catchment. According to the EPA Envision Map Viewer, the Corballis zoning lands are located adjacent to the Malahide Bay Coastal Waterbody and c. 870m north-east of the Broadmeadow Water Transitional Waterbody. Turvey Stream is located partially within the south-western section of the zoning lands. The southern section of the LAP lands east of the railway line is included within the 'Ecological Buffer Zone' associated with the Malahide Estuary, which is a Natura 2000 site. The lands surrounding the River Pill are identified as being in a flood zone in the flood risk areas established under Fingal East Meath Flood Risk Assessment and Management Study (FEMFRAMS) and confirmed by the Strategic Flood Risk Assessment (SFRA) completed during the preparation of the LAP.

Habitats located within the Corballis zoning lands consist primarily of improved agricultural fields, rough grassland, hedgerows, treelines, patches of scrub, drainage ditches and existing buildings. The Dublin to Belfast railway line runs through the western section of the zoning lands (c. 975m in length). The zoning lands are connected to adjacent terrestrial habitats via a network of hedgerows and treelines, which border each individual field and the railway line. The zoning lands are hydrologically connected to Malahide Bay via the Turvey Stream. The drainage ditches located within the zoning lands appear to be isolated from the surrounding environment.

During a wintering bird survey, undertaken from January 2009 to March 2009 at lands surrounding the Broadmeadows/Swords Estuary, the most important Species of Conservation Interest observed within an area of land located directly south-east of the Corballis zoning lands were Merlin, Light-bellied Brent Geese, Black-tailed Godwit, Curlew and Lapwing. The most important Species of Conservation Interest observed at lands to the south-west of the Corballis zoning were Light-bellied Brent Geese, Grey Heron and Curlew (Roe & Lovatt, 2009). Up to 500 Light-bellied Brent Geese as well as winter flocks of Curlew were observed in fields located directly south-east of the Corballis zoning lands during surveys undertaken for the SEA of the previous Donabate LAP (Fingal County Council, 2005) and by Scott Cawley ecologists in November 2013 and January 2014. Kingfisher was observed in the western section of these zoning lands during the same surveys. See Figure 2 below for the location of lands surveyed and their proximity to Corballis zoning lands. The area surveyed for wintering birds, as part of the ecological impact assessment of the Donabate distributor road, was located partially within the eastern section of the Corballis land zoning. No bird Species of Conservation Interest were observed within this area (Natura Environmental Consultants, 2008).

4.2.5 Locations covered by proposed Greenways not covered by the above.

Fingal Way

The indicative Fingal Way, which will join the existing Fingal Coast Way, is located along the Donabate Peninsula and is proposed to connect the Malahide Estuary to the Donabate and Portrane Beaches and northwards to the bridge of over the Rogerstown Estuary via the indicative Rahillion/Windmill/St. Ita's Trail and Coastal Way. The indicative Fingal Way will follow the existing Corballis Cottages Road, adjacent to agricultural fields, hedgerows and existing buildings to the north and Malahide Estuary to the south, and will link up with the Existing Fingal Coastal Way at the Corballis Links Golf Club. It will also connect to the nature park to be located within Corballis zoning lands. The indicative Rahillion/Windmill/St. Ita's Trail and Coastal Way will pass through fallow and arable agricultural fields, located south of Rogerstown Estuary, until it reaches the existing railway line.

The indicative Fingal Way appears to cross the Ballalease Stream, before it enters Malahide Estuary. The indicative Rahillion/Windmill/St. Ita's Trail and Coastal Way crosses two streams, i.e. the Rahillion Stream and the Ballalease Stream.

Up to 500 Light-bellied Brent Geese as well as winter flocks of Curlew were observed in fields located directly north of the western section of the indicative Fingal Coastal south of the Corballis zoning lands during surveys undertaken for the SEA of the previous Donabate LAP (Fingal County Council, 2005). During a wintering bird survey, undertaken from November 2014 to 2015 in the outer Rogerstown Estuary, 35 Greylag Goose were observed feeding in a field, which the indicative Rahillion/Windmill/St. Ita's Trail and Coastal Way crosses. These were the only bird of significance recorded on the southern side of Rogerstown Estuary (Fingal County Council, 2015).

During surveys undertaken for the SEA of the previous Donabate LAP, the lands that the indicative Rahillion/Windmill/St. Ita's Trail and Coastal Way crosses were identified as a primary roosting area and secondary feeding area for waders and Light-bellied Brent Geese (Fingal County Council, 2005).

Broadmeadow Way

The indicative Broadmeadow Way will connect to the existing Newbridge / Turvey Trail to the Malahide Estuary. The indicative Newbridge Turvey Trail will also connect to the existing Newbridge / Turvey Trail. According to the OSI Mapping Viewer, the indicative Broadmeadow way appears to pass through agricultural fields until it joins the Kilcrea Road and then Newbridge Demesne, where it links up with the existing Newbridge / Turvey Trail. The indicative Newbridge Turvey Trail will pass through agricultural fields and the permanently closed grounds of the Turvey Golf Club and Hotel.

The indicative Broadmeadow Way crosses the Turvey Stream at Newbridge Demesne. The indicative Newbridge Turvey Trail does not appear to cross any watercourses.

Roosting and feeding areas of waders and Light-bellied Brent Geese were identified at lands located adjacent to the northern section of the Newbridge Turvey Trail, while Kingfisher was noted at lands located in the southern section of the Broadmeadow Way, during surveys undertaken to inform the SEA of the previous Donabate LAP (Fingal County Council, 2005).

4.3 European Sites

There are a total of nine Special Areas of Conservation and eight Special Protection Areas within 15km of the LAP. There are 17 proposed Natural Heritage Areas located within 15km of the LAP.

Figure 3 below show the locations of European Sites and within 15km of the LAP boundary. The rationale for referring to this distance is outlined in Section 3.3.

Spatial boundary data for the European site network used was the most up to date available, updated and accessed in November 2015. All European sites which were deemed to be within the zone of influence of the potential implications of the LAP are listed in Table A3.1, and presented in Figures 3.

In addition to examining European sites, Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHA) have also been examined. Although NHAs and pNHAs and other designated sites such as Nature Reserves, Wildfowl Sanctuaries and Ramsar sites do not form part of the European network, they often provide an important supporting role to the network, particularly when it comes to fauna species which often do not obey site boundaries.

For example, a pNHA/NHA that provides regular feeding grounds for a population of Golden Plover for which a separate site is designated as an SPA plays a role in the maintenance of the species at favourable conservation status for that SPA. In other words, in that example, in order to protect the European network it may also be important to protect the pNHA/NHA which provides a supporting role to it. There are however, NHAs and pNHAs that are designated for features that are not important at an international level and may not interact with the European network.

Table A3.1 in the Appendix lists the non-European sites (excluding those that are also SAC/SPA) which fall within 15km of the LAP zoning lands. All of these sites are presented in Figure 4.

4.3.1.1 Zone of Influence of the Plan

Current guidance on the zone of influence to be considered during the AA process states the following:

“A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et al., 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects”.

Given the scale of the proposed development within the lands covered by the LAP it was reasonable to assume that the majority of the ecological impacts would only be perceptible in the area surrounding the Donabate peninsula. Where impacts may potentially be measured outside the peninsula then this is highlighted in the relevant text. Therefore the only European Sites that would be regarded to be within this direct zone of influence are Malahide Estuary SAC and SPA and Rogerstown Estuary SAC and SPA.

The exception to this general rule was in respect to two potential impacts:

- The need to supplement the water supply with water from outside the region which may affect European Sites at the location of water abstraction;

- The linkages between species that use the peninsula for breeding, feeding and/or resting and also are reasons for designation of other European Sites outside of the peninsula.

Both these issues are dealt with in the following sections.

4.3.1.1.1 Malahide Estuary SAC and SPA

According to the Natura 2000 form (NPWS, 2009a), the Malahide Estuary SAC is considered to be an important example of intertidal sand and mudflats with *Zostera* spp. While their quality is variable, it is generally considered to be good. Salt marsh habitat is also well represented at this SAC, especially with regard to Atlantic salt meadows and Salicornia flats. Most of the sand dune system is managed as the golf courses (i.e. The Island Golf Club and Corballis Links Golf Club); however there are significant areas of fixed dunes and shifting white dunes remaining. There are records of the vulnerable FPO plant species Hairy Violet *Viola hirta*. The Malahide SPA is considered to be of high importance for wintering waterfowl, with an internationally important population of Light bellied Brent Geese *Branta bernicla horta* and nationally important population of a further 14 other species, which includes Golden Plover *Pluvialis apricaria*. It also supports a regionally important population of Bar-tailed Godwit *Limosa lapponica*. The most recent survey results published for the Estuary appear to be surveys undertaken to inform the AA of the proposed Broadmeadow Way from Malahide Castle across the estuary on the viaduct and then across the southwest edge of the Corballis lands to Newbridge Demesne. Surveys undertaken over two periods July 2011 to March 2012 and October 2012 to March 2013 recorded both Light bellied Brent Geese and Black tailed Godwit (occasionally) in internationally-important numbers. Other species recorded in nationally important numbers in both studies during the 2011-2012 winter period included Shelduck, Pintail, Red-breasted Merganser, Oystercatcher, Greenshank and Redshank.

Table A3.1 in the Appendix presents the list of Qualifying Interests (Annex I habitats and Annex II species) for which Malahide Estuary SAC is designated and a list of Species of Conservation Interest for which Malahide SPA is designated.

The main problems or threats affecting the Malahide Estuary are recreational activities, water pollution and infilling. Owing to the proximity of two large towns, the area is very popular for water sports and other amenity activities. These can disturb the bird populations and impact on the dune habitats and the intensity of such activities is likely to increase in the future. Pollution, mostly nutrients, enters the system from the Malahide River and from sewage plants at Swords and Malahide. The inner estuary is particularly affected owing to its lagoonal character. The efficiency of the sewage plants may be upgraded in the future. Parts of the estuary have been infilled in the past for various developments and this remains a threat.

4.3.1.1.2 Rogerstown Estuary SAC and SPA

According to the Natura 2000 form (NPWS, 2009b), the Rogerstown Estuary SAC is considered to be a typical eastern estuary with fairly extensive intertidal sand and mud flats. The quality of the habitats is variable as a consequence pollution arising from a number of sources. The salt marsh habitats, which include Atlantic and Mediterranean salt meadows and Salicornia flats, are located along the fringes of the estuary. They are considered to be of moderate importance and quality. The sand dune element of this European site is limited in both its distribution and quality. At low tide the estuary drains exposing the mud and sand flats, fringed by areas of saltmarsh in places. For example the northern tip of the Burrow Beach includes Cord grass and green algae which grow in the muddy areas and tassel weed which is grazed by the Brent geese and Wigeon. Lugworm and mussels in the outer estuary add to the food sources that attract birds, particularly during the winter months.

There are records of two FPO plant species, Hairy Violet *Viola hirta*, Meadow Barley *Hordeum secalinum*. The Rogerstown SPA is considered to be of high importance for wintering waterfowl, with an internationally important population of Light-bellied Brent Geese and nationally important populations of a further 16 species including Golden Plover. Little Tern *Sterna albifrons* used to breed at this European site. See Table A3.1 in the Appendix for a list of Qualifying Interests Annex I habitats and Annex II species for which Rogerstown Estuary SAC is designated and a list of Species of Conservation Interest for which Rogerstown SPA is designated.

A significant part of Rogerstown estuary (intertidal flats and salt marsh) has been lost due to landfilling and this remains a threat. Landfill site is also a major source of pollution to estuary. Other sources of pollution include input of raw sewage from a local town and general pollution inputs from a rich agricultural hinterland. Dunes at site are considered to be in a highly vulnerable state due to a combination of natural (i.e. erosion) and anthropogenic factors. Erosion has removed much of nesting area of Little Tern. The main problems or threats affecting this site are recreational activities, water pollution and infilling. Owing to the proximity of two large towns, the area is very popular for water sports and other amenity activities. These can disturb the bird populations and impact on the dune habitats and the intensity of such activities is likely to increase in the future. Pollution, mostly nutrients, enters the system from the Broadmeadow River and from sewage plants at Swords and Malahide. The inner estuary is particularly affected owing to its lagoonal character. The efficiency of the sewage plants may be upgraded in the future. Illegal shooting causes disturbance to wintering waterfowl.

4.3.1.1.3 Other connected European sites

Lambay Island SAC and SPA are located c. 3.8m east of the Donabate Peninsula, while Skerries Islands SPA is located c. 8.4m north of the Donabate Peninsula.

Lambay Island is internationally important for its breeding seabirds. The most numerous species is Guillemot, followed by Razorbills, Kittiwakes, Herring Gulls, Cormorants, shags and Puffins. There are also small numbers of Great and Lesser Black-backed Gulls as well as a small colony of Manx Shearwater and Common Terns. The Island is considered to have good examples of vegetated sea cliffs, which hold the internationally important populations of seabirds. It is also of conservation importance for populations of Grey Seal and Common Seal (NPWS, 2014).

Skerries Islands are considered important for both breeding seabirds and wintering waterfowl. The breeding populations of Cormorant, Shag, Herring Gull and Great Black-backed Gull are all considered to be of national importance. Other breeding birds include Shelduck, Ringed Plover and Oystercatcher. Important populations of wintering waterfowl found on the island include Brent Goose, which are of international importance, Cormorants, Purple Sandpiper and Turnstone, which are of national importance (NPWS, 2003).

Greylag Goose *Anser* is a bird Species of Conservation Interest for both Lambay Island SPA is designated and Rogerstown Estuary SPA. Light-bellied Brent Goose is a bird Species of Conservation Interest for Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA.

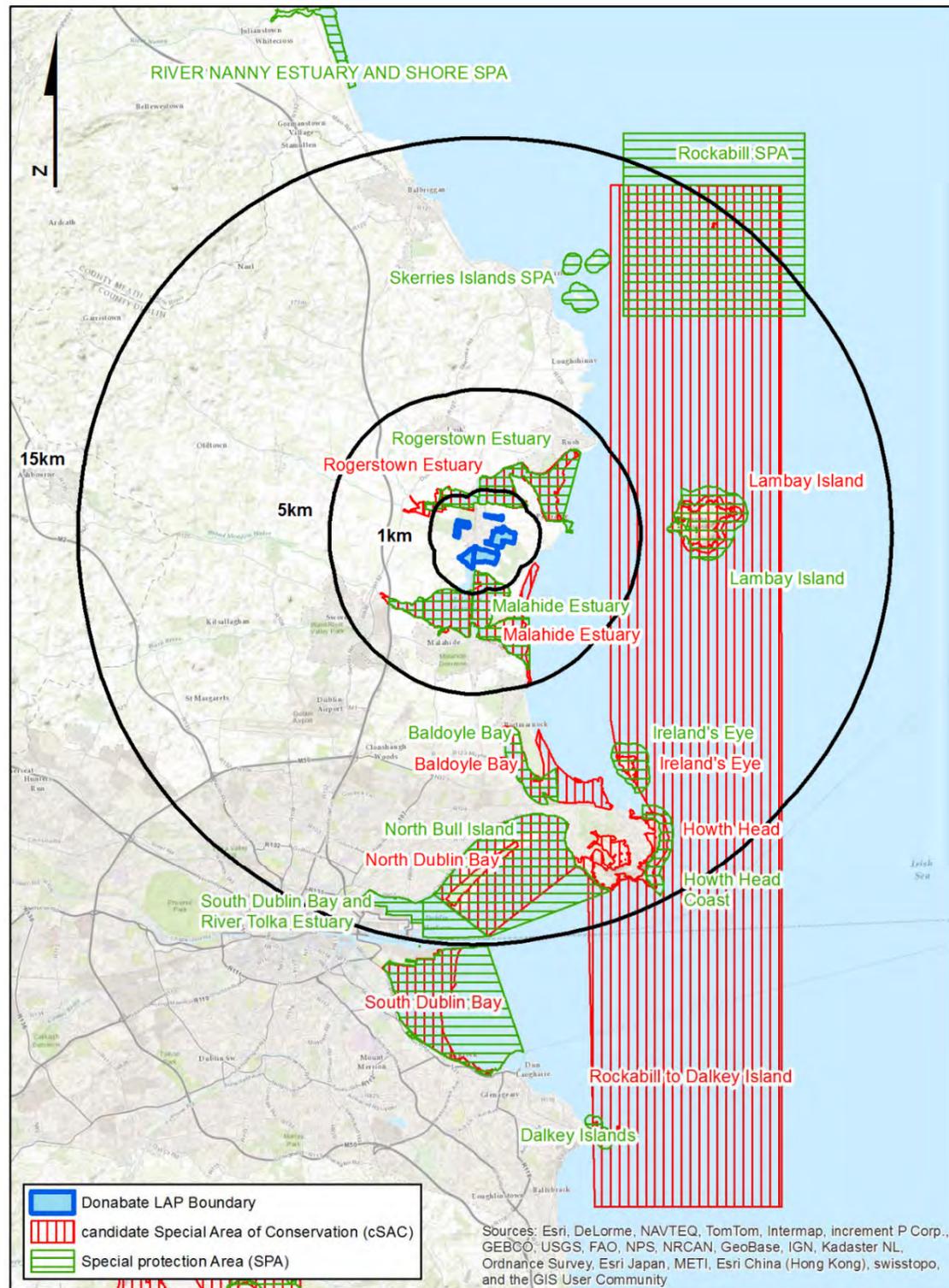


Figure 3. European sites located within 15km of the LAP boundary

5 ASSESSMENT OF THE DONABATE LOCAL AREA PLAN

5.1 Assessment Methodology

The LAP consists of nine Sections and Appendices. The main text includes Maps and Figures. All of the LAP has been assessed during the AA process both in isolation and in combination with other Plans and projects that could influence the same geographic area or European sites.

The assessment first focused on the Objectives within the LAP and then examined the supporting text that is used to provide the background and clarification to the Objectives. If correctly prepared at the early stages of plan-preparation, the objectives should not only avoid posing any adverse effects on integrity of European Sites but should also provide protective objectives that express intentions to protect European sites from adverse effects. Therefore some of the Objectives may contain caveats or conditions that must be met to demonstrate compliance whilst others will be purely focused at protection of European sites.

The Sections of the LAP include:

- Chapter 1: Introduction & context
- Chapter 2: Vision & development strategy
- Chapter 3: Movement & transport strategy
- Chapter 4: Green infrastructure and open space
- Chapter 5: Landscape and heritage
- Chapter 6: Community, economic and tourism infrastructure
- Chapter 7: Infrastructure / water / utilities
- Chapter 8: LAP Neighbourhood guidance & development framework
- Chapter 9: Phasing and implementation

There are 93 Objectives that have been assessed both in isolation and in combination with the other Objectives.

Each objective was taken in turn and compared against the attributes and targets (Table A3.3) for each of the Conservation Objectives for the European sites within the zone of influence of the LAP. This helped to identify if there was a potential for adverse effects on the integrity of the sites. European Commission guidance (2001) suggests several questions that aid the identification of potential adverse effects on integrity:

- cause delays in progress towards achieving the conservation objectives of the site?
- interrupt progress towards achieving the conservation objectives of the site?
- disrupt those factors that help to maintain the favourable conditions of the site?
- interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?
- cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?
- change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?

- interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?
- reduce the area of key habitats?
- reduce the population of key species?
- change the balance between key species?
- reduce diversity of the site?
- result in disturbance that could affect population size or density or the balance between key species?
- result in fragmentation?
- result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?

The results of the assessment of the Objectives are provided in Table A3.4.

The assessment of the supporting text followed a similar approach to judge as to whether the interpretation and implementation of the text could pose adverse effects in terms of the Conservation Objectives.

Section 5.2 summarise the results of the assessment for each chapter.

As stated earlier, there were several amendments to the Draft LAP made on the basis of submissions received during the period of public display. **The rest of this NIR presents the assessment of the LAP incorporating the amendments where indicated in the text.**

5.2 Assessment of Objectives

Table A3.4 presents the results of the assessment of each individual Objective in each Chapter. It was important to consider the potential effect of the Objective in isolation and also assuming that all Objectives are implemented as in several cases there were mitigation measures inherent in some Objectives that addressed potential adverse effects in others.

Positive impacts were noted in several cases³ which will have the overall effect of minimizing greenhouse gas emissions, providing ecological corridors including Corballis Nature Park, pocket parks, minimizing visual disturbance at the urban/rural interface close to European sites and protection of the FDP Ecological Buffers zones and surface water quality draining into these sites.

Many objectives simply had no reasonable linkage between the consequences of their implementation and the potential for adverse effects on the integrity of the European Sites in terms of impacts on the Conservation Objectives.

The following Objectives represent actions that are deemed to be mitigation measures and will directly act to avoid, reduce or minimise the adverse effects on the integrity of European Sites. These include:

- Objective 3.3: Ensure that all future rail improvement proposals including associated works such as overhead wires, access roads, maintenance yards and car-parks are designed and developed having regard to the environmental and visual sensitivities of the area, and subject to Appropriate Assessment as required.
 - This addresses the potential impact that overhead electrification can have on bird flight paths and cause of direct mortality through collision.

³ 1.2, 1.3, 4.2, 4.10, 4.13, 5.1, 5.2, 5.4, 5.5, 5.6, 7.9, 7.10, 7.11, 7.13, 7.16, 7.17, 7.24.

- Objective 7.18: Construction shall commence on the new pumping station in Ballisk Common. This will ensure that local power outages do not affect the operation of the pumping station due to provision of a backup generator. Inclusion of a petrol interceptor will also prevent discharge of hydrocarbons to the Rogerstown Estuary.
 - This is a mitigation measure that will help protect against the discharge of untreated sewage to the sea in the event of abnormal conditions.
- Objective 7.19: A Maintenance Plan shall be developed for the LAP area to ensure the hydraulic capacity of the network is not impeded by blockages and damage. CCTV surveys in a number of areas identified in the Flood Risk Assessment are required to identify the size, condition and location of the existing surface water drainage network before mitigation measures can be fully developed.
 - This addresses the potential impact of a substandard drainage network that could lead to overflows to the receiving watercourses and the European sites. It commits to the analysis of the existing surface water drainage network to inform its improvement.
- Objective 7.31: Developers shall submit a Construction and Demolition Waste Management Plan as part of the planning application documentation, setting out a planned programme for the management / recovery / disposal of construction / demolition waste material generated at the site during the excavation and construction phases of development, in accordance with the relevant national waste management legislation. Prior consultation with the Council's Biodiversity Officer is required regarding re-distribution of construction surplus fill on the plan lands.

And

- Objective 7.33: Developers shall take adequate measures to minimise the impacts of traffic, noise and dust during construction phases. A methodology statement for such measures shall be submitted at planning application stage and developers shall employ best practice as applicable at the time of construction.
 - Both of these Objectives aim to mitigate the impacts of inadequate construction methodologies, waste management and disposal impacts which can cause effects on air, noise and water.

It is also considered that the proposal for the Corballis Nature Park and the greenways that complete existing trails and footpaths are themselves mitigation measures that address the potential disturbance of sensitive locations used by overwintering birds close to the proposed residential lands. Corballis Nature Park is within the Ecological buffer zone set down in the CDP and therefore provides additional detail as to how this zone will operate. T

In several cases, the implementation of the Objectives will open to interpretation at the project-level and the nature of the adverse effect arising is dependent on the location of the proposal. Therefore whilst it was not possible to rule out adverse effects on integrity of European Sites at the strategic-level for some Objectives, in such cases it would be reasonable to apply AA at the lower levels of planning so that the project could be designed taking into account the potential for such effects. In such cases it was assumed with a high level of confidence that mitigation measures could be applied successfully when carrying out a project-level AA to address the adverse effects on integrity of European Sites.

5.3 Assessment of Supporting Text

The following potential effects have been addressed by mitigation measures incorporated within the supporting text.

5.3.1 Chapter 1: Introduction & context

- This Chapter did not include any proposals that themselves pose adverse effects on the integrity of European sites. It refers to the relevant Objectives in the FDP which were amended as part of the AA of the FDP and the requirement to apply AA ("HDA") screening at the project-level.

5.3.2 Chapter 2: Vision & development strategy

- This Chapter does not include any additional proposals for the lands and sets down the context for the LAP as already proposed by relevant Objectives in the FDP and other strategies.

5.3.3 Chapter 3: Movement & transport strategy

- None of the supporting text represent sources of impacts on the European sites that are not addressed either by previous assessments (e.g. for the FDP) or by the LAP objectives that are addressed in Section 5.2 above.

5.3.4 Chapter 4: Green infrastructure and open space

- The following text represent guidance to highlight statutory obligations to carry out AA Screening for the proposed greenways:
 - 4.1.2*"Reference must be given to objectives set out within the FDP to ensure that proposals for parks, open space and recreational facilities which may have an impact on the Natura 2000 network either directly or indirectly are subject to AA and are given very careful consideration. These proposed routes and trails will be designated and sited to alleviate amenity pressure away from the Natura 2000 sites and will manage recreational users through the provision of signed trails and looped walkways, which are easy to use and are accessible to all. Given the sensitivities of the coastal area and through careful siting, design, detailing and managed access, these routes have the potential to relieve pressures from the sensitive biodiversity/ecological sites in the area. By managing the location of the Coastal Way along the Peninsula edge, the pressures on the beach and Estuary areas (i.e. pedestrian activity and dog walking) can be managed."*
 - 4.1.3 *"Regard must be had to the sensitivity of existing biodiversity features such as trees, hedgerows and fauna in any green route design proposals and the design, route and construction methodology for new walking and cycling routes will be subject to AA screening."*
- The following measures are deemed to provide positive impacts, not necessarily in response to potential adverse effects on integrity of European sites:
 - 4.1.8..... *"Well designed information boards should be placed at appropriate locations along green routes through the LAP lands. These biodiversity and heritage information boards should display information on habitats / bird species or other items of interest relevant to the plan lands and encourage knowledge and understanding of the importance of their protection."*
 - 4.3.1... **Corballis Nature Park**
*These open space lands south of the LAP area will be managed as a natural landscape to ensure that the lands continue to play host to a variety of bird/wildlife with controlled public access to this open parkland given its sensitivity. SUDS features will be incorporated into the parkland in the form of a regional wetland area to provide a suitable habitat for wildlife, as well as a pleasant amenity. The habitat protection measures and amenity uses proposed within these open space lands must accord with AA measures outlined in the Natura Impact Report (Appendix 3)."*⁴

⁴ These measures that provide additional detail are provided in Section 6.

- **4.3.1.... “Turvey Linear Park**
A small linear park is proposed at Turvey, running in a north-south direction through the Turvey LAP lands. The layout reflects the landscape character that currently exists here, with its edges formed by the existing townland hedgerow boundaries. The retention of existing hedgerows along the western boundary at Turvey will support existing native bird species providing a valuable feeding source and shelter.”

5.3.5 Chapter 5: Landscape and heritage

- 5.1.2 contains principles for new development in these landscape character areas, which are included within the FDP 2011-2017. These provide general protective measures:
 - *Sites with natural boundaries should be chosen, rather than elevated or open parts of fields. The form of new developments should be kept simple and they should be sited within existing shelter planting or within the contours of the land to minimise visual impact.*
 - *The retention and active management of trees and woodland blocks should be promoted.*
 - *The use of trees and woodlands to contain new development should be encouraged. Strong planting schemes using native species, to integrate development into these sensitive landscapes, will be required. New planting needs to be carefully located and selected.*
 - *The management of the river margins should be promoted and development along the riverside which will intrude on the character of the river valleys should be restricted.*
 - *Estuary margins and any hedgerows along the margins must not be disturbed.*
 - *The special character of the coast should be protected by preventing inappropriate development on the seaward side of coastal roads.*
 - *The character of the coastal visual compartments should be retained by preventing intrusive developments on headlands, promontories and coastal lands within the compartments. The coastal skyline should be protected from intrusive development.”*
- Section 5.3.1 includes descriptions of European (Natura 2000) sites and is followed by Section 5.3.2 which states the Council’s Strategy regarding protection of these sites:
 - *“Fingal County Council and other statutory agencies will protect the integrity of all important sites in Fingal and improve the habitats where opportunities arise. The Fingal Estuaries will continue to provide an excellent wintering habitat for the thousands of birds that spend the winter here. It is envisaged that disturbance by people at the core sites of the wintering birds and breeding seabirds would be minimal and the development of buffer zones around the land-based European designated sites and nationally designated wetland sites should protect these sites from any adverse impacts resulting from adjacent land use. Designated walkways / trails are proposed as part of this LAP which aim to alleviate amenity pressure away from these Natura 2000 sites.”*
 - *“Masterplans for the designated sites and surrounding lands shall be prepared by Fingal County Council in conjunction with landowners and other stakeholders. The most appropriate land use, nature conservation goals and development of recreational*

infrastructure within each of the sites shall be worked out in greater detail in these plans. Particular focus shall be on the Rogerstown Estuary and the Malahide Estuary. A Masterplan has been prepared for Rogerstown Inner Estuary. Work is underway on the Rogerstown Outer Estuary Management Plan and a Masterplan is also scheduled for Malahide Estuary.”

- Section 5.4 describes the hierarchy of areas of biodiversity value in the LAP area including 1. Core Biodiversity Conservation Areas (Natura 2000 sites), 2. Ecological Buffer Zones, 3. Nature Development Areas and 4. Ecological Corridors and Stepping Stones. Outside the core biodiversity conservation areas the text on Ecological Buffer Zones is of relevance as seen in the text below:

- *“Ecological Buffer Zones are located adjacent to the LAP lands at Corballis, Turvey and Rahillion with the ecological buffer zone extending into the southern portion of the Corballis LAP lands. These zones are established to protect the Rogerstown and Malahide Estuaries SAC and SPA from the adverse effects of development, by providing suitable habitat for key species such as birds and providing for compatible land-uses around the designated sites. Ecological buffer zones are areas where agricultural uses may be combined with nature conservation and low-intensity recreational use such as walking and cycling.*

The Fingal Biodiversity Action Plan 2010-2015 recognises the importance of the buffer zone around the estuaries. These areas will be developed as multi-functional landscapes where agricultural land-use is maintained and, where appropriate, combined with nature conservation targets and low intensity recreational use. Intensive recreational uses are not considered appropriate within the ecological buffer zones.

It is proposed to provide a Nature Park within the Ecological Buffer Zone lands south of Corballis LAP lands. (Please refer to Chapter 8 Corballis Nature Park). This will ensure the impact of new development is properly managed and separated from close proximity to the coastline.”

- The additional sections covering Nature Development Areas and Ecological Corridors and Stepping Stones are of relevance to the protection of European Sites as these areas provide refuges and linkages across the LAP lands for mobile species of interest to the European sites.

Following a submission made at the public display of the Draft LAP regarding the need to make reference to the UNESCO Dublin Bay Biosphere Reserve in order to bring it into alignment with the Draft Fingal Development Plan 2017-2023. Additional text was added and was regarded to provide a positive impact on the overall protection afforded to the Bay.

5.3.6 Chapter 6: Community, economic and tourism infrastructure

- None of the supporting text represent sources of impacts on the European sites that are not addressed either by previous assessments (e.g. for the FDP) or by the LAP objectives that are addressed in Section 5.2 above.

5.3.7 Chapter 7: Infrastructure / water / utilities

- Section 7.1.2 provides detail on the wastewater treatment infrastructure required to permit the sustainable development in the LAP.

- *“The provision of a new expanded foul sewer network and associated new foul pumping stations will be required for the LAP lands.*

Phase II of the PDRL Waste Water Treatment Scheme includes a proposal for the Ballalease PS to be constructed on Balcarrick Road adjacent to the proposed Donabate Distributor Road crossing. The preliminary design also indicates that another pump station would be required south of the proposed Ballalease PS provisionally called the Donabate South PS. No size has been given for this PS and it will be required to deliver the effluent from the zoned lands at Corballis East and West to the Ballalease PS. This PS could be designed and sized to provide for Ballymastone and Corballis lands. It is expected that the proposed pump stations will be constructed to the same high standard as the Donabate and Portrane pumping stations and will cater for storm flows in such a manner as to severely curtail any overflows.

All development shall be drained on completely separate systems, i.e. foul and surface water flows shall be directed to separate pipes. This reduces the possibility of flooding of the foul pipelines during times of extreme rainfall events as the foul network should only contain foul flows and not surface water.

The detailed design of new pumping stations and associated outfalls will be subject to planning approval, Appropriate Assessment and Foreshore License, where appropriate.”

- Section 7.2.2 addresses surface water drainage networks:

- *“Based on the existing surface water drainage network and topographic levels obtained from contour mapping, it is likely that the majority of the LAP lands will outfall to downstream ends of the existing surface water drainage network. Where the new surface water drainage network for the LAP lands is connecting to the existing surface water network in Donabate, the capacity of the existing network will need to be established at these locations and discharge from the developments limited to acceptable flow rates.*

The quality of any runoff from any new development will need to be such that the environmentally sensitive areas of Malahide and Rogerstown Estuary are not negatively affected.”

- Section 7.2.3 sets out the approach toward Sustainable Urban Drainage Strategy:

- *“A Management Train approach shall be adopted in the design of the proposed surface water regime by utilising suitable SUDS mechanisms in providing Prevention, Source Control, Site Control and Regional Control. The principle of the Management Train is that wherever possible, surface water should be managed locally in small, sub-catchments rather than being conveyed to and managed in large systems further down the catchment.”*

The surface water discharge rate from the development land should not exceed existing greenfield run-off rates. Runoff must pass through at least one level of treatment using a SUDS component prior to the final level of treatment in the public realm areas.

A SUDS Strategy for the LAP lands was commissioned by the Council and undertaken by Roughan & O’Donovan, Consulting Engineers. The ‘Donabate LAP SUDS Strategy’ recommends various SUDS measures for utilisation within the LAP area. (See Appendix 5).

Having regard to the sensitivity of the receiving waters of Rogerstown and Malahide Estuaries, the SUDs Strategy recommends a Management Train whereby

runoff will pass through a series of SUDS techniques prior to outfall. The early provision of Regional SUDS measures proposed in this strategy including the proposed wetland at Corballis (Corballis Nature Park area) shall be a priority in the initial phases of development.”

- Section 7.6.2 elaborates on Objective 7.31-7.33 by stating the following:

- *“The Construction and Demolition Waste Management Plan, as a minimum, shall include provision for the management of all construction and demolition waste arising on site, and make provision for the re-use of said material and / or the recovery or disposal of this waste to approved facilities by authorised collectors. Where appropriate, excavated material from development sites shall be re-used for landscaping, land restoration or for preparation for development on the planning application site.*

To minimise the impacts of traffic, noise and dust during construction phases on existing residential amenity, sensitive bird habitat and landscape character and features, an appropriately located ‘Construction Haul Route’ must be determined in agreement with the Council at Urban Design Appraisal stage.

The haul route must have minimal impact on existing hedgerows and trees and ensure that there is no impact on designated wetland areas (i.e. Corballis Nature Park) or as set out in the habitat protection measures of this LAP.

The deposit of fill material can have a detrimental impact on feeding and roosting habitat and landscape character. Therefore, surplus construction fill will only be permitted on areas of the landscape less sensitive to soil deposition. Such works will be restricted to appropriate times of year e.g. outside of wintering bird season. The surface of filled ground must be left in a stable condition and seeded with appropriate grass and meadow mixes. In general there will be a preference for distributing surplus fill in shallow depths (1.0 metres max) extensively except where earth forms are required for viewing points and screening. Filled ground will be graded gently back to existing levels. In any event, each planning application will be subject to an Appropriate Assessment, environmental screening impact and assessment, where required. The outcome of these assessments will further inform the appropriateness, location and form of any fill on-site.”

5.3.8 Chapter 8: LAP Neighbourhood guidance & development framework

- 8.2.2 Rahillion Area
 - *“Particular care will need to be taken in the built form and massing along the northern edge of this area, given the proximity to the Estuary and ecological buffer zone. Care also needs to be taken to preserve the views from higher ground.”*
- 8.2.4 Corballis Area
 - *“A portion of the zoned LAP land (5.5ha) is located west of the railway line and south of the Distributor Road alignment. This area lies adjacent to the Estuary and is designated as an Ecological Buffer Zone. This segment of land has been assessed to be inappropriate for residential development in the SFRA and the associated findings and recommendations of the SEA and AA. No residential development will therefore be permitted on these lands in this LAP.”*

- *“A proposed Nature Park will be located south of the LAP lands at Corballis, providing a buffer zone between the LAP lands and Malahide Estuary. A cattle grazing programme is also proposed for this wetland site together with its use as a Nature Park with managed public access. Fingal County Council has introduced similar programmes involving Hairy Highland Cattle at Robswall, Malahide and at St. Catherine’s Park, Lucan in recent years, which have proved successful. (Chapter 7 and Appendix 5, SUDS Strategy has more detail). This Nature Park will be developed in tandem with development and will be important in providing a managed buffer between urban development and the important coastal habitats.*

Boundary fencing at this location will be limited to a low timber post and rail with mesh fence (1.2 metre approx) with associated planting of native hedge species. Gates for closing off this wetland zone during the winter months when the migratory birds are visiting shall also be provided.”

- 8.3.8 Public Lighting within the Landscape (text underwent minor amendment following public display)
 - *“However, significant lighting can have a negative impact on sensitive coastal landscapes. To minimise the environmental impact of public lighting in sensitive coastal areas and on species including birds and bats, lighting must be of a sufficient level but of a reduced impact. Any lighting proposed close to sensitive Natura sites will be subject to Appropriate Assessment and assessment of bird and bat movements within the plan lands and the wider area during dark hours.”*

5.3.9 Chapter 9: Phasing and implementation

- Section 9.1.1 “Phase 1 – Lands at Turvey, Rahillion and Corballis West” highlights the need to prioritise the installation of the greenways in advance of the influx of new residents:
 - *“The completion of the linear open space at Turvey (which is an important section of the Turvey Looped Walkway from Newbridge Demesne to Rogerstown Estuary) and the upgrading of pedestrian facilities on Turvey Avenue (to include pedestrian / cycle crossing facilities from Turvey LAP lands at Berseford / Beverton Estate to Newbridge Demesne) are important infrastructural elements required as part of Phase 1 development on these lands.*

The development of the Rahillion Looped Walkway with a link through to St Ita’s to the Coast and improvements to the footpath (incorporating lighting, drainage) at the underpass linking Beverton Estate to Donabate Village (via Hands Lane) is required at this stage of development.”

- Section 9.2.2 “Phasing of Corballis Nature Park” states the importance of ensuring that the Park is properly integrated into Phase 2:
 - *“A key infrastructural element in the future development of Donabate is the provision of a Nature Park strategically located between the planned expansion of the settlement and the sensitive ecological habitat of the Malahide Estuary. The provision of this facility is a key device in ensuring the protection of Malahide Estuary and the implementation of the SUDS Strategy for Donabate. The park will be developed and provided as a public facility*

in tandem with pedestrian and cycle access providing a strategic link to the proposed Broadmeadow Way across the Estuary to Malahide.

Importantly, the area will be secured as an environmental resource for use by migratory bird populations using the Estuary. Corballis Nature Park will be developed on a phased basis in tandem with new development on the zoned LAP lands in Phase 2. This phasing shall generally include the early provision of related infrastructure as part of the SUDS Strategy for the overall LAP, moving to landscaping and works required for managed public access.

Habitat protection measures agreed with the both the NPWS and the Planning Authority shall be implemented as may be appropriate prior to the commencement of development. This will ensure that feeding and roosting habitats are protected and disturbance to migratory birdlife for the duration of the construction phase and post construction is mitigated, to the greatest possible extent.

Prior to the commencement of development in the Corballis section of the LAP, the developers/landowners shall enter into an agreement with the Council for the transfer of Corballis Nature Park lands to Council ownership. Corballis Nature Park shall be fully transferred to the Council, prior to the occupation of any units in Phase 2.”

6 ADDITIONAL MEASURES TO ADDRESS IMPACTS ON EUROPEAN SITES.

The following measures should be applied to two key aspects of the LAP, the proposed greenways and the Corballis Nature Park in so far as they address potential impacts on the integrity of European Sites. These should be considered the same status as the Objectives in the LAP and must be complied with by any application for development consent under the Plan.

6.1 Measures to be applied to Design, Construction and Management of Greenways.

- The design of the footpath should be tailored to the nature of the topography, availability of natural screening features and proximity to areas habitually used by overwintering birds. The path elevation may have to be varied and planting, fencing and low berms to be proposed if areas need to be screened. The location should be as far from the estuary edge as possible.
- Construction-phase measures addressing potential for contaminated surface water runoff should be applied as set down below in Section 6.3.
- Bird hides, signage and use of strategic control points to inform users on passage through sensitive sections will help to minimise straying from the path.⁵
- The effectiveness of design measures should be monitored using a scientific approach and the results published in www.conservationevidence.com

6.2 Measures to be applied to Design, Construction and Management of Corballis Park

- The indicative design of the Park includes the following elements:
 - Wetland/Scrub complex.

⁵ Finney S.K., Pearce-Higgins J.W. & Yalden D.W. (2005) The effect of recreational disturbance on an upland breeding bird, the golden plover *Pluvialis apricaria*. *Biological Conservation*, 121, 53-63

- The detailed design will include ponds of varying depth and with maximum edge length. The
 - Edge treatments should not include *Phragmites australis* which may reach the site anyway by natural means but can be problematic in growing quickly. It is recommended that shallow edges are provided with scrub planting set back minimum of 5m from the water to prevent predators from using cover to catch wading birds.
 - Scrub species to include Rowan, Blackthorn, Elder, Willow and Alder.
 - Wetland areas may require the removal of soft sediment on an occasional basis to prevent eutrophication and algal blooms.
 - Viewing points should be carefully designed to prevent access to the wetlands that would cause disturbance.
- Open grassland
 - As suggested, these areas may require controlled grazing to provide a short sward suitable for grazing by Light-bellied Brent Geese and other waders and wildfowl.
 - Signage should be provided to ensure that dogs are not permitted to be off-lead and off-lead enclosures may be considered for other areas in the LAP lands.
 - The Council may consider the use of voluntary or part-time Park wardens to enforce the control of dogs at least for the first year of operation.
- The use of fertilisers should be minimised and where necessary should be strictly controlled. Slow release and organic fertilisers should be selected in order to reduce risk to habitats and the water bodies.
- Use of herbicides and pesticides should be minimised. Management of public open spaces should rely on chemicals only as a last resort, and where absolutely necessary chemicals should be applied in limited areas and under strict control. Weed control should be by cultural means as far as possible. Through good management the vigour of the sward will largely suppress the growth of unwanted species. Where tenacious deep rooted perennial weeds persist, these should be treated with localised and spot application of hormone weed killers.

6.3 Measures to be applied to Construction works

- Release of suspended solids to surface waters should be kept to a minimum. The key factors in erosion and sediment control are to intercept and manage off- and on-site runoff. This limits the potential for soils to be eroded and enter the stream in runoff. Sediment ponds and grit/oil interceptors should be placed at the end of drainage channels. However, runoff and surface erosion control is more effective and less expensive than sediment control with sediment control ponds only. The following general guidelines are recommended:
 - Schedule development to minimise risk of potential erosion by, where possible, planning construction activities during drier months, halting construction during periods of heavy precipitation and run-off to minimise soil disturbance, and restrict vehicular and equipment access or provide working surfaces/pads.
 - Retain existing vegetation where possible and physically mark clearing boundaries on the construction site.

- Revegetate denuded areas, particularly cut and fill slopes and disturbed slopes as soon as possible. Use mulches or other organic stabilisers to minimise erosion until vegetation is established on sensitive soils.
- Cover temporary fills or stockpiles which are likely to erode into nearby watercourses with polyethylene sheeting.
- Divert runoff away from denuded areas.
- Minimise the length and steepness of slopes where possible.
- Minimise runoff velocities and erosive energy by maximising the lengths of flow paths for precipitation runoff, constructing interceptor ditches and channels with low gradients to minimise secondary erosion and transport, and lining unavoidably steep interceptors or conveyance ditches with filter fabric, rock or polyethylene lining to prevent channel erosion.
- Retain eroded sediments on site with erosion and sediment control structures such as sediment traps, silt fences and sediment control ponds. Sediment control ponds should be designed for a minimum retention time of 15 hours.
- Access roads should be constructed or topped with a suitable coarse granular material/non-woven geotextile, and if possible organic topsoil should be stripped prior to access road construction.
- If significant alterations to the existing stream/river bank, or instream works are to be carried out, the works area should be isolated from the river/stream by coffer dams or other suitable containment methods. Water within the contained area contaminated with suspended solids or other potential pollutants should never be released directly to the stream/river, but should be pumped to a land site to allow sediment removal before it re-enters the river.
- Temporary stream diversions should be excavated in isolation of stream flow, starting from the bottom end of the diversion channel and working upstream to minimise sediment production. The temporary channel should be constructed in such a way as to minimise suspended solids released when the river is re-routed. Upon completion the bank should be stabilised around the temporary diversion.
- Permanent stream diversions should be completed as far in advance as possible. The channel should be constructed in such a way as to minimise suspended solids released when the river is re-routed. Use of loose fine grained materials in the new channel construction should be strictly limited.
- Raw or uncured waste concrete should be disposed of by removal from the site.
- Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks should be trapped on-site to allow sediment to settle out and reach neutral pH before clarified water is released to surface waters or allowed to percolate into the ground.
- Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints should be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to codes of practice.
- Fuelling and lubrication of equipment should not be carried out close to watercourses.

- Any spillage of fuels, lubricants or hydraulic oils should be immediately contained and the contaminated soil removed from the site and properly disposed of.
- Waste oils and hydraulic fluids should be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- Foul drainage from site offices etc. should be removed to a suitable treatment facility or charged to a septic tank system constructed in accordance with EPA guidelines.
- Sites for use as storage areas, machinery depots, site offices, temporary access roads or the disposal of spoil should be located least 50m from the nearest watercourse may be chosen. Disposal of spoil or storage of soils should not be carried out in any location where runoff can occur into watercourses.

7 INTERACTION WITH OTHER PLANS AND PROJECTS

The E.C. Habitats Directive and the Birds and Habitats Regulations 2011 require that the impacts on European sites be assessed from the plan or project in question and also in the presence of other plans and projects that could affect the same European sites.

