

Ballymastone Phase 3

Site Specific Flood Risk Assessment

20003-DBF-XXXX-XX-RP-C01-000102

Oct 2025



Project Title:	Ballymastone Phase 3		
Document Title:	Site Specific Flood Risk Assessment		
File Ref:	20003-DBF-XXXX-XX-RP-C01-000102		
Status:	S0 Initial Status	Rev:	P02

Rev.	Date	Description	Prepared	Reviewed	Approved
1	03/06/2025	LRD Stage 2 Submission	Jack O'Callaghan	Brendan Curran	Brendan Manning
-	28/08/2025	LRD Stage 3 Draft	Jack O'Callaghan	Brendan Curran	Brendan Manning
2	01/10/2025	LRD Stage 3 Submission	Jack O'Callaghan	Brendan Curran	Brendan Manning

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1 Introduction

1.1 Background

DBFL Consulting Engineers have been instructed by the applicant to undertake a "Site Specific Flood Risk Assessment" (SSFRA) for a proposed residential development at Ballymastone, Donabate.

This Stage 3 Large-scale Residential Development (LRD) Planning Application to Fingal County Council (FCC) for Phase Three of the Ballymastone masterplan development to Fingal County Council is prepared on behalf of Glenveagh Living Limited, consisting of a c.11.28 ha site area which is located at Ballymastone, Donabate, Dublin. Please see Figure 1 below indicating the site area.



Figure 1: Site Layout

In summary, the proposed development will consist of the construction of a residential development, which represents Phase 3 of the wider development of the Ballymastone Lands, ranging in height from 2- to 6-storeys, to accommodate 398 no. residential dwellings (including a mix of apartments, duplexes and houses), private amenity space, a crèche (c. 646sq.m), and a community space (c. 100sq.m). The site will accommodate 316 no. car parking spaces in total (comprised of 288 no. residential spaces, 10 no. spaces for the proposed crèche/community space,

6 no. EV charging spaces including accessible spaces, and 12 no. spaces ducted for future provision), 1,619 total no. bicycle parking spaces, new pedestrian/cycle links, road improvements, storage, services (including water, wastewater, electricity and telecommunications) and plant areas. Landscaping will include communal amenity areas, SuDS features, and significant public open space (c. 15.3% of the net site) including outdoor exercise and play equipment.

1.2 Objectives

The objective of this report is to inform the planning authority in relation to flood risk associated with the development of the lands.

The report will assess the site in accordance with the requirements of *"The Planning System and Flood Risk Management Guidelines for Planning Authorities"* and its Technical Appendices (Office of public Works, November 2009).

The report will provide the following;

- The site's flood zone category.
- Information to allow an informed decision of the planning application in the context of flood risk.
- Appropriate flood risk mitigation and management measures for any residual flood risk

1.3 Flood Risk Assessment Scope

This SSFRA relates only to the proposed Phase 3 development lands at Ballymastone in Donabate (as described in Section 1.0 of this report) and its immediate surroundings.

This report uses information obtained from various sources, together with an assessment of flood risk for the existing land and proposed development.

The report follows the requirements of *'The Planning System & Flood Risk Management – Guidelines for Planning Authorities'*, (referred to as the *Guidelines* for the remainder of this report).

1.4 Approach

Section 2.0 of this report considers *'The Planning System & Flood Risk Management – Guidelines for Planning Authorities'* as they relate to the subject site. Flood risk identification is presented in Section 3.0 and initial flood risk assessment in Section 4.0. A more detailed assessment of specific

flood risk and residual risk relating to the proposed development is presented in Section 5.0. Conclusions and recommendations are presented in Section 6.0.

1.5 Existing Site

The subject site, of 11.28 hectares, is located within the Donabate area of northeast Dublin.