The screening process identified the plans that could act in combination with the LAP to pose adverse effects on integrity of European Sites. This Section identifies if these Plans have undergone an appropriate assessment themselves as it is assumed that if a Plan has been adopted following an AA then it should not be capable of posing adverse effects on integrity of European Sites.

The cumulative/in-combination impact assessment focused on the other Development Plans that had the highest potential to affect the same European sites that could be affected by the LAP. Other higher-level plans that could promote infrastructure are integrated within the Plan itself and have been assessed as such.

Fingal County Development Plan 2011-2017

The LAP is informed and implemented by a hierarchy of planning policies, including the Fingal Development Plan 2011-2017. The Fingal Development Plan was also subject to an AA in accordance with the EC Habitats Directive and it has been stated that the LAP will be implemented in the context of the County Development Plan and its assessment.

The Donabate LAP 2015-2021 will provide a statutory framework for the proper planning and sustainable development of substantial undeveloped residential lands in the Fingal County Development Plan 2011-17 (FDP). These lands are in four separate parcels totalling c. 138 hectares and are zoned Objective RA – ‘to provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure’. These lands were designated in the previous Donabate LAP 2006 to have a potential for c. 5,000 new dwelling units.

The AA of the FDP also noted the sensitivity of the lands surrounding the proposed LAP zonings and led to the mitigation of the text proposing the pathways, land zonings, railway upgrade, Donabate Southern Bypass. The revision of the text led to highlighting of the requirement to apply AA screening during consideration of all such proposals.

Draft Fingal Development Plan 2017-2023

The Draft Fingal Development Plan 2017-2023 commenced its preparation at the closing stages of the Donabate LAP process. Several of the key issues pertinent to the AA of the Donabate LAP have also been addressed in the Fingal Plan including:

Fingal Coastal Way

Objective ED61

Promote and facilitate opportunities to create an integrated pedestrian and cycle network linking key tourist destinations in the County, by advancing the proposed Fingal Coastal Way, through carrying out a route evaluation study within two years of the adoption of this Plan, ensuring a balance is achieved between nature conservation and public use and through identifying public rights of way in consultation with all relevant stakeholders, and by exploiting former rail networks for use as potential new tourist and recreational walking routes.

Objective NH61

Plan and develop the Fingal Coastal Way from north of Balbriggan to Howth taking full account of the need to protect the natural and cultural heritage of the coast and the need to avoid significant adverse impacts on European Sites, other protected areas and species protected by law.

Footpaths and cycleways

Objective DONABATE 4:

Develop a continuous network of signed pathways and cycleways as appropriate, around Donabate Peninsula linking Portrane and Donabate to Malahide and Rush via the Rogerstown and Malahide Estuaries whilst ensuring the protection of designated sites, and avoiding any routing along the northern boundary of Malahide Inner Estuary by virtue of its ecological sensitivity.

Coastal Erosion

Objective SW01

Protect and enhance the County’s floodplains, wetlands and coastal areas subject to flooding as vital green infrastructure which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future.

Objective SW02

Allow no new development within floodplains other than development which satisfies the justification test, as outlined in the Planning System and Flood Risk Management Guidelines 2009 for Planning Authorities (or any updated guidelines).

Objective SW07

Implement the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines. For lands identified in the SFRA, located in the following areas: Courtlough; Ballymadun; Rowlestown; Ballyboghil; Coolatrath; Milverton, Skerries; Channell Road, Rush; Blakescross; Lanestown/Turvey; Lissenhall, Swords; Balheary, Swords; Village/Marina Area, Malahide; Streamstown, Malahide; Balgriffin; Damastown, Macetown and Clonee, Blanchardstown; Mulhuddart, Blanchardstown; The Burrow, Portrane; and Strand Road, Howth a site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk, is required, demonstrating compliance with the aforementioned Guidelines or any updated version of these guidelines, paying particular attention to residual flood risks and any proposed site specific flood management measures.

Objective NH50

Ensure the County's natural coastal defences, such as beaches, sand dunes, salt marshes and estuary lands, are protected and are not compromised by inappropriate works or development.

Objective NH51

Where coastal erosion is considered a threat to existing properties, explore the technical and economical feasibility of coastal adaption and coastal retreat management options.

Objective NH52

Employ soft engineering techniques as an alternative to hard coastal defence works, wherever possible.

Objective NH53

Identify, prioritise and implement necessary coastal protection works subject to the availability of resources, whilst ensuring a high level of protection for natural habitats and features, and ensure due regard is paid to visual and other environmental considerations in the design of any such coastal protection works.

Objective NH54

Undertake erosion risk management studies for high risk areas so that the long term erosion risks to property can be clearly identified long before the risk may be expected to occur.

Objective NH55

Develop a coastal erosion policy for Fingal based on best international practice to outline how the Council will deal with existing properties at risk of erosion and how future coastal erosion problems will be managed having regard to national climate change legislation, mitigation and adaptation policies, and the need to protect the environment.

Given the strategic nature of erosion and policies required for same, it was not considered necessary to repeat the above objectives within the Donabate LAP as they are included within the Draft Fingal Development Plan 2017-2023, which proposes the development and implementation of a coastal erosion policy for the County.

Dublin Bay Biosphere Reserve

Objective NH45

Participate in and actively support the work of the Dublin Bay Biosphere Partnership.

Objective NH46

Develop and implement a Biosphere work program within the County in support of the work of the Dublin Bay Biosphere Partnership.

Ballyboghil Local Area Plan 2012

An AA Screening report was produced and no likely significant effects were identified. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

Barrysparks Local Area Plan 2011

An AA Screening report was produced and no likely significant effects were identified. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

Broomfield Local Area Plan 2010

An AA Screening report was produced and no likely significant effects were identified. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

Fosterstown Local Area Plan 2009

An AA Screening report was produced and no likely significant effects were identified. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

Lusk Local Area Plan 2009

A Natura Impact Report was produced and likely significant effects were identified and addressed by mitigation measures addressing surface water quality and recreational impacts. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021 and similar construction-related measures have been incorporated above in Section 6.

Oldtown Mooretown Local Area Plan 2010

An AA Screening was produced and likely significant effects were addressed by recommendations addressing measures addressing surface water quality and foul sewage treatment capacity. This document has been reviewed as part of the AA of the Donabate LAP 2015-2021 and similar construction-related measures have been incorporated above in Section 6.

Rathingle Local Area Plan 2013

An AA Screening report was produced and no likely significant effects were identified. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

Rusk Kenure Local Area Plan

A Natura Impact Report was produced and likely significant effects were identified and addressed by mitigation measures addressing recreational and waste disposal impacts. This LAP has been reviewed as part of the AA of the Donabate LAP 2015-2021.

8 RESPONSIBILITIES FOR IMPLEMENTING MITIGATION POLICIES

The responsibility for implementing the LAP lies solely with the Planning Authority through the Planning consent process. Applicants who intend to develop within the LAP area are obliged to ensure that their application is consistent with the Objectives and requirements within the Plan. The statutory requirement for the Planning Authority to carry out AA Screening for all planning applications is not affected by any of the statements in this NIR. All applications must be tested for the potential for likely significant effects. However such effects are not likely to occur if the Objectives in the LAP and the requirements are adhered to as outlined in Technical Guidance, where appropriate.

Applicants must provide information to allow the Planning Authority to screen the application and decide if full AA is required.

9 MONITORING THE IMPLEMENTATION OF POLICIES

Whilst there is no legal requirement to monitor the outputs of the AA process, there is an obligation to monitor the implementation of the LAP through the E.C. SEA Directive as implemented in Ireland. Contingency measures may have to be applied if there is evidence that Objectives cannot be implemented successfully. The European Communities (Environmental Liability) Regulations 2008 will also apply in the event of any environmental damage to habitats and species both within and outside of the European sites.

10 HOW THE AA PROCESS IN SHAPING THE LAP WILL PROTECT THE EUROPEAN SITES

This Natura Impact Report recorded the decisions that were taken during the preparation of the LAP. It determined that, assuming the successful implementation of the Objectives in the LAP and application of the mitigation measures provided in Section 6, there will be no adverse effects on integrity of European Sites in isolation or in combination with other Plans and Projects acting in the same area.

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Appendix

Table A3.1: Details of European Sites within 15km of Donabate LAP

Table A3.2: Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP

Table A3.3: Targets for the Conservation Objectives for the Qualifying Interests in Rogerstown Estuary SAC and SPA and Malahide Estuary SAC and SPA.

Table A3.4: Assessment of Objectives within the Local Area Plan

Table A3.1 Details of European Sites within 15km of Donabate LAP				
Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
Rogerstown Estuary cSAC (000208)	<p><u>Annex I habitats for which the sites is designated:</u></p> <ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • <i>Salicornia</i> and other annuals colonizing mud and sand [1310] • Atlantic salt meadows <i>Glauco-Puccinellietalia maritima</i> [1330] • Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • *Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] 	<ul style="list-style-type: none"> • Estuaries – Unfavourable - Inadequate • Mudflats and sandflats not covered by seawater at low tide –Unfavourable - Inadequate • <i>Salicornia</i> and other annuals colonizing mud and sand –Unfavourable -Inadequate • <i>Spartina</i> swards – Unfavourable - Inadequate • Atlantic salt meadows –Unfavourable - Inadequate • Mediterranean salt meadows – Unfavourable- Inadequate • Shifting dunes along the shoreline – Unfavourable - inadequate • Fixed coastal dunes – Unfavourable - bad 	<p>To maintain the favourable conservation condition of the following in Rogerstown Estuary SAC:</p> <ul style="list-style-type: none"> • Estuaries • Mudflats and sandflats not covered by seawater at low tide • <i>Salicornia</i> and other annuals colonizing mud and sand • Mediterranean salt meadow <p>To restore the favourable conservation condition of the following in Rogerstown Estuary SAC:</p> <ul style="list-style-type: none"> • Atlantic salt meadows • Shifting dunes along the shoreline • *Fixed coastal dunes with herbaceous vegetation 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Surface and ground water quality • Appropriate levels of disturbance • Water levels • Appropriate disturbance levels • Tidal currents • Wind energy • Erosion / deposition levels • Recreational activities • Trampling overuse
Malahide Estuary cSAC (000205)	<p><u>Annex I habitats for which the sites is designated:</u></p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • <i>Salicornia</i> and other annuals colonizing mud and sand [1310] • <i>Spartina</i> swards <i>Spartinion maritima</i> [1320] • Atlantic salt meadows <i>Glauco-Puccinellietalia maritima</i> [1330] • Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • *Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] 	<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide – Unfavourable/Inadequate • <i>Salicornia</i> and other annuals colonizing mud and sand –Unfavourable/Inadequate • <i>Spartina</i> swards – N/A • Atlantic salt meadows – Unfavourable/Inadequate • Mediterranean salt meadows – Unfavourable/Inadequate • Shifting dunes along the shoreline – Unfavourable/ Inadequate • Fixed coastal dunes –Unfavourable/Bad 	<p>To maintain the favourable conservation condition of the following in Malahide Estuary SAC:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide • <i>Salicornia</i> and other annuals colonizing mud and sand • Mediterranean salt meadow <p>To restore the favourable conservation condition of the following in Malahide Estuary SAC:</p> <ul style="list-style-type: none"> • Atlantic salt meadows • Shifting dunes along the shoreline • Fixed coastal dunes with herbaceous vegetation 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Railway viaduct • Appropriate agricultural practices including grazing pressures. • Surface and ground water quality • Appropriate levels of disturbance • Water levels • Air quality • Tidal currents • Erosion and deposition rates • Recreational activities • Trampling overuse
Rockabill to Dalkey Island cSAC	<p><u>Annex I habitats for which the sites is designated:</u></p> <ul style="list-style-type: none"> • Reefs [1170] <p><u>Annex II species for which the sites is designated:</u></p> <ul style="list-style-type: none"> • Harbour porpoise <i>Phocaena phocaena</i> 	<ul style="list-style-type: none"> • Reefs [1170] - Unfavourable/Bad • Harbour porpoise <i>Phocaena phocaena</i> [1170] - Favourable 	<p>To maintain the favourable conservation condition of the following in Rockabill to Dalkey Island SAC:</p> <ul style="list-style-type: none"> • Reefs • Harbour porpoise 	<ul style="list-style-type: none"> • Tidal currents • Direct disturbance to habitats • Prey abundance • Water quality • Disturbance/noise

¹ Sourced from Status of EU Protected Habitats and Species in Ireland (NPWS, 2013).

² Sourced from Site Conservation Objectives (www.npws.ie accessed 13/02/14)

Table A3.1 Details of European Sites within 15km of Donabate LAP

Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
	[1351]			
Lambay Island cSAC (000204)	<p>Annex I habitats for which the sites is designated:</p> <ul style="list-style-type: none"> • Reefs [1170] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] <p>Annex II species for which the sites is designated:</p> <ul style="list-style-type: none"> • Grey seal <i>Halichoerus grypus</i> [1364] • Harbour seal <i>Phoca vitulina</i> [1365] 	<ul style="list-style-type: none"> • Reefs: unfavourable -bad • Vegetated sea cliffs – Unfavourable – Inadequate <ul style="list-style-type: none"> • Grey seal - Favourable • Harbour seal - Favourable 	<p>To maintain the favourable conservation condition of the following in Lambay Island SAC:</p> <ul style="list-style-type: none"> • Reefs • Vegetated sea cliffs of the Atlantic and Baltic coasts • Grey Seal • Harbour Seal 	<ul style="list-style-type: none"> • Geology • Coastal habitats • Prey abundance • Water quality • There is no current understanding of grey seal habitat use, requirements or preferences outside of the terrestrial/coastal interface. Terrestrial habitat occupied by grey seals during breeding and other shore-based phases of the annual cycle include coastland and marine littoral habitats such as grass banks islands of various size to estuarine sandbanks, intertidal rock ledges and boulder beaches.
Irelands Eye cSAC (002193)	<p>Annex I habitats for which the sites is designated:</p> <ul style="list-style-type: none"> • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] 	<ul style="list-style-type: none"> • Perennial vegetation of stony banks [1220] – Unfavourable/Inadequate • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] – Unfavourable/Inadequate 	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:</p> <ul style="list-style-type: none"> • [1220] Perennial vegetation of stony banks • [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Maintaining appropriate agricultural practices including grazing pressures. • Surface and ground water quality • Maintaining appropriate levels of disturbance • Water levels • Air quality • Tidal currents • Erosion and deposition rates
Baldoyle Bay cSAC (000199)	<p>Annex I habitats for which the site is designated:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • <i>Salicornia</i> and other annuals colonizing mud and sand [1310] • Atlantic salt meadows <i>Glauco-Puccinellietalia maritima</i> [1330] • Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410] 	<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide – Unfavourable/Inadequate • <i>Salicornia</i> and other annuals colonizing mud and sand – Unfavourable/Inadequate • Atlantic salt meadows – Unfavourable/Inadequate • Mediterranean salt meadows – Unfavourable/Inadequate 	<p>To maintain the favourable conservation condition of the following in Baldoyle Bay SAC:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide • <i>Salicornia</i> and other annuals colonizing mud and sand • Atlantic salt meadows • Mediterranean salt meadows 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Appropriate agricultural practices including grazing pressures. • Surface and ground water quality • Appropriate levels of access and disturbance • Water levels • Air quality • Tidal currents • Erosion and deposition rates • Maintenance of habitat extent and condition
North Dublin Bay cSAC (000206)	<p>Annex I habitats for which the sites is designated:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • <i>Salicornia</i> and other annuals colonizing mud and sand [1310] • Atlantic salt meadows <i>Glauco-Puccinellietalia maritima</i> [1330] • Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline 	<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide – Unfavourable/Inadequate • Annual vegetation of drift lines – Unfavourable/Inadequate • <i>Salicornia</i> and other annuals colonizing mud and sand – Unfavourable/Inadequate • Atlantic salt meadows – Unfavourable/Inadequate • Mediterranean salt meadows – Unfavourable/Inadequate • Embryonic shifting dunes – Unfavourable/Inadequate • Shifting dunes along the shoreline – 	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide • Annual vegetation of drift lines • <i>Salicornia</i> and other annuals colonizing mud and sand • Atlantic salt meadows • Petalwort • Mediterranean salt meadows • Embryonic shifting dunes 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Appropriate agricultural practices including grazing pressures. • Surface and ground water quality • Appropriate levels of disturbance • Water levels • Air quality • Tidal currents • Erosion and deposition rates • Height and frequency of the tides availability of foreshore sand and the average strength of the on-shore winds • Damp, calcareous sand in dune slacks and machair

Table A3.1 Details of European Sites within 15km of Donabate LAP

Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
	<p>with <i>Ammophila arenaria</i> (white dunes) [2120]</p> <ul style="list-style-type: none"> *Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <p><u>Annex II species for which the sites is designated:</u></p> <ul style="list-style-type: none"> Petalwort <i>Petalophyllum ralfsii</i> [1395] 	<p>Unfavourable/Inadequate</p> <ul style="list-style-type: none"> Fixed coastal dunes –Unfavourable/Bad Humid dune slacks – Unfavourable/Inadequate <p><u>Annex II species for which the sites is designated:</u></p> <ul style="list-style-type: none"> Petalwort - Favourable 	<ul style="list-style-type: none"> Shifting dunes along the shoreline Fixed coastal dunes with herbaceous vegetation Humid dune slacks 	
Howth Head cSAC (000202)	<p><u>Annex I habitats for which the sites is designated:</u></p> <ul style="list-style-type: none"> Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] 	<ul style="list-style-type: none"> Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] – Unfavourable/Inadequate European dry heaths [4030] - Unfavourable/Bad 	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:</p> <ul style="list-style-type: none"> Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] 	<ul style="list-style-type: none"> Controlling heath Fires Controlling recreational activities, visitor pressure
South Dublin Bay cSAC (000210)	<p><u>Annex I habitats for which the sites is designated:</u></p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide [1140] 	<ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide – Unfavourable/Inadequate 	<p>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:</p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide [1140] 	<ul style="list-style-type: none"> Controlling bait digging Land reclamation for industrial / infrastructure usage Water quality including nutrient levels, water clarity, sediment levels Maintaining appropriate levels of disturbance Tidal currents Erosion and deposition rates
Lambay Island SPA (004069)	<ul style="list-style-type: none"> Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Greylag Goose (<i>Anser anser</i>) [A043] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204] 	<ul style="list-style-type: none"> [A009] – Green [A017] – Amber [A018] – Amber [A043] – Amber [A183] – Amber [A184] – Red [A188] – Amber [A199] – Amber [A200] – Amber [A204] – Amber 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> <i>Fulmarus glacialis</i> [breeding] <i>Phalacrocorax carbo</i> [breeding] <i>Phalacrocorax aristotelis</i> [breeding] <i>Anser anser</i> [wintering] <i>Larus fuscus</i> [breeding] <i>Larus argentatus</i> [breeding + wintering] <i>Rissa tridactyla</i> [breeding] <i>Uria aalge</i> [breeding] <i>Alca torda</i> [breeding] <i>Fratercula arctica</i> [breeding] 	<ul style="list-style-type: none"> Geology Coastal habitats Food supply Appropriate levels of disturbance
Rogerstown Estuary SPA (004015)	<ul style="list-style-type: none"> Greylag Goose (<i>Anser anser</i>) [A043] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Shoveler (<i>Anas clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] 	<ul style="list-style-type: none"> [A043] –Amber [A046] –Amber [A048] – Amber [A056] – Red [A130] – Amber [A137] – Amber [A141] – Amber [A143] – Red 	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> <i>Anser anser</i> [wintering] <i>Branta bernicla hrota</i> [wintering] <i>Tadorna tadorna</i> [wintering] 	<ul style="list-style-type: none"> Water quality including nutrient levels, water clarity, sediment levels Water levels Tidal currents Wind energy Erosion / deposition levels Freshwater influx Coastal habitats Food supply

Table A3.1 Details of European Sites within 15km of Donabate LAP				
Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
	<ul style="list-style-type: none"> • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Knot (<i>Calidris canutus</i>) [A143] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Redshank (<i>Tringa totanus</i>) [A162] • Wetlands & waterbirds [A999] 	<ul style="list-style-type: none"> • [A149] – Amber • [A156] – Amber • [A162] – Red 	<ul style="list-style-type: none"> • <i>Anas clypeata</i> [wintering] • <i>Haematopus ostralegus</i> [wintering] • <i>Charadrius hiaticula</i> [wintering] • <i>Pluvialis squatarola</i> [wintering] • <i>Calidris canutus</i> [wintering] • <i>Calidris alpina</i> [wintering] • <i>Limosa limosa</i> [wintering] • <i>Tringa totanus</i> [wintering] 	<ul style="list-style-type: none"> • Appropriate levels of disturbance
<p>Malahide Estuary SPA (004025)</p> <p>(also known as Broadmeadow/Swords SPA)</p>	<ul style="list-style-type: none"> • Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Pintail (<i>Anas acuta</i>) [A054] • Goldeneye (<i>Bucephala clangula</i>) [A067] • Red-breasted Merganser (<i>Mergus serrator</i>) [A069] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Knot (<i>Calidris canutus</i>) [A143] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Redshank (<i>Tringa totanus</i>) [A162] • Wetlands & Waterbirds [A999] 	<ul style="list-style-type: none"> • [A005] – Amber • [A046] – Amber • [A048] – Amber • [A054] – Red • [A067] – Amber • [A069] – Green • [A130] – Amber • [A140] – Red • [A141] – Amber • [A143] – Red • [A149] – Amber • [A156] – Amber • [A157] – Amber • [A162] – Red 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> • <i>Podiceps cristatus</i> [wintering] • <i>Branta bernicla hrota</i> [wintering] • <i>Tadorna tadorna</i> [wintering] • <i>Anas acuta</i> [wintering] • <i>Bucephala clangula</i> [wintering] • <i>Mergus serrator</i> [wintering] • <i>Haematopus ostralegus</i> [wintering] • <i>Pluvialis apricaria</i> [wintering] • <i>Pluvialis squatarola</i> [wintering] • <i>Calidris canutus</i> [wintering] • <i>Calidris alpina</i> [wintering] • <i>Limosa limosa</i> [wintering] • <i>Limosa lapponica</i> [wintering] • <i>Tringa totanus</i> [wintering] • Wetlands & Waterbirds 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Freshwater influx • Railway viaduct • Water levels • Tidal currents • Wind energy • Erosion / deposition levels • Coastal habitats • Food supply • Appropriate levels of disturbance
Baldoyle Bay SPA (004016)	<ul style="list-style-type: none"> • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Ringed Plover (<i>Charadrius hiaticula</i>) [A137] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Wetlands & Waterbirds [A999] 	<ul style="list-style-type: none"> • [A046] – Amber • [A048] – Amber • [A137] – Amber • [A140] – Red • [A141] – Amber • [A157] – Amber 	<p>To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> • <i>Branta bernicla hrota</i> [wintering] • <i>Tadorna tadorna</i> [wintering] • <i>Charadrius hiaticula</i> [wintering] • <i>Pluvialis apricaria</i> [wintering] • <i>Pluvialis squatarola</i> [wintering] • <i>Limosa lapponica</i> [wintering] • Wetlands & Waterbirds 	<ul style="list-style-type: none"> • Water quality including nutrient levels, water clarity, sediment levels • Water levels • Tidal currents • Wind energy • Erosion / deposition levels • Freshwater influx • Intertidal habitats • Coastal habitats • Food supply • Appropriate levels of disturbance
Irelands Eye SPA (004117)	<ul style="list-style-type: none"> • Cormorant (<i>Phalacrocorax carbo</i>) [A017] • Herring Gull (<i>Larus argentatus</i>) [A184] • Kittiwake (<i>Rissa tridactyla</i>) [A188] • Guillemot (<i>Uria aalge</i>) [A199] • Razorbill (<i>Alca torda</i>) [A200] 	<ul style="list-style-type: none"> • [A017] - Amber • [A184] - Red • [A188] – Amber • [A199] – Amber 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p>	<ul style="list-style-type: none"> • Breeding Habitat • Coastal habitats • Foraging Habitat • Foraging Resources • Water quality • Coastal habitats

Table A3.1 Details of European Sites within 15km of Donabate LAP

Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
		<ul style="list-style-type: none"> • [A200] – Amber 	<ul style="list-style-type: none"> • <i>Phalacrocorax carbo</i> [breeding] • <i>Larus argentatus</i> [breeding] • <i>Rissa tridactyla</i> [breeding] • <i>Uria aalge</i> [breeding] • <i>Alca torda</i> [A200] [breeding] 	<ul style="list-style-type: none"> • Food supply • Appropriate levels of disturbance
Howth Head Coast SPA (004113)	<ul style="list-style-type: none"> • Kittiwake (<i>Rissa tridactyla</i>) 	<ul style="list-style-type: none"> • [A188] – Amber 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> • <i>Rissa tridactyla</i> [breeding] 	<ul style="list-style-type: none"> • Breeding Habitat (sea cliffs) • Foraging Habitat (Irish sea) • Food supply • Appropriate levels of disturbance
North Bull Island SPA (004006)	<ul style="list-style-type: none"> • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Teal (<i>Anas crecca</i>) [A052] • Pintail (<i>Anas acuta</i>) [A054] • Shoveler (<i>Anas clypeata</i>) [A056] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Knot (<i>Calidris canutus</i>) [A143] • Sanderling (<i>Calidris alba</i>) [A144] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Turnstone (<i>Arenaria interpres</i>) [A169] • Black-headed Gull (<i>Larus ridibundus</i>) [A179] • Wetlands & Waterbirds [A999] 	<ul style="list-style-type: none"> • [A130] – Amber • [A140] – Red • [A141] – Amber • [A143] – Red • [A144] – Green • [A149] – Amber • [A046] – Amber • [A048] – Amber • [A149] – Amber • [A052] – Amber • [A054] – Red • [A156] – Amber • [A157] – Amber • [A160] – Red • [A162] – Red • [A169] – Green • [A179] - Red 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> • <i>Branta bernicla hrota</i> [wintering] • <i>Tadorna tadorna</i> [wintering] • <i>Anas crecca</i> [wintering] • <i>Anas acuta</i> [wintering] • <i>Anas clypeata</i> [wintering] • <i>Haematopus ostralegus</i> [wintering] • <i>Pluvialis apricaria</i> [wintering] • <i>Pluvialis squatarola</i> [wintering] • <i>Calidris canutus</i> [wintering] • <i>Calidris alba</i> [wintering] • <i>Calidris alpina</i> [wintering] • <i>Limosa limosa</i> [wintering] • <i>Limosa lapponica</i> [wintering] • <i>Numenius arquata</i> [wintering] • <i>Tringa totanus</i> [wintering] • <i>Arenaria interpres</i> [wintering] • <i>Chroicocephalus ridibundus</i> [wintering] • Wetlands 	<ul style="list-style-type: none"> • Foraging Habitat • Breeding Habitat • Food supply • Appropriate Levels of disturbance • Water quality including nutrient levels, water clarity, sediment levels • Water levels • Tidal currents • Erosion / deposition levels • Freshwater influx • Intertidal habitats • Air Quality
South Dublin Bay and River Tolka Estuary SPA (004024)	<ul style="list-style-type: none"> • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Ringed Plover (<i>Charadrius hiaticula</i>) [A137] • Grey Plover (<i>Pluvialis squatarola</i>) [A140] • Knot (<i>Calidris canutus</i>) [A143] • Sanderling (<i>Calidris alba</i>) [A144] • Dunlin (<i>Calidris alpina</i>) [A149] 	<ul style="list-style-type: none"> • [A046] – Amber • [A130] – Amber • [A137] – Amber • [A140] – Amber • [A143] – Red • [A144] – Green • [A149] – Amber • [A157] – Amber • [A162] – Red • [A179] - Red 	<p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> • <i>Branta bernicla hrota</i> [wintering] • <i>Haematopus ostralegus</i> [wintering] • <i>Charadrius hiaticula</i> [wintering] • <i>Pluvialis squatarola</i> [wintering] • <i>Calidris canutus</i> [wintering] • <i>Calidris alba</i> [wintering] 	<ul style="list-style-type: none"> • Foraging Habitat • Breeding Habitat • Food supply • Appropriate Levels of disturbance • Water quality including nutrient levels, water clarity, sediment levels • Water levels • Tidal currents • Erosion / deposition levels • Freshwater influx • Intertidal habitats

Table A3.1 Details of European Sites within 15km of Donabate LAP

Site Name & Code	Qualifying Interests	Current Conservation Status ¹	Conservation Management Objectives ²	Conditions underpinning site integrity
	<ul style="list-style-type: none"> • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Redshank (<i>Tringa totanus</i>) [A162] • Black-headed Gull (<i>Larus ridibundus</i>) [A179] • Roseate Tern (<i>Sterna dougallii</i>) [A192] • Common Tern (<i>Sterna hirundo</i>) [A193] • Arctic Tern (<i>Sterna paradisaea</i>) [A194] • Wetlands & Waterbirds [A999] 	<ul style="list-style-type: none"> • [A192] – Amber • [A193] – Amber • [A194] – Amber 	<ul style="list-style-type: none"> • <i>Calidris alpina</i> [wintering] • <i>Limosa lapponica</i> [wintering] • <i>Tringa totanus</i> [wintering] • <i>Chroicocephalus ridibundus</i> [wintering] • <i>Sterna dougallii</i> [passage] • <i>Sterna hirundo</i> [breeding + passage] • <i>Sterna paradisaea</i> [passage] • Wetlands [] 	<ul style="list-style-type: none"> • Air Quality

Table A3.2 Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP		
Qualifying Interests of European Sites [EU Reference Code]	Main pressures and threats to habitat conservation status ^{1,2,3,4}	
Habitats		
Estuaries [1130]	Aquaculture Fishing Nautical sports Other recreational activities	Dredging Piers/Harbours/Slipways Water Pollution
Mudflats and sandflats not covered by seawater at low tide [1140]	Water Pollution Aquaculture Fishing Hand collection	Dredging Nautical sports Other recreational activities
Reefs [1170]	Aquaculture Fishing Water Pollution Industrial ports Intensive fish farming Piers/Harbours/Slipways	Exploration and extraction of oil or gas Dredging Geotechnical survey Nautical sports Hand collection
Annual vegetation of drift lines [1210]	Agricultural activities Grazing Removal of beach materials Piers/Harbours/Slipways Walking, horse riding and non-motorised vehicles Off-road motorised vehicles Other human intrusions and disturbances	Trampling, overuse Other leisure and tourism impacts (beach cleaning) Dumping of solid waste Dumping of dredging material Sea defence or coastal protection works Reduction or loss of specific habitat features Changes in abiotic conditions
Perennial vegetation of stony banks [1220]	Sand and gravel extraction Removal of beach materials Pipelines Disposal of inert materials Dumping of solid waste Trampling, overuse	Walking, horse riding and non-motorised vehicles Other forms of pollution Landfill, land reclamation and drying out Sea defence or coastal protection works Changes in abiotic conditions
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Invasive non-native species Sand and gravel extraction Sea defence/coastal protection works Paths, tracks, cycling tracks Sea-level change Non intensive sheep grazing Railways lines Piers/Harbours/Slipways Discharges	Disposal of household/recreational/industrial wastes Structures, buildings in the landscape Other urbanisation and industrial and similar activities Diffuse water pollution (agriculture, forestry, household sewage and waste water) Collapse of terrain, landslide Flooding and rising precipitations
<i>Salicornia</i> and other annuals colonizing mud and sand [1310]	Invasive non-native species Erosion Silt up Intensive cattle grazing Intensive sheep grazing Diffuse water pollution (household sewage and waste waters) Species composition change	Reclamation of land from sea, estuary or marsh Dykes, embankments and artificial beaches Walking, horse riding and non-motorised vehicles Changes in abiotic conditions

Table A3.2 Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP		
Qualifying Interests of European Sites [EU Reference Code]	Main pressures and threats to habitat conservation status ^{1,2,3,4}	
Spartina swards <i>Spartinion maritima</i> [1320]	N/A	
Atlantic salt meadows <i>Glauco-Puccinellietalia maritima</i> [1330]	Intensive cattle/sheep grazing Walking, horse riding and non-motorised vehicles Disposal of household/recreational waste Other industrial/commercial area Reclamation of land from sea, estuary or marsh	Polderisation Erosion Invasive non-native species
Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410]	Intensive cattle/sheep grazing Paths, tracks, cycling tracks Modification of hydrographic functioning	Erosion Infilling of ditches, dykes, ponds, pools, marshes or pits
Embryonic shifting dunes [2110]	Intensive grazing Sand and gravel extraction Paths, tracks, cycling routes Disposal of household/recreational waste Recreational activities Sports and leisure structures Trampling, overuse Intensive maintenance – cleaning of beaches	Fences, fencing Invasive non-native species Dredging Erosion Sea defence or coastal protection works Species composition change Changes in abiotic conditions
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	Intensive grazing Sand and gravel extraction Paths, tracks, cycling routes Disposal of household/recreational waste Recreational activities Trampling, overuse Intensive maintenance – cleaning of beaches	Fences, fencing Invasive non-native species Dredging Erosion Sea defence or coastal protection works Species composition change Changes in abiotic conditions
*Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Agricultural intensification Abandonment of pastoral systems, lack of grazing Forest and plantation management and use Trampling, overuse Dumping Sea defence or coastal protection works Species composition change Intensive grazing	Sand and gravel extraction Roads, paths and railroads Discontinuous urbanisation Disposal of household/recreational waste Recreational activities Sports and recreational structures Erosion Changes in abiotic conditions Invasive non-native species
Humid dune slacks [2190]	Agricultural intensification Abandonment of pastoral systems, lack of grazing Intensive grazing Forest and plantation management and use Sand and gravel extraction Roads, paths and railroads Discontinuous urbanisation Recreational activities	Sand and gravel extraction Sports and recreational structures Trampling, overuse Invasive non-native species Sea defence or coastal protection works Species composition change Erosion Changes in abiotic conditions Disposal of household/recreational waste
European dry heaths [4030]	Agricultural intensification Non intensive cattle/sheep grazing Abandonment of pastoral systems, lack of grazing Artificial planting on open ground Mining and quarrying Wind energy production Roads, paths and railroads	Fences, fencing Air pollution, air borne pollutants Invasive non-native species Problematic native species Burning down Erosion Species composition change Damage by herbivores

1 Sourced from Status of EU Protected Habitats and Species in Ireland (NPWS, 2013).

2 Sourced from Birdguides (2003-2006), Birds of the Western Palaearctic. Version 2.0.1.

3 Sourced from BirdLife International (2013). IUCN Red List for birds. Downloaded from <http://www.birdlife.org>, January 2012

4 Sourced from AEWA, (2006), Technical Series No. 11, International Single Species Action Plan for Light-bellied Brent Goose (East Canadian High Arctic Population) *Branta bernicla hrota*.

Table A3.2 Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP	
Qualifying Interests of European Sites [EU Reference Code]	Main pressures and threats to habitat conservation status ^{1,2,3,4}
	Dispersed habitation Walking, horse riding and non-motorised vehicles Off road motorized driving Collapse of terrain, landslide Changes in abiotic conditions Changes in biotic conditions
Species	
Harbour porpoise <i>Phocaena phocaena</i> [1170]	Fishing Death or injury by collision Marine water pollution Noise nuisance, noise pollution Seismic exploration, explosions Changes in abiotic conditions
Grey Seal <i>Halichoerus grypus</i> [1364]	Fishing Illegal taking/removal of marine fauna Marine water pollution Noise nuisance, noise pollution Seismic exploration, explosions Changes in abiotic conditions
Harbour Seal <i>Phoca vitulina</i> [1365]	Aquaculture Fishing Illegal taking/removal of marine fauna Recreational activities Marine water pollution Noise nuisance, noise pollution Seismic exploration, explosions Changes in abiotic conditions
Petalwort <i>Petalophyllum ralfsii</i> [1395]	No threats or pressures
Fulmar (<i>Fulmarus glacialis</i>) [A009]	Ingestion of anthropogenic sea debris (can lead to death).
Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Sea level rise, and extreme weather events (waves washing over colonies can destroy entire colonies). Human disturbance (day-trippers, sailors), and predation by gulls and rats. rat and gull predation of breeding colonies
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Degradation of foraging sites due to land reclamation, pollution, human disturbance and invasion by <i>Spartina</i> species.
Black-headed Gull (<i>Larus ridibundus</i>) [A179]	No specific threats. Oil pollution could deteriorate feeding areas.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Human disturbance, spread of invasive species (<i>Spartina</i> species), and loss of grassland feeding sites (may avoid saline influenced coastal grasslands if don't contain earthworms). Juvenile birds which select good wintering sites also select good breeding sites, therefore maintaining high quality wintering sites is crucial to raising productivity on breeding grounds and slowing the rate of decline.
Common Tern (<i>Sterna hirundo</i>) [A193]	Sea level rise, and extreme weather events (waves washing over colonies can destroy entire colonies). Human disturbance (day-trippers, sailors), and predation by gulls and rats. rat and gull predation of breeding colonies
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Off-shore windfarms and on-shore powerline collisions, persecution from angling/aquaculture industry, drowning in gill nets, predation by Gulls at colony.
Curlew (<i>Numenius arquata</i>) [A160]	Human disturbance, pollution, and hunting.
Dunlin (<i>Calidris alpina</i>) [A149]	Land reclamation (drainage), and the invasion of alien plant species (such as the grass <i>Spartina anglica</i> which has spread on British mudflats, resulting in the reduction in size of feeding areas available). The species is also threatened by disturbance on intertidal mudflats from construction work and foot-traffic on footpaths.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Susceptible to very cold winter temperatures and severe weather conditions. Disturbance and loss of roosting and feeding grounds, spread of <i>Spartina</i> species.
Goldeneye (<i>Bucephala clangula</i>) [A067]	Recreational activities, water pollution (including WWTW) infilling, water sports and other amenity activities at Malahide Estuary, resulting in disturbance of feeding/roosting sites.
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Drowning in gill-nets, overfishing.

Table A3.2 Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP	
Qualifying Interests of European Sites [EU Reference Code]	Main pressures and threats to habitat conservation status ^{1,2,3,4}
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Over-fishing, disturbance and habitat loss at roost sites.
Greylag Goose (<i>Anser anser</i>) [A043]	Poisoning from lead shot ingestion, agricultural changes, disturbance from both terrestrial and aquatic recreation at roosting sites
Guillemot (<i>Uria aalge</i>) [A199]	Drowning in gill nets, ingestion of anthropogenic sea debris (can lead to death), displacement from off-shore windfarms.
Herring Gull (<i>Larus argentatus</i>) [A184]	Competition for food with other <i>Larus</i> species. Licensed culling for protection of other seabirds (e.g. terns), botulism.
Kittiwake (<i>Rissa tridactyla</i>) [A188]	Ingestion of anthropogenic sea debris (can lead to death).
Knot (<i>Calidris canutus</i>) [A143]	Over-fishing, and water pollution from historical landfills, over-exploitation of shellfish, human disturbance at roosts and feeding sites,
Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]	Competition for food with other <i>Larus</i> species. Licensed culling for protection of other seabirds (e.g. terns), botulism.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Habitat loss/degradation (human induced) – agriculture, infrastructural development, human settlement, tourism, recreation, dams, invasive species; accidental mortality – collision; persecution; pollution – global warming, sea level rise, water pollution; natural disasters – drought, storms, flooding; changes in native species dynamics – competitors, pathogens/parasites; poor regeneration, restricted range; human disturbance – recreation, transport, agricultural, industrial.
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Over-fishing of benthic shellfish and the resulting disappearance of intertidal mussel and cockle beds, also threatened by habitat degradation on its wintering grounds due to land reclamation, pollution, and human disturbance.
Pintail (<i>Anas acuta</i>) [A054]	Recreational activities, water pollution infilling, water sports and other amenity activities at Malahide Estuary.
Puffin (<i>Fratercula arctica</i>) [A204]	Predation by <i>Rattus norvegicus</i> and <i>R. rattus</i> at Lambay. Drowning in gill nets, ingestion of anthropogenic sea debris (can lead to death).
Purple Sandpiper (<i>Calidris maritime</i>) [A148]	Human disturbance (and free-running dogs) in rocky shore and harbour feeding habitats.
Razorbill (<i>Alca torda</i>) [A200]	Drowning in gill nets, ingestion of anthropogenic sea debris (can lead to death), displacement from off-shore windfarms.
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	Overfishing, drowning in fishing nets.
Redshank (<i>Tringa totanus</i>) [A162]	Human disturbance, spread of invasive species (<i>Spartina</i> species), loss of breeding habitat.
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Over-fishing, and water pollution from historical landfills, botulism, disturbance at coastal roost sites
Roseate Tern (<i>Sterna dougallii</i>) [A192]	Sea level rise, and extreme weather events (waves washing over colonies can destroy entire colonies). Human disturbance (day-trippers, sailors), and predation by gulls and rats. rat and gull predation of breeding colonies
Sanderling (<i>Calidris alba</i>) [A144]	Human disturbance (and free-running dogs) in sandy shoreline feeding habitats, and rocky roosting habitats.
Shag (<i>Phalacrocorax aristotelis</i>) [A018]	Windfarms, overfishing, oil spills, persecution from angling/aquaculture industry, drowning in gill nets, predation by gulls at colony.
Shelduck (<i>Tadorna tadorna</i>) [A048]	Habitat loss at feeding and roosting sites. <i>Spartina</i> invasion of feeding areas.

Table A3.2 Main Pressures and Threats to the Qualifying Interests of European Sites within 15km of the LAP	
Qualifying Interests of European Sites [EU Reference Code]	Main pressures and threats to habitat conservation status ^{1,2,3,4}
Shoveler (<i>Anas clypeata</i>) [A056]	Wintering habitat loss, potential impact from collisions with overhead lines, poisoning from lead-shot ingestion.
Teal (<i>Anas crecca</i>) [A052]	Drainage of feeding sites, disturbance at roost sites, poisoning from lead-shot ingestion, hunting.
Turnstone (<i>Arenaria interpres</i>) [A169]	Human disturbance (incl. dogs) at feeding and roosting sites. Note however relative tolerance of humans during feeding.
Wetlands & Waterbirds [A999]	Bait digging, wildfowling, spread of <i>Spartina</i> , disturbance including dog walkers, recreational activities, water pollution, infilling, oil spillages from shipping (sourced Natura 2000 forms for each site).

Table A3.3 Targets for the Conservation Objectives for the Qualifying Interests in Rogerstown Estuary SAC and SPA and Malahide Estuary SAC and SPA.

Qualifying Interest	Attribute	Measure	Target
ROGERSTOWN ESTUARY SAC (000208)			
Estuaries [1130] To maintain favourable conservation condition of estuaries in Rogerstown Estuary SAC.	Habitat Area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.
	Community Extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community and the <i>Mytilus edulis</i> -dominated community, subject to natural processes.
	Community Structure: <i>Zostera</i> density	Shoots/m ²	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes.
	Community Structure: <i>Mytilus edulis</i> density	Individuals/m ²	Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes.
	Community distribution	Hectares	Conserve the following community types in a natural condition: Sand to coarse sediment with <i>Nephtys cirrosa</i> and <i>Scolelepis squamata</i> community complex; Estuarine sandy mud to mixed sediment with <i>Tubificoides benedii</i> , <i>Hediste diversicolor</i> and <i>Peringia ulvae</i> community complex. ¹
Mudflats and sandflats not covered by seawater at low tide [1140] To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Rogerstown Estuary SAC.	Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.
	Community extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community and the <i>Mytilus edulis</i> -dominated community complex, subject to natural processes.
	Community Structure: <i>Zostera</i> density	Shoots/m ²	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes.
	Community Structure: <i>Mytilus edulis</i> density	Individuals/m ²	Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes.
	Community distribution	Hectares	Conserve the following community types in a natural condition: Fine sand with oligochaetes, amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with Chironomidae and <i>Hediste diversicolor</i> community complex; and Sand to muddy sand with <i>Peringia ulvae</i> , <i>Tubificoides benedii</i> and <i>Cerastoderma edule</i> community complex.
<i>Salicornia</i> and other annuals colonising mud and sand [1310] To maintain the favourable conservation condition of <i>Salicornia</i> and other annuals colonising mud and sand in Rogerstown Estuary SAC.	Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Rogerstown Estuary 0.90ha.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: sediment supply	Presence/absence of physical barriers	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions
	Physical structure: Creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession.
	Physical structure: Flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
	Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward

¹ Applicable to Rogerstown Estuary SAC SSCOs

Qualifying Interest	Attribute	Measure	Target
	Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
	Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)
	Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>). No new sites for this species and an annual spread of less than 1% where it is already known to occur
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] To restore the favourable conservation condition of Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) in Rogerstown Estuary SAC.	Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.
	Habitat Distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
	Physical structure: Sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions.
	Physical structure: Creeks and pans	Occurrence	Allow creek and pan structure to develop, subject to natural processes, including erosion and succession.
	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime.
	Vegetation structure: Zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward.
	Vegetation structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% area outside creeks vegetated.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009).
	Vegetation structure: negative indicator species – <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur.
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] To maintain the	Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.
	Habitat Distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
	Physical structure: Sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions.

Qualifying Interest	Attribute	Measure	Target
favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in Rogerstown Estuary SAC.	Physical structure: Creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession
	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime.
	Vegetation structure: Zonation	Occurrence	Maintain range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward.
	Vegetation structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% area outside creeks vegetated.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with characteristic species listed in SMP (McCorry and Ryle, 2009).
	Vegetation structure: negative indicator species – <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur.
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') in Rogerstown Estuary SAC.	Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: function and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions.
	Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation composition: plant health of dune grasses	Percentage cover	95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present).
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>).
	Vegetation composition: Negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover.
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Habitat Area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions.