The site is a large greenfield site to the east of Donabate Village. The site, currently in use as part of the construction of the other phases, is bordered by Phase 2 of the overall masterplan (FCC Reg. Ref. LRD0039/S3) lands directly south of the development with the R126 Donabate Distributor Road (DDR) running along the eastern boundary of the site. The site is bound to the west by The Links development with the Ballymastone masterplan lands to the south, and Willowbrook and The Priory developments to the north. Donabate Golf Club and St. Ita's Demesne are located to the east of the subject site. A network of hedgerows and drainage ditches are located throughout the site.

The lands are within the jurisdiction of Fingal County Council's Development Plan, 2023-2029. They are primarily zoned 'RA', Residential Area, to 'provide for new residential communities subject to the provision of the necessary social and physical infrastructure'.

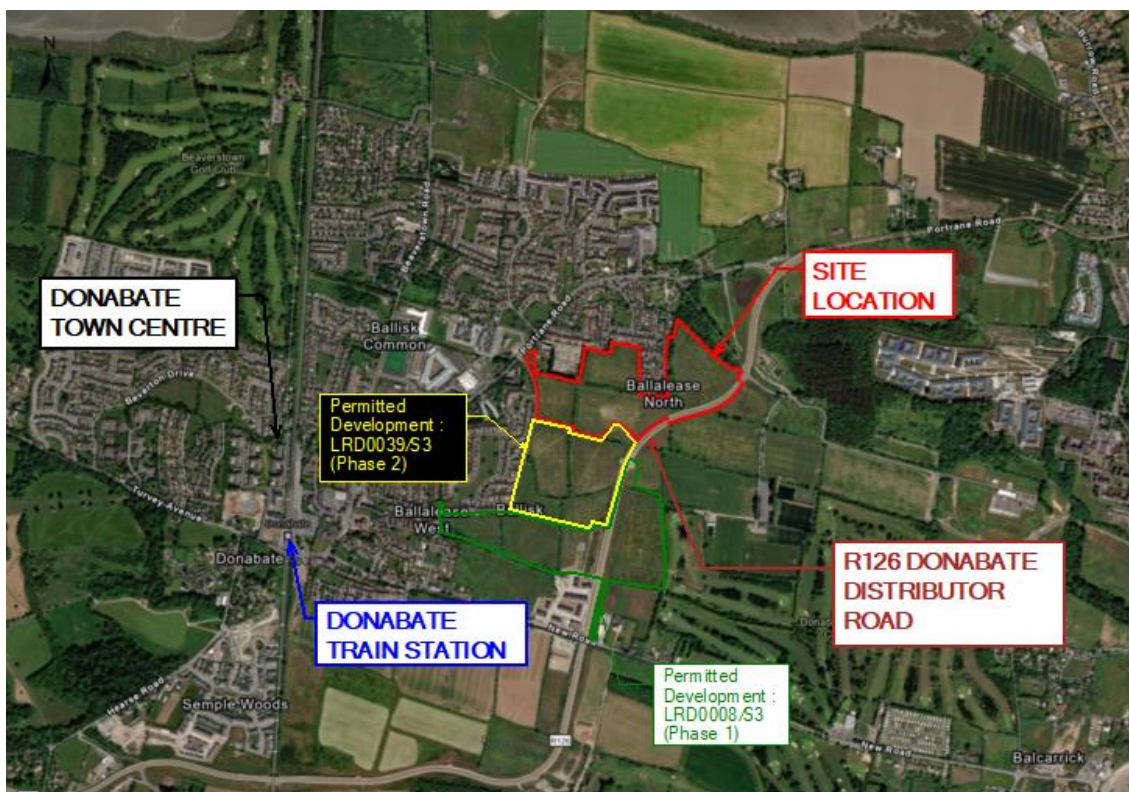


Figure 2: Site Location Plan

The general topography of the site is flat with a high point in the middle of the site adjacent to the DDR from where it falls to the North. A topographical survey of the site is provided as a background to the road layout drawing 20003-DBF-XXXX-XX-DR-C01-123000. A network of hedgerows and drainage ditches are located throughout the site.