Qualifying Interest	Attribute	Measure	Target
To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Rogerstown Estuary SAC.	Vegetation structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes.
	Vegetation structure: sward height	Centimetres	Maintain structural variation within sward.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in Ryle et al. (2009)
	Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>)	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover.
	Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control.
MALAHIDE ESTUARY SAC (000205)			
Mudflats and sandflats not covered by seawater at low tide [1140] To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC.	Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.
	Community extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community and the <i>Mytilus edulis</i> -dominated community complex, subject to natural processes.
	Community Structure: <i>Zostera</i> density	Shoots/m ²	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes.
	Community Structure: <i>Mytilus edulis</i> density	Individuals/m ²	Conserve the high quality of the <i>Mytilus edulis</i> dominated community, subject to natural processes.
	Community distribution	Hectares	Conserve the following community types in a natural condition: Fine sand with oligochaetes, amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with <i>Chironomidae</i> and <i>Hediste diversicolor</i> community complex; and Sand to muddy sand with <i>Peringia ulvae</i> , <i>Tubificoides benedii</i> and <i>Cerastoderma edule</i> community complex.
<i>Salicornia</i> and other annuals colonising mud and sand [1310] To maintain the favourable conservation condition of <i>Salicornia</i> and other annuals colonising mud and sand in	Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Malahide Estuary- 1.93ha.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: sediment supply	Presence/absence of physical barriers	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions
	Physical structure: Creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession.
	Physical structure: Flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
	Vegetation structure:	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession

Qualifying Interest	Attribute	Measure	Target
Malahide Estuary SAC.	zonation		
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
	Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
	Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)
	Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>). No new sites for this species and an annual spread of less than 1% where it is already known to occur
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] To restore the favourable conservation condition of Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) in Malahide Estuary SAC.	Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Malahide Estuary - 25.33ha.
	Habitat Distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
	Physical structure: Sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions.
	Physical structure: Creeks and pans	Occurrence	Allow creek and pan structure to develop, subject to natural processes, including erosion and succession.
	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime.
	Vegetation structure: Zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward.
	Vegetation structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% area outside creeks vegetated.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009).
Vegetation structure: negative indicator species – <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur.	
Mediterranean salt meadows	Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Malahide Estuary - 0.64ha.

Qualifying Interest	Attribute	Measure	Target
<i>(Juncetalia maritimi)</i> [1410] To maintain the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in Malahide Estuary SAC.	Habitat Distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
	Physical structure: Sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions.
	Physical structure: Creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession
	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime.
	Vegetation structure: Zonation	Occurrence	Maintain range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward.
	Vegetation structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% area outside creeks vegetated.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with characteristic species listed in SMP (McCorry and Ryle, 2009).
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') in Malahide Estuary SAC.	Vegetation structure: negative indicator species – <i>Spartina anglica</i>	Hectares	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur.
	Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. Total area mapped: 1.80ha.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: function and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions.
	Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation composition: plant health of dune grasses	Percentage cover	95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present).
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lymegrass (<i>Leymus arenarius</i>).
Vegetation composition: Negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover.	

Qualifying Interest	Attribute	Measure	Target
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Malahide Estuary SAC.	Habitat Area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. Total area mapped: 21.42ha.
	Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.
	Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions.
	Vegetation structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.
	Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes.
	Vegetation structure: sward height	Centimetres	Maintain structural variation within sward.
	Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in Ryle et al. (2009)
	Vegetation composition: negative indicator species (including <i>Hippophae rhamnoides</i>)	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover.
	Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control.
<i>Spartina</i> swards (<i>Spartinion maritimae</i>) [1320] ²			
ROGERSTOWN ESTUARY SPA (004015)			
To maintain the favourable conservation condition of the following species within Rogerstown Estuary SPA: Greylag Goose <i>Anser anser</i> (A043) Brent Goose <i>Branta bernicla hrota</i> (A046)	Population Trend	Percentage Change	Long term population trend stable or increasing.
	Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing and intensity of use of areas by birds, other than that occurring from natural patterns of variation.

² *Spartina* swards (*Spartinion maritimae*) was originally listed as a qualifying Annex I habitat for Malahide Estuary SAC due to historical records of two rare forms of cordgrass— small cordgrass (*Spartina maritima*) and Townsend's cordgrass (*S. x townsendii*). However, Preston et al. (2002) considers both forms to be alien. In addition, all stands of cordgrass in Ireland are now regarded as common cordgrass (*S. anglica*) (McCorry et al., 2003; McCorry and Ryle, 2009). As a consequence, a conservation objective has not been prepared for this habitat. It will therefore not be necessary to assess the likely effects of plans or projects against this Annex I habitat at this site.

Qualifying Interest	Attribute	Measure	Target
<p>Shelduck <i>Tadorna tadorna</i> (A048)</p> <p>Shoveler <i>Anas clypeata</i> (A056)</p> <p>Oystercatcher <i>Haematopus ostralegus</i> (A130)</p> <p>Ringed Plover <i>Charadrius hiaticula</i> (A137)</p> <p>Grey Plover <i>Pluvialis squatarola</i> (A141)</p> <p>Knot <i>Calidris canutus</i> (A143)</p> <p>Dunlin <i>Calidris alpina alpina</i> (A149)</p> <p>Black-tailed Godwit <i>Limosa limosa</i> (A156)</p> <p>Redshank <i>Tringa tetanus</i> (A162)</p>			
<p>Wetlands (A999)</p> <p>To maintain the favourable conservation condition of the wetland habitat in Rogerstown Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>	Habitat Area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 hectares, other than that occurring from natural patterns of variation.
MALAHIDE ESTUARY SPA (004025)			
To maintain the favourable	Population Trend	Percentage Change	Long term population trend stable or increasing.

Qualifying Interest	Attribute	Measure	Target
<p>conservation condition of the following species within Malahide Estuary SPA:</p> <p>Great crested grebe <i>Podiceps cristatus</i> (A005)</p> <p>Brent Goose <i>Branta bernicla hrota</i> (A046)</p> <p>Shelduck <i>Tadorna tadorna</i> (A048)</p> <p>Pintail <i>Anas acuta</i> (A054)</p> <p>Goldeneye <i>Bucephala clangula</i> (A067)</p> <p>Red-breasted Merganser <i>Mergus serrator</i> (A069)</p> <p>Oystercatcher <i>Haematopus ostralegus</i> (A130)</p> <p>Golden Plover <i>Pluvialis apicaria</i> (A140)</p> <p>Grey Plover <i>Pluvialis squatarola</i> (A141)</p> <p>Knot <i>Calidris canutus</i> (A143)</p> <p>Dunlin <i>Calidris alpina alpina</i> (A149)</p> <p>Black-tailed Godwit <i>Limosa limosa</i> (A156)</p> <p>Bar-tailed Godwit</p>	<p>Distribution</p>	<p>Number and range of areas used by waterbirds</p>	<p>No significant decrease in the range, timing and intensity of use of areas by birds, other than that occurring from natural patterns of variation.</p>

Qualifying Interest	Attribute	Measure	Target
<p><i>Limosa limosa</i> (A157)</p> <p>Redshank <i>Tringa tetanus</i> (A162)</p>			
<p>Wetlands [A999]</p> <p>To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.</p>	Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 765 hectares, other than that occurring from natural patterns of variation.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 1.1	Support the National Climate Change Strategy by facilitating measures to reduce emissions of greenhouse gases.	Not enough geographic specificity to permit complete assessment so impacts are better avoided and proposal assessed at the project stage. Proposals not in compliance will not be permitted. Likely to have positive effects on greenhouse gas emission rates.
Objective 1.2	<p>Incorporate environmentally sustainable design principles in the design and construction of all buildings in the plan area. New buildings shall strive to reduce the energy and water demand through:</p> <ul style="list-style-type: none"> • Careful consideration of building orientation, form, massing and fenestration to make the most of passive solar gain for space heating. • Use of insulation to reduce heat loss from draughts and uncontrolled ventilation. • Reduced water use through rainwater harvesting and recycling of rainwater. • Use of materials with low embodied energy and consider incorporating environmentally ‘smart’ materials that can minimise energy use by responding to changing external conditions. • Applicants / Developers shall demonstrate how proposed development meets the minimum requirements of Part L of the Building Regulations. 	Likely to have positive effects on greenhouse gas emission rates and water supply and discharge of surface water.
Objective 1.3	Ensure timely delivery of enabling physical, social and green infrastructure in tandem with residential and commercial development.	Likely to have positive effects through provision of ecological corridors.
Objective 3.1	Provide a network of pedestrian and cycle access routes to Donabate Train Station from the new development lands.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.2	Support the NTA’s proposed electrification of the Northern Line from Malahide to Balbriggan to allow an extension of DART services to Balbriggan.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.3	Ensure that all future rail improvement proposals including associated works such as overhead wires, access roads, maintenance yards and car-parks are designed and developed having regard to the environmental and visual sensitivities of the area, and subject to Appropriate Assessment as required.	This is a mitigation measure that addresses the potential impact that overhead electrification can have on bird flight paths and cause of direct mortality through collision.
Objective 3.4	Implement local and strategic traffic relief measures to improve traffic freeflow and safety – Donabate Village and on road networks serving schools through phased construction of a Donabate Distributor Road and a series of internal link roads through the LAP lands.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.5	Seek the implementation of DMURS to facilitate good quality permeability and places/public realm.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.6	<p>Ensure the construction of the following cycleway/footpath improvements in tandem with development:</p> <ul style="list-style-type: none"> • Link path/route from Newbridge Demesne to Donabate Village via the Corballis LAP lands; • Link path/route from Rahillion LAP Lands south to St Patrick’s Boys and Girls National Schools; and • Provide a pedestrian/cycle link from Newbridge Demesne to lands at Turvey. 	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.7	Provide for good quality bicycle parking facilities at key locations within the LAP lands such as the Corballis Local Centre and the Ballymastone Campus, in accordance with Fingal Development Plan standards.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.8	Prioritise the movement of pedestrians and cyclists in proximity to public transport nodes and improve the walking and cycling environment in tandem with the emerging public transport and vehicular network.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.9	Continue to ensure walking and cycling facilities and networks are designed so that they are safe and also meet the needs of people with disabilities.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 3.10	Prior to Unit No. 201 being sold and occupied in Phase 1 of the Corballis West development, a new pedestrian and cycle overbridge over the Dublin –Belfast rail line connecting the development to Donabate Village (via Smyths Pub) and a link to Newbridge Demesne shall be provided and shall be operational.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 3.11 (added as an amendment to Draft Plan after public display).	Support TII in a possible future extension of the proposed new Metro North finishing point to connect with the Northern Line in Donabate, with a view to securing permission from An Bord Pleanála.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites. Project will be subject to its own Appropriate Assessment screening and full AA if required.
Objective 3.12 (added as an amendment to Draft Plan after public display).	To promote the provision of a dedicated set-down facility to serve Scoil Padraic Callini and St Patrick's Boys National School on lands adjacent to the existing school sites, in collaboration with the Department of Education and Skills and School Authorities.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 4.1	Support the completion of pedestrian / cycle routes (greenways) at Turvey / Newbridge Loop, Rahillion / St Ita's Loop and the Fingal Coastal Way in tandem with the phased delivery of development of LAP lands.	When assessed in isolation, could pose adverse effects on the integrity of the European sites by means of disturbance and loss of feeding areas for Special Conservation Interest bird species for the Special Protection Areas. However when implemented in combination with the other Objectives that mitigate such potential effects the overall result is neutral.
Objective 4.2	Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of Natura 2000 sites, the provision of accessible parks, open spaces and recreational facilities, the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of the architectural and archaeological heritage.	Likely to have positive effects on European sites through the provision of buffer zones distancing sites from impact sources and protecting surface water quality.
Objective 4.3	Develop a suitable link from the proposed Broadmeadow Way through the LAP lands at Corballis and linking through to Donabate Village.	Has been assessed as part of the design of the Broadmeadow Way and has been demonstrated not to pose any adverse effects on European sites.
Objective 4.4	Promote and develop a combined greenway for walking and cycling along the Peninsula coastline and complete an inter-connected network of looped green paths (walking and cycling) through the LAP lands at Rahillion, Corballis and Turvey, as well as Donabate Village, existing and proposed residential areas, schools, Turvey Nature Reserve & Allotments, Newbridge Demesne, Estuaries and the beaches. The walkways shall be designed and sited to reflect and integrate with their setting subject to Appropriate Assessment and detailed design assessment.	The requirement to design and integrate the greenways into the environment and to carry out AA screening will address the project-level scale of impacts that could affect the integrity of the European sites. This Objective has been assessed in combination with the other objectives which mitigate the potential adverse effects on the integrity of the European sites.
Objective 4.5	Provide, as part of the Fingal Coastal Way, an agreed and appropriately designed combined pedestrian and cycle route, with linkages to the proposed GDA Cycle Network, minimizing access points and signage to avoid disturbance to ecologically sensitive locations and ensuring the integrity of the protected habitats and species within Rogerstown and Malahide Estuaries and the ecological buffer zones within the plan lands	The requirement to minimise access points, control signage and recognise and protect the ecologically sensitive locations will address the project-level scale of impacts that could affect the integrity of the European sites.
Objective 4.6	Provide appropriately scaled children's playground facilities and youth activity spaces within residential development, having regard to relevant Fingal County Development Plan policy, Department of Environment guidance and best practice.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 4.7	To provide a large multi-functional playground at Ballymastone with a range of facilities to cater for a variety of age-groups (toddlers to teens).	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 4.8	Allow recreational/amenity facilities (indoor or outdoor) of a more intensive nature to be provided in tandem with larger developments in lieu of open space requirement. Such facilities may be where such facilities better meets the needs of the population either on site or located within the open space accessible to the homes it serves, in line with relevant Development Plan standards.	No potential for adverse effects on European sites by ensuring that intensive facilities are close to other areas of development, thereby minimising the extent of development-related impacts.
Objective 4.9	Ensure that proposals for parks, open space and recreational facilities which may have an impact on the Natura 2000 network either directly or indirectly are subject to Appropriate Assessment and are given very careful consideration.	All individual applications for development will be screened for Appropriate Assessment as a matter of law and developments that pose adverse effects on the integrity of European sites will not be considered under Article 6(3) of the EC. Habitats Directive. Article 6(4) may be applied where applicable.
Objective 4.10	Provide an integrated network of open spaces, pocket parks and pedestrian / cycle routes through the implementation of the Open Space Strategy outlined in the LAP.	Likely to have positive effects on European sites through the provision of a network of open space that may be used by mobile species such as waders and wildfowl that also use the European sites nearby. Such sites in urban areas can be important refuge and feeding areas for some species.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 4.11	Require a detailed high quality open space and landscape design plan including specifications, prepared by suitably qualified professionals, to be submitted with all planning applications for developments in excess of 10 residential units.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 4.12	Require properly constituted management companies to be established and ensure that the necessary management structures are put in place where it is intended that open spaces will be retained in private ownership.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 4.13	Protect the functions of the ecological buffer zones and ensure proposals for development have no significant adverse impact on the habitats and species of interest located therein.	Likely to have positive effects on European sites through the provision of buffer zones distancing sites from impact sources.
Objective 4.14 (added as an amendment to Draft Plan after public display).	Undertake an early assessment (beginning in 2016), including appropriate assessment, of the walking and cycling routes proposed near Rogerstown and Malahide Estuaries, including the crossing points of the estuaries, to establish viable routes and design options.	No. This Objective will clarify the viability of specific routes and design options based upon scientific data and therefore will ensure that only routes that will not impact on the European sites' integrity will be carried forward for consideration.
Objective 5.1	Development proposals shall include Visual Impact Assessments and Impact assessments demonstrating compliance with LAP landscape and heritage objectives, outlined hereunder.	Likely to have positive effects on European sites through the minimisation of visual disturbance beyond the development footprint.
Objective 5.2	Protect views and prospects that contribute to the character of the landscape, particularly those identified in the Development Plan, and where appropriate, incorporate principal views of the surrounding area, in particular, views over Malahide Estuary, into future development schemes. Protect areas of high landscape quality including Special Amenity Areas, High Amenity zoned lands, and Highly Sensitive Landscapes identified on the Development Plan Green Infrastructure Maps.	Likely to have positive effects on European sites through the minimisation of visual disturbance beyond the development footprint.
Objective 5.3	Ensure development reflects and, reinforces the distinctiveness and sense of place of the landscape character types, including the retention of important features or characteristics, taking into account the various elements which contribute to their distinctiveness such as geology and landform, habitats, scenic quality, settlement pattern, historic heritage, local vernacular heritage, land-use and tranquility.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.4	Seek the protection and retention of trees, hedgerows and historic walls or other distinctive boundary treatments that contribute to the visual amenity and landscape character of the area.	Likely to have positive effects on European sites through the retention of natural visual screening features.
Objective 5.5	Protect, preserve and ensure the effective management of trees and groups of trees.	Likely to have positive effects on European sites through the retention of natural visual screening features.
Objective 5.6	Require the use of native planting where appropriate in new developments in consultation with the Council. Indigenous, non-invasive species should be considered to provide habitat for locally occurring fauna ensuring, at a minimum, there should be no net loss of the tree and hedgerow resource.	Likely to have positive effects on European sites through the addition of natural visual screening features.
Objective 5.7	Conserve the historic building stock, structures on the Record of Protected Structures and archaeological sites and features including those on the Record of Monuments and Places and their settings.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.8	Positively enhance the character of the area taking full account of the relevant ACA Statements of Character.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.9	Promote and facilitate appropriate interpretative concepts and signage illustrating the archaeological, built and natural heritage features adjoining the plan area, thus facilitating opportunities for education and understanding.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.10	Any application for development on the LAP lands shall be accompanied by an Archaeological Impact Assessment.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.11	Ensure that proposals for developments involving works to upstanding archaeological sites and features or works to the historic building stock include an assessment of the presence of bats in any such sites or structures and, where appropriate, ensure that suitable avoidance and/or mitigation measures are proposed to protect bats in consultation with the National Parks and Wildlife Service.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 5.12	To recognise the importance of the Natura 2000 and environmentally designated sites within the plan area with particular reference to the coastline, beaches and connecting waterbodies and to ensure that any proposals for development or uses which could compromise these natural assets are carefully considered and subject to Appropriate Assessment as required.	Whilst this is a matter of law it can only help to highlight this statutory obligation and help to avoid adverse effects on European sites.
Objective 6.1	Implement Childcare Guidelines, as appropriate and support the provision of childcare and education facilities at appropriate locations and as required.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 6.2 (wording slightly amended after public display).	Provide an education, sporting, recreation and community development in a campus environment at Ballymastone which supports the consolidation of existing sporting facilities and includes an All-Weather pitch, a full sized running track, new school development together with shared supporting infrastructure, in line with an agreed Masterplan.'	When assessed in isolation, could pose adverse effects on the integrity of the European sites by means of disturbance due to floodlighting causing loss of feeding areas for Special Conservation Interest bird species for the Special Protection Areas. Conversely the consolidation of the sporting facilities into one area could open up more feeding areas for wildfowl in the form of former grass pitches. When implemented in combination with the other Objectives that mitigate such potential effects the overall result is neutral.
Objective 6.3	To support the provision of a new Church and Community Facility on lands at Ballymastone.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.4	To provide for the integration of the Corballis LAP lands focusing on pedestrian, cycle and public realm linkages with the core village of Donabate.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.5	Provide a neighbourhood centre at Corballis to provide for local services incorporating adaptable floorspace capable of change from residential to commercial use.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.6	Support the provision of a public/civic open space of sufficient size at Corballis to be a central design feature.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.7	Facilitate the provision of local cultural spaces, performance and entertainment spaces, while protecting the existing amenities of the area.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.8	Require development in Ballymastone and Corballis neighbourhoods to provide flexible 'live & work' residential units at appropriate locations. These units shall be capable of conversion in part to appropriate commercial use in tandem with residential use and to permit appropriate home-based economic activities that do not result in loss of amenity in terms of traffic generation, residential amenity, noise levels and visual amenity.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.9	Facilitate the development of appropriate new recreation, leisure, tourism and service facilities and ensure access for all groups of the community.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.10 (wording slightly amended after public display).	Promote and facilitate the development of the Fingal Coastal Way as a local and tourist amenity, promoting the archaeological and cultural heritage of the area and associated events in appropriate locations, subject to screening for Appropriate Assessment.	In isolation could pose adverse effects on the integrity of the European sites by means of disturbance and loss of feeding areas for Special Conservation Interest bird species for the Special Protection Areas. However when implemented in combination with the other Objectives that mitigate such potential effects and by reinforcing the need to undertake AA screening, the overall result is neutral.
Objective 6.11 (added as an amendment to Draft Plan after public display).	Support the consolidation of Donabate Village as the focus for retail, commercial and services development on the Peninsula.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.12 (added as an amendment to Draft Plan after public display).	Support the provision of a Community / Cultural / Exhibition and Performing Arts Centre for Donabate-Portrane and encourage the development of multi-functional community buildings which are not used exclusively by any one group.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.13 (added as an amendment to Draft Plan after public display).	Support the local communities of Donabate and Portrane to develop a Donabate-Portrane Heritage Trail both for the enjoyment of local people and as an attractor for visitors to the area, promoting local economic development.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.14 (added as an amendment to Draft Plan after public display).	Promote and enhance the visitor experience and amenities at Newbridge House and Demesne within the context of the Demesne's heritage importance and values.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites due to the distance between Newbridge House and demesne and the European sites.
Objective 6.15 (added as an amendment to	Liaise and coordinate with Fingal's Local Community Development Committee, the Economic Development and Enterprise SPC and the Local Enterprise Office to ensure that themes and goals included in the Local Economic Community Plan are supported by policies and objectives in the LAP, as appropriate.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Draft Plan after public display).		
Objective 6.16 (added as an amendment to Draft Plan after public display).	Prepare an Urban Framework Plan for Donabate (including a Public Realm and Integrated Traffic Management Strategy) to guide and inform future development, to include measures to improve and promote the public realm of the Village.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.17 (added as an amendment to Draft Plan after public display).	Support and promote the potential of the all-weather facility at Ballisk.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 6.18 (added as an amendment to Draft Plan after public display).	To provide for and facilitate for the extension of the existing cemetery on the eastern side to include a new separate entrance, car parking and associated works / footpaths subject to Hydro and Geological analysis.	
Objective 7.1	Work with Irish water to ensure that priority is given to the provision of water supply in the LAP lands corresponding to the area's strategic designation in the Regional Planning Guidelines as being a Moderate Sustainable Growth Town within the Metropolitan Area of the Greater Dublin Area and as set out in the core strategy of Fingal Development Plan.	Not enough geographic specificity to permit complete assessment but likely to have a positive effect by ensuring that development is sustained by a suitable water supply.
Objective 7.2	Work with Irish water to ensure that new developments are adequately serviced with a suitable quantity and quality of drinking water supply. Where deficiencies exist, development will be limited to that which can be provided for, based on available water supply.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through ensuring that development is sustained by a suitable water supply.
Objective 7.3	Work with Irish water to promote water conservation to reduce the overall level of water loss in the public supply and require that new domestic developments provide for water supply metering.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through addressing potential for water leakage and thereby ensuring sustainable use of the water supply.
Objective 7.4	Encourage and promote the adoption of water saving measures throughout future development, including: <ul style="list-style-type: none"> • Water butts to collect rainwater • Low flush and dual flush toilets • Low water use appliances • Rainwater harvesting 	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through addressing potential for water leakage and thereby ensuring sustainable use of the water supply.
Objective 7.5	Encourage landowners and developers to consult with Irish Water at an early stage, to agree connections and contracts where it is proposed to connect to a public water/wastewater network operated by Irish Water, to ensure that adequate capacity will be available in the network/ plant to serve the proposed development.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through ensuring that development is sustained by a suitable water supply.
Objective 7.6	Work with Irish water to ensure the separation of foul and surface water effluent through the provision of separate foul sewerage and surface water run-off networks.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through protecting the hydraulic loading on the sewerage network and treatment facilities and protecting the quality of receiving watercourses.
Objective 7.7	All foul water infrastructure shall be designed and constructed in accordance with the Greater Dublin Regional Code of Practice for Drainage Works and comply with the Greater Dublin Strategic Drainage Study (GSDSDS) and any other future guidance from Irish Water.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites through protecting the hydraulic loading on the sewerage network and treatment facilities and protecting the quality of receiving watercourses.
Objective 7.8	Protect residential amenity by ensuring an odour control buffer zone of 50m minimum from any new pumping station to existing and future development.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 7.9	Require that surface water attenuation is provided generally in locations identified in the Donabate LAP SUDS Strategy (Appendix 5). Design of surface water attenuation shall be based on the requirements of the Greater Dublin Strategic Drainage Study, and shall include proposals for the management of surface water within sites, and runoff rates from sites, protecting the water quality of Rogerstown and Malahide Estuaries.	Likely to have positive effects on European sites through the protection of surface water quality that drains into the Special Protection Areas.
Objective 7.10	Encourage local/site specific SUDS measures in tandem with development and promote green roofs for commercial development within the LAP and seek the use of green roofs for residential development, where feasible.	Likely to have positive effects on European sites through the protection of surface water quality that drains into the Special Protection Areas.
Objective 7.11	Urban areas shall be designed to accommodate surface water flood flow at times of extreme events through the dual use of roads and pathways as flood conveyance channels and appropriate areas (parkland, car parks, large paved areas etc) are used as temporary flood ponding areas.	Likely to have positive effects on European sites through the protection of surface water quality that drains into the Special Protection Areas.
Objective 7.12	All trees planted in / adjacent to hard paved areas (footpaths, parking areas, etc.) shall incorporate tree root structural cell systems. The detailed design and specification of any permeable paving proposed should be agreed in advance with the Planning Authority.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 7.13	Ensure the provision of the proposed Regional SUDS wetland at Corballis (Nature Park) and other pond devices for the plan lands in tandem with the phased development of these lands.	Likely to have positive effects on European sites through the protection of surface water quality that drains into the Special Protection Areas and by the provision of wetland habitats that are likely to be used by waders and wildfowl which are Special Conservation Interest bird species for the Special Protection Areas.
Objective 7.14	<p>Ensure the implementation of the Council's surface water policies and objectives relating to:</p> <ul style="list-style-type: none"> • Design • Construction • Management • SUDs • FEMFRAMS Study <p>No development to take place within 10-15 metres as measured from each bank of any river, stream or watercourse;</p>	Likely to have positive effects on European sites through the protection of surface water quality that drains into the Special Protection Areas and by the provision of wetland habitats that are likely to be used by waders and wildfowl which are Special Conservation Interest bird species for the Special Protection Areas.
Objective 7.15	Implement the provisions of the DoEHLG / OPW publication 'The Planning System and Flood Risk Management: Guidelines for Planning Authorities' 2009 and the objectives and recommendations of the FEMFRAMS Study or any superseding document in relation to flooding and flood risk management and facilitate flood management measures, as appropriate.	Not enough geographic specificity to permit complete assessment but unlikely to result in loss of any European sites due to changes in flooding.
Objective 7.16	Lands within Flood Zones A and B along the southern boundary of the Corballis West LAP lands shall remain free of residential development.	Likely to have positive effects on European sites through the provision of such a buffer zone around the flood plain which may also be use by waders and wildfowl which are Special Conservation Interest bird species for the Special Protection Areas.
Objective 7.17	Site specific Flood Risk Assessments shall be carried out for all developments in lands identified within or adjacent to Flood Zones A or B. Detailed topographical surveys and site development plans should be used to provide a more accurate estimation of the flood extents and aid in deciding on the location of various development types.	Likely to have positive effects on European sites through the provision of such a buffer zone around the flood plain which may also be use by waders and wildfowl which are Special Conservation Interest bird species for the Special Protection Areas.
Objective 7.18	Construction shall commence on the new pumping station in Ballisk Common. This will ensure that local power outages do not affect the operation of the pumping station due to provision of a backup generator. Inclusion of a petrol interceptor will also prevent discharge of hydrocarbons to the Rogerstown Estuary.	This is a mitigation measure that will help protect against the discharge of untreated sewage to the sea in the event of abnormal conditions.
Objective 7.19	A Maintenance Plan shall be developed for the LAP area to ensure the hydraulic capacity of the network is not impeded by blockages and damage. CCTV surveys in a number of areas identified in the Flood Risk Assessment are required to identify the size, condition and location of the existing surface water drainage network before mitigation measures can be fully developed.	This is a mitigation measure that commits to the analysis of the existing surface water drainage network to inform its improvement.
Objective 7.20	A new drainage ditch should be excavated along the southern boundary of New Road, to minimise flooding in this area.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 7.21	To alleviate pluvial flooding along the southern side of Turvey Avenue, a filter drain should be constructed to collect the surface water runoff from the carriageway.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 7.22	Ensure that the EU Water Framework Directive is implemented.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites.
Objective 7.23	Implement the relevant recommendations and measures as outlined in the Eastern River Basin Management Plan 2009-2015 or any other plan that may supersede same during the lifetime of this Local Area Plan. Development shall only be permitted where it can be clearly demonstrated that the proposal would not have an unacceptable impact on the water environment, including surface water, groundwater quality and quantity, river corridors and associated wetlands.	Not enough geographic specificity to permit complete assessment so impacts are better avoided and proposal assessed at the project stage. Proposals not in compliance will not be permitted.
Objective 7.24	Seek the maintenance and rehabilitation of the Turvey River to good water status; it's restoration as a natural amenity and protection of the riparian corridor through the LAP area.	Likely to have positive effects on European sites through the protection of the Turvey water quality that drains into the Rogerstown Estuary SPA and SAC.
Objective 7.25	Implement the measures drawn up in the Pollution Reduction Programme for the Malahide Shellfish Area.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 7.26	Protect existing ground water sources from pollution during construction/development works.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites.
Objective 7.27	Seek the provision of high quality telecommunications including fibre optic, broadband links and utilities (gas and electricity) infrastructure in the plan lands.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 7.28	Prevent and minimise the generation of waste in accordance with the Waste Management Plan for the Dublin Region.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by reducing likelihood of illegal waste disposal in sensitive areas.
Objective 7.29	Ensure that residential developments have adequate waste storage space designated for 3 waste streams- residual waste (grey bin), dry recyclables (green bin), and organic waste (brown bin) and shall comply with the Council's Guidelines on the Provision of Waste and Recycling Bins for Residential Developments.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by reducing likelihood of illegal waste disposal in sensitive areas.
Objective 7.30	Ensure that careful consideration is given to the storage of bins and waste receptacles at the design stage and that all future residential schemes include appropriate and innovative design measures for refuse bins, within convenient distance of all units. Adequate covered bin storage areas shall be provided adjacent to dwellings/ within the curtilage rather than at the front of houses, details of which should be clearly shown at planning application stage.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by reducing likelihood of illegal waste disposal in sensitive areas.
Objective 7.31	Developers shall submit a Construction and Demolition Waste Management Plan as part of the planning application documentation, setting out a planned programme for the management / recovery / disposal of construction / demolition waste material generated at the site during the excavation and construction phases of development, in accordance with the relevant national waste management legislation. Prior consultation with the Council's Biodiversity Officer is required regarding re-distribution of construction surplus fill on the plan lands.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by reducing likelihood of inappropriate waste disposal proposals.
Objective 7.32	Where development does not commence within one year of granting of permission, a revised Construction and Demolition Waste Management Plan shall be submitted for approval three months prior to the submission of the first commencement notice.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by reducing likelihood of inappropriate waste disposal proposals.
Objective 7.33	Developers shall take adequate measures to minimise the impacts of traffic, noise and dust during construction phases. A methodology statement for such measures shall be submitted at planning application stage and developers shall employ best practice as applicable at the time of construction.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by ensuring site specific mitigation for potential disturbance and dust deposition impacts are addressed.

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 8.1	<p>Require the submission of detailed design appraisals with each planning application for greater than 8 no. dwelling units within the plan area. The design appraisal is required to:</p> <ul style="list-style-type: none"> • Outline how the development meets the Development Plan objectives, the objectives of the Local Area Plan or other statutory plan or requirements affecting the site. • Explain the design principles and design concept (including proposed palette material) of the proposed scheme in accordance with the design criteria set out in this section. • Demonstrate how the proposed units (i.e. unit and/or mix) can adapt to changing household needs. • Outline how green infrastructure integrates into the scheme and how habitat protection measures relevant to the designated sites have been achieved. • Submit a detailed topographical survey and Visual Impact Assessment including cross-sections and photomontages to assist the Planning Authority in determining the full visual impact of development on the plan lands. C5 • Submit a light spill assessment where proposed developments will involve public lighting or recreational lighting and are within 100m of unlit areas at the time of application – in order to correctly assess the potential impacts on sensitive receptors including human beings as well as wildlife especially in European designated sites. • Submit detailed design proposals including green routes and cross sections for primary and secondary streets, to include detailed provisions in relation to carriageway widths, surface treatments of cycleways, footpaths, road pavement, landscaping, street lighting and building interface (including on adjoining sites where applicable). • Flora and fauna studies, tree and hedgerow surveys and landscape management plans should accompany new planning applications, where appropriate. • Submit proposals for an appropriately located construction haul route. • Submit proposals and cross-sections for the treatment of the lands between the Dublin – Belfast railway line and new development to include the treatment of the railway edge. • Submit details of how any interfaces/undeveloped areas between sites and/or within the plan lands will be treated. This should include consideration of pedestrian safety, boundary treatment, connectivity and management of the lands. (See Chapter 9: Phasing and Implementation). • Demonstrate how each planning application will integrate with adjoining residential lands and relate to key infrastructure set out in the Green Infrastructure and Landscape Strategy, the Transport and Movement Strategy and the sub-sections of the LAP. 	<p>Not enough geographic specificity to permit complete assessment so impacts are better avoided and proposal assessed at the project stage. However when assessed overall these include several mitigation measures to address potential adverse impacts such as the provision of green infrastructure, flora and fauna studies and detailed design proposals for green routes and visual impact assessments. Proposals not in compliance will not be permitted.</p>
Objective 8.2	<p>Prepare a Campus Masterplan to support the creation of an education and recreation hub at Ballymastone to include the consolidation of existing sporting facilities in this area (St Pat’s and St Ita’s Football Clubs) and to co-locate new recreational amenities adjacent to new school site facilities, supporting the Fingal Schools Model. The entrance gates and setting together with the old tree-lined avenue leading to Ballymastone which forms the original right-of-way to Portrane Demesne shall be preserved in any development in this area. The Masterplan, including any new development, shall take account of the Architectural Conservation Area at Portrane Demesne (St Ita’s Hospital) where these lands adjoin this sensitive landscape.</p>	<p>No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.</p>
Objective 8.3	<p>Improve vehicular and pedestrian access to St Ita’s and St Pat’s Football Club facilities.</p>	<p>No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.</p>
Objective 8.4	<p>Integrate pedestrian and cycling routes within the LAP lands with walkways through St Ita’s Demesne to the coast.</p>	<p>No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.</p>
Objective 8.5	<p>Protect and enhance views along Hearse Road and retain the mature trees which are located along the Newbridge Demesne boundary / approach road to the village.</p>	<p>No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.</p>
Objective 8.6	<p>Protect and enhance the rural and amenity character of the existing scenic road leading from the Estuary to Hearse Road.</p>	<p>No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.</p>
Objective 8.7	<p>Ensure sensitive and appropriate boundary treatments, respecting the estuarine nature of the landscape, in all development proposals.</p>	<p>Likely to have positive effects on European sites through the minimisation of visual disturbance beyond the development footprint.</p>

Table A3.4: Assessment of Objectives within the Local Area Plan

Objective	Text	Comments on the potential for adverse effects to arise from, or to have been addressed by, the Objective
Objective 8.8	A strategic landscaping scheme shall be implemented on the lands at Corballis, in advance of any development within the area above the 20m OD line to mitigate / soften the visual impact of the existing houses at 'The Strand' and to provide a visual backdrop to proposed development within this area.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.9	Ensure as far as feasible that all urban and rural areas are accessible to all, with provision of facilities for people with mobility impairment and/or disabilities based on the principles of Universal Design. Implement a street network with a high quality public realm and priority for the pedestrian/cyclist and the mobility impaired.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.10	Facilitate the provision of pedestrian crossings at appropriate locations within the LAP area and introduce tactile paving, ramps and kerb dishing at appropriate locations including pedestrian crossings, bus stops and rail platforms.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.11	Ensure that all new developments are consistent with the principles contained within the national policy documents 'Smarter Travel: A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020' and the 'Greater Dublin Area Draft Transport Strategy 2011-2030'. Mobility Management Plans shall be submitted under new planning applications lodged within the LAP lands.	Not enough geographic specificity to permit complete assessment but likely to have positive effects on European sites by ensuring site specific mitigation for potential disturbance and dust deposition impacts are addressed.
Objective 8.12	Ensure that the Councils Housing Strategy and any/all requirements under Part 5 provisions of the Planning and Development Act 2000 (as amended) are incorporated into all residential schemes. Social housing provided on site shall be well designed and integrated into the overall scheme for the area.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.13	Social and Affordable housing will be delivered in accordance with the provisions of the Housing Strategy and will be provided jointly by the Council, private developers and Approved Housing Bodies across the LAP lands. In order to promote and facilitate social integration, social and affordable housing shall be integrated appropriately into the overall development of the lands so as to ensure there is no concentration of social housing in any one specific area or zone.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.14	Development along the northern edge of the Rahillion LAP lands (southern boundary of Rogerstown Estuary) shall be single storey with a ridge height no greater than 5.5 m. The remaining Rahillion lands shall be developed for a maximum of 2.5 storey units only.	Likely to have positive effects on European sites through the minimisation of visual disturbance beyond the development footprint.
Objective 8.15	Provide for high quality footpaths along Turvey Avenue to connect development at Turvey continuously to Donabate Village	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.16	Ensure that the naming of new residential and mixed use schemes reflect local history, folklore and/or place names and are stated in the Irish language, where appropriate.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.17	Ensure crime prevention measures are incorporated into new developments.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.
Objective 8.18	Ensure that the interface between the proposed Donabate Distributor Road and all development abutting the road comprises only best practice urban design led solutions. In this regard no backing on of houses or house rear boundary walls will be permitted along the entire road alignment.	No. Absence of cause-effect linkage between implications of Objective and the integrity of European Sites.

Donabate

Appendix 4

Strategic Flood Risk Assessment

**Comhairle Contae
Fhine Gall**
Fingal County
Council



Donabate Local Area Plan 2016-2022 Flood Risk Assessment

Stage I, II and III Flood Identifications/Assessments for the Donabate LAP Area & Analysis of Previous Flooding Events

EROD

Issue 6– Final
April 2016

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Donabate Local Area Plan 2016-2022 Flood Risk Assessment

Stage I, II and III Flood Risk Identifications/Assessments for the Donabate LAP Area & Analysis of Previous Flooding Events

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1. NON-TECHNICAL SUMMARY

1.1 Introduction

This non-technical summary sets out the purpose, methods and findings of the Flood Risk Assessment undertaken by Roughan & O'Donovan Consulting Engineers on behalf of Fingal County Council for the Donabate Local Area Plan (LAP) 2016 – 2022.

1.2 Purpose

The purpose of this report is to identify the risk of flooding to lands included in the LAP, examine the cause of previous flood events in Donabate and provide flood mitigation measures for areas at risk of flooding.

1.3 Study Area

The Donabate LAP lands are divided into 4 different areas covering approximately 138 hectares (340 acres). The main river in Donabate is the Beaverstown Stream which flows from the north-west corner of the village through Beaverstown Golf Club into the Rogerstown Estuary to the north of the peninsula. The Turvey River flows along the southern boundary of the LAP lands and discharges to the Malahide Estuary to the south of the peninsula. Other watercourses in the region include the Portrane Canal and the Ballalease Stream.

1.4 Method

1.4.1 The Planning System and Flood Risk Management Guidelines

A Flood Risk Assessment for Donabate LAP was carried out in accordance with “*The Planning System and Flood Risk Management Guidelines for Planning Authorities*”, published by the Office of Public Works (OPW). The guidelines define 3 different flood zones which relate to the likelihood of flooding occurring.

Flood Zone A – where the probability of flooding occurring in any given year is greater than 1% (1 in 100) for river flooding or 0.5% (1 in 200) for coastal flooding.

Flood Zone B – where the probability of flooding occurring in any given year is between 0.1% (1 in 1000) and 1% (1 in 100) for river flooding or 0.5% (1 in 200) for coastal flooding

Flood Zone C – where the probability of flooding occurring in any given year is less than 0.1% (1 in 1000).

The Guidelines state that a ‘Sequential Approach’ should be applied to any development in an area at risk of flooding. In general, highly vulnerable development (hospitals, garda / fire stations, schools, dwelling houses, residential institutions, caravan parks, essential infrastructure) should not be located in Flood Zone A or B. Less vulnerable development (retail, leisure, commercial, non-residential, local transport infrastructure) may be appropriate for Flood Zone B & C. Water-compatible development (marinas, ship-building, fish processing, water-based recreation and tourism, lifeguard stations) may be appropriate for Flood Zone A.

1.4.2 Stage 1 – Flood Risk Identification

Various information sources were collected and examined to identify any flooding or surface water management issues in the LAP area that may warrant further information.

A number of high level flood studies across Ireland have been undertaken in recent years.

- OPW Preliminary Flood Risk Assessment – maps produced showing indicative flood extents caused by rivers, coastal and rainfall.
- Fingal East Meath Flood Risk Assessment and Management Study – maps produced showing flood extent from Turvey River and coastal flooding.
- Irish Coastal Protection Strategy Study – maps produced showing coastal flood extent.

OPW Flood Records – OPW have a database of all recorded flood events in Ireland, including reports and photographs.

Fingal County Council Drainage Operations – discussions with FCC about areas within LAP lands where flooding occurs and any remediation works have been undertaken.

Following Stage 1, the following information was concluded:

1. A section of the LAP lands in Corballis is subject to river flooding
2. A section of the LAP lands in Corballis and part of Beaverstown Road is subject to tidal flooding
3. There is regular flooding in Donabate Village during heavy rainfall
4. There is no indication of groundwater flooding in the LAP lands.

1.4.3 Stage 2 – Initial Flood Risk Assessment

Taking the information obtained in Stage 1, each area of potential flooding was examined in further detail to confirm the sources of flooding that may affect the area, appraise the adequacy of the information and establish the extent of the risk of flooding.

Following Stage 2, the following information was concluded:

1. Flooding on Beaverstown Road and Ballisk Common is caused by blockages in road drainage and power failure of the surface water pumping station rather than hydraulic inadequacies of the Beaverstown Stream.
2. A flap valve located on the Turvey River at the railway line provides tidal flood defence to lands west of the railway. These lands are still subject to flooding from the Turvey River, including a section of Corballis West which is currently zoned RA “*provide for new residential communities*”.
3. The surface water pumping station acts as a form of flood defence protecting lands to the east of the railway line from coastal flooding.
4. Flooding which occurs at the railway line underpass, on the road connecting Beverton Walk and Portrane Road is caused by blockages and conveyance capacity of the sewer at this location.

1.4.4 Previous Flood Events

The flooding experienced in October 2011 on Beaverstown Road occurred as a result of a 1 in 86 year rainfall event. During the storm, a power cut caused the surface water pumping station to stop working for several hours which resulted in a build up of water upstream which ultimately resulted in flooding to Beaverstown Road and surrounding area, including Colaiste Pobail Domhnach Beatach.

1.5 Conclusions

The majority of the LAP area is within Flood Zone C where the probability of flooding from rivers and the sea is low, less than 1 in 1000 years, and is therefore appropriate for all types of development.

Lands adjacent to the Turvey River within Flood Zones A & B as shown on Drawing 007 below are unsuitable for residential development and the current 'RA' zoning in Corballis West is inappropriate.

The most significant flood event in Donabate was caused by a power cut to the surface water pumping station on the Beaverstown Stream. When the pumping station is operational, there will be no flooding upstream during a 1 in 100 year storm event with significant capacity available in the system to cater for storm events greater than this.

1.6 Recommendations

- 1) Drainage channels/watercourses within the developed and undeveloped areas of the LAP boundary are maintained and protected. A new drainage ditch should be excavated along the southern boundary of New Road to minimise flooding in this area.
- 2) Lands in Corballis zoned 'RA' in the Fingal Development Plan 2011-2017 within Flood Zones A and B have an unacceptable risk of flooding and are not appropriate for residential development. The zoning of these lands should be examined in the current preparation of the FDP 2017-2023. The lands should be zoned for a more appropriate agricultural or amenity use which is compatible with the vulnerability to flooding in accordance with the OPW Flood Risk Management Guidelines.
- 3) The Donabate Local Area Plan 2016-2022 SUDS Strategy should be fully implemented for all new developments. A new filter drain should be constructed on the southern side of Turvey Avenue.
- 4) Site specific flood risk assessments should be carried out for all developments in lands identified within of adjacent to Flood Zones A or B.
- 5) Construction should be commenced on the new pumping station in Ballisk Common which has been granted planning permission. This will ensure that local power outages do not affect the operation of the pumping station due to provision of a backup generator.
- 6) A maintenance plan should be developed for the area to ensure the hydraulic capacity of the network is not impeded by blockages and damage. CCTV surveys in a number of other areas are required to identify the size, condition and location of the existing surface water drainage network before mitigation measures can be fully developed.

2. INTRODUCTION

2.1 Commission

Roughan & O'Donovan Consulting Engineers (ROD) was commissioned by Fingal County Council (FCC) to carry out the Stage I, II and III Flood Identifications/Assessments for the proposed Donabate Local Area Plan (LAP) 2016 – 2022 and analyse the previous flooding events within the LAP area between January 2000 and September 2014. The LAP will set out the local land use and planning policy for the Donabate area and provide a strategy for the planning and sustainable development of the Area.

2.2 Scope

The scope of this report is as follows:

- Provide an assessment/identification of the flood risk for the LAP areas in accordance with “*The Planning System and Flood Risk Management – Guidelines for Planning Authorities*” (The Guidelines), 2009, published by the Department for the Environment, Heritage and Local Government and the Office of Public Works (OPW).
- Assess and analyse all previous flood events in the LAP area between January 2000 and September 2014 (January and September inclusive) assessing the hydrology and hydraulics and determining, modelling and mapping the cause, extents, depths and mechanisms of flooding in the LAP area.
- Provide a Flood Risk Assessment Report and Drawings.
- Provide a recommendation on the requirements for future flood risk assessments for proposed developments and planning applications, as per The Guidelines.
- Provide recommendations on the flood mitigation measures required based on the previous flood events, from the generated flood extent and depth maps, the causes and mechanisms as determined from the completed analysis and assessment, and the hydraulic and hydrology analysis.
- Generate flood depth and extent maps for the 1% AEP flood, fluvial, and the 0.5% AEP Flood, coastal (if applicable to the LAP area)
- Provide information gathered or generated from the Flood Risk Identifications and Assessments, by liaising and attending meetings with Consultants completing the Strategic Environmental Assessment (SEA) and Sustainable Drainage Systems (SUDS) strategies for the Donabate LAP.

2.3 Study Area

2.3.1 Overview

Donabate is located in North County Dublin approximately 2.7km east of the M1 motorway and 1.8km from the Irish Sea. Refer to Drawing 001 below. The study area, approximately 303 hectares, primarily consists of the urban centre of Donabate with farmland to the east and south. The existing R126 regional road connects Donabate to the M1 to the west and Portrane to the east. The town is bisected in the north south direction by the Dublin – Belfast railway line. The Donabate LAP lands are divided into 4 no. areas covering approximately 138 hectares. Refer to Drawing 001 below.

The topography of the study area has been examined from the LiDAR and contour mapping provided by FCC. The topography of the peninsula is generally flat and low lying with two ridges running east to west, one to the north of Donabate and one to the south.

2.3.2 Catchment Description

The LAP study area lies between the Rogerstown Estuary to the north and the Malahide Estuary to the south. The study area is drained by a combination of watercourses and surface water

drainage networks. Refer to Drawing 002 below for details of the catchments within the LAP study area.

Beaverstown Stream

The primary watercourse in the study area is the Beaverstown Stream flowing from the centre of Donabate Village to the Rogerstown Estuary approximately 750m to the North West. The catchment area of this stream is approximately 274 Ha with a main channel length of approximately 1.5km (Catchment 5). The majority of the surface water drainage network serving Donabate outfalls to this stream and flows to a pumping station at the north west corner of the village. Due to the low lying topography of the study area, pumping of this watercourse is required to lift the gravity fed surface water to higher channels before draining to the Rogerstown Estuary. The pumping station is located immediately east of the railway track, on the Beaverstown Stream.

The existing pumping station on the Beaverstown Stream has previously been identified as being in poor condition and unable to cope satisfactorily with larger storm events.

Planning Permission has been granted for a new pumping station incorporating; a mechanical screen, oil interceptor, backup generator, duty, assist and standby pumps each capable of pumping at 630m³/hr – compared to the existing discharge rate of 400m³/hr. The ditch running parallel to the Dublin/Belfast railway line south of the Beaverstown Stream will be diverted eastwards to outfall upstream of the pumping station inlet. The existing pumping station will then be demolished following commissioning of the new pumping station.

Turvey River

The Turvey River rises near Baldurgan and Cookstown west of the M1 and flows in a south easterly direction until it meets the Broadmeadow Estuary. The catchment area is approximately 13km² with a main channel length of approximately 9.6km (Catchment 2). The catchment is predominantly greenfield with a small section of Donabate village within the catchment boundary.

Portrane Canal

The Portrane Canal has a catchment area of approximately 70Ha and drains mainly agricultural lands (Catchment 4). The canal has a main channel length of approximately 890m and outfalls to the Rogerstown Estuary approximately 850m to the north east of Donabate village. A small section at the north east corner of the study area is drained by the canal.

Ballalease Stream

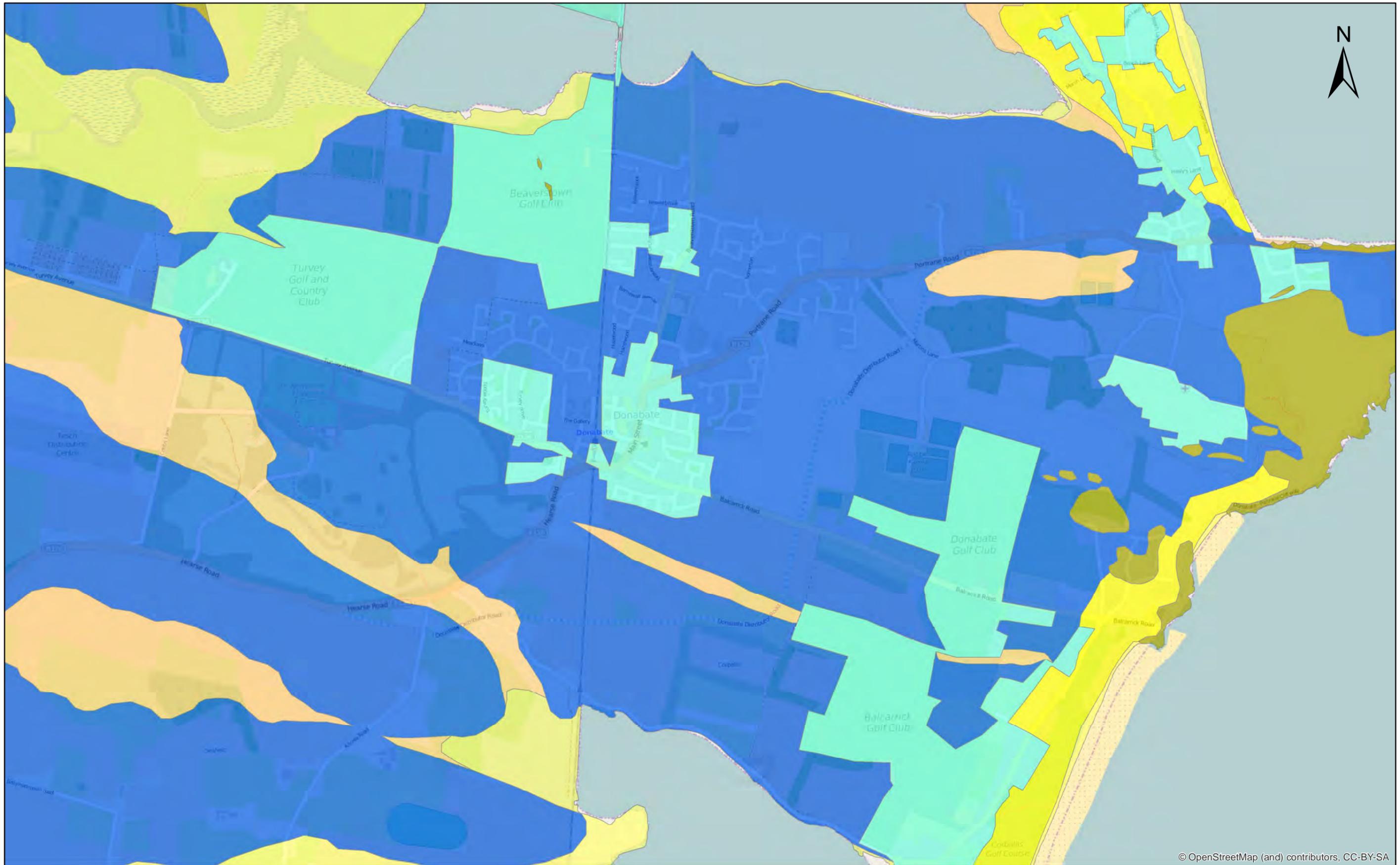
Approximately 16.8 ha at the eastern boundary of the study area is drained by the Ballalease Stream and a network of open ditches flowing through Donabate and Balcarrick Golf Clubs before outfalling to the Malahide Estuary (Catchment 1). GSI Subsoils mapping show a band of Alluvium through Corballis East which suggests that historically the stream extended west as far as Hearse Road. Refer to Drawing 003 below. There is no indication of this on OSI 6” or 25” historical mapping.

Surface Water Drainage Networks

There are two surface water drainage networks from Donabate Village outfalling directly to the Rogerstown and Malahide Estuaries respectively.

A 1350mm diameter pipe which conveys the surface water runoff from the north eastern section of Donabate Village outfalls to the Rogerstown Estuary approximately 650m north of Donabate (Catchment 3).

A 450mm diameter pipe, draining The Strand on the southern boundary of the village outfalls to the Malahide Estuary approximately 935m to the south of the village (Catchment 6).



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Legend

Subsoils

 A, Alluvium undifferentiated	 Mesc, Estuarine sediments
 Made, Made ground	 Rck, Bedrock at surface
 Mbs, Marine beach raised beach sand	 TLs, Limestone till Carboniferous
	 Wsd, Blown sand in dunes

No.	Revision	Date	By	Chkd	App'd

Stage	Date	Approved By
PRELIMINARY		
CERTIFICATION		
CONSTRUCTION		
AS BUILT		

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Designed: DF Checked: JPR Approved: SMG Status:

DONABATE LOCAL AREA PLAN 2016-2022 FLOOD RISK ASSESSMENT			
GSI SUBSOILS MAP			
Date: January 2015	Job No: 14.218	Drawing No:	Rev:
Scale: 1:15,000 @ A3	Drawn: MM	003	

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2.3.3 Environment

There are no Natura 2000 sites located within the study area; however the Natura 2000 sites adjacent to the study area are listed below:

- Rogerstown Estuary Special Protection Area (SPA)
- Rogerstown Estuary Proposed Natural Heritage Area
- Rogerstown Estuary Special Area of Conservation (SAC)
- Malahide Estuary SPA
- Malahide Estuary Proposed Natural Heritage Area
- Malahide Estuary SAC

Under Article 6(3) of the EU Habitats Directive, an “appropriate assessment” (AA) is required where any plan or project, either alone or ‘in combination’ with other plans or projects, could have an adverse effect on the integrity of a Natura 2000 site. Therefore, the management of flood risk within the LAP study area must have regard to potential negative impacts to this environment.

2.4 Proposed Development

The Donabate area comprises five main zoning objectives in the Fingal Development Plan 2011 – 2017 and these are summarised in Table 2.1 below. The Donabate/Portrane zoning map is reproduced in Drawing 004 below.

Table 2.1 Donabate Zoning Objectives

Objective	Description	Area
TC	Protect and enhance the special physical and social character of town and district centres and provide and/or improve urban facilities	Donabate village centre
RS	Provide for residential development and protect and improve residential amenity	Existing residential areas
RA	Provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure	Beaverstown, Turvey, Ballymastone & Corballis
OS	Preserve and provide for open space and recreational amenities	Existing open space within the LAP study area
CI	Provide for and protect civic, religious, community, education, health care and social infrastructure.	Schools adjacent to Beaverstown Road and St. Patrick’s National Schools on Portrane Road

3. THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES

3.1 Introduction

“The Planning System and Flood Risk Management Guidelines for Planning Authorities”, and its Technical Appendices outline the requirements for flood risk assessment at all levels of the planning process. Figure 3.1 below, reproduced from The Guidelines, outlines how the key processes of the Donabate LAP 2016 - 2022 and SEA can be aligned with the strategic assessment of flood risk.

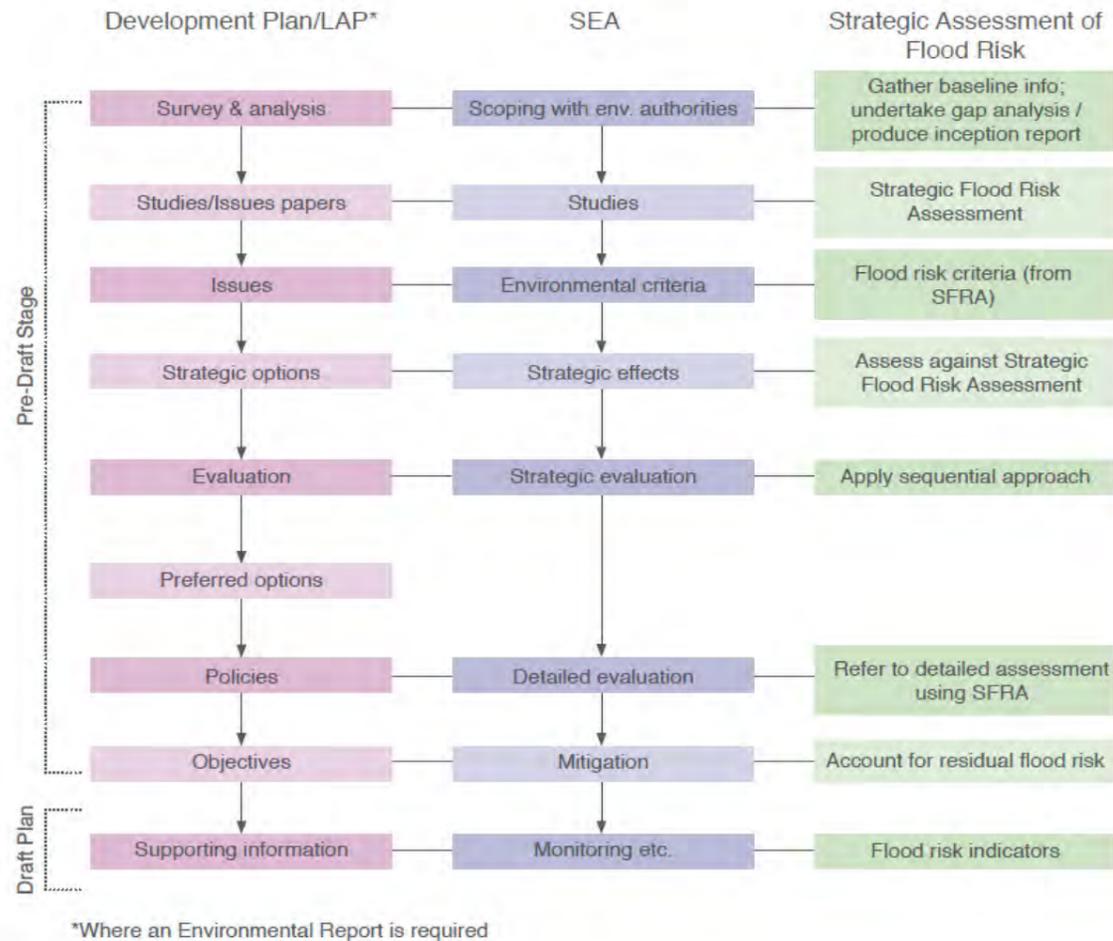


Figure 3.1 Development Plan preparation where Flood Risk is Scoped as an Issue

3.2 Definition of Flood Risk

Flood risk is a combination of the likelihood of a flood event occurring and the potential consequences arising from that flood event and is then normally expressed in terms of the following relationship:

$$\text{Flood risk} = \text{Likelihood of flooding} \times \text{Consequences of flooding.}$$

To fully assess flood risk an understanding of the where the water comes from (i.e. the source), how and where it flows (i.e. the pathways) and the people and assets affected by it (i.e. the receptors). Figure 3.2 below shows a source-pathway-receptor model reproduced from The Guidelines.

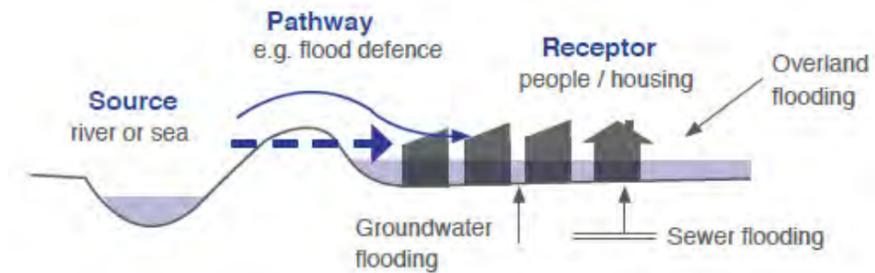


Figure 3.2 Source-Pathway-Receptor Model

The principal sources of flooding are rainfall or higher than normal sea levels. The principal pathways are rivers, drains, sewers, overland flow and river and coastal floodplains. The receptors can include people, their property and the environment. All three elements as well as the vulnerability and exposure of receptors must be examined to determine the potential consequences.

The guidelines set out a staged approach to the assessment of flood risk with each stage carried out only as needed. The stages are listed below:

- Stage I Flood Risk Identification – to identify whether there may be any flooding or surface water management issues
- Stage II Initial Flood Risk Assessment – To confirm sources of flooding that may affect an area or proposed development, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps.
- Stage III Detailed Flood Risk Assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

3.3 Likelihood of Flooding

The Guidelines define the likelihood of flooding as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. It is generally expressed as a return period or annual exceedence probability (AEP). A 1% AEP flood indicates a flood event that will be equalled or exceeded on average once every hundred years and has a return period of 1 in 100 years. Annual Exceedence probability is the inverse of return period as shown in Table 3.1 below.

Table 3.1 Correlation between return period and AEP

Return Period (years)	Annual Exceedence Probability (%)
1	100
10	10
50	2
100	1
200	0.5
1000	0.1

3.4 Definition of Flood Zones

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and are split into three categories in The Guidelines:

Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);

Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 or 0.5% or 1 in 200 for coastal flooding);

Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding. Flood Zone C covers all plan areas which are not in zones A or B.

It is important to note that when determining flood zones the presence of flood protection structures should be ignored. This is because areas protected by flood defences still carry a residual risk from overtopping or breach of defences and the fact that there is no guarantee that the defences will be maintained in perpetuity.

3.5 Objectives and Principles of the Planning Guidelines

The principle actions when considering flood risk are set out in the planning guidelines and are summarised below:

- *“Flood hazard and potential risk should be determined at the earliest stage of the planning process...”*
- *“Development should preferentially be located in areas with little or no flood hazard thereby avoiding or minimising the risk...”*
- *“Development should only be permitted in areas at risk of flooding when there are no alternative, reasonable sites available...”*
- *“Where development is necessary in areas at risk of flooding an appropriate land use should be selected”*
- *A precautionary approach should be applied, where necessary, to reflect uncertainties in flooding datasets and risk assessment techniques...”*
- *“Land required for current and future flood management... should be pro-actively identified...”*
- *“Flood risk to, and arising from, new development should be managed through location, layout and design incorporating Sustainable Drainage Systems (SuDS) and compensation for any loss of floodplain...”*
- *Strategic environmental assessment (SEA) of regional planning guidelines, development plans and local area plans should include flood risk as one of the key environmental criteria...”*

3.6 The Sequential Approach and Justification Test

The Guidelines outline the sequential approach that is to be applied to all levels of the planning process. This approach should also be used in the design and layout of a development and the broad philosophy is shown in Figure 3.3 below. In general, development in areas with a high risk of flooding should be avoided as per the sequential approach. However, this is not always possible as many town and city centres are within flood zones and are targeted for development.

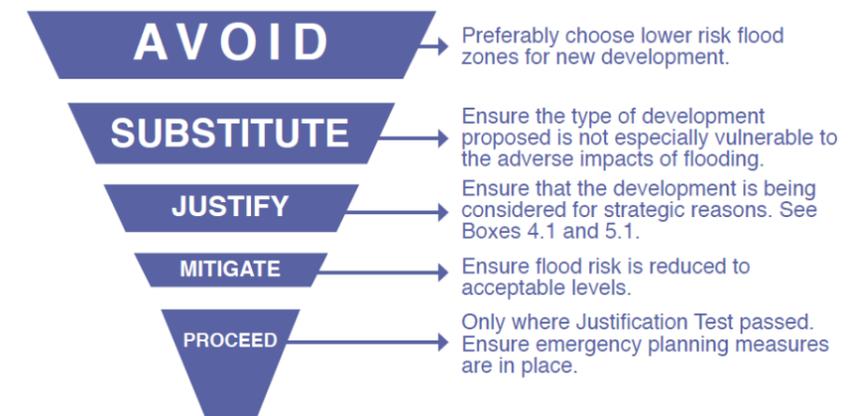


Figure 3.3 Sequential Approach (Source: The Planning System and Flood Risk Management)

The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of developments that are being considered in areas of moderate or high flood risk. The test comprises the following two processes.

- The first is the Plan-making Justification Test and is used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding.
- The second is the Development Management Justification Test and is used at the planning application stage where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land.

Table 3.2 below illustrates the types of development that would be required to meet the Justification Test.

Table 3.2 Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test (Source: The Planning System and Flood Risk Management)

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

4. STAGE I – FLOOD RISK IDENTIFICATION

4.1 General

This Stage I Flood Risk Identification includes a review of the existing information and the identification of any flooding or surface water management issues in the LAP study area that may warrant further investigation

4.2 Information Sources Consulted

The following information sources in Table 4.1 were consulted as part of the Stage I Flood Risk Identification:

Table 4.1 Information Sources

Source	Comments
Predictive fluvial and tidal flood mapping	OPW Preliminary Flood Risk Assessment (PFRA) maps and the Irish Coastal Protection Study (ICPSS) maps consulted
Flood Risk Assessment and Management Studies	Fingal East Meath Flood Risk Assessment and Management Study (FEMFRAMS)
OPW flood records	www.floodmaps.ie
Fingal County Council Operations Department	Consultations with the drainage operations personnel in Fingal County Council to identify areas that experience recurrent flooding - possible causes of the flooding established and details of remediation works undertaken were examined.
GSI Maps	GSI Teagasc subsoils map consulted to identify areas of alluvium that may indicate the presence of a watercourse and floodplain
Surface Water Drainage Scheme for Donabate Report	Prepared by Jacobs Babbie in 2006
Greater Dublin Strategic Drainage Study	In particular, Section S2004 – Donabate Portrane and section F019 – Donabate Portrane
Fingal Development Plan 2011 – 2017	Relevant sections of the Development Plan
Topographical maps	LiDAR mapping received from Fingal County Council

4.2.1 Previous Flood Risk Assessments and Predictive Flood Maps

Preliminary Flood Risk Assessment (PFRA)

As required by the EU Floods Directive the OPW have carried out a Preliminary Flood Risk Assessment (PFRA) to identify areas where the risk of flooding may be significant. The PFRA is a broad scale assessment based on historic flooding, predictive analysis and consultation with local communities and experts. As part of the PFRA study, maps of the country were produced showing the indicative fluvial, pluvial and tidal flood extents. Areas for Further Assessment (AFA's) were identified. The PFRA map for the LAP area indicates fluvial and tidal flooding caused by the Turvey River, tidal flooding from the Beaverstown Stream and a number of small areas of pluvial flooding. The PFRA Maps for the LAP area are reproduced in Appendix A. It is important to note that these maps have limitations as any local errors in the digital terrain model (DTM) were not filtered out, local channel works were not included, flood defences were excluded and channel structures were not taken into account.

Fingal East Meath Flood Risk Assessment and Management Study (FEM-FRAM Study)

The FEM-FRAM Study undertaken by FCC in conjunction with project partners Meath County Council and the OPW is a catchment based flood risk management study of nineteen rivers and

streams and their catchments. As part of the PFRA the River Turvey, located along the southern boundary of the LAP study area, was identified as an AFA and was included in the FEM-FRAM study. The flood extent maps indicate that the southern section of the LAP study area is within the 10%, 1% and 0.1% AEP fluvial flood extent. These areas are also within the 10%, 0.5% and 0.1% tidal flood extent. The published fluvial and tidal flood maps are reproduced in Appendix B and flood extent shown on Drawing 008 below.

The Beaverstown Stream was not identified as an AFA as part of the PFRA and was not investigated in detail as part of the CFRAM study.

Irish Coastal Protection Strategy Study (ICPSS)

The Irish Coastal Protection Strategy Study (ICPSS) Phase 3, undertaken by the OPW covers the north east coast of Ireland from Dalkey Island to Omeath and includes the section of coastline nearest to the LAP Study Area. The aims of the study were to establish extreme coastal flood extents, produce coastal flood extent and flood depth maps and assess and quantify the hazard and potential risk associated by coastal erosion. Similar to the PFRA mapping any flood defences present were not incorporated into the flood extent and depth models. The ICPSS flood maps indicate that the most southerly area of the LAP study area may be impacted. The flood map also indicates the Beaverstown Stream and parts of Beaverstown Road are within the 0.5% AEP flood extent. The published ICPSS flood maps are reproduced in Appendix C and flood extent shown on Drawing 008 below.

The ICPSS flood extent map also identifies an area of tidal flooding at the eastern extremity of the LAP study area caused by the Portrane Canal. Upgrade works were carried out on the canal in 2012. The scope of the works was as follows:

- Repair and replacement of the most critical section of the canal, 60m long, located between the two existing bridges. In this location a section of the existing concrete retaining walls, located at the bottom of the canal had previously failed and been removed;
- Replacement of the existing tidal flap valve, adjacent to Rogerstown Estuary, which was not operational;
- Installation of a permanent boundary fence to provide separation between the canal and adjacent lands.

Following the release of the ICPSS mapping (2009), the tidal flap valve was replaced in 2012 preventing the tide propagating upstream. Therefore the tidal flood risk from the canal has been minimised. The flood extent shown on ICPSS mapping upstream of the Portrane Canal flap valve should therefore be identified as a defended area. No further flood risk assessment of this source of flooding is required.

4.2.2 OPW Flood Records

The OPW flood maps available on www.floodmaps.ie were examined to identify any recorded flood events within the LAP study area. Recurrent flooding occurs at the road under the Dublin-Belfast railway line at Ballast Common with flooding also recorded on Hearse Road and these areas require further assessment. Table 4.2 below summarises the areas within and adjacent to the LAP study area where flood events have been recorded. The OPW flood records are reproduced in Appendix D.

Table 4.2 Summary of recorded flood events

Location	Date	Description
Ballisk, Donabate	14 th & 15 th November, 2002	"Surface water floods the road under the main Dublin-Belfast railway line. The S.W. is overflowing from a ditch onto the road and also causes the foul sewer to surcharge. The Drainage Section cut an open channel from the road to a dry ditch, with a J.C.B, which solved the problem. The drives of a number of houses were flooded and the use of toilets was not possible."
Hearse Road, Donabate	14 th & 15 th November, 2002	"There was major flooding on Hearse Road. 4 No. houses on Hearse Road flooded."
Beaverstown	14 th & 15 th November, 2002	"A large number of fields in the Beaverstown Area were flooded due to the heavy rains."
Ballisk, Donabate	November 2004	Surface water floods the public road under the railway line on Ballisk Lane in times of heavy rain. This in turn floods the 300mm diameter foul sewer on the lane and the foul sewer floods around properties in the vicinity.

4.2.3 Fingal County Council Drainage Operations

ROD consulted with FCC Drainage Operations Department to discuss the areas within the LAP Study area where recurrent flooding occurs and remediation works undertaken. The primary area of flooding identified was on Beaverstown Road and the adjacent lands. Flooding was experienced on Beaverstown Road in October 2011 during a period of heavy rainfall. The flooding extended from Ballisk Common to the newly constructed astro-turf field in front of Colaiste Pobail Domhnach Beatach. No flooding to residential properties occurred.

Another area of flooding highlighted by FCC Drainage Operations staff was on the road connecting Beverton Walk and Portrane Road. This is an underpass of the Dublin-Belfast railway line and flooding occurs during heavy rainfall at the sag point in the road. Other areas identified within the LAP study area that experience flooding are New Road to the east of Donabate Village and Turvey Avenue to the west of the village. All of the above areas require further assessment.

4.2.4 Surface Water Drainage Scheme for Donabate, 2006

In 2006 FCC commissioned Jacobs Babtie to develop a Surface Water Drainage Scheme for Donabate. The main objectives of the study were to develop a surface water management strategy for Donabate that would enable the development of lands highlighted in the Local Area Plan and to address deficiencies within the existing network. As this report did not specifically address flooding within the study area no observations or recommendations were made.

4.2.5 Other Sources

The following sources were also examined to identify areas that may be liable to flooding:

- GSI Teagasc Subsoils Map: An area of alluvium is identified adjacent to the Turvey River indicating that the river has flooded in the past. Another area of alluvium identified is at the location of a drainage ditch adjacent to Balcarrick Golf Club. Refer to Drawing 003 above for details.
- GSI Maps: No Karst features identified
- Historic Maps: No areas identified as liable to flooding.
- Greater Dublin Strategic Drainage Study: Three hydraulic deficiencies were identified in the surface water drainage network. These are not described in detail and it is noted "there is a large potential in the stormwater system to accommodate development growth". While

there were no deficiencies noted in the foul network "there is one reported hydraulic deficiency of foul flooding in southwest Donabate adjacent to the railway line."

- Fingal Development Plan 2011 – 2017: No areas of flooding within the LAP study area are identified in the current development plan.
- Fingal Development Plan 2005 – 2011: No areas of flooding within the LAP study area are identified in this development plan.

4.3 Source – Pathway – Receptor Model

The following source-pathway-receptor model has been developed using the information examined in the Stage I Flood Risk Assessment to identify the sources of flooding, where it flows to (pathway) and the people and infrastructure affected by it (receptors). The likelihood and consequences of each type of flooding have also been assessed to determine the risk. These sources of flooding will be investigated further in the Stage II Flood Risk Assessment.

Table 4.3 Source-Pathway-Receptor Model

Source	Pathway	Receptor	Likelihood	Consequence	Risk
Fluvial flooding	Overbank from rivers and streams	Agricultural and urban areas adjacent to watercourses	Medium (FEM-FRAMS maps show flooding in LAP lands for 10% AEP event)	Low (Small section of lands affected currently used for agriculture)	Low
Tidal flooding	Watercourses and drainage networks outfalling to tidal areas	Agricultural and urban areas adjacent to watercourses	Medium (ICPSS maps show flooding in LAP lands for 0.5% AEP event)	Medium (Parts of Beaverstown Road affected)	Medium
Pluvial flooding	Extreme rainfall events and inadequate surface water drainage	Urban areas	High (Several reported flooding incidents during past 15 years)	Medium (No reported flooding of residential buildings in LAP area)	High
Groundwater Flooding	Rising groundwater levels	Low lying lands	Remote (No reports or geological indicators)	Low (Basements often most affected – not typical of development in Donabate)	Low

5. STAGE II – INITIAL FLOOD RISK ASSESSMENT

5.1 Initial Fluvial Flood Risk Assessment

The three sources of fluvial flooding; the Turvey River, the Beaverstown Stream and the Ballalease Stream flowing through Balcarrick Golf Club, identified in the Stage I Flood Risk Assessment are investigated further in this section. As part of this assessment an Infoworks ICM model of the surface water drainage network in each of these areas was developed.

5.1.1 Beaverstown Stream

Recurrent flooding, within the catchment of the Beaverstown Stream, occurs on Beaverstown Road at the entrance to Ballisk Common. Minor flooding was experienced at this location in November 2014 while a more significant flood event occurred in October 2011 when the astro-turf field in front of Colaiste Pobail Domhnach Beatach was also flooded.

The flood event of October 2011 was caused by a power outage at the surface water pumping station approximately 450m downstream of Ballisk Common. The power outage lasted for approximately five hours during which time the water entering the Beaverstown stream, upstream of the pumping station, was not discharging to the Estuary and resulted in the flooding experienced at Beaverstown Road.

The drainage network in this area, including the Beaverstown Stream was modelled as part of this study. When the pumping station is operational, the stream has adequate hydraulic capacity to convey the 1% AEP (+20% for climate change) rainfall event within the channel. Since the recurring minor flooding in this area is caused by blockages in the drainage network and as the October 2011 event described above was caused by a power failure of the pumping station, flooding in this area is better classified as pluvial rather than fluvial.

5.1.2 Turvey River

The Turvey River was identified as an AFA as part of the PFRA carried out by the OPW and was subsequently included in the FEM-FRAM study, completed in 2012. As part of the FEM-FRAMS the Turvey River was modelled using a combination of 1D and 2D modelling to produce a fluvial flood extent map. The flood extent map includes the 10% AEP, 1% AEP and 0.1% AEP flood extents. Defended areas, calculated flows and water levels in the river channel and the level of confidence in the mapping are also included on the maps. The analysis of the Turvey River published under the FEM-FRAMS is robust with the data of sufficient detail and level of confidence to be accepted in this study. Refer to Appendix B for FEM-FRAM Maps.

The flapped outfall at the downstream end of the river was considered as a formal flood defence as it prevents high tides from propagating upstream. To establish the areas protected by the flapped outfall two scenarios of the model were run. The flapped outfall was included in Scenario 1 but omitted in scenario 2. The areas within the flood extent of scenario 2 but outside the flood extent of scenario 1 are defended by the flapped outfall.

The fluvial flood extent map indicates that the Turvey River causes flooding along the majority of its length including at the southern boundary of the LAP study area. The flooded areas adjacent to the river channel are indicated by the 10% and 1% AEP flood extent with larger areas flooded for the 0.1% AEP flood extent. There are numerous defended areas identified on the flood extent maps. The flooded areas are agricultural lands but are zoned as RA “provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the current Fingal Development Plan.

The Development Land Use Zoning is reviewed in Section 5.5 using the flood extents from the FEM-FRAMS mapping. Refer to revised Combined Flood Extent in Drawing 009 below.

5.1.3 Ballalease Stream and Drainage Ditches at Balcarrick Golf Club

Flooding has also been noted near the LAP study area along the Ballalease Stream and the network of drainage ditches flowing from west to east through Balcarrick Golf Club. The GSI subsoils mapping indicates that a band of alluvium running west to east between the two ridges in Corballis East and through Balcarrick Golf Course which suggests historical flooding of the stream. The stream has in the past become disjointed with the channel now commencing at the boundary of the LAP lands in Balcarrick Golf Club. A few drainage ditches remain in lands at the centre of Corballis East with no direct connection to an outfall. The lands adjacent to the stream in Corballis East are zoned as RA “provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the current Fingal Development Plan 2011-2017. As no topographical survey of this watercourse has been provided by FCC the fluvial flood extent and depths have not been established. Any planning applications lodged on or adjacent to these lands should require a site specific flood risk assessment.

5.2 Initial Tidal Flood Risk Assessment

Tidal flooding within the LAP study area is identified on the FEM-FRAMS and the ICPSS flood extent maps. The FEM-FRAMS mapping identified tidal flooding along the Turvey River with the ICPSS flood extent map indicating tidal flooding at Ballisk Common and at the Portrane Canal.

5.2.1 Turvey River

As the Turvey River is tidal and identified as an AFA a tidal flood extent map was developed as part of the FEM-FRAMS. This map indicates the 10%, 0.5% and 0.1% tidal flood extent for the Turvey River. As per the fluvial flood mapping the flapped outfall of the river is considered a formal flood defence and the flooding has been simulated with and without the flapped outfall in place to determine the defended area. The majority of the southern section of the LAP study area is classified as a defended area with the exception of the area to the west of the railway line.

The FEM-FRAMS tidal flood extent map indicates the southern section of the LAP study area, adjacent to the Turvey River, is within the tidal flood extent. The flooded areas are agricultural lands but are zoned as RA which seeks to “provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the current Fingal Development Plan. The analysis of the Turvey River published under the FEM-FRAMS is robust with the data of sufficient detail and level of confidence to be accepted in this study. The Development Land Use Zoning is reviewed in Section 5.5. Refer to revised Combined Flood Extent in Drawing 009 below.

5.2.2 Beaverstown Stream

The ICPSS tidal flood extent map identifies tidal flooding along the Turvey River and also in the Beaverstown Stream and Ballisk Common. The map includes the 0.5% and 0.1% flood extent. The extent of flooding along the southern boundary of the LAP study area caused by the Turvey River in this map exceeds the flood extent of the FEM-FRAMS mapping as the ICPSS model did not include any flood defences. Therefore, the effect of the flapped outfall was not included in the model. The Beaverstown Stream and Ballisk Common are identified as within the 0.5% AEP flood extent.

To assess the tidal flooding in the Beaverstown Stream for the 0.5% AEP tidal event an Infoworks ICM model has been developed. It has also been modelled for the mid-range future scenario (MRFS) in line with the OPW CFRAM requirements. Table 5.1 (reproduced from Table

7-6 of the FEM-FRAMS Hydrology Report) summarises the recommended projections for climate change and urbanisation for the MRFS for FEM-FRAMS and this combination of drivers for future flood risk were applied to the hydraulic model for future scenarios. The 0.5% AEP tide level used in the model was obtained from the Ballyboghil River.

Table 5.1 Relevant combinations of drivers to provide boundaries for future flood risk

Driver	MRFS
Climate change – rainfall	+20%
Climate change – net sea level rise	+350mm
Land use change - urbanisation	100% increase in urban area

The model indicates that no tidal flooding will occur along the Beaverstown Stream during the 0.5% AEP event for both the current scenario and the MRFS. The pumping station located on this watercourse prevents the tide propagating further upstream. As a result the model estimates that the watercourse is tidal as far upstream as the pumping station and no out of bank flow is predicted. Refer to revised Flood Extent Drawing in Drawing 009 below.



Photo 5.1 Beaverstown Stream Pumping Station

A second model was developed in which the pumping station was removed and modelled as a pipe flowing under gravity. This pipe does not prevent the tide propagating upstream and as a result the model predicts that tidal flooding will occur at Ballisk Common and the astro-turf field in front of Colaiste Pobail Domhnach Beatach, broadly in line with the ICPSS flood extent mapping.

As the tidal flooding cannot propagate upstream due to the presence of the pumping station, the ICPSS tidal flood extent incorrectly includes Ballisk Common and Colaiste Pobail Domhnach Beatach within the flood extents. The flood extent indicated on the ICPSS mapping upstream of the pumping station should therefore be identified as a defended area. The situation shall remain the same following construction of the new pumping station. Therefore, this area is not considered to require a detailed flood risk assessment.

5.2.3 Ballalease Stream and Drainage Ditches at Balcarrick Golf Club

The ICPSS tidal flood extent map identifies tidal flooding along the Ballalease Stream and network of drainage ditches in Balcarrick and Donabate Golf Clubs. The map includes the 0.5% and 0.1% flood extent. The tidal flood extent extends to the boundary of the Corballis East LAP lands where the channel commences. There are twin flap valves located on the outfall from the Ballalease Stream to the Rogerstown Estuary as shown on Photo 5.2 below. The flap valves prevent the tide propagating upstream, defending the lands from coastal flooding. The ICPSS High End Future Scenario has a peak tide level of 4.43mOD in the vicinity of the Donabate Peninsula. Development in Corballis East will be outside Flood Zone B however it is recommended that finished floor levels be constructed above this level of 4.43mOD. As the lands are defended, there is no requirement for freeboard, in accordance with 'The Guidelines'. Refer to Flood Zones Map shown on Drawing 007 below.



Photo 5.2 Twin Flap Valves on Ballalease Stream Outfall

5.3 Initial Pluvial Flood Risk Assessment

There are numerous reports of pluvial flooding incidents within the LAP study area. Refer to Drawing 005 below.

The flooding at the entrance to Ballisk Common (Location A), as described in Section 5.1, is classified as pluvial flooding as the recurrent flooding is a result of blockages in the drainage network and the more severe flood event in October 2011 was caused by a power outage at the surface water pumping station. This area is not considered to require a detailed flood risk assessment.

Pluvial flooding was also recorded by FCC Drainage Operations staff at the Dublin-Belfast railway line underpass, on the road connecting Beverton Walk and Portrane Road (Location B). Flooding regularly occurs at the sag point in this road during heavy rainfall. The conveyance capacity and blockages in the drainage system at this location appear to be the cause of the recurrent flooding and this area does not require a detailed flood risk assessment.

The pluvial flooding that occurs on Turvey Avenue is caused by a combination of blockages and the inadequate conveyance capacity of the drainage network (Location C). The flooding on New Road to the east of Donabate Village is caused by overland flows from the agricultural lands adjacent to the road (Location D). These areas do not require a detailed flood risk assessment.

Localised flooding has been recorded by FCC Drainage Operations on the Kilcrea Road at the junction with Hearse Road and approximately 400m to the south (Area E). Works have been undertaken in this area involving regrading of ditches and remedial works to the lake. There have been no occurrences of flooding since completion of these works. These areas do not require a detailed flood risk assessment.

For details of the analysis and recommended mitigation measures for these flood events, refer to Section 6 below.

5.4 Initial Groundwater Flood Risk Assessment

There have been no reported instances of groundwater flooding in the LAP lands. An analysis of datasets available online through GSI Mapping was undertaken to determine the potential for groundwater flooding.

Groundwater flooding is most common in Karst areas. The GSI Groundwater Data Viewer shows no indication of any Karst features in the LAP area.

The LAP area is not considered to require a detailed flood risk assessment with respect to groundwater flooding.

5.5 Development Land Use Zoning Review

This review will look at the development land use zoning for the areas within or adjacent to areas with moderate or high flood probability (Flood Zone A or B, refer to Drawing 007 above) and comment on the flood risk in each area. Where land use zonings encompass Flood Zones A or B the Justification Test for development plans, as set out in Section 4.23 of The Guidelines, will be applied.

Development Area	Comment on Flood Risk	Justification Test Required?
Rahillion	Rahillion is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies	No
Turvey	Turvey is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies	No
Ballymastone	Ballymastone is not affected by current fluvial or tidal flood risk. It is still susceptible to flooding from surface water and this risk should be managed through appropriate surface water management strategies	No
Corballis	Corballis is impacted by potential fluvial and tidal flooding from the Turvey River and the Ballalease Stream at Balcarrick Golf Club. The area is zoned as RA "provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure" in the current Fingal Development Plan. It is recommended that the zoning of lands subject to the 0.1% AEP fluvial or tidal flood extent (Flood Zone A or B) be reviewed in the preparation of the FDP 2017-2023 and the zoning changed to a more appropriate agricultural or amenity zoning in accordance with 'The Guidelines'. Development in Corballis East adjacent to Balcarrick Golf Club and Flood Zone B should be constructed above the 0.1% Peak Tide Level of 4.43mOD.	Yes

5.6 Corballis Overview

Corballis is undeveloped and zoned RA “provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure” in the Fingal Development Plan 2011-2017. The southern boundary of the zoned lands in Corballis West, adjacent to the Turvey River, are within Flood Zones A and B. These lands are unsuitable for residential development and the current RA zoning is not appropriate. The zoning of these lands should be addressed in the preparation of the Fingal Development Plan 2017-2023. Any future planning applications on the site should be subject to an appropriately detailed flood risk assessment at development management stage to demonstrate that the sequential approach has been applied and the application fully adheres to the principles of The Guidelines. Finished floor levels should be set above the 100year flood level including the impacts of climate change and additional freeboard.

There is evidence of fluvial flooding caused by the open ditch in Corballis East which falls towards the Ballalease Stream at Balcarrick Golf Club . As the flood extents are not known in this area any future planning applications on the site should be subject to an appropriately detailed flood risk assessment at development management stage to demonstrate that the sequential approach has been applied and the application fully adheres to the principles of The Guidelines. Finished floor levels should be set above the 100year flood level including the impacts of climate change and additional freeboard. As part of the Donabate LAP SuDS Strategy, it is recommended to redirect all runoff from Corballis East to the south, outfalling approximately 250m east of the railway line. This will reduce the volume of runoff entering the Ballalease Stream, reducing the peak fluvial flood level. The tidal flood extent on the ICPSS mapping show the flooding in the Ballalease Stream up to the boundary of the LAP lands adjacent to Balcarrick Golf Club. The presence of twin flap valves at the outfall of the Ballalease Stream prevents the tide propagating upstream. It is recommended that finished floor levels in this area be raised above the High End Future Scenario 0.1% flood level of 4.43mOD. Refer to Drawing 010 below for detailed flood extents in Corballis.

6. PREVIOUS FLOOD EVENTS

A number of flood events have been recorded within the LAP boundary and this section will detail the hydrology, hydraulics, cause, extents, depths and mechanisms of flooding as well as recommendations on mitigation measures for the alleviation of flooding in these areas. Refer to Drawing 005 above for the location of historic flood events within the LAP boundary.

6.1 Ballisk Common, October 2011 (Location A)

In October 2011, during a period of heavy rainfall, flooding was experienced on Beaverstown Road at the entrance to Ballisk Common and in Colaiste Pobail Domhnach Beatach. No flooding to residential properties occurred. See below for the extent of flooding on Beaverstown Road in October 2011.



Photo 6.1 Extent of Flooding on Beaverstown Road, October 2011

The catchment of the Beaverstown Stream, upstream of the pumping station, is approximately 115Ha and is approximately 63% urban with limited attenuation of surface water run-off. The hydraulics of this flood event was carried out using Infoworks ICM. A 2D model of the surface water drainage network in this area was developed from the model created as part of the Surface Water Drainage Scheme for Donabate Report (2006). The pumping station on the Beaverstown Stream approximately 430m downstream of the entrance of Ballisk Common was modelled with a flow rate of 400m³/hr based on data received from FCC. The digital terrain model (DTM) used in the analysis was developed from LiDAR data received from FCC. It is important to note that the LiDAR data predates the construction of Colaiste Pobail Domhnach Beatach and the Donabate Educate Together both of which opened in 2011.

The return period for the rainfall event in October 2011 was calculated using data from both Met Eireann and FCC. FCC provided rainfall data from the Barnageeragh Wastewater Treatment Plant which is located approximately 10.7km to the north of Donabate Village. This rain gauge recorded 49mm of rainfall between 11am and 9.45pm on 24th October 2011. The return period of this rainfall event was calculated as 1 in 25 years using the OPW Rainfall Estimation Application on the Flood Studies Update Web Portal, www.opw.hydronet.com. Rainfall Data for the Dublin Airport rain gauge was obtained from Met Eireann which recorded a total of 68.8mm of rainfall between 10am and 9pm on 24th October 2011. The return period of this event was calculated as 1 in 86 years using the OPW Rainfall Estimation Application. A rainfall event with a return period of 1 in 86 years and duration of 11 hours was used in the model. As there was a power cut to the pumping station on the Beaverstown Stream during this flood event it was simulated with the discharge rate of the pumping station set to 0m³. The flood extent in the

model generally correlates with the available photographs of the October 2011 flood extent. Refer to Drawing 006 below for details of the modelled flood extent and depths.

The model indicates that when the pumping station is not operational the water level in the surface water drainage network continues to rise throughout the event, with flooding occurring eventually as the water level rises above the cover level of two manholes on Beaverstown Road, at the entrance to Ballisk Common. The depth of flooding is relatively shallow at less than 0.2m and this is in line with the flood event in October 2011, when no residents reported flooding.

To assess the impact of the power outage to the pumping station during this event a further simulation was run with the pumping station in operation. The extent and depth of flooding in this simulation is completely reduced with no flooding occurring.

An additional simulation was run for a 1 in 100 year event with the pumping station in operation. This did not result in any flooding in the area. The system also had significant residual capacity to cater for storm events in exceedence of 1 in 100 years.