Figure 3: Existing Surface Water Systems and watercourses

1.6 Proposed Development

The proposed residential development for Phase 3 seeks permission for the provision of 398 no. residential units comprising 124 no. apartments, 47 no. duplexes and 227 houses.

2 Planning System & Flood Risk Management Guidelines

2.1 General

"The Planning System and Flood Risk Management Guidelines for Planning Authorities" and its Technical Appendices outline the requirements for a Site-Specific Flood Risk Assessment.

Table 3.1 of the Guidelines classifies dwelling houses as "highly vulnerable development".

Figure 3.2 of the Guidelines, as shown in Figure 4: Sequential Approach mechanism in the Planning Process (Figure 3.2 of The Planning System and Flood Risk Management Guidelines) Figure 4 below, indicates that this type of development is required to be in Flood Zone C, where probability of flooding from rivers is low (less than 0.1% AEP). A Justification Test is required for the development management to locate a "highly vulnerable development" in Flood Zone A or Flood Zone B.

2.2 Sequential Approach

This site-specific flood risk assessment (SSFRA) will initially use existing flood risk information to determine the flood zone category of the Site i.e., to determine whether the development is considered appropriate or whether a justification test is required, see Figure 4 below for details.

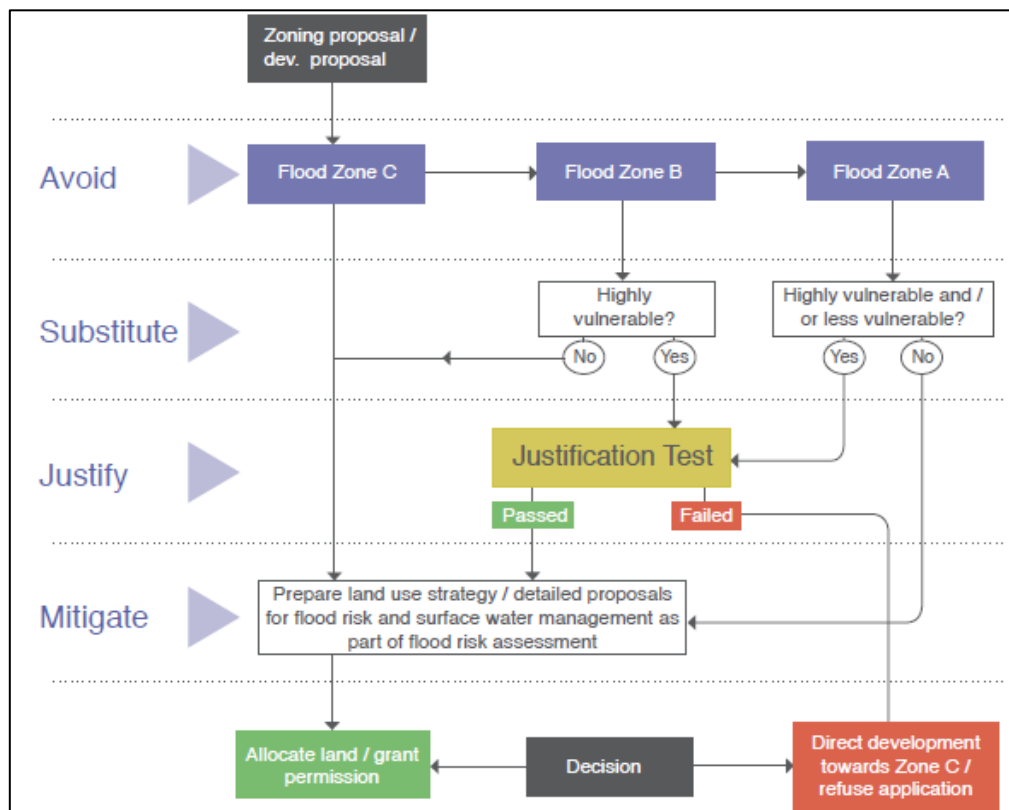


Figure 4: Sequential Approach mechanism in the Planning Process (Figure 3.2 of The Planning System and Flood Risk Management Guidelines)

2.3 Flood Risk Assessment Stages

Flood risk is normally assessed by a flood risk identification (Stage 1) stage followed by an initial flood risk assessment (Stage 2). A more detailed flood risk assessment (Stage 3) then follows which includes an assessment of surface water management, flood risk and mitigation measures to be applied.