As the flooding is completely reduced when the pumping station is operational, **the power cut during the October 2011 event was the primary cause of flooding**. The condition of the surface water drainage network and open channels in the catchment may also have been a contributing factor. A number of blocked gullies and channel obstructions were visible during a site walkover in December 2014. Refer to Photo 6.2 and Photo 6.3 below for examples



Photo 6.2 Blocked gully on Beaverstown Road, December 2014



Photo 6.3 Channel Blockages, December 2014

Construction of the proposed pumping station on the Beaverstown Stream will reduce the risk of a recurrence of this type of flooding. Increasing the existing discharge rate of the pumping station will reduce the amount of water in the channel upstream of the pumping station during heavy rainfall. Provision of a backup power source to the new pumping station will ensure it will be operational during any local power cuts.

In addition to the construction of the proposed pumping station, to further minimise the likelihood of a flood of this type occurring in the future, it is recommended that a maintenance regime is developed for the catchment to include cleaning out of pipes, manholes, gullies and channels to remove debris and blockages that may reduce the hydraulic capacity of the network.

6.2 Dublin-Belfast Railway Underpass – Recurring (Location B)

Recurrent flooding is experienced at the underpass of the Dublin-Belfast railway line, on the road connecting Beverton Walk and Portrane Road. Refer to Photo 6.4 below. There is a trapped sag in the road at the location of the bridge and pluvial flooding regularly occurs during rainfall events.

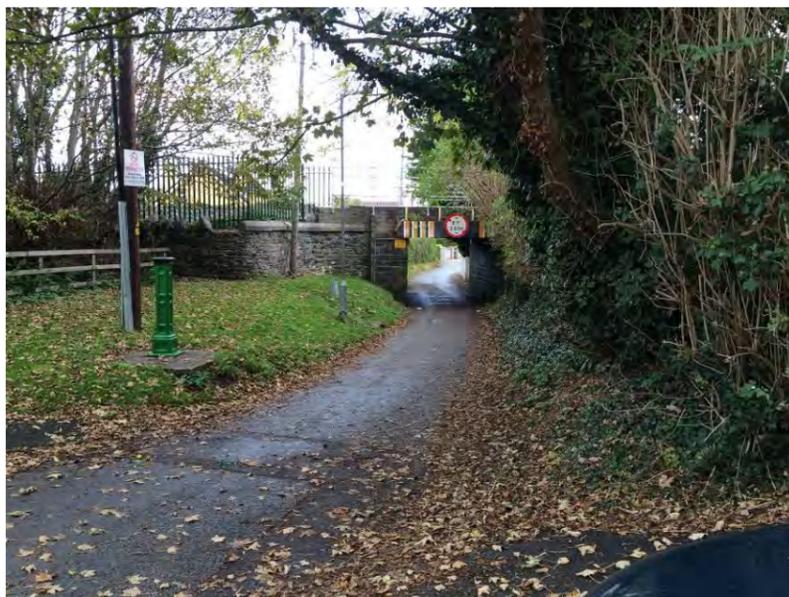


Photo 6.4 Trapped sag at Dublin-Belfast railway underpass

There are a number of gullies located along this road. The drainage records received from FCC do not indicate the presence of a piped surface water drainage system. The records do show a 300mm diameter foul sewer flowing from Beverton Walk to Portrane Road. However it is understood from discussions with FCC Drainage Operations staff and a visual inspection of the area that a separate surface water sewer exists. To investigate the hydraulics of the surface water network and causes of flooding in this area a CCTV survey should be carried out to establish the size, condition and location of the surface water network. A detailed topographical survey of the area should also be carried out to allow the feasibility of any mitigation measures to be assessed.

6.3 New Road – Recurring (Location C)

Pluvial flooding regularly occurs on New Road to the east of Donabate Village during heavy rainfall events. The topography of the area is relatively flat to the north of the road with a ridge of higher ground to the south. As the road is located at the base of the ridge and there is no

formal drainage along the southern boundary, overland flows during heavy rainfall events regularly cause flooding on the road. Refer to Photo 6.5 below.



Photo 6.5 Flooding on New Road

There are no watercourses visible on the Ordnance Survey maps of the area and the drainage records received from FCC do not indicate the presence of a piped surface water drainage system serving New Road.

A number of gullies are visible along the northern boundary of the road. Given the absence of any visible manholes along New Road, the gullies may be discharging directly to local ditches. To minimise the flooding in this area a drainage ditch should be excavated along the southern boundary of the road. This will provide drainage from any road runoff and also act as a cut off drain for the water flowing towards the road from high ground. To assess the required extent of this ditch the existing drainage network along the road should be CCTV surveyed to identify potential outfalls.

6.4 Turvey Avenue – Recurring (Location D)

Recurrent pluvial flooding has been recorded by FCC Drainage Operations staff on the southern side of Turvey Avenue. There is no formal drainage network on this side of the carriageway with surface water being drained to a grass verge. To alleviate the flooding on this side of the carriageway a filter drain should be constructed to collect the surface water runoff from the carriageway. This filter drain can discharge to the existing surface water drainage network at Turvey Grove.

A CCTV survey of the surface water drainage network in the area should be carried out prior to the design of the filter drain to confirm the location, condition and invert levels of the existing network.

6.5 Kilcrea Road – Recurring (Location E)

Localised flooding has been recorded by FCC Drainage Operations on the Kilcrea Road at the junction with Hearse Road and approximately 400m to the south. Works have been undertaken in this area involving regrading of ditches and remedial works to the lake. There have been no occurrences of flooding since completion of these works

7. CONCLUSIONS

The FRA for the Donabate LAP 2016-2022 has been carried out in accordance with the requirements of the OPW *"The Planning System and Flood Risk Management Guidelines for Planning Authorities"*, 2009. It was determined that the two most significant sources of flooding within the LAP area are the Turvey River and the Beaverstown Stream. There are a number of other minor areas of pluvial flooding within the LAP boundary.

The majority of the LAP area is within Flood Zone C where the probability of flooding from rivers and the sea is low, less than 1 in 1000 years, and is therefore appropriate for all types of development.

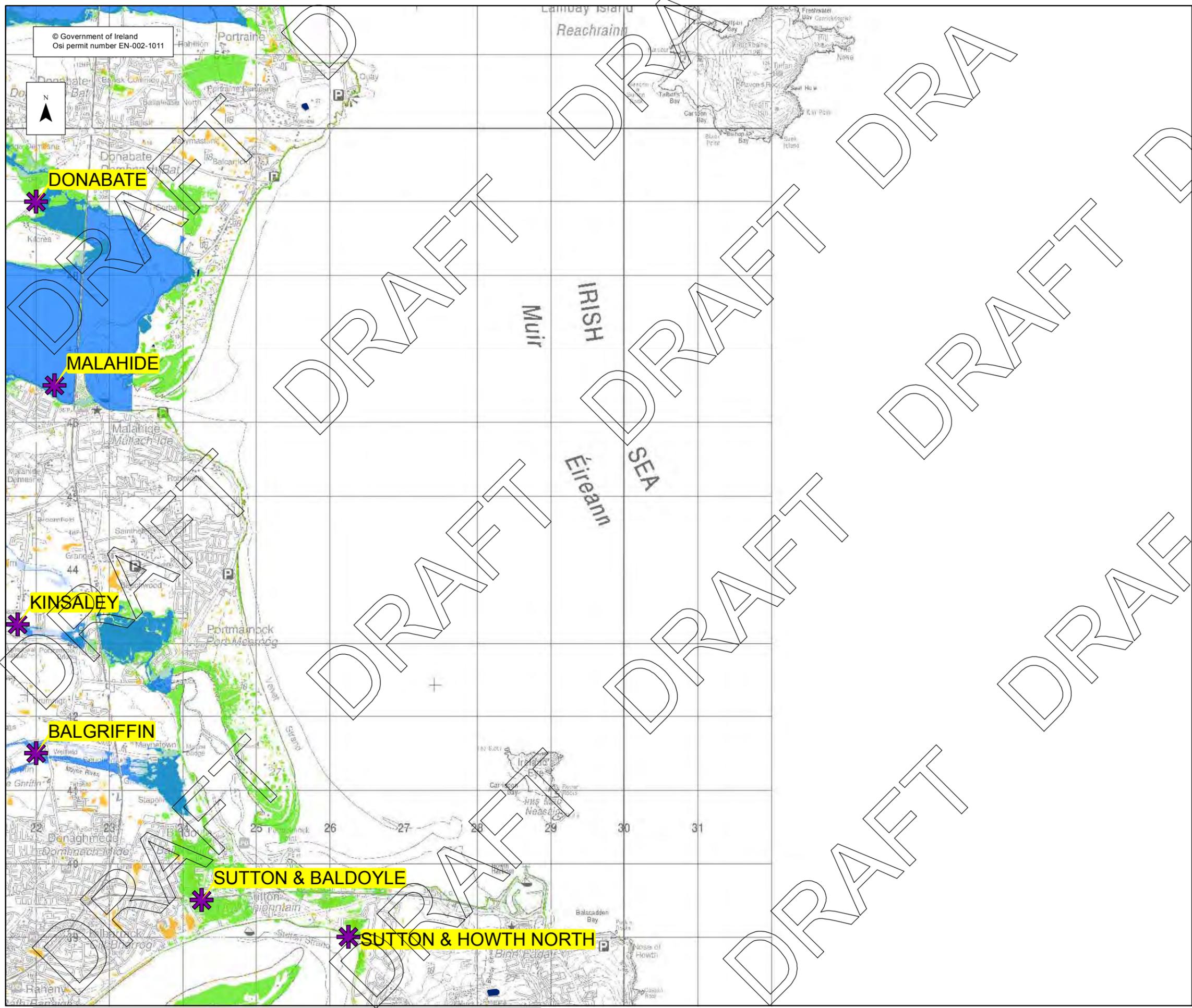
There are areas of lands zoned for new residential communities along the southern boundary of the LAP, adjacent to the Turvey River, within Flood Zones A and B. Lands within Flood Zones A and B, including defended areas, are unsuitable for residential development and the current 'RA' zoning is therefore inappropriate for these lands. This zoning should be reviewed in the preparation of the Fingal County Development Plan 2017-2023.

The hydrology and hydraulics of the previous flood events that have occurred within the LAP boundary have been assessed to determine the cause of flooding and develop mitigation recommendations. The most significant event occurred in October 2011 on Beaverstown Road and was caused by a power cut to the pumping station on the stream. The construction of a new pumping station which has already been granted planning permission will contain a backup generator ensuring local power outages do not prevent the pumping station from opera.

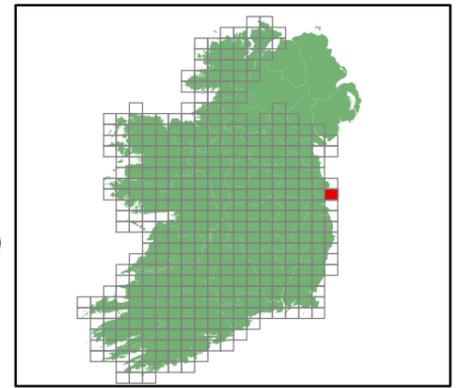
8. RECOMMENDATIONS

- 1) It is recommended that the drainage channels/watercourses within the developed and undeveloped areas of the LAP boundary are maintained and protected. Riparian strips should be provided in accordance with the requirements of FDP 2011-2017 to protect and ensure these watercourses are maintained into the future. A new drainage ditch should be excavated along the southern boundary of New Road to minimise flooding in this area.
- 2) Lands in Corballis zoned 'RA' in the Fingal Development Plan 2011-2017 within Flood Zones A and B, which includes defended lands, are unsuitable for residential development. The zoning of these lands should be examined in the current preparation of the FDP 2017-2023 and the lands zoned for a more appropriate agricultural or amenity use which is compatible with the vulnerability to flooding in accordance with the OPW Flood Risk Management Guidelines.
- 3) To address the risk of pluvial flooding from new developments in the LAP area the Donabate Local Area Plan 2016-2022 SUDS Strategy should be fully implemented for all new developments. This will ensure a consistent approach to the management of surface water within Donabate. Implementing these measures and complying with the GSDS will ensure the risk of flooding downstream of any new developments is minimised. To alleviate pluvial flooding along the southern side of Turvey Avenue, a filter drain should be constructed to collect surface water runoff from the carriageway.
- 4) It is recommended that site specific flood risk assessments are carried out for all developments in lands identified within or adjacent to Flood Zones A or B. Detailed topographical surveys and site development plans should be used to provide a more accurate estimation of the flood extents and aid in deciding the location of various development types.
- 5) Construction should be commenced on the new pumping station in Ballisk Common which has been granted planning permission. This will ensure that local power outages do not affect the operation of the pumping station due to provision of a backup generator. Inclusion of a petrol interceptor will also prevent discharge of hydrocarbons to the Rogerstown Estuary.
- 6) A maintenance plan should be developed for the area to ensure the hydraulic capacity of the network is not impeded by blockages and damage. CCTV surveys in a number of other areas are required to identify the size, condition and location of the existing surface water drainage network before mitigation measures can be fully developed.

APPENDIX A
OPW PFRA MAPS



Location Plan :



Legend:

- Flood Extents**
- Fluvial - Indicative 1% AEP (100-yr) Event
 - Fluvial - Extreme Event
 - Coastal - Indicative 0.5% AEP (200-yr) Event
 - Coastal - Extreme Event
 - Pluvial - Indicative 1% AEP (100-yr) Event
 - Pluvial - Extreme Event
 - Groundwater Flood Extents
 - Lakes / Turloughs
- PFRA Outcomes**
- ✱ Probable Area for Further Assessment
 - ✱ Possible Area for Further Assessment

Important User Note:

The flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location. Information on the purpose, development and limitations of these maps is available in the relevant reports (see www.cfram.ie). Users should seek professional advice if they intend to rely on the maps in any way.

If you believe that the maps are inaccurate in some way please forward full details by contacting the OPW (refer to PFRA Information leaflets or 'Have Your Say' on www.cfram.ie).

Office of Public Works
Jonathon Swift Street
Trim
Co Meath
Ireland



Project :
PRELIMINARY FLOOD RISK ASSESSMENT (PFRA)

Map :
PFRA Indicative extents and outcomes
- Draft for Consultation

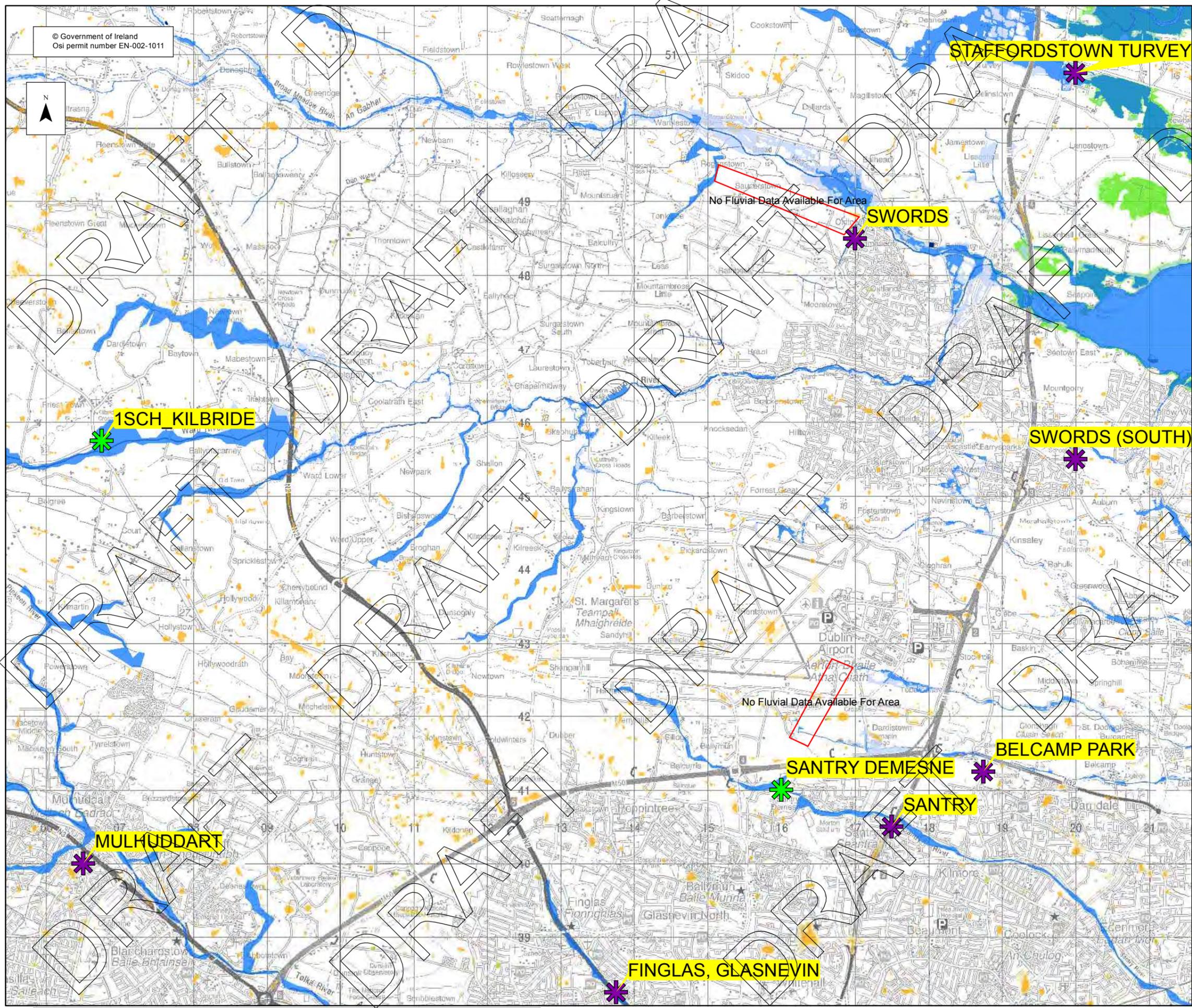
Figure By : PJW Date : July 2011
Checked By : MA Date : July 2011

Figure No. :
2019 / MAP / 257 / A Revision
0

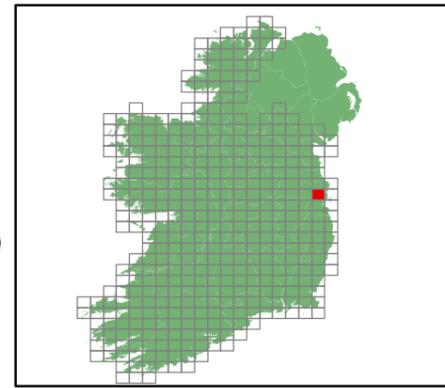
Drawing Scale : 1:50,000 Plot Scale : 1:1 @ A3



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Osi permit number EN-002-1011



Location Plan :



Legend:

- Flood Extents**
- Fluvial - Indicative 1% AEP (100-yr) Event
 - Fluvial - Extreme Event
 - Coastal - Indicative 0.5% AEP (200-yr) Event
 - Coastal - Extreme Event
 - Pluvial - Indicative 1% AEP (100-yr) Event
 - Pluvial - Extreme Event
 - Groundwater Flood Extents
 - Lakes / Turloughs
- PFRA Outcomes**
- ✱ Probable Area for Further Assesment
 - ✱ Possible Area for Further Assesment

Important User Note:
The flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location. Information on the purpose, development and limitations of these maps is available in the relevant reports (see www.cfram.ie). Users should seek professional advice if they intend to rely on the maps in any way.

If you believe that the maps are inaccurate in some way please forward full details by contacting the OPW (refer to PFRA Information leaflets or 'Have Your Say' on www.cfram.ie).

Office of Public Works
Jonathon Swift Street
Trim
Co Meath
Ireland

Project :
PRELIMINARY FLOOD RISK ASSESMENT (PFRA)

Map :
PFRA Indicative extents and outcomes
- Draft for Consultation

Figure By : PJW	Date : July 2011
Checked By : MA	Date : July 2011

Figure No. : 2019 / MAP / 256 / A	Revision 0
--------------------------------------	---------------

Drawing Scale : 1:50,000 Plot Scale : 1:1 @ A3

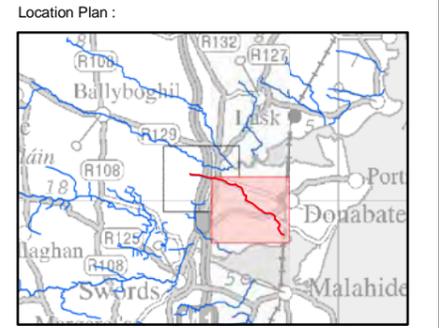


APPENDIX B FEM-FRAMS FLOOD MAPS



Fluvial flooding may also occur within the area shown on this map. Please refer to the fluvial flood extent map. Figure No. TUR/HPW/EXT/CURS/002

Draft for consultation



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 0.5 % AEP Flood Extent (1 in 200 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- Defended area
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (> 40m) (10% and 0.1% AEP)
- High Confidence (<20m) (0.5% AEP)
- Medium Confidence (<40m) (0.5% AEP)
- Low Confidence (>40m) (0.5% AEP)
- Modelled River Centreline
- Node Point
- Node label with level data (refer to table)
- Node level with flow & level data (refer to table)

High confidence
Medium confidence
Low confidence refer to table

USER NOTE:
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Project : FEM FRAMS

Map : SURVEY MODEL FLOOD EXTENT MAP

Map Type : FLOOD EXTENT

Source : TIDAL FLOODING

Map area : HIGH PRIORITY WATERCOURSE

Scenario : CURRENT

Figure By : Mara Ruiz Date : 18 January 2011

Checked By : Sergio Herbón Date : 18 January 2011

Approved By : Clare Dewar Date : 18 January 2011

Figure No. : TUR/HPW/EXT/CURS/T/002 Revision 1

Drawing Scale : 1:10,000 Plot Scale : 1:1 @ A3

Node Label	10% AEP Event		0.5% AEP Event		0.1% AEP Event	
	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)
6Ta3920	2.57		3.18		3.31	
6Ta3652	2.47	3.50	2.94	7.59	2.99	9.35
6Ta3273	2.45		2.94		2.98	
6Ta3001_DS	2.42		2.92		2.95	
6Ta2449	1.86	3.11	2.44	6.37	2.64	9.64
6Ta2003	1.63		2.17		2.37	
6Ta1672	1.45		1.88		2.10	
6Ta1175	1.28		1.55		1.74	
6Ta766	1.08		1.40		1.64	
6Ta450	1.07		1.40		1.63	
6Ta45	1.07		1.39		1.63	
053	2.76		3.18		3.41	

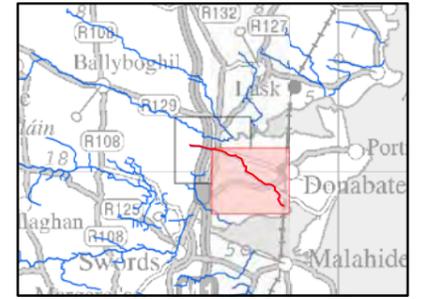




Tidal flooding may also occur within the area shown on this map. Please refer to the tidal flood extent map. Figure No. TUR/HPW/EXT/CURS/T/002

Draft for consultation

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
 - 1 % AEP Flood Extent (1 in 100 chance in any given year)
 - 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
 - Defended area
 - High Confidence (<20m) (10% AEP)
 - Medium Confidence (<40m) (10% AEP)
 - Low Confidence (>40m) (10% and 0.1% AEP)
 - High Confidence (<20m) (1% AEP)
 - Medium Confidence (<40m) (1% AEP)
 - Low Confidence (>40m) (1% AEP)
 - Modelled River Centreline
 - Node Point
 - Node label with level data (refer to table)
 - Node level with flow & level data (refer to table)
- High confidence

Medium confidence

Low confidence refer to table

USER NOTE:
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Clients :



Project :
FEM FRAMS

Map :
SURVEY MODEL FLOOD EXTENT MAP

Map Type : FLOOD EXTENT
Source : FLUVIAL FLOODING
Map area : HIGH PRIORITY WATERCOURSE
Scenario : CURRENT

Figure By : Mara Ruiz Date : 2 November 2010
Checked By : Sergio Herbón Date : 2 November 2010
Approved By : Clare Dewar Date : 2 November 2010

Figure No. : TUR/HPW/EXT/CURS/002 Revision 1

Drawing Scale : 1:10,000 Plot Scale : 1:1 @ A3

Node Label	10% AEP Event		1% AEP Event		0.1% AEP Event	
	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)
6Ta3920	3.14		3.35		3.49	
6Ta3652	2.93	7.68	3.01	10.40	3.08	15.75
6Ta3273	2.92		2.99		3.06	
6Ta3001_DS	2.90		2.96		3.01	
6Ta2449	2.29	5.92	2.69	11.36	2.85	15.17
6Ta2003	2.00		2.41		2.56	
6Ta1672	1.73		2.14		2.39	
6Ta1175	1.44		1.71		1.86	
6Ta766	1.14		1.29		1.42	
6Ta450	1.11		1.26		1.41	
6Ta45	1.10		1.25		1.40	

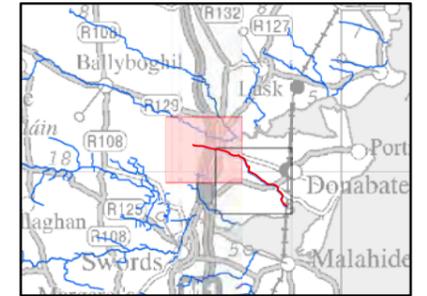




Flooding in this area caused by overspill from the Ballyboghil river

Draft for consultation

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
 - 1 % AEP Flood Extent (1 in 100 chance in any given year)
 - 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
 - Defended area
 - High Confidence (<20m) (10% AEP)
 - Medium Confidence (<40m) (10% AEP)
 - Low Confidence (>40m) (10% and 0.1% AEP)
 - High Confidence (<20m) (1% AEP)
 - Medium Confidence (<40m) (1% AEP)
 - Low Confidence (>40m) (1% AEP)
 - Modelled River Centreline
 - Node Point
 - Node label with level data (refer to table)
 - Node level with flow & level data (refer to table)
- High confidence

Medium confidence

Low confidence refer to table

USER NOTE:

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HalcrowBarry

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Clients :



Project :
FEM FRAMS

Map :
TURVEY MODEL FLOOD EXTENT MAP

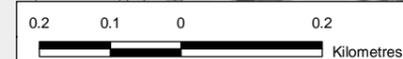
Map Type : FLOOD EXTENT
Source : FLUVIAL FLOODING
Map area : HIGH PRIORITY WATERCOURSE
Scenario : CURRENT

Figure By : Mara Ruiz Date : 18 November 2010
Checked By : Sergio Herbón Date : 18 November 2010
Approved By : Clare Dewar Date : 18 November 2010

Figure No. : TUR/HPW/EXT/CURS/001 Revision 2

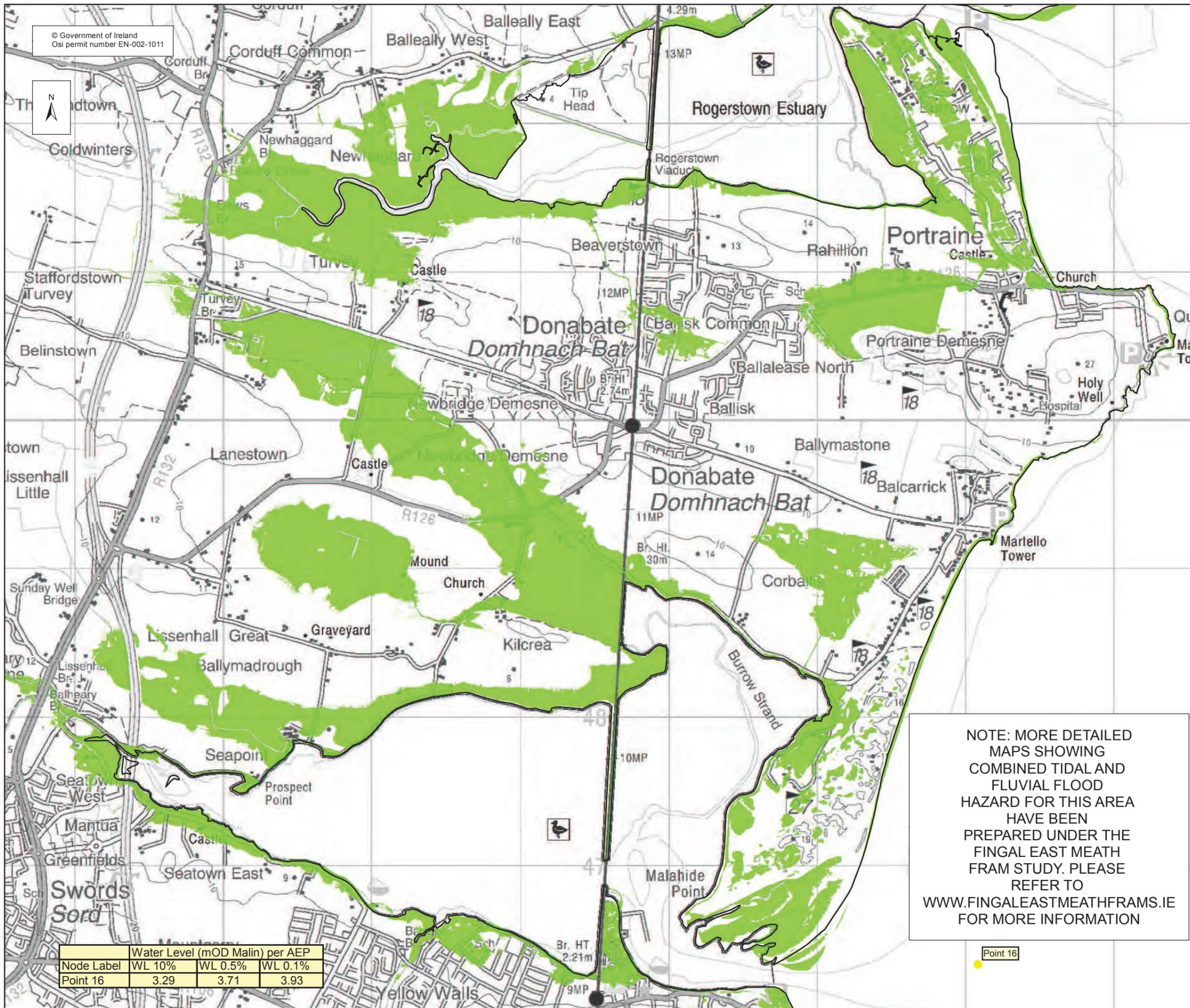
Drawing Scale : 1:10,000 Plot Scale : 1:1 @ A3

Node Label	10% AEP Event		1% AEP Event		0.1% AEP Event	
	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)	Water Level (mOD)	Flow (m3/s)
6Ta5519	5.18	19.62	5.86	41.06	6.29	54.14
6Ta5275	4.97		5.86		6.29	
6Ta5016	4.96		5.86		6.29	
6Ta4822	4.96		5.86		6.29	
6Ta4609	4.23	7.87	4.54	10.05	5.03	21.02
6Ta4247	3.79		4.05		4.63	
6Ta3920	3.18		3.34		3.74	
6Ta3652	2.94	7.58	3.00	10.12	3.22	19.96
6Ta3273	2.94		2.99		3.20	



APPENDIX C
ICPSS FLOOD MAPS

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EXTENT MAP

Legend:

- 0.5% AEP FLOOD EXTENT (1 in 200 chance in any given year)
- 0.1% AEP FLOOD EXTENT (1 in 1000 chance in any given year)
- High Water Mark (HWM)
- Node Point
- Point 34 Node Label (refer to table)

USER NOTE :
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Office of Public Works
17-19 Lower Hatch Street
Dublin 2
Ireland

NOTE: MORE DETAILED MAPS SHOWING COMBINED TIDAL AND FLUVIAL FLOOD HAZARD FOR THIS AREA HAVE BEEN PREPARED UNDER THE FINGAL EAST MEATH FRAM STUDY. PLEASE REFER TO WWW.FINGALEASTMEATHFRAMS.IE FOR MORE INFORMATION

Node Label	Water Level (mOD Malin) per AEP		
	WL 10%	WL 0.5%	WL 0.1%
Point 16	3.29	3.71	3.93

Point 16



Project : IRISH COASTAL PROTECTION STRATEGY STUDY - PHASE III

Map : NORTH EAST COAST FLOOD EXTENT MAP

Map Type : FLOOD EXTENT

Source : TIDAL FLOODING

Map area : RURAL AREA

Scenario : MID RANGE FUTURE SCENARIO

Figure By : PJW Date : Nov 2011

Checked By : JMC & JR Date : Nov 2011

Figure No. : NE / RA / EXT / MRFS / 15 Revision : 0

Drawing Scale : 1:25,000 Plot Scale : 1:1 @ A3

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Osi permit number EN-002-1006



Node Label	Water Level (mOD Malin) per AEP		
	WL 10%	WL 0.5%	WL 0.1%
Point 16	2.79	3.21	3.43



Location Plan :



EXTENT MAP

Legend:

- 0.5% AEP FLOOD EXTENT
(1 in 200 chance in any given year)
- 0.1% AEP FLOOD EXTENT
(1 in 1000 chance in any given year)
- High Water Mark (HWM)
- Node Point
- Point 34 Node Label (refer to table)

USER NOTE :

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74 Boucher Road
Belfast
BT 12 6RZ
Northern Ireland



Office of Public Works
17-19 Lower Hatch Street
Dublin 2
Ireland

Project :
**IRISH COASTAL PROTECTION STRATEGY
STUDY - PHASE III**

Map :
NORTH EAST COAST FLOOD EXTENT MAP

Map Type : FLOOD EXTENT
Source : TIDAL FLOODING
Map area : RURAL AREA
Scenario : CURRENT
Figure By : PJW Date : May 2009
Checked By : JMC Date : May 2009

Figure No. :
NE / RA / EXT / 15 Revision
0

Drawing Scale : 1:25,000 Plot Scale : 1:1 @ A3

**APPENDIX D
OPW FLOOD RECORDS**

Summary Local Area Report

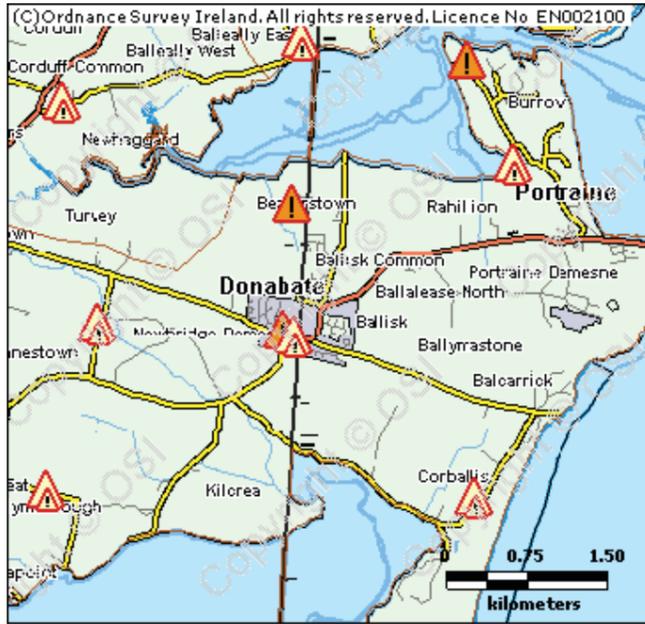
This Flood Report summarises all flood events within 2.5 kilometres of the map centre.

The map centre is in:

County: Dublin

NGR: O 230 501

This Flood Report has been downloaded from the Web site www.floodmaps.ie. The users should take account of the restrictions and limitations relating to the content and use of this Web site that are explained in the Disclaimer box when entering the site. It is a condition of use of the Web site that you accept the User Declaration and the Disclaimer.



Map Scale 1:62,129

Map Legend	
	Flood Points
	Multiple / Recurring Flood Points
	Areas Flooded
	Hydrometric Stations
	Rivers
	Lakes
	River Catchment Areas
	Land Commission *
	Drainage Districts *
	Benefiting Lands *

* Important: These maps do not indicate flood hazard or flood extent. Thier purpose and scope is explained in the Glossary.

7 Results

	1. Ballisk Donabate Nov 2002 County: Dublin Additional Information: Reports (4) More Mapped Information	Start Date: 14/Nov/2002 Flood Quality Code:2
	2. Hearst Road Donabate Nov 2002 County: Dublin Additional Information: Reports (1) More Mapped Information	Start Date: 14/Nov/2002 Flood Quality Code:3
	3. Beaverstown Nov 2002 County: Dublin Additional Information: Reports (1) More Mapped Information	Start Date: 14/Nov/2002 Flood Quality Code:4
	4. Ballisk Lane Donabate Recurring County: Dublin Additional Information: Reports (5) More Mapped Information	Start Date: Flood Quality Code:3
	5. The Burrow Portrane Recurring County: Dublin	Start Date: Flood Quality Code:4

Additional Information: Reports (2) More Mapped Information



6. Cobb's Lane Donabate Recurring
County: Dublin
Additional Information: Reports (1) More Mapped Information

Start Date:
Flood Quality Code:4



7. Corballis Road Donabate Recurring
County: Dublin
Additional Information: Reports (1) More Mapped Information

Start Date:
Flood Quality Code:4

MINUTES OF MEETING

Reference: P4D403A – F140 –014 -004 Page 1 of 3

Project No.: P4D403A

Project Title: OPW Flood Hazard Mapping – Phase 1

Purpose of Meeting: Data Collection – Fingal County Council (FCC)

Participating: Engineer Drainage Fingal CC
 Inspector Drainage Fingal CC
 Search Manager ESBI

Venue: Water Services Depot, Watery Lane,
 Swords, Co. Dublin

Date of Meeting: 21/03/2005

Copies to: File

Compiled by: Search Manager

Status: Approved

Approved for ESBI: Search Manager

Approved for Fingal County Council: Local Project Co-ordinator

Date: December 2005

The FCC Engineer and Inspector clarified that their areas of responsibility was approximately that area East of the N2.

The Engineer advised that the original Coastal Flooding Study (CFS), set up after extensive flooding of 1st February, 2002, had been extended to cover Malahide and Skerries. A 'Report on Flooding in Fingal' produced in-house in 2004 will be made available. Also report on Baldoyle Flood Relief Scheme.

- Copies (Black & white) of the following documents were received.
- A - Flooding in North County on 20th & 21st Oct'02 (internal report)
 - B - Report on Flooding in North County Dublin November 14th & 15th, 2002, Area Engineer (internal report)
 - C - Flooding on Friday 1st February, 2002 Lunchtime (internal memo)
 - D - Flash Flooding on Friday 17th May 2002 (internal Note)
 - E - Key Areas of Flooding, September 2001 (internal note)

Also 2 colour copies of scanned photos of flooding at Rogerstown, near Rush

A 1:50.000 map showing the relevant area of Fingal was used to mark those areas, identified by the Area Engineer and Inspector, as prone to flooding. The following summarises those areas identified:-

1. Howth (near Dart Stn.) (Flood ID Nos 1456, 2166)
 The road is susceptible to flooding due to a combination of high tides and surface runoff from Howth Hill. Road flooding. The 'Bloody Stream' Pub, which is located under Dart Station, was flooded in November 2002. Insufficient culvert capacity is cause. . (Ref. Report on Flooding in Fingal, 2004).
2. Sutton – Greenfields Road (Flood ID No 1461, 1729)
 Flooding of road due to tidal conditions. Surface water outlets blocked by tidal deposits (ref. Coastal Flooding Study)
3. Baldoyle
 A. Flooding of coast road due to tidal conditions. (ref. Coastal Flooding Study) (Flood ID No 1462)
 B. Flooding due to incapacity of Mayne River Bridge during high tides. Flood Relief Scheme completed in 2001 (ref. Baldoyle Flood Relief Scheme Report.) (Flood ID No 1463)
4. Sluice River – Portmarnock
 A. Flooding at Portmarnock Bridge due to combination of high tides and high river flow. (ref. CFS). Road raised by 380mm in 2004. This should rectify problem. (Flood ID No 1613)
 B. Flooding on Kinsealy Lane due to overbank river flow. Houses with flood barriers. (ref. Report (A) Flooding in North County on 20th & 21st Oct '02) (Flood ID No 1616)
5. Seabank (Estate) Court, Malahide (Flood ID No 1617)
 High tides and heavy rain cause flooding around a number of houses in this area. Old Surface Water System replaced in 2004. This should rectify problem. (ref. Report (A) & Report (B))
6. Bisset Strand & Estuary Road, Malahide (Flood ID No 1618)
 Regular tidal flooding. Tidal flooding a few times a year. No houses effected but road impassable. (ref. CFS)





7. North Street, Swords (Flood ID No 1630)
Ward River overflows its banks (Nov 2002 only), (ref Report (B))
8. Pinnock Hill, Swords (Flood ID No 1459, 1468)
Flooding of N1 near 'Little Chef' Restaurant due to surface water drainage problems. Due to under capacity of surface water pipes. Impassable once (October 2002)
(ref. Report on Flooding in Fingal, 2004, Report (B))
9. Ballisk, Donabate (Flood ID No 1709, 1457)
Surface water flooding of road under Railway Bridge. Remedial works carried out in 2004.
(ref. Report on Flooding in Fingal, 2004, Report (B))
10. Rogerstown, near Rush (Flood ID No 1458)
Tidal flooding of road at this location. High tides flood road. Remedial works planned.
(ref. CFS)
11. Holmpatrick, Skerries (Flood ID No 1619)
Tidal flooding of up to 10 houses in 2002. Gardens flooded on a number of occasions (ref. CFS)
12. M50 fly over (N1 road) old Airport Road (Flood ID No 1620, 2178, 2180)
Stream floods road at this location fairly frequently. Remedial works carried out in 2004.
13. Ballyboughal, on Naul Road (Flood ID No 1621)
Flooding of road and 1 house in November 2002.
14. Rush
 - a. At Spout Hill on Lusk to Rush Road. Remedial works carried out in 2003/2004. (Flood ID No 1622)
 - b. At Whitestown road floods following heavy rain. (Flood ID No 1623)
15. Rush – Skerries Road (Flood ID No 1624)
Brooke Stream floods road making it impassable.
16. Spout Road Rogerstown/Rush (South of Spout Hill). (Flood ID No 2173)
Tidal gate too small. Road flooding Tidal flooding of road annually. See photos. (ref. Report on Flooding in Fingal, 2004)
17. The Burrow, Portrane (Flood ID No 1628)
Tidal Flooding of road and houses. (ref CFS)
18. Millers Lane, Skerries (Flood ID No 1629)
Brooke Stream causes flooding of road when heavy rain coincides with high tides.

REPORT ON FLOODING IN FINGAL COUNTY

NOVEMBER 2004

Prepared by:

Water Services Department – Drainage Operations Section.



Item 3: The Bloody Stream Pub / Techcrete Yard, Howth

3.1 The Bloody Stream Pub.

Flooding has periodically occurred at The Bloody Stream Pub since the conversion of part of the train station into a pub almost ten years ago. The main problem is that surface water from a number of streams from the hill of Howth is unable to make a clear path to the sea. The following are problems associated with flooding of the pub:

1. The exact location of sections of the "Bloody Stream Culvert" is unclear and it is tidal which causes it to become blocked with heavy silts. A manhole on this culvert has overflowed in the past and flooded the pub.
2. A surface water screen to the south of the St. Laurence Hotel becomes blocked and surface water overflows onto a lane which runs down to area of the pub.
3. A number of surface water outfalls in Techcrete Yard are either blocked or have an unknown location (see below).

The above causes the public road and pub to become flooded. The pub has been flooded under a number of feet of water on at least two occasions in the last three years. On each of these occasions the owner has carried out a total refurbishment of the pub at great expense. The construction of a manhole near the front door of the pub appears to have exacerbated the flooding problem.

On the 18th August the screen on a stream, behind St. Laurence Hotel (see attached layout) became continuously blocked resulting in surface water flooding the public road in front of the pub.

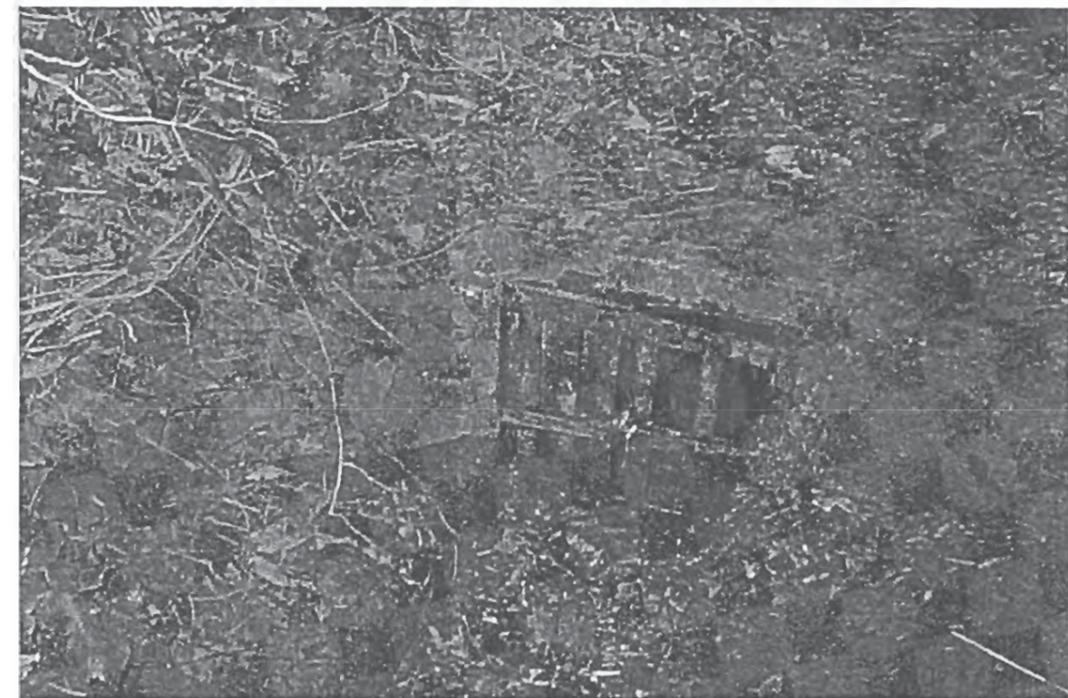
3.2 Techcrete Yard.

Flooding occurs in Techcrete Yard due to the surface water outfalls being restricted. The actual layout at this location is unclear. Due to the restricted at the outfalls, flooding occurs around Techcrete Yard and also on the Howth Road. When it overflows on the Howth Road it flows towards the Bloody Stream Pub, thus contributing to that problem.

Attached are photos of flooding outside Techcrete and of the screen behind St. Laurence Hotel



Howth Road (Outside Techcrete Ltd) Looking into Howth.



Screen behind St. Laurence Hotel, Howth.

4.2 Pumping Station No.1, Donabate.

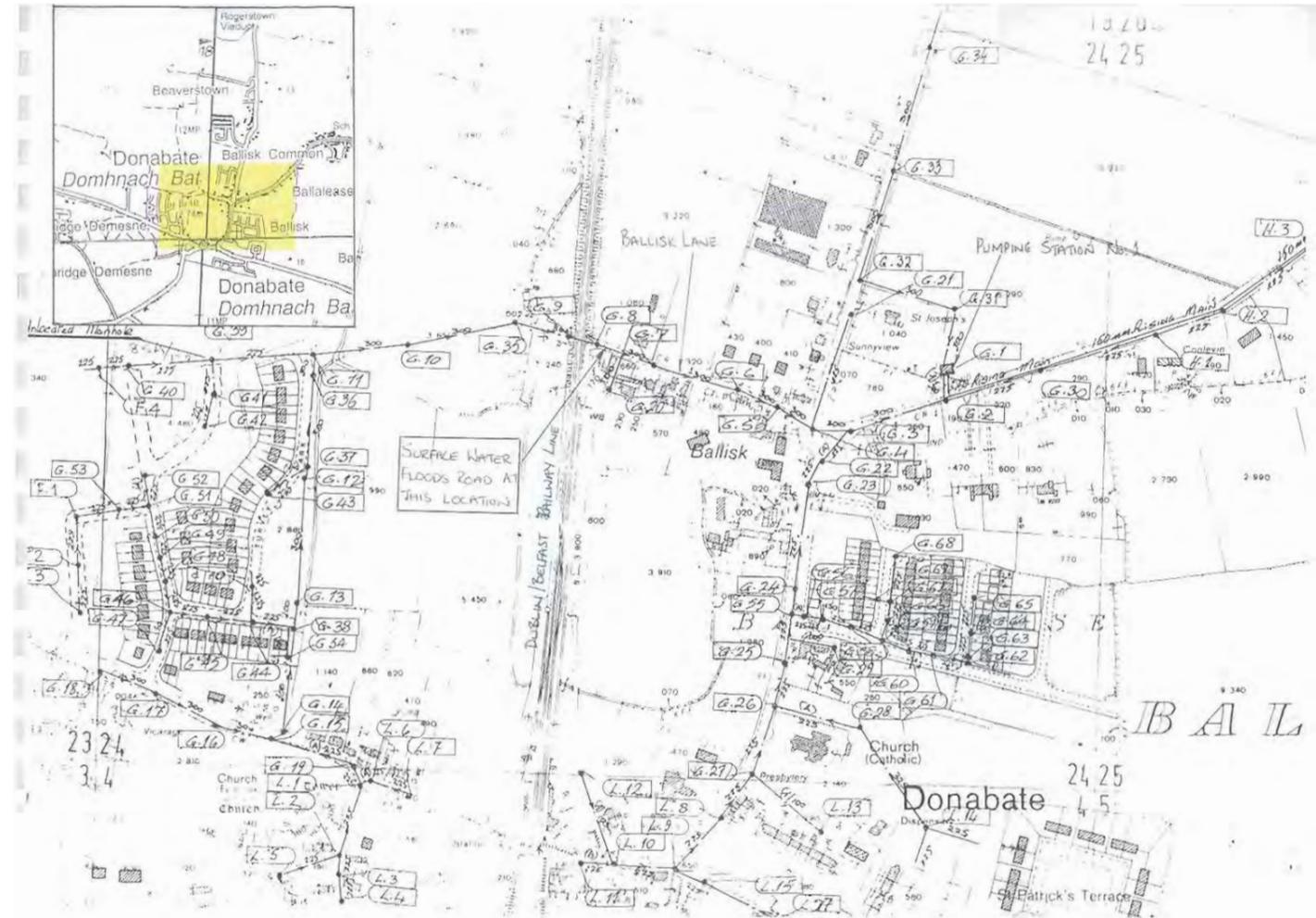
4.3 Ballisk Lane, Donabate.

Surface water floods the public road under the railway line on Ballisk Lane in times of heavy rain. This in turn floods the 300mm diameter foul sewer on the lane and the foul sewer floods around properties in the vicinity.

Below is an historical photograph of previous flooding, on this occasion the drainage section provided a temporary release of the floodwater into an adjacent watercourse.



Historical Photo: Flooding on 14th & 15th Nov, 2002

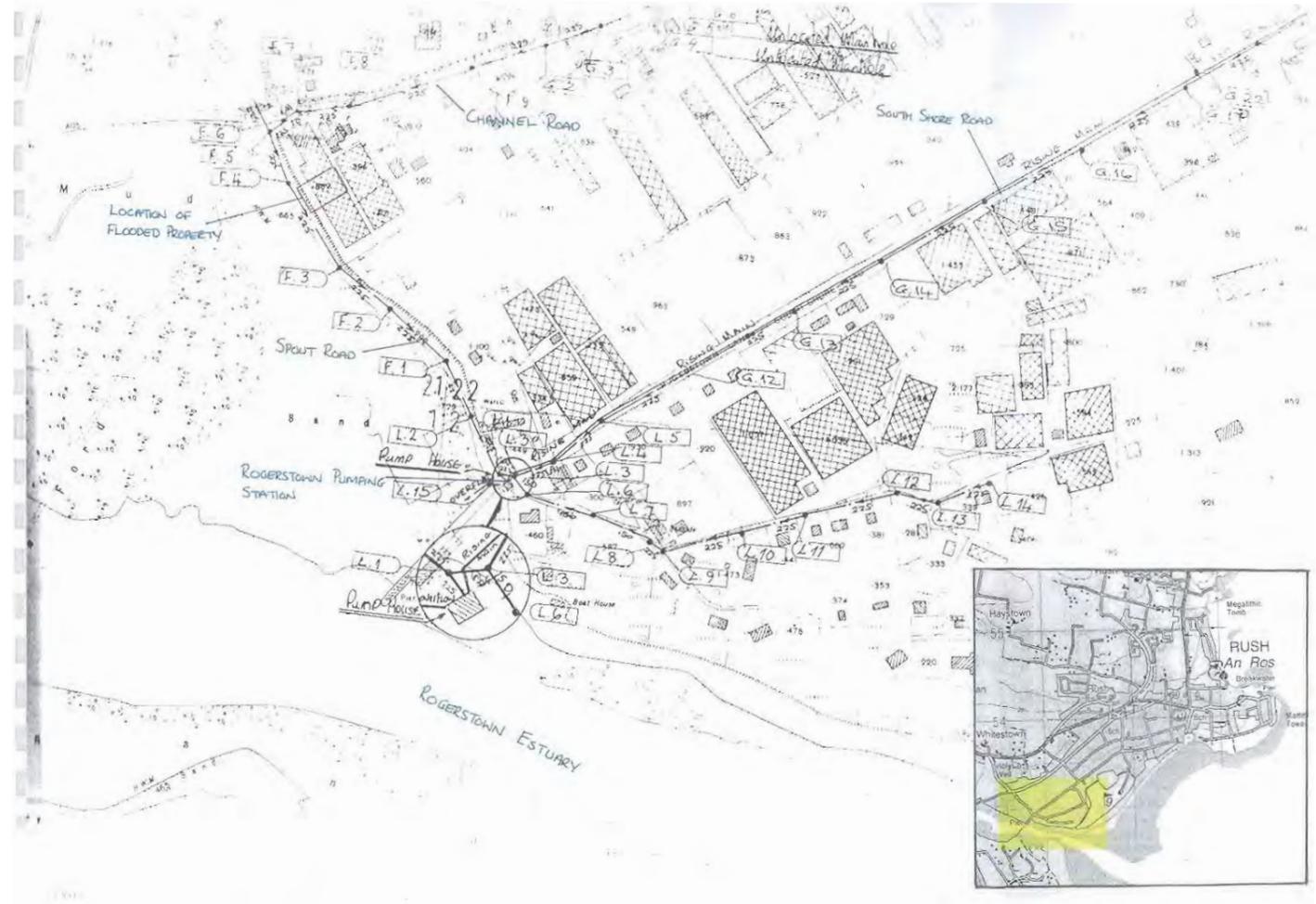


Item 14: Rogerstown, Rush

Flooding occurred as a result of foul sewer overflowing AJ's around a property on Spout Road. Their may be a number of reasons for this:

1. The Spout Road became flooded and this causes the foul sewer to become flooded (surface water entering foul sewer via manholes on the road).
2. Large quantities of surface water entering the foul sewer network in the South Rush area.
3. Their may be a hydraulic/gradient problem on the section of foul sewer from Channel Road to Spout Road which will require investigation.

During the flooding of the 18th August the overflow at the Rogerstown Pumping Station was continually in operation, i.e. duty and assist pumps in station could not manage incoming flow.



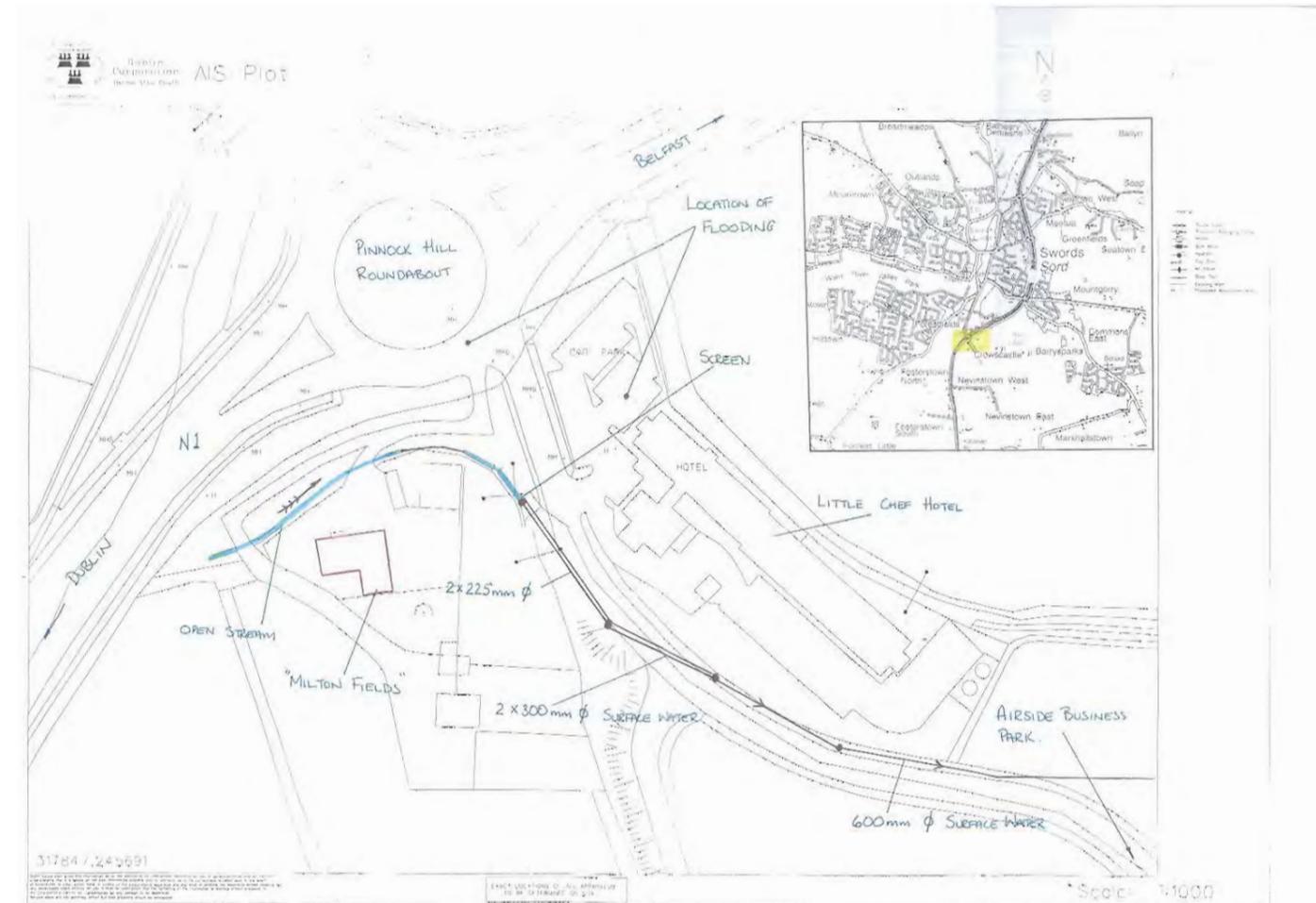
Item 17: Pinnock Hill, Swords.

A stream flows through a property opposite the Little Chef Hotel ("Milton Fields"). In these grounds the stream changes into a 450mm diameter pipe and back into an open stream (see attached drawing). It then enters 2 x 225mm diameter surface water pipes and then 2x300mm pipe where it crosses the main road into Airside Business Park. At this point the pipe changes to a 600mm-diameter pipe. From this, it can be seen that the cross sectional area of the pipe work decreases in area over this section.

In times of very heavy rainfall the screen overflows and results in the flooding of the Little Chef Hotel. To prevent this occurring Council staff and emergency services divert the flow prior to the screen onto the N1 (see attached photo), this in turn floods the roundabout.

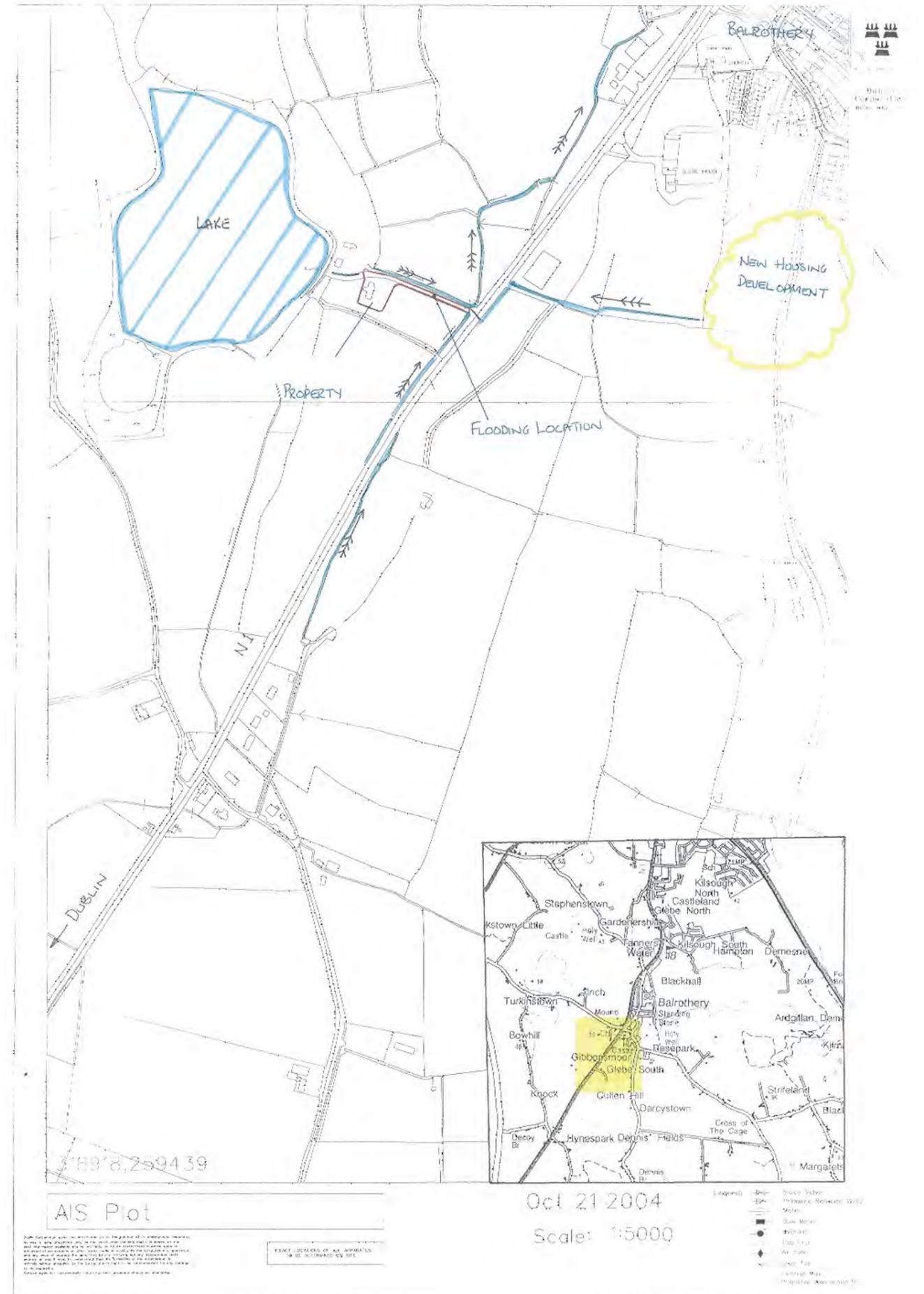


Flooding at N1 Pinnock Hill, Swords



Item 20: Dublin Road, Balbriggan.

This location has consistently flooded regularly over the last number of years. A number of watercourses meet at one location at the entrance to a property. This location floods as a result of the downstream section becoming restricted and the increased flow from upstream.



August 2004

Report on Flooding in North County Dublin
November 14th & 15th, 2002

Weather Conditions:

Met Eireann issued a weather warning with the following:

- Up to 50mm of rainfall from Thurs 14th – Fri 15th Nov, 2002.

Drainage Areas Affected by Surface Water:

Swords Area

1) North Street:

At approximately 11:30pm on Thursday night The Ward River overflowed into the park adjacent to North Street and flooded the Road between North St. and Watery Lane.

The flooding of the premises occurred instantly and although the Drainage Section were present on Thursday night, but could not prevent the flooding occurring. On Friday morning a crew pumped the water from the road to the river and unblocked the road gullies.

Flooding in Estuary Pub & two other premises.



Flooding at North Street/Watery Lane, Swords.

2) Pinnock Hill:

The surface water screens in [redacted] property are unable to take the volume of surface water and overflowed (see Area Engineer report 10/2/01), this in turn floods the Little Chef. In order to prevent flooding of Little Chef the surface water was diverted on to Dublin/Belfast Road.

3) Santry Close:

The culvert on the Santry River at the Old Swords Road was unable to take the quantity of water in the river and overflowed. It flowed from the Old Swords Road into Santry Close, which was under one and a half feet of water.

The Drainage Section provided a 6" Whispa pump and hoses to Santry Close at approximately 8:30pm on Thursday. The Roads Section provided a crew to man the pump.

1No. house flooded internally, flooding in grounds of several houses.

4) Ballyboughal Road:

A stream runs through a new Golf course adjacent to the Ballyboughil Road. The culvert under the road was unable to cater for the volumes of water and flooded the main road, which in turn caused flooded around 1No. house.

5) *Dubber Cross, Meakestown:*

The ditch adjacent to the pump station overflowed into the station. The volume of water in the ditch was unable to flow through the pipes under the road. The Drainage Section had a gully sucker to reduce the level in the ditch.

Donabate/Portrane/Rush Areas

1) Portrane Treatment Plant:

The Treatment Plant in Portrane was unable to take the large quantities of material from Donabate/Portrane catchment. Pumping Station No.4, which comes from the hospital was shut off and put into overflow.



S.W. flooding at Railway in Ballisk.

2) Ballisk, Donabate:

Surface water floods the road under the main Dublin-Belfast railway line. The S.W. is overflowing from ditch onto the road and also causes the foul sewer to surcharge. The Drainage Section cut an open channel from the road to a dry ditch, with a J.C.B, which solved the problem. The drives of a number of houses were flooded and the use of toilets was not possible.

3) Hearst Road, Donabate:

There was major flooding on the Hearst Road.

4No. houses on Hearst Road, flooded.

4) Beaverstown:

A large number of fields in the Beaverstown Area were flooded due to the heavy rains.

5) Rush:

Road Flooding

- Spout Road: Very bad flooding; Impassible.
- Whitestown Road at Graveyard: Very bad flooding.
- Skerries Road: Very bad flooding; Impassible.
- Lusk-Rush Road: Very bad flooding; Impassible.
- Ministers Lane/Killhedge Lane: Very bad flooding; Impassible.

Malohide Area

1) Coast Road:

The foul sewer on St. James Terrace and Coast Road was surcharged, which caused F.S. flooding around shop & a number of houses in Seabank Court. The Drainage Section provided a 4" pump at St. James Terrace to pump F.S. from system to sea, to reduce pressure on system. A clean-up was carried out at Seabank Court.

Howth Area

1) The Bloody Stream:

The surface water culvert at the Bloody Stream Pub was surcharged and was in danger of flooding the pub. The Drainage Section provided a 6" pump to keep the level in the culvert down.

Balbriggan Area

1) Covetown:

The foul sewer on Drogheda Street became surcharged and caused F.S. flooding on the roads and drives of Covetown. The overflow on the foul sewer at the Stream at St. Moliga's National School was in full operation. The F.S. was close to overflowing in the toilet of house opposite National School.

2) Bath Road:

There was surface water flooding in the vicinity of the Railway bridge on Bath Road. The S.W. drainage was unable to take the water away.

Skerries Area

1) Millers Lane:

Millers Lane was closed due to surface water flooding. The foul sewer became surcharged, but it is not known if this is as a direct result of the road flooding. In the past No.2 Millers Lane was flooded with F.S. when the main sewer became surcharged, but it did not occur on this occasion as a result of network improvements by the Drainage Section. The Drainage Section had a J.C.B. removing pond weed from the Mill Stream and clearing the outfall on the beach.

Drainage Operations on Thursday 14th November

Staff:

8:30am – 5:00pm 8No. Drainage Maintenance crew

8:30am – 12:00am 4No. Drainage Maintenance Crew
7No. Direct Labour Crew

8:30am – 3:00am 2No. Drainage Maintenance Crew

8:30am – 4:00am 3No. Drainage Maintenance Crew

Works:

1. Sewer Crew Clearing blockages & chokes
2. Crew Delivering sandbags & clearing screens
3. Crew Delivering sandbags & clearing screens
4. Crew With 6" pump at The Bloody Stream, Howth
5. Crew Filling Sandbags
6. Gullysucker Dubber Cross Pumping Station
7. Jetter Forest Road, Swords; Portrane
8. J.C.B.'s No.1 North County clearing outfalls, culverts.
No.2 South County clearing outfalls, culverts & screens.
No.3 Filling sandbags in Depot.

Drainage Operations on Friday 15th November

Staff:

Not at work (worked late Thursday) 5No. Drainage Maintenance

8:30am – 3:00pm 6No. Drainage Maintenance crew

4:00am – 4:00pm 2No. Drainage Maintenance crew

8:30am – 12:00pm 5No. Drainage Maintenance crew

8:30am – 6:00pm 6No. Direct Labour Crew

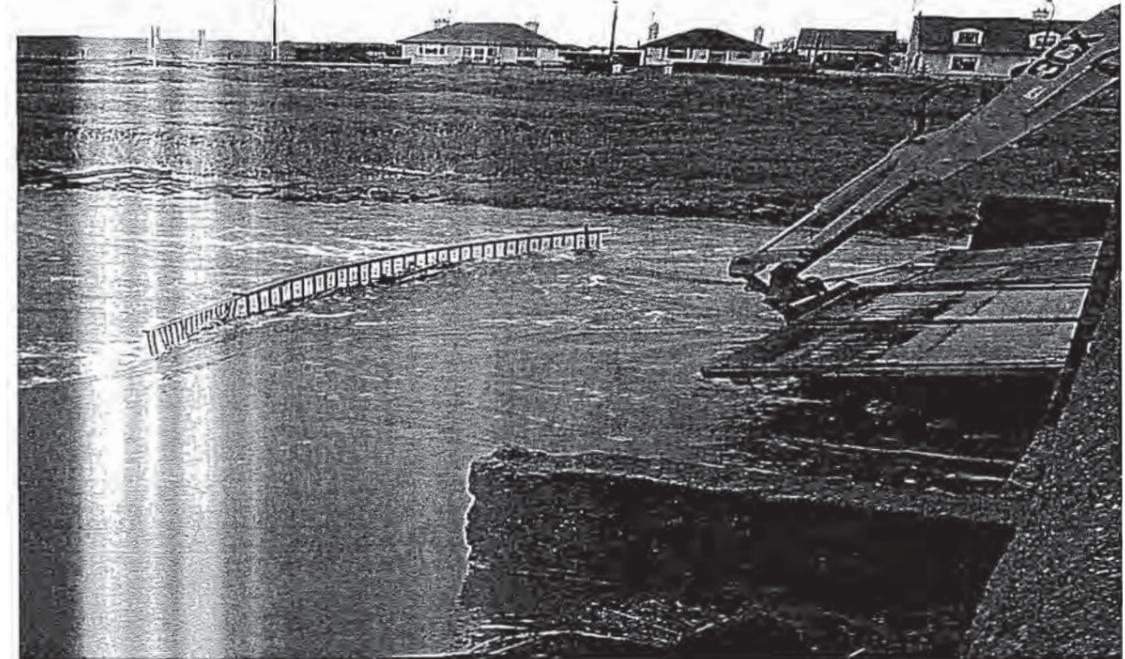
8:30am – 12:00am 1No. Direct Labour Crew

3:00pm – 12:00am 2No. Environment Section

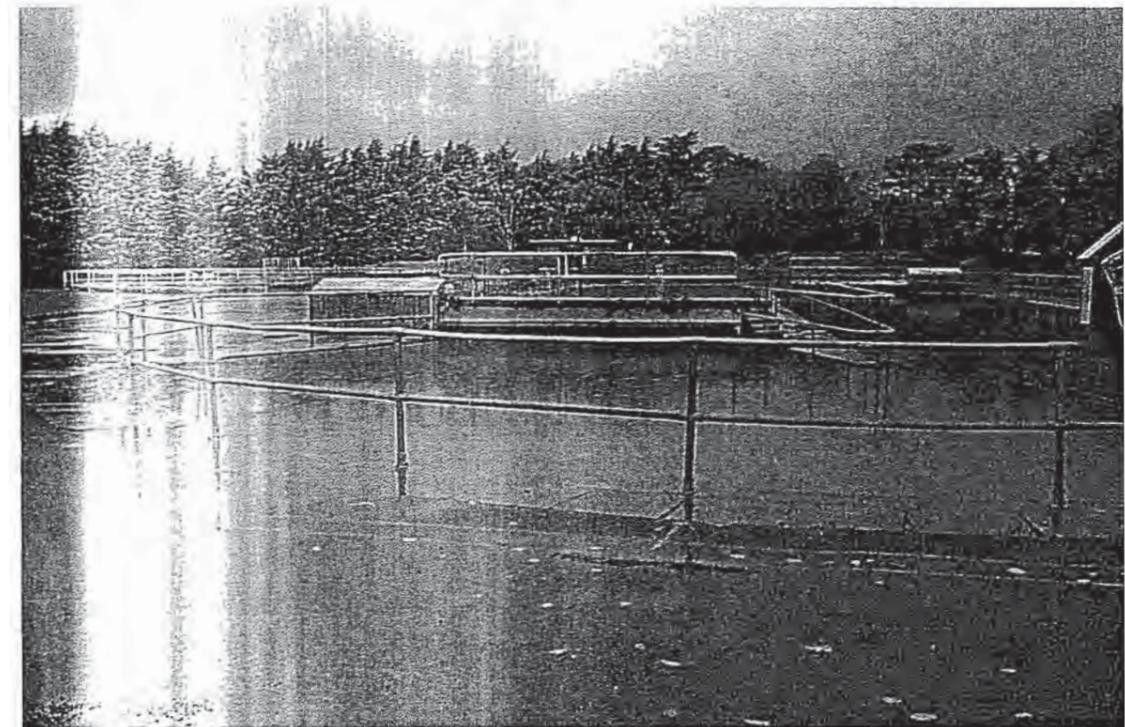
Work:

1. Sewer Crew Clearing blockages & chokes
2. Crew Clearing screens & clean-ups
3. Crew With 6" pump at The Bloody Stream, Howth
4. Crew 4" pump at Estuary Pub, North Street.
5. Crew Delivering sandbags
6. Crew Filling sandbags
7. Jetter Main sewer chokes
8. J.C.B. No.1 Portmarnock Bridge Sluice Gates
No.2 Clearing outfalls

Photographs of Flooding Areas



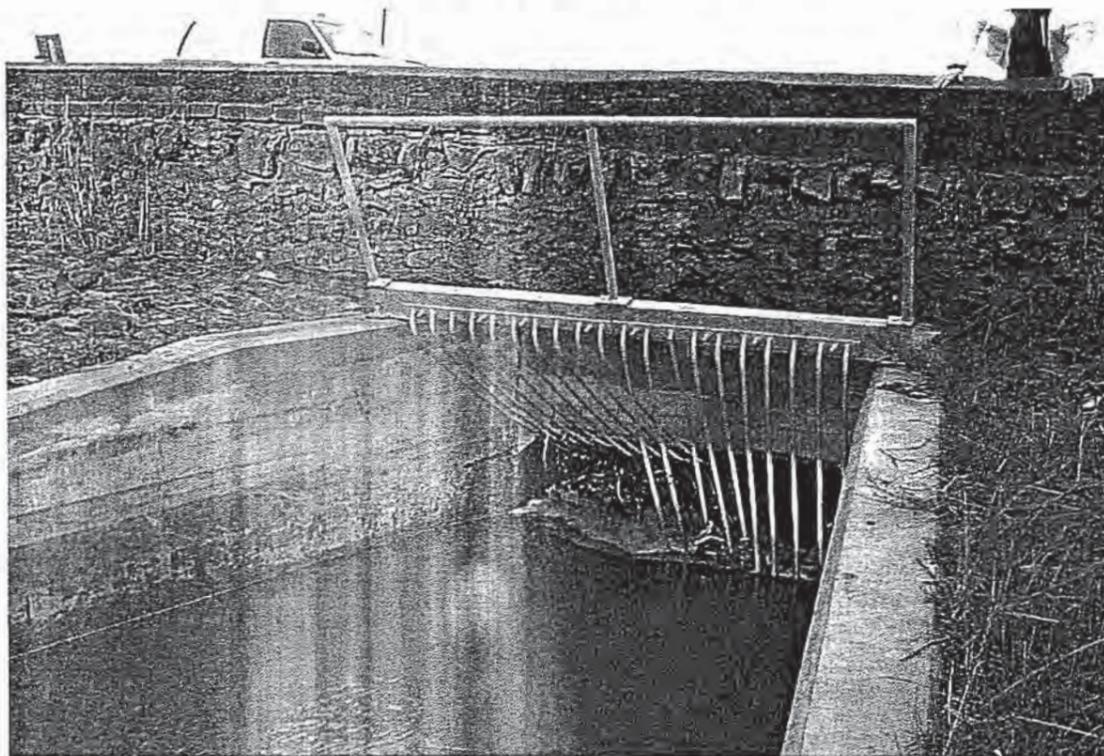
Sluice Gates at Portmarnock Bridge



Flooding of Ditch in Portrane Treatment Plant



Surcharging of Foul Sewer on Kinsaley Lane



Damaged Second Screen at Moyne Bridge

Donabate

Appendix 5

SUDS Strategy

**Comhairle Contae
Fhine Gall**
Fingal County
Council



SuDS Strategy for the Donabate Local Area Plan 2016-2022



Issue 6 – Final
April 2016

Client:
Fingal County Council
County Hall
Main Street
Swords
Co. Dublin

Consulting Engineer:
Roughan & O'Donovan
Arena House
Arena Road
Sandyford
Dublin 18

SuDS Strategy for the Donabate Local Area Plan 2016-2022

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1. INTRODUCTION

1.1 Commission

Roughan & O'Donovan Consulting Engineers (ROD) were commissioned by Fingal County Council (FCC) to develop a Sustainable Urban Drainage Systems (SuDS) Strategy for the proposed Donabate Local Area Plan (LAP) 2016 - 2022. The LAP will set out the local land use and planning policy for the Donabate area and provide a strategy for the planning and sustainable development of the Area.

1.2 Scope

The scope of this report is as follows:

- Review of existing surface water and foul drainage network in respect of SuDS for current situation, future scenario with all live planning permissions built and with all proposed development and infrastructure in place as set out in both Fingal Development Plan 2011-2017 and the proposals in the Donabate LAP 2016-2022 currently being developed.
- Prepare a SuDS Strategy with recommendations regarding appropriate SuDS systems and devices for the implementation of the SuDS strategy for all proposed development and Planning Permission applications and development as determined by the Donabate LAP 2016-2022 currently being developed, including maps showing possible layout, locations and sizing of proposed recommended SuDS devices and/or systems
- Incorporate the effects of Climate Change, groundwater and the existing surface water drainage system into the SuDS Strategy
- Determine the effects on and of flooding, groundwater and surface water drainage system in the LAP area due to the incorporation of the SuDS Strategy
- Provide an assessment on the attenuation requirements needed and identify the regional attenuation structures necessary for the LAP area
- Provide information gathered or generated from the Flood Risk Identifications and Assessments, by liaising and attending meetings with Consultants completing the Strategic Environmental Assessment (SEA) and Flood Risk Assessment (FRA) for the Donabate LAP.

1.3 Study Area

1.3.1 Overview

Donabate is located in North County Dublin approximately 2.7km east of the M1 motorway and 1.8km from the Irish Sea. The study area primarily consists of the urban centre of Donabate with farmland to the east and south. The existing R126 regional road connects Donabate to the M1 to the west and Portlaine to the east. The town is bisected in the north south direction by the Dublin – Belfast railway line. The Donabate LAP lands are divided into 4 no. areas covering approximately 138 hectares. *Refer to Drawing 001 below.*

The topography of the study area has been examined from the LiDAR and contour mapping provided by FCC. The topography of the peninsula is generally flat and low lying with two ridges running east to west, one to the north and one to the south of Donabate.

1.3.2 Catchment Description

The LAP study area lies between the Rogerstown Estuary to the north and the Malahide Estuary to the south. The study area is drained by a combination of watercourses and surface water drainage networks. *Refer to Drawing 002 below.*

The primary watercourse in the study area is the Beaverstown Stream flowing from the centre of Donabate Village to the Rogerstown Estuary approximately 750m to the North West. The catchment area of this stream is approximately 274 Ha with a main channel length of approximately 1.5km (Catchment 5). The majority of the surface water drainage network serving Donabate outfalls to this stream. Due to the low lying topography of the study area pumping of this watercourse is required to lift the gravity fed surface water to higher channels before draining to the Rogerstown Estuary. A pumping station is located on the Beaverstown Stream, immediately east of the railway.

The Turvey stream flows along the southern boundary of the study area before outfalling to the Malahide Estuary. The catchment area of the river is approximately 13km² with a main channel length of approximately 9.6km (Catchment 2). The agricultural lands in the south-western section of the LAP study area drain to this river.

The Portrane Canal has a catchment area of approximately 70 Ha and drains mainly agricultural lands (Catchment 4). The canal has a main channel length of 890m and outfalls to the Rogerstown Estuary approximately 850m north east of Donabate Village.

There are a series of drainage ditches which flow through Donabate Golf Club and Balcarrick Golf Club draining the eastern section of the LAP study area which outfall to the Malahide Estuary approximately 1.7km southeast of Donabate Village (Catchment 1).

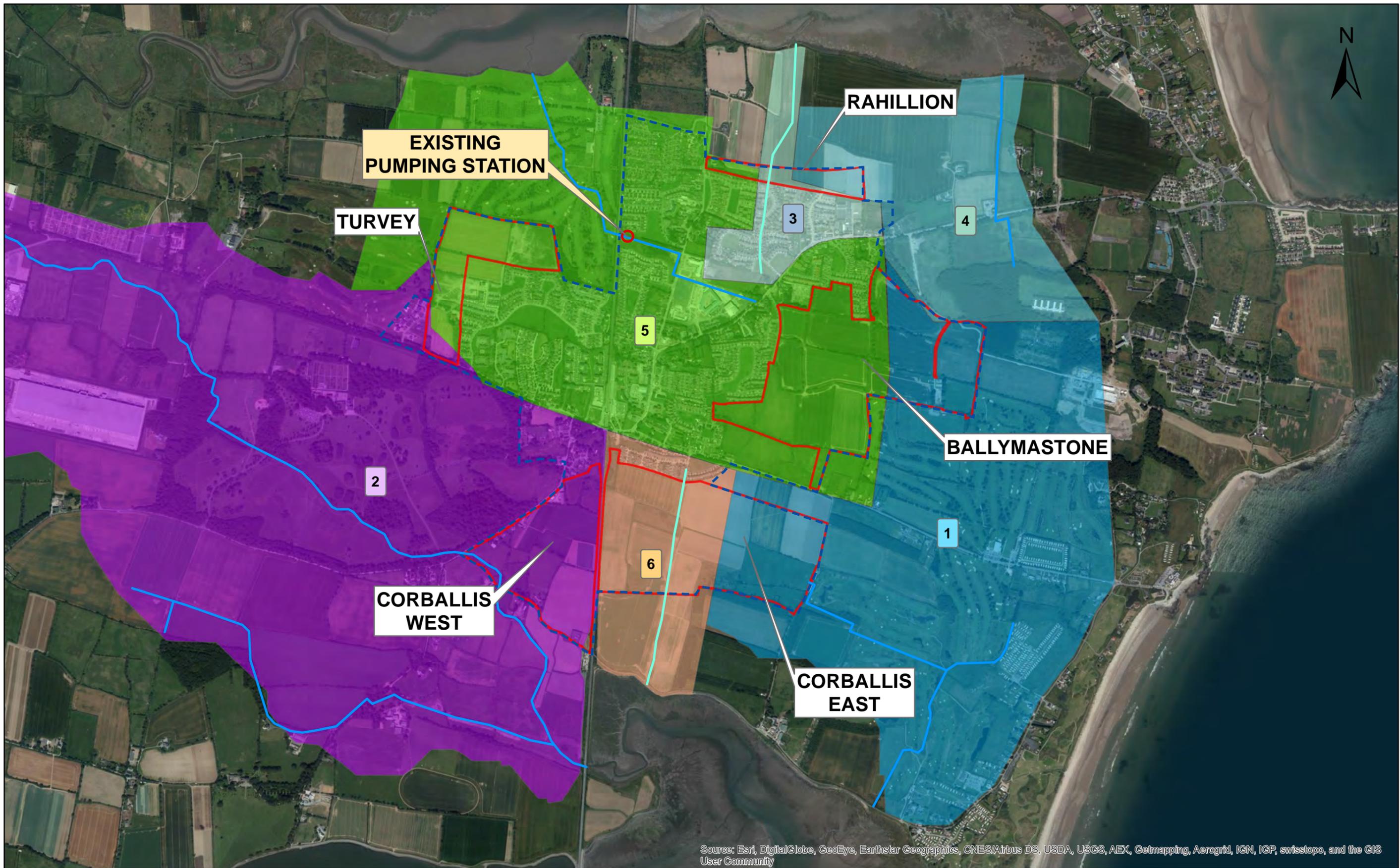
There are two surface water drainage networks from Donabate Village outfalling directly to the Rogerstown and Malahide Estuaries respectively. A 1350mm diameter pipe which conveys the surface water runoff from the north eastern section of Donabate Village outfalls to the Rogerstown Estuary approximately 650m north of Donabate (Catchment 3). A 450mm diameter pipe, draining The Strand on the southern boundary of the village outfalls to the Malahide Estuary approximately 935m to the south (Catchment 6).

1.3.3 Environment

There are no Natura 2000 sites located within the study area; however the Natura 2000 sites adjacent to the study area are listed below:

- Rogerstown Estuary Special Protection Area (SPA)
- Rogerstown Estuary Proposed Natural Heritage Area
- Rogerstown Estuary Special Area of Conservation (SAC)
- Malahide Estuary SPA
- Malahide Estuary Proposed Natural Heritage Area
- Malahide Estuary SAC

Under Article 6(3) of the EU Habitats Directive, an “appropriate assessment” (AA) is required where any plan or project, either alone or ‘in combination’ with other plans or projects, could have an adverse effect on the integrity of a Natura 2000 site. Therefore, the management of flood risk within the LAP study area must have regard to potential negative impacts to this environment.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Legend

- Pumping station
- Watercourses
- Surface Water Sewer
- LAP LANDS
- STUDY AREA

Catchment:

- 1. BALLALEASE STREAM
- 2. TURVEY RIVER
- 3. 1350 mm ø SURFACE WATER SEWER
- 4. PORTRANE CANAL
- 5. BEAVERSTOWN STREAM
- 6. 450 mm ø SURFACE WATER SEWER

No.	Revision	Date	By	Chk'd	App'd

Stage	Date	Approved By
PRELIMINARY		
CERTIFICATION		
CONSTRUCTION		
AS BUILT		

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Designed: CJ Checked: JPR Approved: SMG Status:

DONABATE LOCAL AREA PLAN 2016-2022 FLOOD RISK ASSESSMENT			
CATCHMENT AREAS			
Date: January 2015	Job No: 14.218	Drawing No: 002	Rev:
Scale: 1:15,000 @ A3	Drawn: MM		

1.4 Proposed Development

The LAP study area is split into five main zoning objectives in the Fingal Development Plan 2011 – 2017 and these are summarised in Table 1.1 below. The Donabate/Portrane zoning map is reproduced in Drawing 004 below.

Table 1.1 Donabate Zoning Objectives

Objective	Description	Area
TC	Protect and enhance the special physical and social character of town and district centres and provide and/or improve urban facilities	Donabate village centre
RS	Provide for residential development and protect and improve residential amenity	Existing residential areas
RA	Provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure	Rahillion, Turvey, Ballymastone & Corballis LAP Areas
OS	Preserve and provide for open space and recreational amenities	Open space and Amenity on the Peninsula
CI	Provide for and protect civic, religious, community, education, health care and social infrastructure.	Schools adjacent to Beaverstown Road and St. Patrick's National Schools on Portrane Road, Community Centre

2. SUDS OVERVIEW

2.1 Introduction

Sustainable Drainage Systems (SuDS) are surface water drainage systems designed with a focus on sustainable development. The purpose of SuDS is to, as best as possible, replicate the natural drainage system prior to the development taking place. The three main objectives of SuDS are to:

- minimise the impacts of the development on quantity of run off;
- minimise the impacts of the development on quality of run off;
- maximise the amenity and biodiversity opportunities.

2.2 SuDS Objectives

2.2.1 Quantity Control Processes

Several techniques can be implemented to control the quantity of runoff from a development. Each technique presents different opportunities for stormwater control, flood risk management, water conservation and groundwater recharge.

- a) Infiltration
 - Soaking of water into the ground
 - Most desirable solution to runoff management as it restores the natural hydrologic process
 - Impacted by groundwater vulnerability and infiltration ability of subsoil
- b) Detention / Attenuation
 - Slows down surface water flows before their transfer downstream
 - Usually achieved through use of a storage volume and constrained outlet
 - Can be above/below ground
 - Reduces peak flow rate but total volume of runoff remains the same
- c) Conveyance
 - Transfer of surface runoff from one place to another
 - Through open channels/pipes/trenches
 - Transfer essential for managing flows and linking SuDS components
 - Uncontrolled conveyance to a point of discharge in the environment not considered sustainable
- d) Water Harvesting
 - Direct capture and use of runoff on site for domestic or irrigation
 - Contribution to Flood Risk Management depends on scale of system

2.2.2 Quality Control Processes

A number of natural water quality treatment processes can be exploited within SuDS design. Different processes will predominate for each SuDS technique and will be present at different stages in the treatment train (*Refer to Section 2.3*).

- a) Sedimentation – reducing flow velocities to a level at which the sediment particles fall out of suspension;
- b) Filtration & Biofiltration – trapping pollutants within the soil or aggregate matrix, on plants or on geotextile layers;
- c) Adsorption – pollutants attach or bind to the surface of soil or aggregate particles;

- d) Biodegradation – Microbial communities in the ground degrade organic pollutants such as oils and grease;
- e) Volatilisation – transfer of a compound from solution in water to the soil atmosphere and then to the general atmosphere;
- f) Precipitation – transform dissolved constituents to form a suspension of particles of insoluble precipitates;
- g) Plant Uptake – removal of nutrients from water by plants in ponds and wetland;
- h) Nitrification – Ammonia and ammonium ions can be oxidised by bacteria in the ground to form nitrate which readily used as a nutrient by plants;
- i) Photolysis – The breakdown of organic pollutants by exposure to ultraviolet light.

2.2.3 Amenity & Biodiversity Processes

SuDS provides opportunities to create attractive landscaping features which offer a variety of amenity, biodiversity and recreational benefits. The following are the main SuDS components offering aesthetic, amenity and ecological benefits (*Refer to Chapter 5 for details on each technique*)

Primary Processes:

- a) Ponds
- b) Wetlands
- c) Green Roofs
- d) Bioretention Areas

Benefits subject to design:

- a) Filter Strips
- b) Swales
- c) Detention Basins
- d) Infiltration Basins

2.3 SuDS Techniques

In addition to the objectives above, in order to replicate the natural drainage system, a 'Management Train' is required. The Management Train sets a hierarchy of SuDS techniques which should be implemented in series as follows:

- (i) Prevention – prevent runoff and pollution
- (ii) Source Control – control runoff at or close to the source
- (iii) Site Control – management of surface water in the site/local area
- (iv) Regional Control – management of surface water from a number of sites together

Various SuDS components have different capabilities regarding the objectives outlined above and are more suited to certain stages of the Management Train. The principle of the Management Train is that wherever possible, surface water should be managed locally in small, sub-catchments rather than being conveyed to and managed in large systems further down the catchment. Table 2.1 below contains examples of SuDS techniques for Source, Site and Regional controls. (*Refer to Chapter 5 for details on each technique*).

Table 2.1 SuDS Techniques for Source, Site & Regional Control

Source Control	Site Control	Regional Control
Rainwater Harvesting	Permeable Paving	Detention Ponds
Green Roofs	Bioretention Strips	Retention Ponds
Permeable Paving	Infiltration Trenches	Wetlands
Bioretention Strips	Filter Drains	Infiltration Basins
Filter Drains	Filter Strips	Detention Basins
Infiltration Trenches	Swales	Petrol Interceptors*
Filter Strips	Sand Filters	
	Infiltration Basins	
	Detention Basins	
	Petrol Interceptors*	

*Use of Petrol Interceptors should be avoided except where the potential for hydrocarbons entering the surface water drainage network is particularly high. Treatment of surface water runoff should be provided through the use other SuDS techniques.

3. REVIEW OF EXISTING DRAINAGE NETWORK IN RESPECT OF SUDS

This section outlines the various SuDS techniques, existing and proposed in either live planning applications or development proposals, within the Donabate LAP area. Information has been gathered from a review of planning applications in Donabate, Fingal Development Plan 2011-2017 and preparatory work for the Donabate LAP 2016-2022. Development in Donabate is predominantly residential with the majority of construction occurring around the turn of the millennium and early 2000s. Implementation of SuDS techniques by Local Authorities typically only began following the publication of the Greater Dublin Strategic Drainage Strategy (GSDS) in 2005. Since that time, development in Donabate has been low with the construction of two new schools in Ballisk Common the only significant schemes to be constructed. Planning permission has been granted for 254 units in Donabate at Turvey (155 units) and Rahillion (99 units). Construction has recently commenced at Turvey. Refer to Drawing 102 below for Location Map of current and proposed developments in Donabate incorporating SuDS techniques.

3.1 Current Scenario

Table 3.1 Impact of Existing SuDS Techniques on Existing Drainage Network

Development	SuDS Techniques	Comment	Impact on Existing Network
Coláiste Pobail Domhnach Beathach	Permeable Paving	Permeable paving in parking and courtyard areas allowing partial infiltration of surface water to subsoil	Reduces potential runoff to existing network. Removal of potential urban pollutants
	Infiltration Trenches	Around perimeter of school allowing infiltration of surface water to subsoil	Reduces runoff rate, volume and pollutants entering drainage network
	Rainwater Harvesting	32m ³ rainwater storage for use in building	Reduces runoff volume entering surface water drainage network
	Surface Water Attenuation	Discharge to ditch limited by hydrobrake. Attenuation provided in pipes.	Prevents increase in peak flow rate in drainage network as a result of development
	Petrol Interceptor	Petrol interceptor located immediately upstream of outfall	Prevents hydrocarbons entering watercourse
Donabate Portrane Educate Together National School	Rainwater Harvesting	6m ³ rainwater storage for use in building	Reduces runoff volume entering surface water drainage network
	Surface Water Attenuation	Discharge to ditch limited by hydrobrake. Attenuation provided in 228m ³ surface water storage tank	Prevents increase in peak flow rate in drainage network as a result of development

3.2 Future Scenario – Live Planning Applications to September 2014 if Built

Table 3.2 Impact of SuDS Techniques in Live Planning Applications on Existing Drainage Network (i.e. planning permission already granted)

Development	SuDS Techniques	Comment	Impact on Existing Network
Beverton, Turvey 155 no. units	Surface Water Attenuation	Hydrobrakes at connection points to existing network. Attenuation provided in oversized pipes	Prevents increase in peak flow rate in drainage network as a result of development
Carr's Mill, Rahillion 99 no. units	Filtration Trenches	Filtration trenches in back gardens and adjacent to roadways, discharging to piped network	Reduces runoff rate, volume and pollutants entering drainage network
	Petrol Interceptor	Petrol interceptor located at final manhole	Prevents hydrocarbons entering existing drainage network

3.3 Future Scenario – Proposed Development and Infrastructure as per Fingal Development Plan 2011-2017 if Built

Proposals for Donabate in the Fingal Development Plan 2011-2017 include the following:

- Additional commercial, social and civic facilities within town centre
- Further development of recreational, community and educational facilities
- Pedestrian and cycleways linking residential areas/town centre/railway station
- Donabate Distributor Road (DDR)
- 138 Ha zoned for new residential development as part of the Donabate LAP 2016-2022

The primary impact on the existing surface water and foul drainage networks will be as a result of new residential development around the perimeter of Donabate. Integration of SuDS techniques within these new developments will be required to ensure that the capacity of the existing network is not exceeded and the quality of surface water runoff is not negatively impacted by the development.

Based on the existing surface water drainage network and topographic levels obtained from contour mapping provided by FCC, it is likely that the majority of the LAP lands will outfall to downstream ends of the existing surface water drainage network. Where the new surface water drainage network for the LAP lands is connecting to the existing surface water network in Donabate, the capacity of the existing network will need to be established at these locations and discharge from the developments limited to acceptable flow rates. The quality of any runoff from any new development will need to be such that the environmentally sensitive areas of Malahide and Rogerstown Estuary are not negatively affected.

4. SUDS SELECTION

4.1 Land Use

138 Ha of land within the LAP area are Zoned Objective RA – ‘Provide for New Residential Communities’. The majority of this land is currently used for agricultural purposes, namely grass and tillage farms. The RA zoned areas are split between 6 main sites outlined Table 4.1 below. Refer to Drawing 103 below showing lands zoned for residential communities..

Table 4.1 Areas Within LAP Zoned New Residential

Location	Size (ha)	Planning Status
Turvey	15.4	Planning granted for 155 dwellings on 6.84ha of site (F12A/0086).
Rahillion	5.5	Planning granted for 99 dwellings on 4.12ha of site (F14A/0033).
Ballymastone	50.1	No planning details known. Site bisected by proposed R132 relief road
Corballis East	43.1	No planning details known for site. Proposed DDR within site area
Corballis West	23.3	No planning details known for site. Proposed DDR within site area

4.2 Site Characteristics

Table 5.4 'Site Characteristics Selection Matrix; in the SuDS Manual (2007) outlines various site characteristics which influence SuDS techniques. The site characteristics have been obtained from a desktop study of LiDAR and Contour maps, Ordnance Survey maps and Geological Survey of Ireland (GSI) maps. *Refer to Appendix A for relevant maps.*

4.2.1 Soils

The soil in Donabate generally consists of Limestone Till and Gleys with some Aluvium in the flood plain of the Turvey River overlying Red coarse Sandstone and Conglomerate to the south and Argillaceous bioclastic limestone and shale to the north and west of the town. Results from trial pits in the town centre obtained from GSI records show that the depth to bedrock is greater than 2.0m. Localised ground investigation will need to be undertaken to determine the depth to bedrock at each development area. The aquifer vulnerability is typically classed as Low in the area. *Refer to Appendix A.*

4.2.2 Area Draining to SuDS Component

The 138 ha of LAP lands are split into 4 key areas (Turvey, Rahillion, Ballymastone and Corballis) as outlined in Table 4.1 above, ranging from 5.5ha to 50.1ha. The SuDS Manual (2007) states that areas >2ha should rarely drain to a single SuDS component. As such, a Management Train with various SuDS components will be required to effectively manage surface water runoff.

4.2.3 Minimum Depth to Water Table

Infiltration SuDS techniques require a minimum 1m depth of soil between the maximum water table level and the base of the device. The water table was not observed in any of the trial pits examined from GSI records which ranged between 1.8 and 2.3m deep, however these trial pits were located close to the centre of Donabate Village. Localised ground investigation will need to be undertaken to determine the depth to groundwater at each development area. Based on the proximity of the proposed development areas to the coast, it is unlikely that infiltration techniques will be suitable for these areas. *Refer to Appendix A.*

4.2.4 Site Slope

The slope of the land within the LAP Area is typically quite shallow. There is a local depression in the centre of the village and an east-west ridge at the boundary of existing developed lands to the south. The majority of the LAP area has gentle slopes less than 5% towards the coastline.

In steeper sections, swales can be routed along contours to reduce the effective gradient. Ponds and basins should not be located in areas with slopes >5%.

4.2.5 Available Head

Based on existing levels in the proposed development areas, available head is unlikely to be an issue for any SuDS solutions.

4.2.6 Available Space

Given the large areas and proposed housing density of lands to the south and east of Donabate, there should be significant available space for SuDS features. The central, western and northern sites are significantly smaller in size, however adjacent lands zoned for 'Active Open Space' and 'Conservation, Amenity, Buffer Space, Corridor/Belt, Landscape' could be used for regional controls in addition to source and site controls located within the zoned lands, if acceptable to the Local Authority.

4.3 Catchment Characteristics

4.3.1 Freshwater Fisheries, Sites with an Ecological Designation e.g. SPAs, SACs

The Malahide and Rogerstown Estuaries are designated Special Areas of Conservation. In order to protect these environmentally sensitive areas, it will be necessary to provide a combination of source controls, site controls and regional controls as part of the surface water drainage system to ensure high water quality from runoff into these areas.

4.3.2 Aquifers used for Public Water Supply

The northern half of Donabate is underlain by Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones. The southern half is underlain by a Locally Important Aquifer – Bedrock which is Generally Moderately Productive. This suggests a reasonable depth to groundwater. This is expected based on the coastal location of the area. There are no GSI or EPA Source Protection Zones in the vicinity of the LAP area. GSI records show one well to the south west of the town. There are no details on the use or depth of the well. *Refer to Appendix A.*

4.3.3 Surface Waters used for Public Supply

The watercourses in the area are not used for surface water abstraction.

4.3.4 Coastal / Estuarial Waters

According to the SuDS Manual (2007) and GSDSDS, discharge to coastal waters do not typically require attenuation as there will be no deterioration in flood risk as a result of an increase in runoff. However, as the Malahide and Rogerstown Estuaries are designated Special Areas of Conservation, in order to protect these environmentally sensitive areas, it will be necessary to provide a combination of source controls, site controls and regional controls as part of the surface water drainage system to ensure high water quality from runoff into these areas.

4.3.5 Receiving Waters that act as Formal Recreational / Amenity Facilities

The following recreational / amenity facilities in receiving waters from Donabate have been identified:

- Malahide Marina located approximately 2km downstream from outfalls to the Malahide Estuary;
- Bathing area located approximately 2km east of Donabate;
- Bathing area approximately 2km downstream from outfalls to Rogerstown Estuary.

4.3.6 Requirement for Sustainable Water Management / Water Conservation Measures

The provision of rainwater harvesting for landscaping purposes will be encouraged in all residential developments. Any commercial, educational or institutional buildings should provide rainwater harvesting for non-consumption purposes.

4.3.7 Habitat – Dependent Flow Regime

There are no habitat-dependent flow regimes required in the existing environment. Depending on any proposed ecological use, it may be necessary to ensure a permanent water level in ponds.

4.3.8 Flood Risk

Proposed surface water drainage networks should be designed such that greenfield runoff rates are not exceeded. *Refer to Donabate LAP Flood Risk Assessment.*

4.3.9 Discharges to the Sewerage Network

Areas proposing to discharge to the existing surface water sewage network must agree discharge rates with the water authority.

4.4 Quantity and Quality Performance

Table 4.2 below taken from The SuDS Manual (2007) shows a selection matrix for quantity and quality performance of various SuDS techniques. This table indicates the following:

- Source Control techniques are most effective in reducing run off volume
- Open Channels and Retention Ponds/Subsurface Storage provide the best hydraulic control for large flows (1% AEP)
- Permeable paving, Infiltration and Filtration techniques are most effective for water quality treatment
- Subsurface storage, detention basins and rainwater harvesting have the lowest potential for water treatment.

Table 4.2 Quantity and Quality Performance Selection Matrix (SuDS Manual, 2007)

SuDS group	Technique	Water quality treatment potential					Hydraulic control			
		Total suspended solids removal	Heavy metals removal	Nutrient (phosphorous, nitrogen) removal	Bacteria removal (*)	Capacity to treat fine suspended sediments and dissolved pollutants	Runoff volume reduction	0.5 (1/2 yr)	Suitability for flow rate control (probability)	0.1 - 0.3 (10/30 yr)
Retention	Retention pond	H	M	M	M	H	L	H	H	H
	Subsurface storage	L	L	L	L	L	L	H	H	H
Wetland	Shallow wetland	H	M	H	M	H	L	H	M	L
	Extended detention wetland	H	M	H	M	H	L	H	M	L
	Pond/wetland	H	M	H	M	H	L	H	M	L
	Pocket wetland	H	M	H	M	H	L	H	M	L
	Submerged gravel wetland	H	M	H	M	H	L	H	M	L
	Wetland channel	H	M	H	M	H	L	H	M	L
Infiltration	Infiltration trench	H	H	H	M	H	H	H	H	L
	Infiltration basin	H	H	H	M	H	H	H	H	H
	Soakaway	H	H	H	M	H	H	H	H	L
Filtration	Surface sand filter	H	H	H	M	H	L	H	M	L
	Sub-surface sand filter	H	H	H	M	H	L	H	M	L
	Perimeter sand filter	H	H	H	M	H	L	H	M	L
	Bioretention/filter strips	H	H	H	M	H	L	H	M	L
	Filter trench	H	H	H	M	H	L	H	H	L
Detention	Detention basin	M	M	L	L	L	L	H	H	H
Open channels	Conveyance swale	H	M	M	M	H	M	H	H	H
	Enhanced dry swale	H	H	H	M	H	M	H	H	H
	Enhanced wet swale	H	H	M	H	H	L	H	H	H
Source control	Green roof	n/a	n/a	n/a	n/a	H	H	H	H	L
	Rain water harvesting	M	L	L	L	n/a	M	M	H	L
	Permeable pavement	H	H	H	H	H	H	H	H	L

* limited data available
n/a = non applicable
H = high potential
M = medium potential
L = low potential

4.5 Community, Environmental and Amenity Performance

Table 4.3 below taken from The SuDS Manual (2007) shows a selection matrix for community and environmental factors for various SuDS techniques. These factors are Maintenance Regime, Community Acceptability, Construction and Maintenance Costs and Habitat Creation Potential. This table indicates the following:

- Detention Basins and Swales (particularly Conveyance Swales) provide the most cost effective solutions while also incorporating the potential for habitat creation.
- Wetlands score highly in terms of habitat creation and community acceptability however capital and maintenance costs are relatively high
- Filtration techniques typically score poorly overall
- There may be some public safety concerns associated with SuDS techniques involving open water, however good design and education can help minimise these concerns.

Table 4.3 Community and Environmental Factors Selection Matrix (SuDS Manual, 2007)

SuDS group	Technique	Maintenance	Community acceptability	Cost	Habitat creation potential
Retention	Retention pond	M	H*	M	H
	Subsurface storage	L	H	M	L
Wetland	Shallow wetland	H	H*	H	H
	Extended detention wetland	H	H*	H	H
	Pond/wetland	H	H*	H	H
	Pocket wetland	H	M*	H	H
	Submerged gravel wetland	M	L	H	M
	Wetland channel	H	H*	H	H
Infiltration	Infiltration trench	L	M	L	L
	Infiltration basin	M	H*	L	M
	Soakaway	L	M	M	L
Filtration	Surface sand filter	M	L	H	M
	Sub-surface sand filter	M	L	H	L
	Perimeter sand filter	M	L	H	L
	Bioretention/filter strips	H	H	M	H
	Filter trench	M	M	M	L
Detention	Detention basin	L	H*	L	M
Open channels	Conveyance swale	L	M*	L	M
	Enhanced dry swale	L	M*	M	M
	Enhanced wet swale	M	M*	M	H
Source control	Green roof	H	H	H	H
	Rainwater harvesting	H	M*	H	L
	Permeable pavement	M	M	M	L

H = High

M = Medium

L = Low

* there may be some public safety concerns associated with open water that require addressing at design stage

5. SUDS STRATEGY

5.1 Management Train

A Management Train is usually required when developing a SuDS strategy. A Management Train sets a hierarchy of SuDS techniques which are subsequently linked together. Each technique employed contributes in different ways and degrees to the overall drainage network. The scale and number of components required will depend on the respective catchment characteristics and likely concentration of pollutants in the inflow. It is recommended that no area greater than 2 hectares should drain to a single SuDS component. Considering the scale of proposed developments and in order to protect the environmentally sensitive areas of the Malahide and Rogerstown Estuaries, a combination of source controls, site controls and regional controls is required as part of the surface water drainage system to ensure high water quality from runoff into these areas.

Following a review of all the information presented in previous chapters, a range of SuDS techniques suitable for inclusion in the Donabate LAP have been selected and are presented below.

5.2 Source Controls

5.2.1 Water Butts

Water Butts are small, offline storage devices designed to collect runoff from roofs. They are the most common means of harvesting rainwater for garden use and have a typical capacity of less than 0.5m³. Two-stage devices can provide some storage volume for attenuation using a throttled overflow, however poor maintenance can lead to blockages.

Table 5.1 Advantages / Disadvantages of Water Butts

Advantages	Disadvantages
Ease of installation (new and retrofit)	Risk of blockage
Inexpensive	Low water quality treatment
Provides water for non potable means – typically garden use	Limited hydraulic management performance
Suitable for all developments	Poor ecology potential

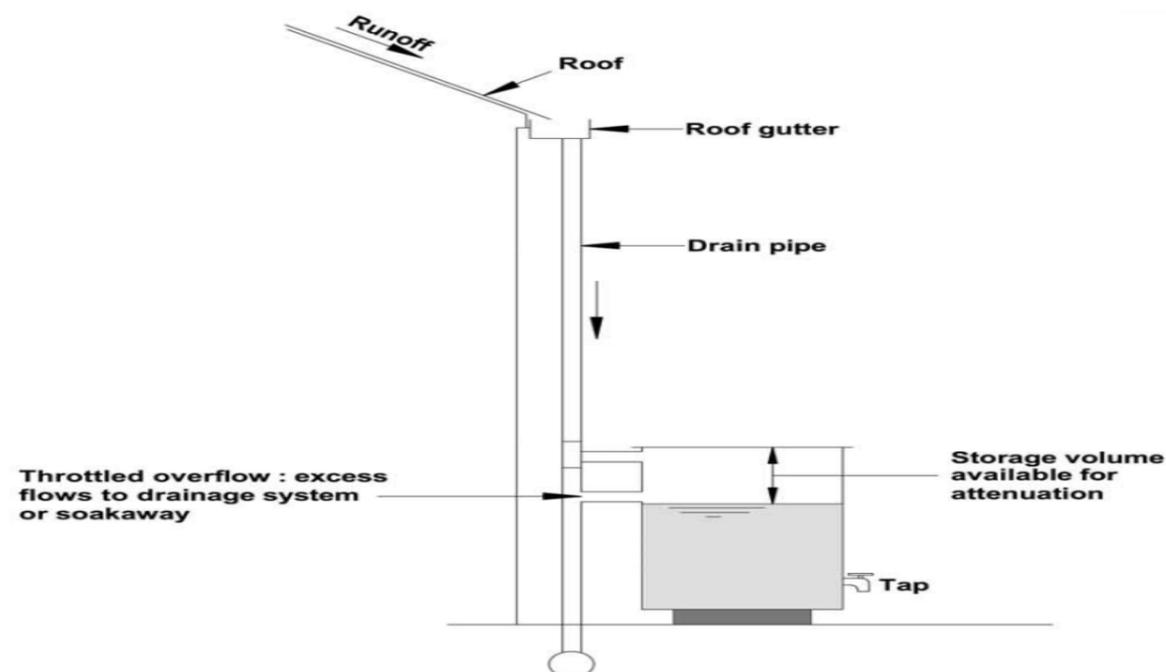


Figure 5.1 Two-Stage Water Butt Schematic (SuDS Manual, 2007)

Water Butts are recommended for all residential properties

5.2.2 Rainwater Harvesting

Rainwater harvesting involves collection of rainwater from roofs and hard surfaces, similar in principle to Water Butts but generally on a much larger scale. Collected water is typically used for non-potable purposes such as irrigation, flushing toilets and washing machines. The size of the harvesting tank depends on catchment area, seasonal rainfall pattern, demand pattern and retention time. Stormwater attenuation can also be provided by additional storage capacity in the tank.

Table 5.2 Advantages / Disadvantages of Rainwater Harvesting

Advantages	Disadvantages
Reduced demand of mains water	Potential health risks
Can provide source control of stormwater runoff	Overground tanks may be aesthetically displeasing
	Systems can be expensive and complex

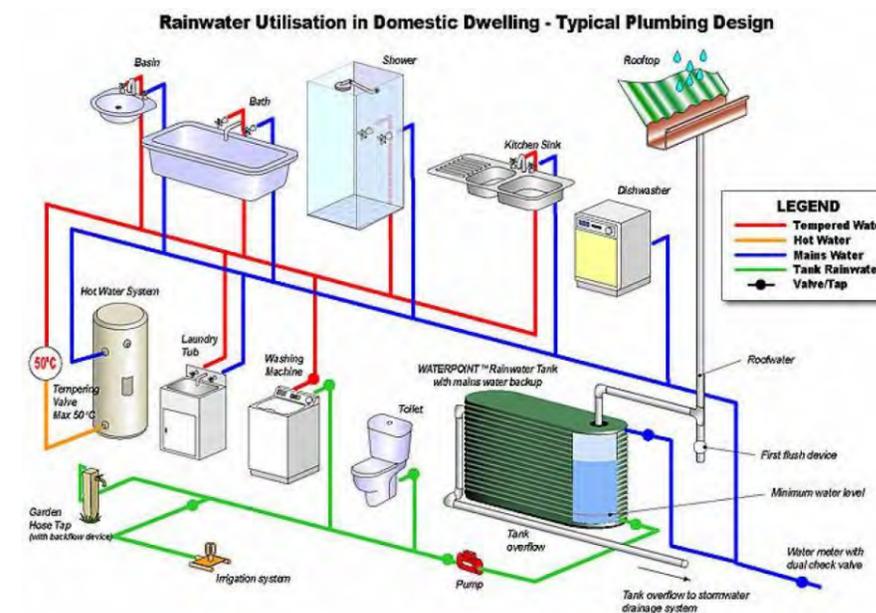


Figure 5.2 Rainwater Harvesting Schematic

Rainwater Harvesting is recommended for use in commercial, industrial and educational buildings.

5.2.3 Permeable Pavements

Permeable pavements provide a pavement suitable for pedestrian and/or vehicular traffic, while allowing rainwater infiltrate through the surface and into the underlying layers where it is subsequently infiltrates to the ground and/or is collected and conveyed to the drainage network. Permeable pavements are most suitable for areas with light traffic loads and volume. The pavement generally caters for rainwater which lands directly on its surface but in certain cases, can accept runoff from other impermeable areas.

Table 5.3 Advantages / Disadvantages of Permeable Paving

Advantages	Disadvantages
Peak flow reduction	Not suitable where large sediment loads may be washed/carried onto the surface
Runoff volume reduction	Limited to areas of low vehicle loads, speeds and volumes
Effective in removing urban runoff pollutants	Risk of long term clogging and weed growth if not maintained
No additional land space requirements	Roads with permeable paving will not be taken in charge by FCC which may impact their maintenance
Low maintenance costs	
Good community acceptability	

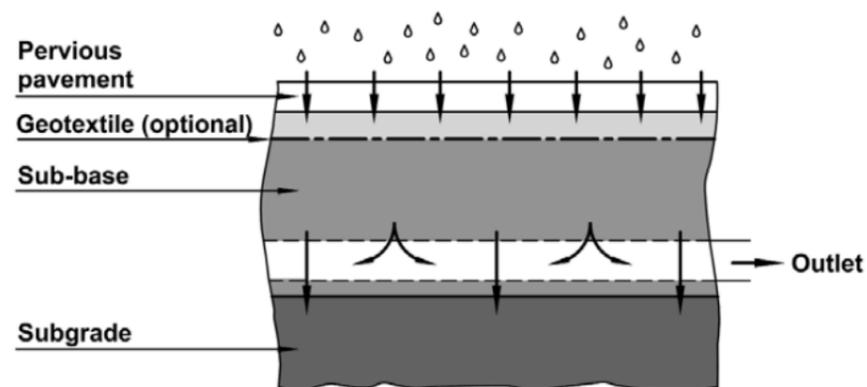


Figure 5.3 Permeable Paving Schematic

Permeable paving is recommended for all residential and commercial parking spaces where subsoil permits. Lightly trafficked roads should be considered for permeable block paving. Detailed site investigation will be required to determine if total, partial or no infiltration to groundwater is possible.

5.2.4 Green Roofs

Green Roofs comprise a multi-layered system which covers the roof of a building with vegetation and landscaping over a drainage layer. They are designed to intercept and retain precipitation which reduces the volume and rate of surface water runoff. Green roofs can be used on a variety of roof types and sizes, although larger roof areas are typically more cost effective. They are particularly suited to flat / gently sloping roofs on commercial buildings, sports centres, schools, apartment blocks and other similar buildings.

Table 5.4 Advantages / Disadvantages of Green Roofs

Advantages	Disadvantages
No additional land take	Higher cost than conventional runoff system
Ecological, aesthetic and amenity benefits	Maintenance of roof vegetation required
Good removal of atmospherically deposited pollutants	Damage to (or poor installation of) waterproofing membrane likely to be more critical
Provides further insulation to buildings	

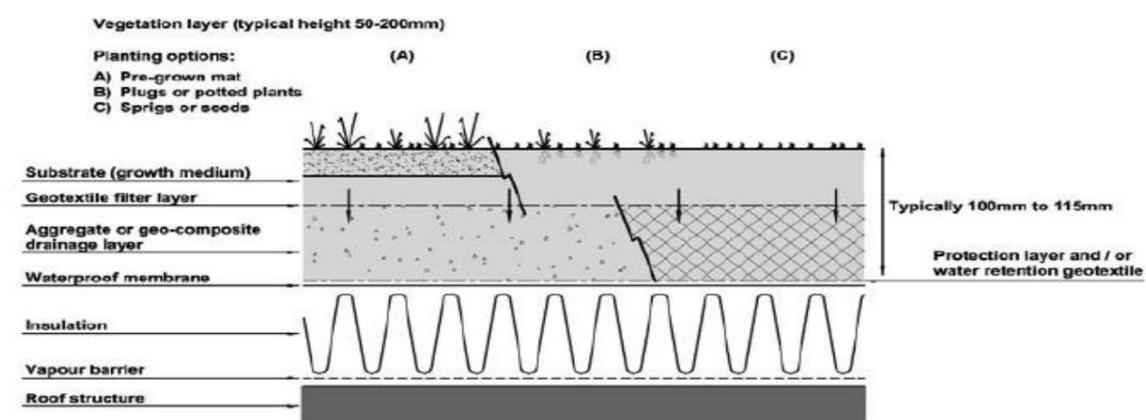


Figure 5.4 Green Roof Schematic (SuDS Manual, 2007)

5.2.5 Green Walls

Green Walls are walls that have plants growing on, or integrated within them, providing a living and self-regenerating cladding system. Green walls can comprise climbing plants supported by the wall, hanging plants which hang from suspended planters or plants growing within them.

Table 5.5 Advantages / Disadvantages of Green Walls

Advantages	Disadvantages
Can occupy much greater surface area than green roofs	Maintenance of vegetation required
High amenity & biodiversity benefits	Can take a long period of time for vegetation to cover entire wall
Improves thermal efficiency of building	Some climbers can impact structural integrity of the wall if roots penetrate small cracks
Good removal of atmospherically deposited pollutants	



Figure 5.5 Green Wall (CIRIA C644, 2007)

5.2.6 Filter Drains

Filter drains are shallow excavations backfilled with granular material that create temporary subsurface storage for either filtration or infiltration of stormwater runoff. Filter drains can contain a perforated pipe at the base to convey runoff to further SuDS components in the Management Train.

Table 5.6 Advantages / Disadvantages of Filter Drains

Advantages	Disadvantages
Can reduce runoff rates and volumes	Limited to small catchments
Significant reduction in pollutant load	High clogging potential – not suitable for sites with fine particled soils (silts / clays)
Easily incorporated into site landscaping	High cost of replacing filler material should blockage occur

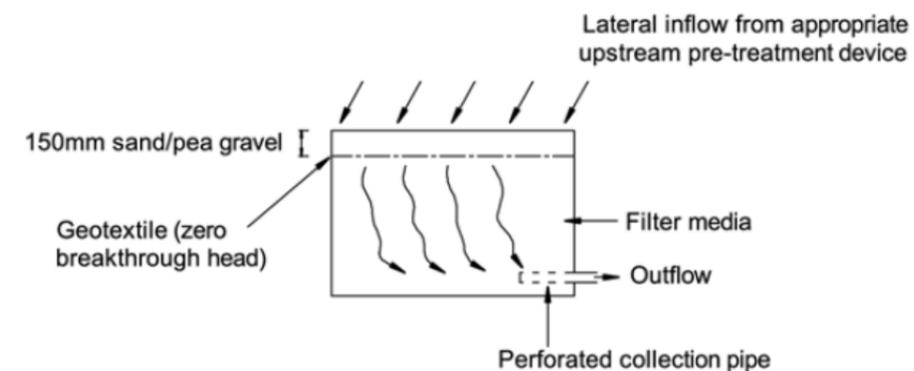


Figure 5.6 Filter Drain Schematic (SuDS Manual, 2007)



Figure 5.7 Example Filter Drain

Subject to appropriate ground conditions, filter drains are recommended for draining residential back gardens and other small grassed areas where subsoil permeability is low. Filter drains can also be used to drain carriageways. The base of the filter drain should be a minimum 500mm above highest expected groundwater table level.

5.3 Site Controls

5.3.1 Swales

Swales are broad, shallow, vegetated drainage channels which can be used to convey or store surface water. Swales are generally suited for small catchments with impermeable areas. They are typically provided along roads in grass verges. Swales can be designed for infiltration to subsoil or detention and conveyance to another stage in the management train. Conveyance can be in the open channel or in a perforated pipe within a filter bed below the base of the channel.

Table 5.7 Advantages / Disadvantages of Swales

Advantages	Disadvantages
Good removal of pollutants	Not suitable for steep sloped areas (can be routed along contours to reduce longitudinal gradient)
Easy to incorporate into landscaping	Not suitable for areas with roadside parking
Peak flow reduction	Risk of blockages in connecting pipework
Runoff volume reduction (depending on design)	Limits opportunities to use trees for landscaping
	Can be hard to maintain economically

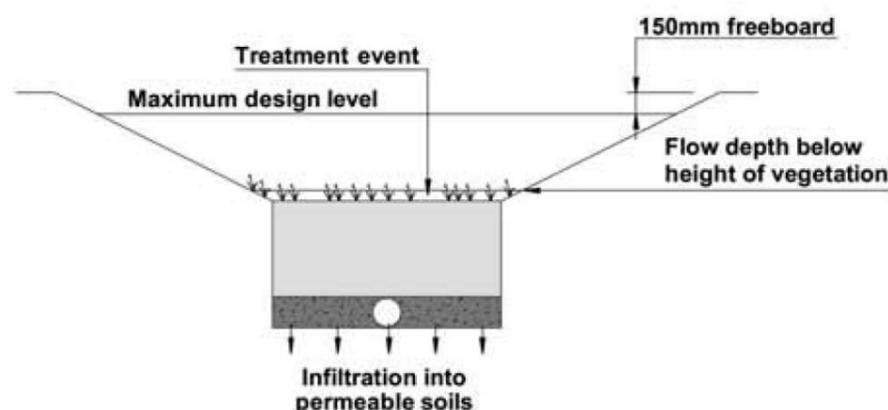


Figure 5.8 Swale Schematic (SuDS Manual, 2007)



Figure 5.9 Example Roadside Swale

Swales are recommended to cater for runoff from access and distributor roads, providing water treatment and reduction in peak flow. Depending on local subsoil conditions, dry swales are recommended which provide infiltration and further reduce runoff volume.

5.3.2 Bioretention Areas / Modified Planters

Bioretention areas are stormwater controls that collect and treat stormwater runoff. The runoff is treated using soils and vegetation in shallow landscaped basins to remove pollutants. Treated runoff can be collected and conveyed further downstream and/or allowed infiltrate into the subsoil. Part of the runoff volume will be removed by evaporation and plant transpiration.

Table 5.8 Advantages / Disadvantages of Bioretention Areas / Modified Planters

Advantages	Disadvantages
Very good removal of pollutants	Not suitable for steep sloped areas
Runoff volume and peak flow reduction	Requires landscaping and management
Flexible layouts possible	
Can be aesthetic landscaping features	

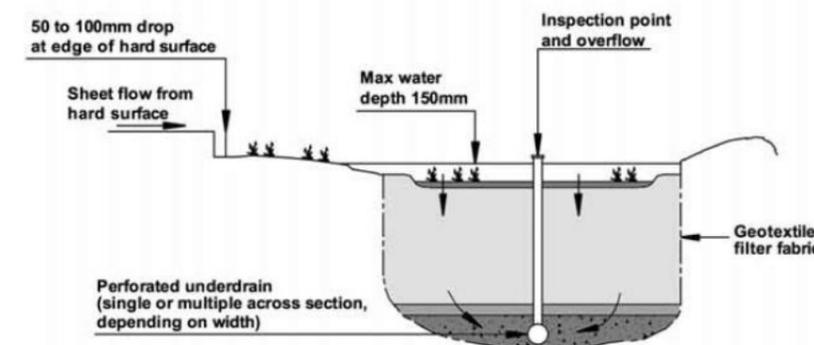


Figure 5.10 Bioretention Area Schematic



Figure 5.11 Example Roadside Bioretention Area

Bioretention areas are recommended to cater for runoff from residential neighbourhoods and car parks.

5.3.3 Detention Basins

Detention Basins are dry basins that attenuate stormwater runoff by providing temporary storage with flow control of the attenuated runoff. Detention basins are generally applicable to most types of developments. In residential areas they are normally dry and often function as a recreational facility, e.g. sports fields or play grounds. They may be constructed such that surface runoff is routed through them during storm events with an outflow restriction (online), or such that runoff typically bypasses the detention basin until a design storm event occurs when runoff is received by a flow diverter or overflow and temporarily stored until the inflow recedes below a design level (offline). Small permanent pools at the outlet can enhance water treatment quality.

Table 5.9 Advantages / Disadvantages of Detention Basins

Advantages	Disadvantages
Can cater for wide range of rainfall events	Detention depths may be limited by system inlet and outlet level
Simple to design and construct	Little reduction in runoff volume
Potential for dual use	
Easy to maintain	

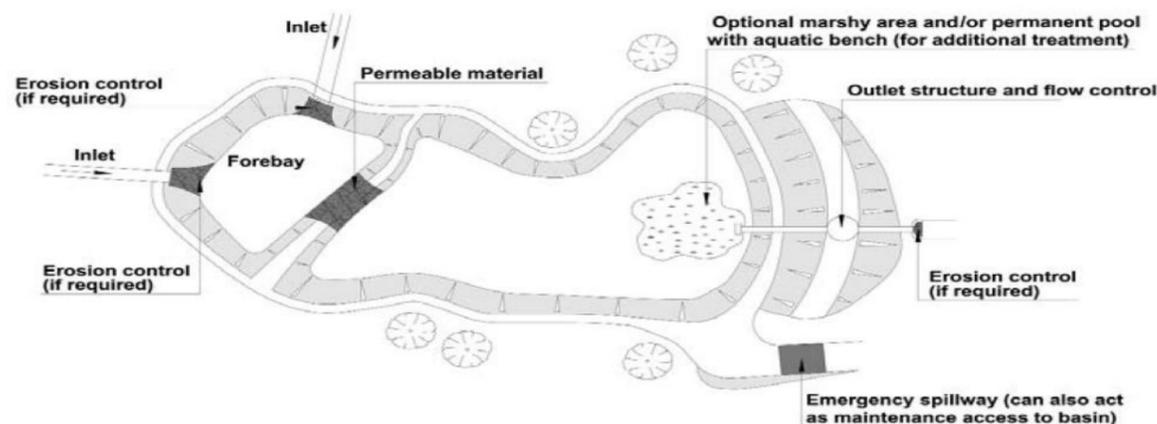


Figure 5.12 Detention Basin Schematic (SuDS Manual, 2007)



Figure 5.13 Example Detention Basin

5.4 Regional Controls

5.4.1 Ponds

Ponds are basins which have a permanent depth of water. They can be constructed in an existing depression, by excavating a new depression or by constructing embankments. Runoff which enters the pond is detained and treated by settlement and often biological uptake before outfalling. Ponds should contain the following features:

- Sediment Forebay – This may not be required if previous SuDS techniques are implemented upstream
- Permanent pool – This minimum volume of water (excluding losses due to infiltration and evaporation) will remain throughout the year. The main treatment associated with the pond occurs in this pool.
- Temporary Storage Volume – An additional storage volume within the pond to provide flood attenuation for design events.
- Aquatic Bench – A shallow zone around the perimeter of the pool to support wetland planting which provides biological treatment, ecology, amenity and safety benefits.

Table 5.10 Advantages / Disadvantages of Ponds

Advantages	Disadvantages
Good removal of pollutants	Anaerobic conditions can occur without regular flow
High potential ecological, aesthetic and amenity benefits	Perceived health and safety risks may require fencing and isolation of the pond

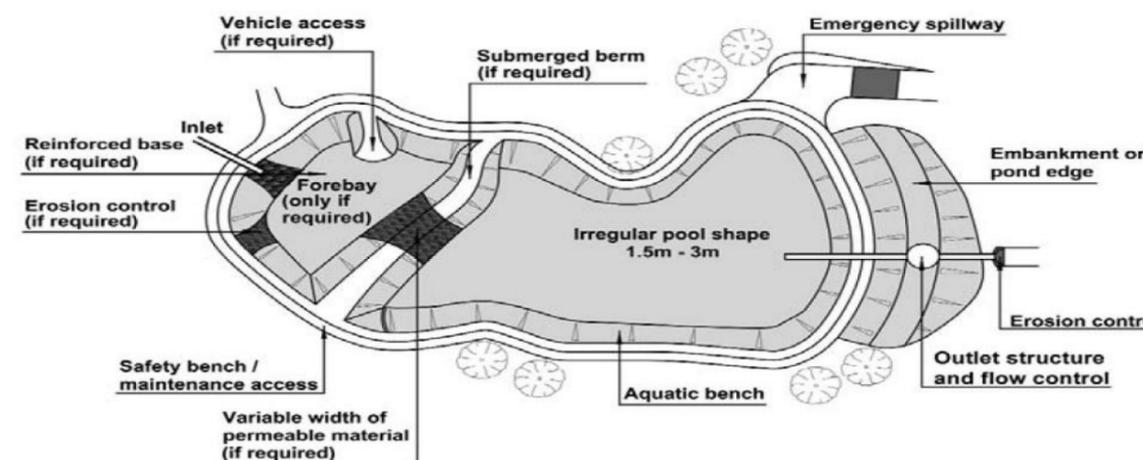


Figure 5.14 Pond Schematic (SuDS Manual, 2007)

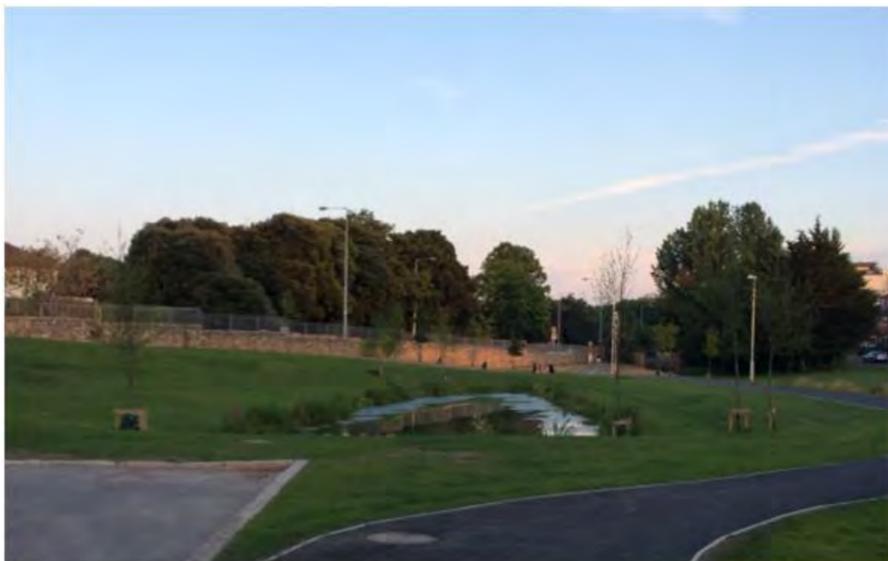


Figure 5.15 Example Landscaped Pond

Ponds are recommended at the end of proposed surface water drainage networks following previous SuDS techniques in the Management Train. Outflow from any proposed ponds may be restricted at times due to high tide levels and as such may require additional attenuation volume. Inclusion of several independent cells is encouraged which will enhance biodiversity, improve water quality levels and provide a more environmentally effective management programme.

5.4.2 Constructed Wetlands

Constructed Wetlands comprise of shallow ponds and marshy areas which are designed primarily for stormwater treatment but can also provide some attenuation above the permanent water level. Well designed and maintained wetlands can offer significant aesthetic, amenity and biodiversity opportunities. Constructed wetlands require a continuous baseflow to support a plant-rich community. Wetlands should contain the following features:

- Shallow, vegetated areas of varying depths
- Permanent pools or micropools
- Small depth range overlying permanent pool in which runoff control volumes are stored
- Sediment forebay
- Emergency spillway
- Maintenance access
- Safety bench

Advantages	Disadvantages
Good removal of pollutants	High land take
High potential ecological, aesthetic and amenity benefits	Perceived health and safety risks may require fencing and isolation of the pond
	Requires baseflow
	Limited depth range for flow attenuation
	May release nutrients during non growing season

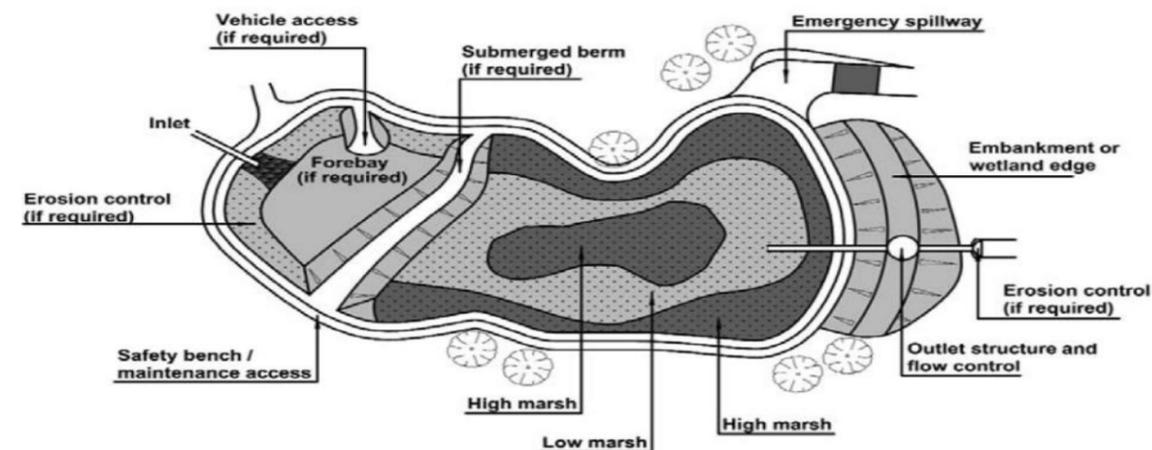


Figure 5.16 Constructed Wetland Schematic



Figure 5.17 Example Constructed Wetland

Constructed Wetlands are recommended at the end of proposed surface water drainage networks following previous SuDS techniques in the Management Train. Their primary objective should be treatment, not attenuation. Outflow from any proposed ponds may be restricted at times due to high tide levels and as such may require additional attenuation volume. Inclusion of several independent cells is encouraged which will enhance biodiversity, improve water quality levels and provide a more environmentally effective management programme. Permanent pond volume should be provided in accordance with Ciria C697 'The SuDS Manual'.

5.5 Recommended Management Train for Zoned Areas

Table 5.11 below provides recommended Management Trains for the various sites based on the information collated above.

Table 5.11 Recommended Management Train for Zoned Areas

Site	Sub-Catchment Type	Source Control	Site Control	Regional Control
Turvey	Roofs	Water Butts	Existing Ditches Swales	Ponds Wetlands
	Parking Areas	Permeable Paving	Existing Ditches Swales	Ponds Wetlands
	Roads		Filer Drains Swales Bioretention Areas	Ponds Wetlands
	Green Areas (low permeability subsoil)	Filer Drains	Existing Ditches Swales	Ponds Wetlands
Rahillion	Roofs	Water Butts	Swales	Existing Interceptor Petrol
	Parking Areas	Permeable Paving	Swales	Existing Interceptor Petrol
	Roads		Filer Drains Swales Bioretention Areas	Existing Interceptor Petrol
	Green Areas (low permeability subsoil)	Filer Drains	Swales	Existing Interceptor Petrol
Ballymastone	Roofs	Water Butts Rainwater Harvesting Green Roofs Green Walls	Swales Detention Basins	Ponds Wetlands
	Parking Areas	Permeable Paving	Swales Detention Basins	Ponds Wetlands
	Roads		Filer Drains Swales Bioretention Areas Detention Basins	Ponds Wetlands
	Green Areas (low permeability subsoil)	Filer Drains	Swales Detention Basins	Ponds Wetlands
Corballis East	Roofs	Water Butts Rainwater Harvesting Green Roofs Green Walls	Swales Detention Basins	Ponds Wetlands
	Parking Areas	Permeable Paving	Swales Detention Basins	Ponds Wetlands
	Roads		Filer Drains Swales Bioretention Areas Detention Basins	Ponds Wetlands
	Green Areas (low permeability subsoil)	Filer Drains	Swales Detention Basins	Ponds Wetlands

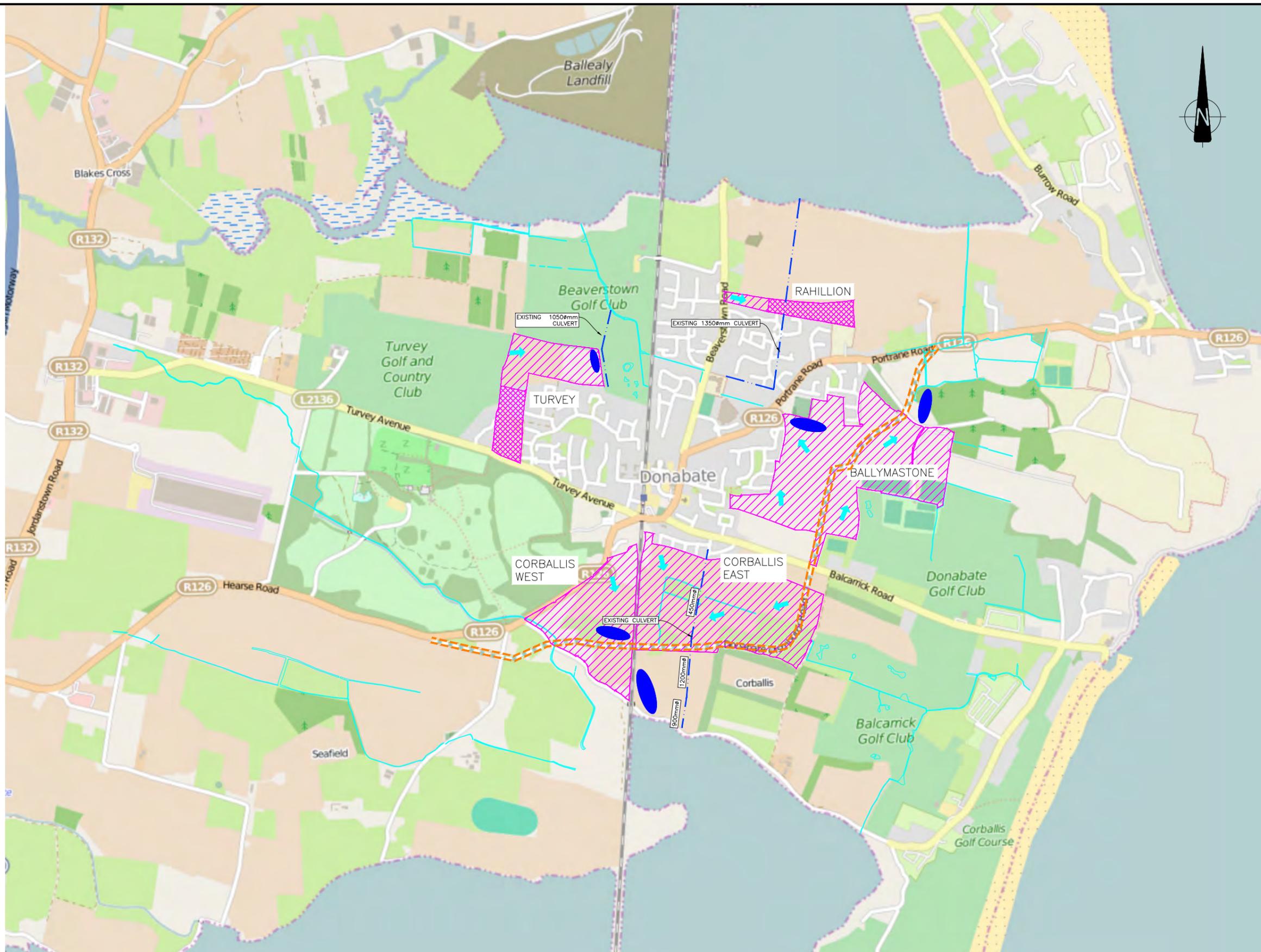
Site	Sub-Catchment Type	Source Control	Site Control	Regional Control
Corballis West	Roofs	Water Butts	Swales	Ponds Wetlands
	Parking Areas	Permeable Paving	Swales Detention Basins	Ponds Wetlands
	Roads		Filer Drains Swales Bioretention Areas Detention Basins	Ponds Wetlands
	Green Areas (low permeability subsoil)	Filer Drains	Swales Detention Basins	Ponds Wetlands

5.6 SuDS Layout

A sample layout for the proposed SuDS Strategy is presented in Drawing 101 'SuDS Strategy Overview' below. This drawing shows the proposed locations of SuDS devices, primarily focussing on Regional Controls, their respective catchments and outfalls. The proposed route of the DDR is also included.

It is not possible to provide sizing and layouts of Source and Site Controls until proposed layouts of each development are provided. In lieu of this, it is recommended that the Management Train outlined in Section 5.5 should be incorporated where possible within the design of each development.

Regional Controls (ponds / wetlands) have been initially sized based on treatment requirements. Regional controls should not be used primarily for attenuation purposes. Attenuation of surface water runoff should be provided for by Source and Site Controls. Sizing is based on treatment for an inflow of existing greenfield runoff rates with an inclusion for tidal attenuation.



LEGEND:

	APPROXIMATE ROUTE OF PROPOSED R126 DONABATE - RELIEF ROAD
	POTENTIAL SWALE ADJACENT TO RELIEF ROAD
	POTENTIAL LOCATION OF WETLANDS / PONDS
	EXISTING OPEN CHANNEL WATER COURSES
	ZONED NEW RESIDENTIAL COMMUNITIES
	ZONED NEW RESIDENTIAL COMMUNITIES WITH PLANNING PERMISSION GRANTED
	CORBALLIS DEVELOPMENT AREAS
	DIRECTION OF DRAINAGE
	EXISTING SURFACE WATER CULVERT



No.	Revision	Date	By	Chk'd	App'd

Stage	Date	Approved By
PRELIMINARY		
CERTIFICATION		
CONSTRUCTION		
AS BUILT		

Roughan & O'Donovan
 Consulting Engineers
 Civil - Structural - Transportation - Environmental

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 e-mail : info@rod.ie
 www.rod.ie

DONABATE LOCAL AREA PLAN 2016-2022
 SUDS STRATEGY

SUDS STRATEGY OVERVIEW

Date: JAN 2015	Job No: 14.218	Drawing No: 101	Rev: -
Scale: 1:10,000	Drawn: RE		

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Drawing Location: J:\2014\14218\Dwg\Suds Strategy\Overview.dwg

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

6. IMPACT OF SUDS STRATEGY

6.1 Runoff Quantity

Increase in the area of hardstanding within the development areas will result in an increase in the total runoff quantity due to reduced infiltration of surface water to ground. This increase will be minimised through the use of rainwater harvesting and evaporation and transpiration from open channels / ponds and vegetation respectively.

Due to the coastal location of Donabate and its position at the bottom of a number of catchments, an increase in runoff quantity is not a significant issue. Attenuation may be required to store runoff before discharge during high tide levels.

6.2 Runoff Quality

The Rogerstown and Malahide Estuaries are designated SACs. In order to protect these environmentally sensitive areas, runoff quality is of utmost importance. The proposed SuDS Strategy implements a Management Train whereby runoff will pass through a series of SuDS techniques prior to outfall. Each technique will provide different treatment processes – settlement, filtration, removal of nutrients, removal of heavy metals and biological treatment through vegetation.

6.3 Amenity and Biodiversity

The lands in Donabate zoned for new residential development currently consist primarily of farmland with a mix of grass and tillage farms. The proposed SuDS Strategy will introduce a variety of features to promote and enhance amenity and biodiversity in the area. Tree plantings will be incorporated within Bioretention Areas. Ponds/Wetlands should be designed with an emphasis on ecology. Ponds should contain multiple pools fed by cleaner surface water runoff from surrounding grassland or scrub. This will allow a wider range of plants and animals to exploit the overall pond development. A variety of local (c.30km) pond plants should be included to maximise habitat structural diversity. A mix of open, lightly shaded and densely shaded areas will also add to the diversity of habitats available.

6.4 Flooding

Implementation of the SuDS Strategy will reduce peak flow runoff of the proposed development and minimise the risk of flooding. Ponds located in low lying areas will need to be designed to provide additional attenuation volume as it may not be possible to outfall during periods of high tide. *Refer to Donabate LAP Flood Risk Assessment.*

6.5 Groundwater

It is expected that the infiltration capacity of the soil within the LAP will be low and as such infiltration SuDS techniques are not widely proposed in this SuDS Strategy. As a result of the proposed development, there will be a significant increase in the area of hardstanding within the LAP, resulting in a loss of surface water infiltration to the underlying subsoil. Where possible, infiltration SuDS techniques will be implemented to minimise the effect of the development and replicate the natural hydrological process.

6.6 Surface Water Drainage Network

The majority of land zoned for new development will require construction of new surface water drainage networks. These networks should discharge at the downstream end of the existing networks where possible. This Suds Strategy recommends the following approaches for each of the identified new development areas within the Donabate LAP 2016-2022.

- Development at Turvey is likely to connect into the existing 1050φ culvert which discharges to the Beaverstown Stream in Beaverstown Golf Club. Surface water attenuation shall be provided to ensure that the capacity of the stream through the golf club is not exceeded, resulting in flooding. A Pond/Wetland shall be constructed to ensure high quality treatment of the runoff at the north eastern section of the lands
- Development in Rahillion will likely discharge directly to the 1350mmφ pipe which outfalls to the Rogerstown Estuary. It is not expected that this will impact negatively on the system.
- Development in Corballis East will require a new surface water drainage system which should incorporate a pond/wetland at the downstream end of the network. It is recommended that the existing culvert which runs north-south through the area is opened up within the land zoned HA which seeks to '*Protect and enhance high amenity areas*' immediately to the south. Such works would increase amenity and biodiversity opportunities and improve the quality of runoff outfalling to the Malahide Estuary. The proposed pond should outfall to the open channel and form an important design element of the proposed Corballis Nature Park.
- Development in Corballis West will require construction of a new surface water drainage system. It is recommended that no residential development should occur within the 1% AEP Fluvial or 0.5% AEP Tidal flood extent (Refer to Donabate LAP Flood Risk Assessment) and that these lands be zoned for non-development purposes in the review of the Fingal Development Plan. The new drainage network should incorporate a pond/wetland south of the proposed DDR, outside the 1% AEP Fluvial or 0.5% AEP Tidal flood extent.
- Based on the existing topography, development at Ballymastone will require construction of a new surface water drainage network with two outfalls.
 - Runoff from the area west of the proposed DDR is likely to discharge into the existing surface water drainage network in Donabate Village. This should be to the network outfalling to the 1350φ pipe and not to the network within the catchment of the pumping station. Surface water runoff from the development should be attenuated to ensure that the capacity of the existing network in Donabate is not exceeded. An attenuation pond in the north-eastern section of these lands should also be provided..
 - Runoff from the area east of the proposed DDR is likely to discharge to the series of existing ditches to the north-east and subsequently outfalling via the Portrane Canal. Attenuation of this runoff should be provided to ensure that the existing drainage network is not adversely affected.
 - Runoff from the development should be treated by ponds/wetlands prior to outfalling to the existing network.

7. CONCLUSIONS

- As part of new development in the LAP lands, new surface water drainage networks will be required within each of the 4 key areas.
- SuDS measures will be required as part of these new developments to ensure quantity and quality of surface water runoff does not negatively impact the surrounding environment. The required infrastructure includes wetlands / ponds for Turvey, Corballis and Ballymastone.
- A variety of SuDS techniques have been assessed which are suitable for inclusion as part of the development of the LAP areas.
- Development at Turvey is likely to connect into the existing 1050mm dia culvert which discharges to the Beaverstown Stream in Beaverstown Golf Club
- Development in Rahillion will likely discharge directly to the 1350mm pipe which outfalls to the Rogerstown Estuary
- Development in Ballymastone will likely have 2 separate outfalls with catchments separated by the proposed Donabate Distributor Road. The catchment to the west will likely discharge to the existing surface water drainage network in Donabate Village. The catchment to the east will likely discharge to the series of existing ditches to the north-east and subsequently outfalling via the Portrane Canal.
- Development at Corballis East will likely discharge to the wetland constructed as part of the proposed Corballis Nature Park, via the existing 450mm dia pipe, and ultimately outfall to the Malahide Estuary.
- Development at Corballis West will likely require a new surface water outfall to the Malahide Estuary.

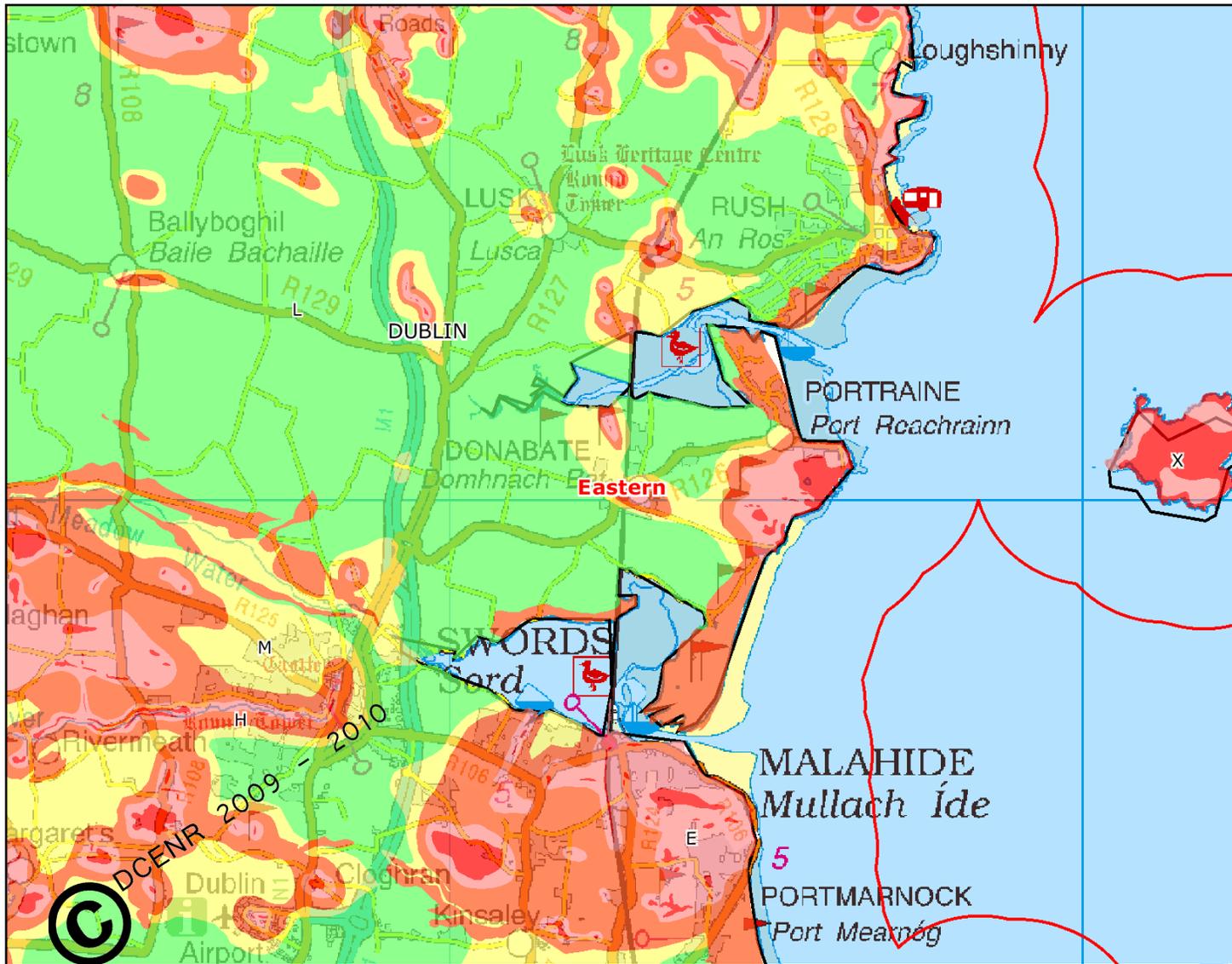
8. RECOMMENDATIONS

- 1) New surface water drainage networks will be required as part of developments within lands zoned for new residential communities. These networks should be designed in accordance with this SuDS Strategy, Ciria C697 'The SuDS Manual' and the Greater Dublin Strategic Drainage Systems (GSDSDS).
- 2) A Management Train should be incorporated during the design stage whereby surface water should be managed locally in small sub-catchments rather than being conveyed to and managed in large systems further down the catchment. Use of a Management Train will eliminate the requirement for conventional petrol interceptors. It is recommended that no area >2ha should drain to a single SuDS component
- 3) Water Butts and Permeable Paving are recommended for use in all residential developments.
- 4) Any commercial and educational facilities should incorporate rainwater harvesting for use within the facility. These facilities should also examine the feasibility of green roofs and green walls.
- 5) Subject to subsoil permeability, filter drains may be required to drain residential gardens and other small green areas within the development. Runoff from green areas should, where possible, infiltrate directly to groundwater.
- 6) It is recommended that swales are constructed adjacent to the proposed DDR to provide conveyance and treatment of runoff from the carriageway. These swales can also be used to provide separation between footpaths / cycletracks and the carriageway.
- 7) Runoff from each development upstream of ponds/wetlands should be limited to existing greenfield runoff rates. Attenuation should be provided for the 1% AEP rainfall event + 20% allowance for Climate Change.
- 8) Ponds/Wetland should be designed for treatment only with attenuation provided through Source and Site Controls upstream.
- 9) It is recommended that the existing culvert which runs north-south on the Corballis East lands should be opened up within the land zoned 'HA'. The proposed pond/wetland shall outfall to the open channel
- 10) Bioretention Areas are recommended to cater for runoff from residential neighbourhoods and car parks
- 11) No residential development shall occur within the 0.1% AEP Fluvial or Tidal Flood Extent, including defended areas

APPENDIX A GSI MAPS



Vulnerability



Legend

Vulnerability

- X (Rock near Surface or Karst)
- E - Extreme
- H - High
- M - Moderate
- L - Low
- Water
- RBD Boundaries
- County Boundaries

Scale: 1:101,213

0 2.6 5.2 7.8 km.

Map center: 322761, 250222

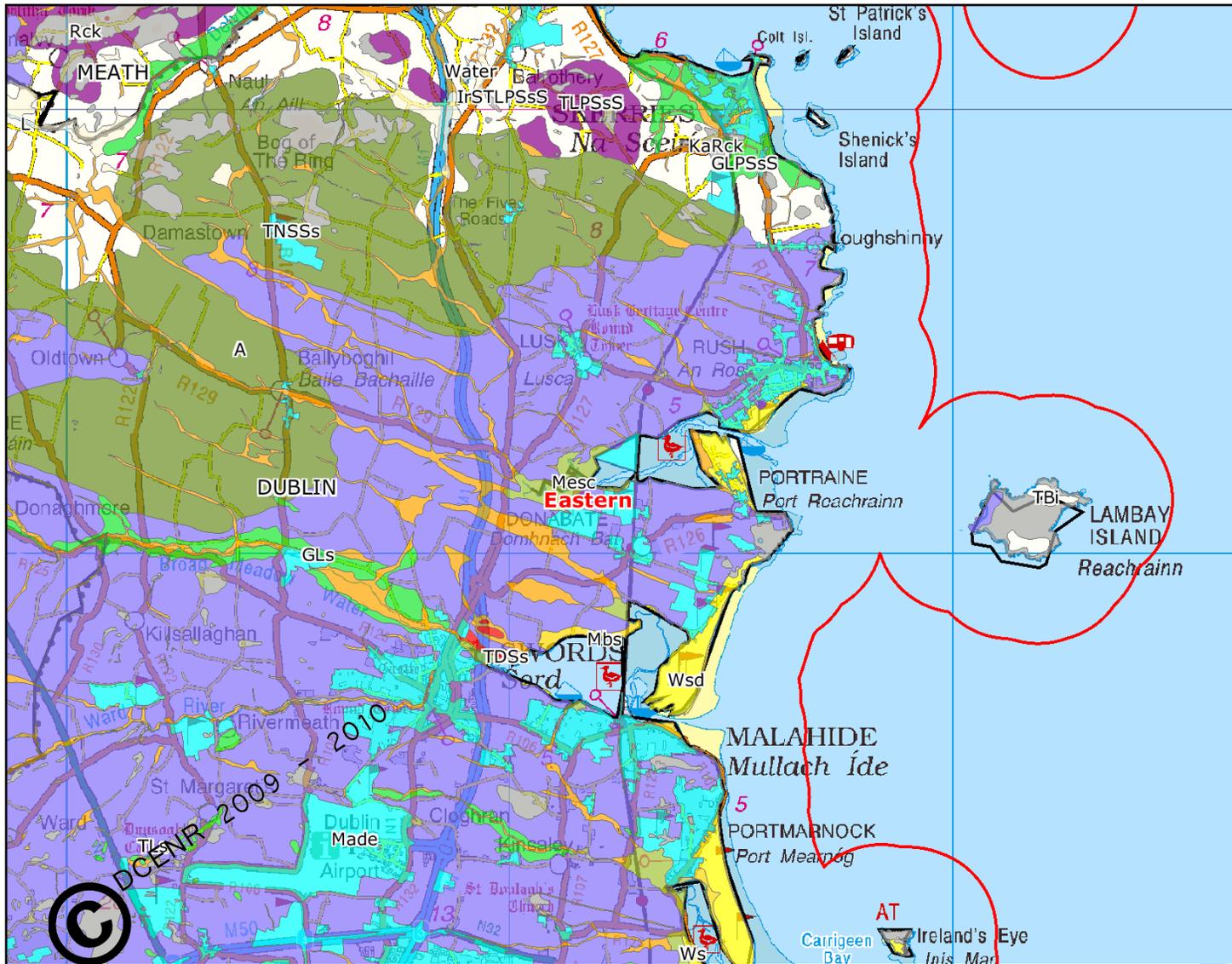


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Snapshot Date: 11-Dec-2014



Subsoils



- ### Legend
- RBD Subsoils**
- Alluvium
 - Beach sands and gravels
 - Bedrock outcrop and subcrop
 - Esker sands and gravels
 - Glaciofluvial sands and gravels
 - Lake sediments
 - Made ground
 - Marine/estuarine silts and clays
 - Marsh
 - Peat
 - Scree
 - Till derived chiefly from Devonian sandstones
 - Till derived chiefly from Lower Palaeozoic rocks
 - Till derived chiefly from Namurian rocks
 - Till derived chiefly from granite
 - Till derived chiefly from limestone
 - Till derived chiefly from metamorphic rocks
 - Till derived from metamorphic rocks
 - Till derived from mixed Devonian and Carboniferous rocks
 - Water
 - Windblown sands
 - RBD Boundaries
 - County Boundaries

0 3.75 7.5 11.25 km.

Map center: 322575, 251520

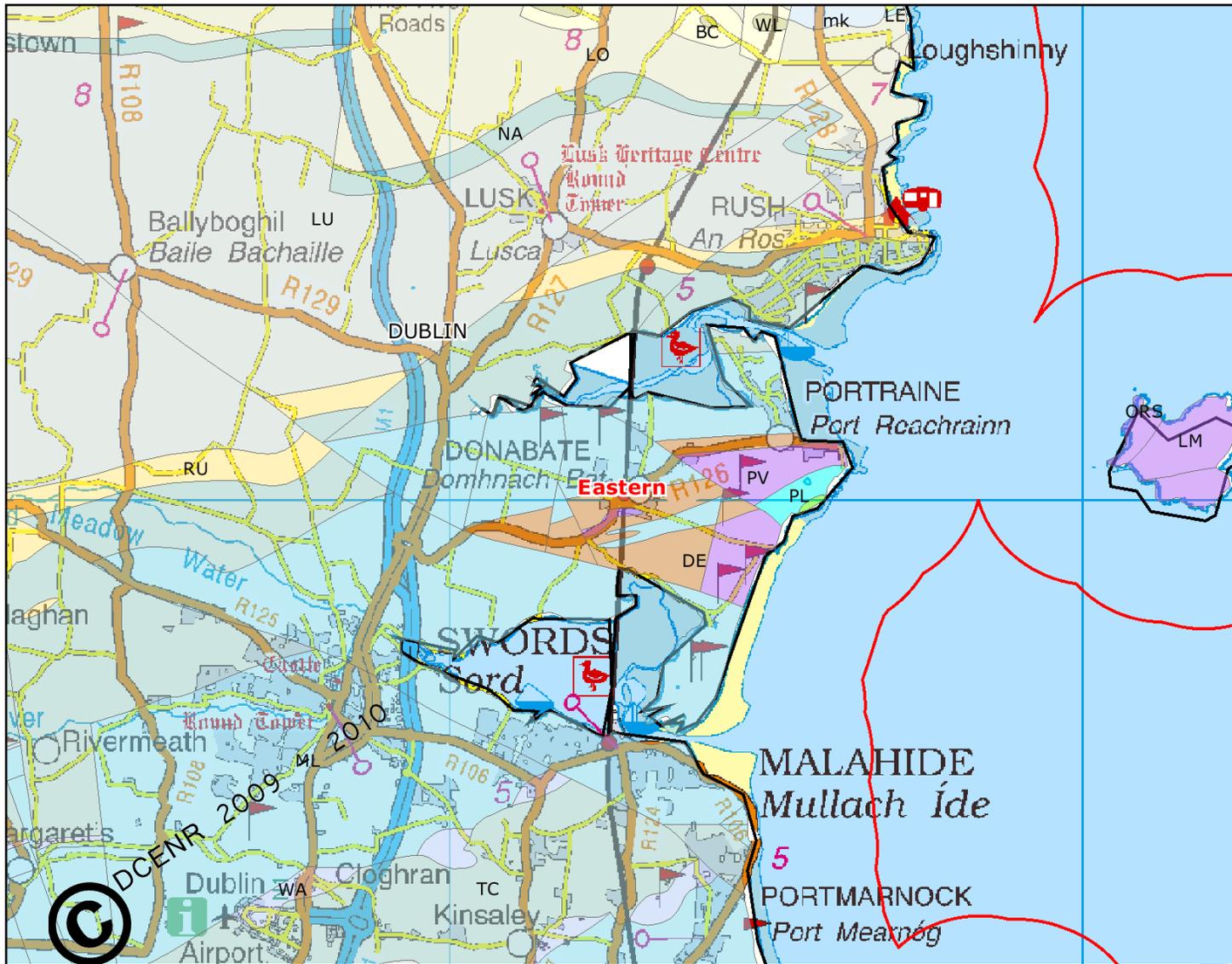
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Snapshot Date: 11-Dec-2014



Bedrock



- ### Legend
- Bedrock 100k Solid Geology
- AA - Aille and Barney Fms (undifferentiated)
 - AA - Allen Andesite Formation
 - AAwp - Westport Oolite
 - AB - South Achillbeg Formation
 - ABcg - Achillbeg Conglomerate Member
 - ABps - Achillbeg Lighthouse Psammite Member
 - ABsl - Achillbeg School Black Slate Member
 - AD - Aghaward Formation
 - AD - Ardagh Shale Formation
 - AD - Ardenagh Formation
 - AD - Ashleam Bridge Dolomitic Formation
 - AE - Aghamore Formation
 - AE - Ardane Formation
 - AG - Addergoole River Formation
 - AG - Aghfarrell Formation
 - AG - Aghmacart Formation
 - AGdh - Dowery Hill Member
 - AGdo - Aghmacart Formation
 - AH - Achill Head Formation
 - AH - Arklow Head Formation
 - AHfv - in Arklow Head Formation
 - AI - Aille Limestone Formation
 - AK - Askingarran Formation
 - AL - Altan Limestone Formation
 - AL - Annascaul Formation
 - AL - Argillaceous Limestones (Visean)
 - ALmk - in Argillaceous Limest (Visean)
 - AN - Anaffrin Formation
 - AN - Annabella Formation
 - ANGm - Glennamong Member
 - ANrd - Old Road Member
 - AP - Ards Pelite Formation
 - AP - Ashleam Head Formation
 - AQ - Ards Quartzite Formation
 - AQ - Ashleam Bridge Quartzite Formation
 - AQgr - Ashleam Bridge Graphitic Member
 - AR - Ardvarney Formation
 - AR - Ayle River Formation
 - ARM - Armagh Group
 - AS - Ardnasillagh Formation
 - AS - Ashleam Bay Formation

0 2.6 5.2 7.8 km.

Map center: 322761, 250222



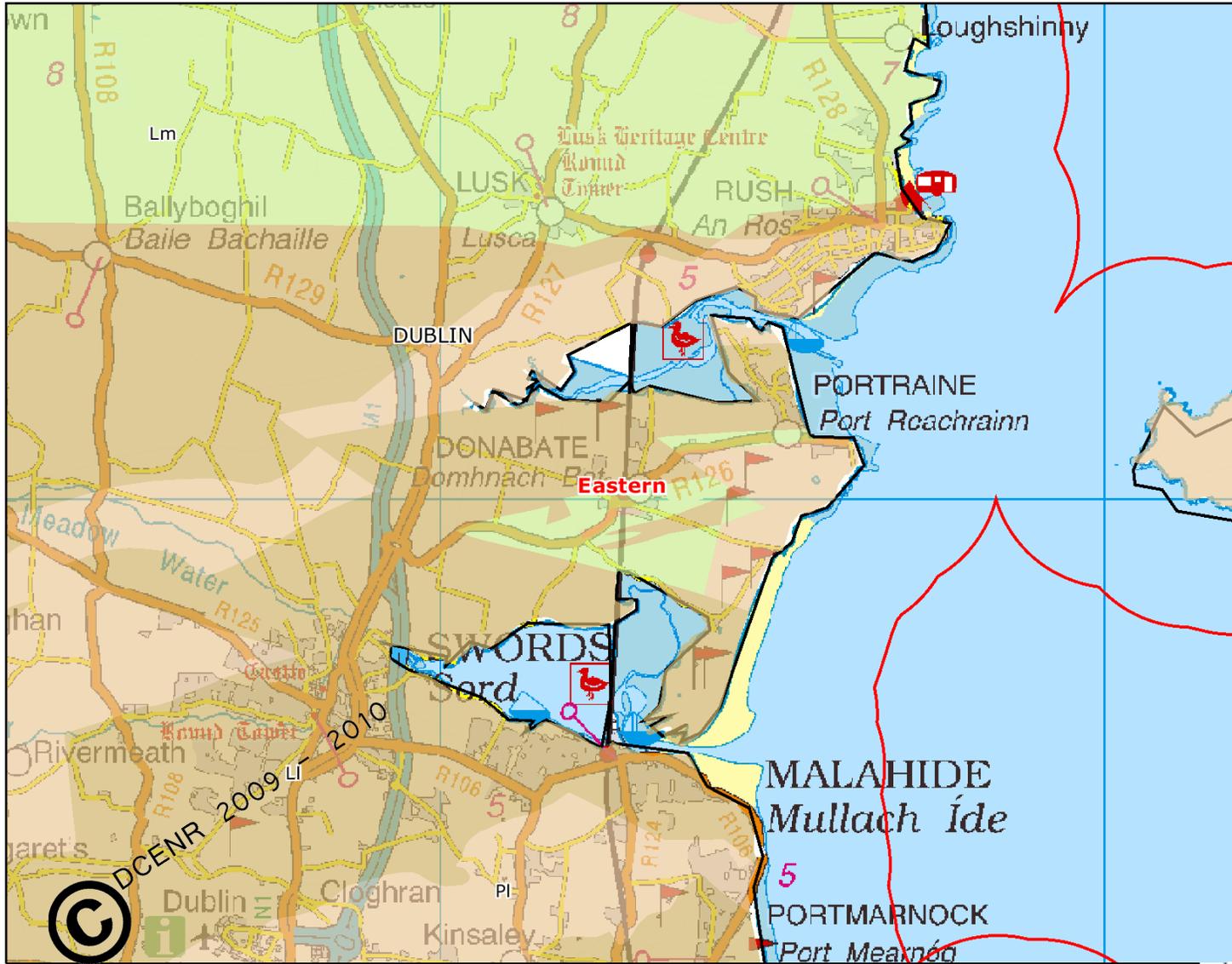
Scale: 1:101,213

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Snapshot Date: 11-Dec-2014



Aquifer



- ### Legend
- National Draft Bedrock Aquifer Map
- Rf - Regionally Important Aquifer - Fissured bedrock
 - Rk - Regionally Important Aquifer - Karstified
 - Rkd - Regionally Important Aquifer - Karstified (diffuse)
 - Rkc - Regionally Important Aquifer - Karstified (conduit)
 - Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
 - Lk - Locally Important Aquifer - Karstified
 - LI - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
 - PI - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
 - Pu - Poor Aquifer - Bedrock which is Generally Unproductive
 - Unclassified
 - RBD Boundaries
 - County Boundaries

0 2.5 5 7.5 km.

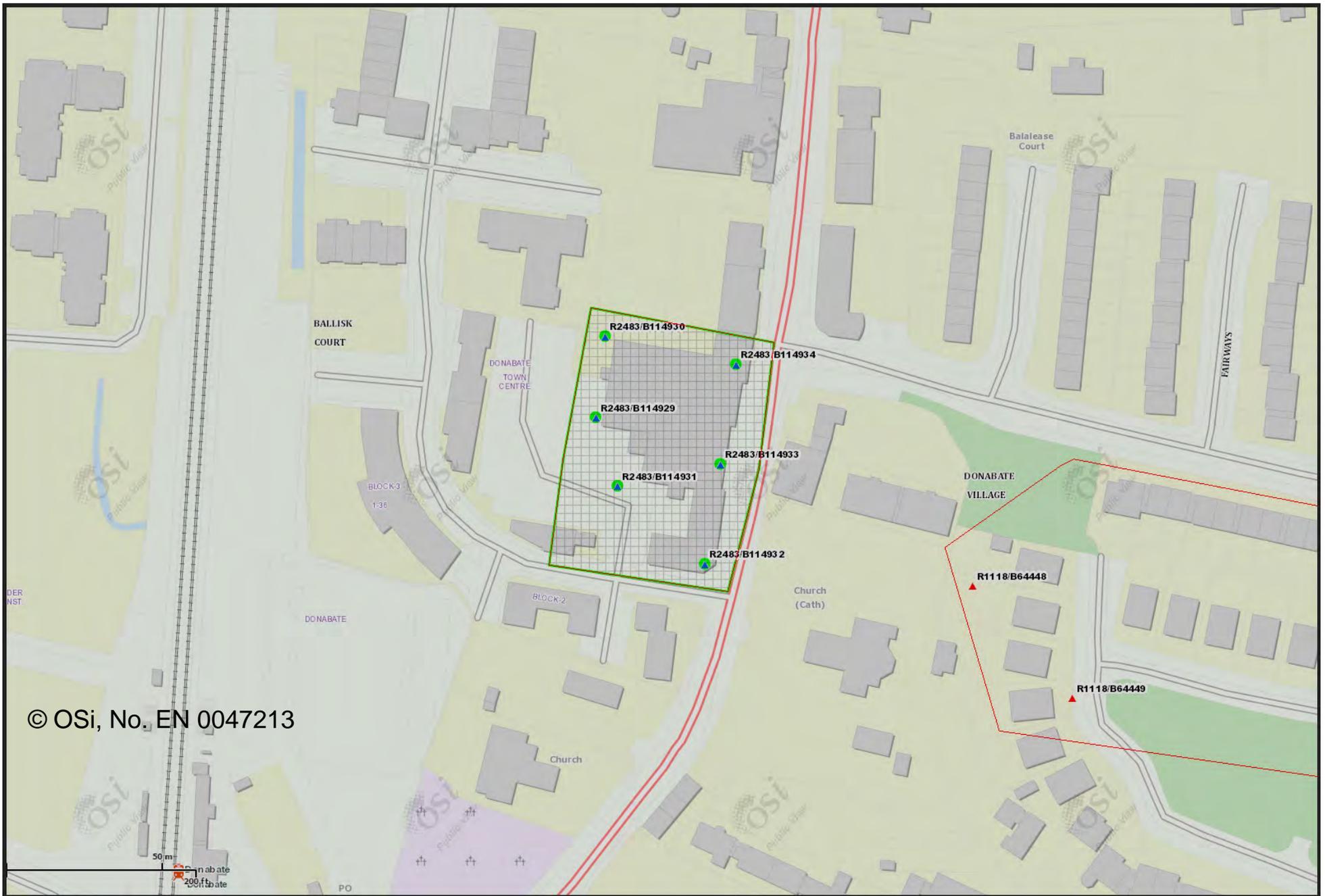
Map center: 322761, 250222



Scale: 1:96,420

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Snapshot Date: 11-Dec-2014



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Overview Map for GSI Report 2483: Donabate Town Centre
Donabate, Co. Dublin
Points Observed: 6

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GSI REPORT 2483

Donabate Town Centre

Donabate, Co. Dublin

Borehole List:

Borehole	Name	Depth	DTB	ODMALIN	Easting	Northing	Description
114929	Trail Pit No. 1	2.2		15	322893	250103	Trial (or Observation) Pit
114930	Trail Pit No. 2	3		15	322896	250129	Trial (or Observation) Pit
114931	Trail Pit No. 3	.5		15	322900	250081	Trial (or Observation) Pit
114932	Trail Pit No. 4	2.2		15	322928	250056	Trial (or Observation) Pit
114933	Trail Pit No. 5	2		15	322933	250088	Trial (or Observation) Pit
114934	Trail Pit No. 6	2.5		12.29	322938	250120	Trial (or Observation) Pit

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114929 (Company Name: Trail Pit No. 1)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149290 1	0	.3				Top Soil	Top Soil
1149290 2	.3	1.2	Firm	Grey	Sandy Gravelly	Clay	Clay
1149290 3	1.2	1.8	Firm	Black	Very Sandy Silty	Clay	Clay
1149290 4	1.8	2.2				Gravel And Clay	Gravel And Clay

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114930 (Company Name: Trial Pit No. 2)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149300 1	0	.4				Top Soil	Top Soil
1149300 2	.4	1.6	Firm	Grey	Sandy Gravelly	Clay	Clay
1149300 3	1.6	2.6	Stiff	Purple	Sandy Gravelly	Clay	Clay
1149300 4	2.6	3				Gravel And Clay	Gravel And Clay

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114931 (Company Name: Trial Pit No. 3)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149310 1	0	.3				Top Soil	Top Soil
1149310 2	.3	.5			Gravelly	Clay	Clay

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114932 (Company Name: Trial Pit No. 4)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149320 1	0	.35				Top Soil	Top Soil
1149320 2	.35	1.3	Firm	Grey	Sandy Gravelly	Clay	Clay
1149320 3	1.3	1.5	Stiff	Black	Sandy Gravelly	Clay	Clay
1149320 4	1.5	2.2				Gravel And Clay	Gravel And Clay

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114933 (Company Name: Trial Pit No. 5)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149330 1	0	.4				Top Soil	Top Soil
1149330 2	.4	1.4	Firm	Grey	Sandy Gravelly	Clay	Clay
1149330 3	1.4	2				Gravel And Clay	Gravel And Clay

GSI REPORT 2483

Donabate Town Centre

LAYERS FOR BOREHOLE 114934 (Company Name: Trial Pit No. 6)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
1149340 1	0	.3				Top Soil	Top Soil
1149340 2	.3	2.1	Firm	Grey	Sandy Gravelly	Clay	Clay
1149340 3	2.1	2.5				Gravel And Clay	Gravel And Clay

GSI REPORT 2483

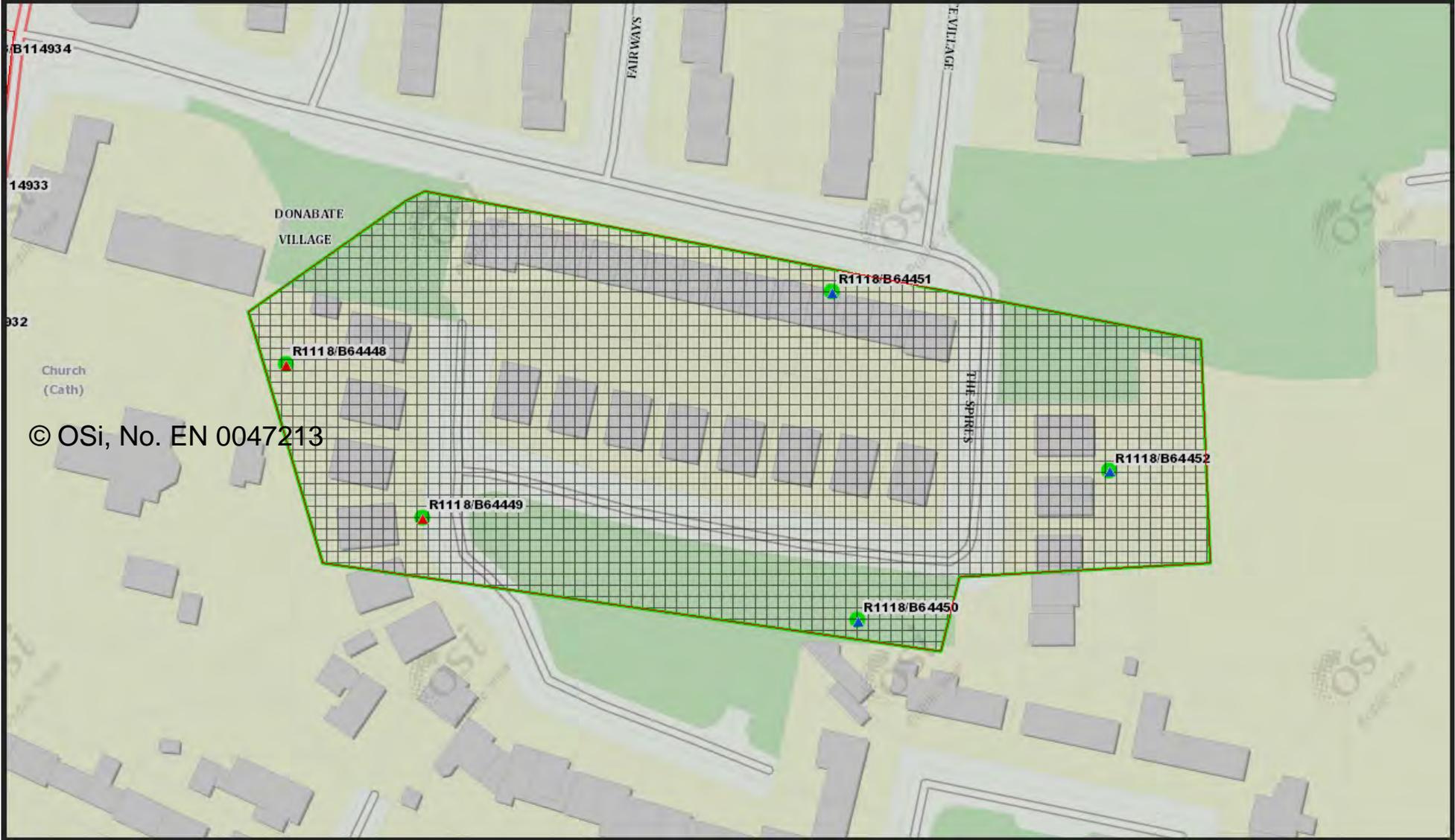
Donabate Town Centre

TESTS FOR LAYER 11492902 IN BOREHOLE 114929 (Company Name: Trail Pit No. 1)

TEST	TOP	CLASS	DESCRIPTION	RESULT	UNITS
1	.8	LABSOIL	Sulphate Content - SO(3) %	0.07	%Soil



Overview Map for GSI Report 1118: Donabate Parish Church (R.C.)
Donabate, Co. Dublin
Points Observed: 5



B114934

14933

332

Church
(Cath)

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DONABATE
VILLAGE

FAIRWAYS

E.VILLAGE

THE SPACES

R1118/B64448

R1118/B64449

R1118/B64451

R1118/B64450

R1118/B64452



GSI REPORT 1118

Donabate Parish Church (R.C.)

Donabate, Co. Dublin

Borehole List:

Borehole	Name	Depth	DTB	ODMALIN	Easting	Northing	Description
64448	TP1	2.8	2.7	9.85	323015	250049	Trial (or Observation) Pit
64449	TP2	1.7	1.6	9.85	323047	250013	Trial (or Observation) Pit
64450	TP3	1.8		9.85	323149	249989	Trial (or Observation) Pit
64451	TP4	1.3		9.85	323143	250066	Trial (or Observation) Pit
64452	TP5	2.3		9.85	323208	250024	Trial (or Observation) Pit

GSI REPORT 1118

Donabate Parish Church (R.C.)

LAYERS FOR BOREHOLE 64448 (Company Name: TP1)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
6444801	0	.1				Top Soil	Top Soil
6444802	.1	1.3		Brown	Sandy	Clay	Clay
6444803	1.3	2.7	Firm			Clay And Silt	Clay And Silt
6444804	2.7	2.8				Bedrock	Bedrock

GSI REPORT 1118

Donabate Parish Church (R.C.)

LAYERS FOR BOREHOLE 64449 (Company Name: TP2)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
6444901	0	.1				Top Soil	Top Soil
6444902	.1	1.6	Firm		Gravelly	Clay	Clay
6444903	1.6	1.7				Bedrock	Bedrock

GSI REPORT 1118

Donabate Parish Church (R.C.)

LAYERS FOR BOREHOLE 64450 (Company Name: TP3)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
6445001	0	.1				Top Soil	Top Soil
6445002	.1	1.2				Clay	Clay
6445003	1.2	1.8			Clayey	Sand And Gravel	Sand And Gravel

GSI REPORT 1118

Donabate Parish Church (R.C.)

LAYERS FOR BOREHOLE 64451 (Company Name: TP4)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
6445101	0	.1				Top Soil	Top Soil
6445102	.1	.9			Sandy	Clay	Clay
6445103	.9	1.3			Sandy	Gravel	Gravel

GSI REPORT 1118

Donabate Parish Church (R.C.)

LAYERS FOR BOREHOLE 64452 (Company Name: TP5)

LAYER	TOP	BASE	STRENGTH	COLOUR	MINORLITH	MAJORLITH	INTERPRETATION
6445201	0	.1				Top Soil	Top Soil
6445202	.1	1		Brown	Gravelly	Clay	Clay
6445203	1	1.7			Clayey Sandy	Gravel	Gravel
6445204	1.7	2.3	Coarse			Gravel	Gravel

GSI REPORT 2483

Donabate Town Centre

TESTS FOR LAYER 11493402 IN BOREHOLE 114934 (Company Name: Trial Pit No. 6)

TEST	TOP	CLASS	DESCRIPTION	RESULT	UNITS
1	1.2	LABSOIL	Sulphate Content - SO(3) %	0	%Soil