The following report sections outline the flood risk assessment stages for the proposed development which follow the requirements of the Guidelines' Technical Appendices.

3 Stage 1 – Flood Risk Identification Stage

3.1 General

The initial flood risk identification stage uses existing information to identify and confirm whether there may be flooding or surface water management issues for the lands that may require further investigation.

3.2 Information Sources Consulted

Information sources consulted for the identification exercise are outlined in Table 1 below.

Information Source	Comments
Predictive and historic flood maps, and Benefiting Lands Maps, such as those at www.floodinfo.ie	Information obtained (and reviewed) from www.floodinfo.ie (OPW website).
Expert advice from OPW who may be able to provide reports containing the results of detailed modelling and flood-mapping studies, including critical drainage areas, and information on historic flood events, including flooding from all sources;	Information obtained (and reviewed) from www.floodinfo.ie (OPW website).
Predictive pluvial flood maps;	Draft CFRAM coastal flood extents map consulted.
Previous Strategic Flood Risk Assessments;	Categorized as Flood Zone C
Topographical maps, in particular digital elevation models produced by aerial survey or ground survey techniques;	OSI Maps consulted & Site topographic survey undertaken.
Information on flood defence condition and performance; https://www.floodinfo.ie/map/floodplans/	No flood defence existing or proposed
Maps of the Geological Survey of Ireland (which would allow the potential for the implementation of source control and infiltration techniques, groundwater, and overland flood risk to be assessed). These maps, while not providing full coverage, can indicate areas that have flooded in the past (the source of the alluvium) and may be particularly useful at the early stages of the FRA process where no other information is available;	GSI maps consulted. https://gis.epa.ie/EPAMaps/?s=water
Walkover survey to assess potential sources of flooding, likely routes for flood waters and the site's key features, including flood defences; and	Walkover survey conducted.

National, regional & local spatial plans, such as the National Spatial Strategy, regional planning guidelines, development plans & local area plans provide key information on existing and potential future receptors.	Fingal County Council Development Plan and Donabate LAP consulted.
'Liable to flood' markings on the old '6 Inch' maps;	Historic OSI maps consulted.

Table 1 – Information sources consulted

3.2.1 OPW Predictive, Historic & Benefiting Lands Maps & Flood Hazard Information

OPW's Summary Local Area Report is included in Appendix B. This report has been obtained from the OPW website (www.floodinfo.ie) and summarizes all flood events within 2.5km of the subject site.

The report identifies previous flood events within 2.5km of the proposed site, however these events did not cause flooding within the subject development lands.

3.2.2 Previous Strategic Flood Risk Assessments & Predictive Flood Maps

- OPW ECFRAMS Flood Extent Mapping

The Eastern CFRAM study is the most comprehensive flood mapping undertaken in the Dublin region. It commenced in June 2011 with final flood maps issued during 2016. The study involved detailed hydraulic modelling of rivers and their tributaries. The Eastern CFRAM supersedes the fluvial flood extent mapping identified in the OPW PRFA study. A copy of the CFRAM flood extent mapping for the site is included in Appendix C and extract from the online map viewer is shown in Figure 5 below. They indicate no pluvial, fluvial, or coastal flooding within the site boundary.

- SFRA - Fingal County Development Plan 2023-2029

The SFRA carried out as part of the Fingal County Development Plan 2023-2029 did not identify any flooding within the site.

- Donabate Local Area Plan, 2016 - Strategic Flood Risk Assessment

Donabate Local Area Plan, 2016 - Strategic Flood Risk Assessment did not identify any flooding within the site. Site identified as being in Flood Zone C (Low risk).

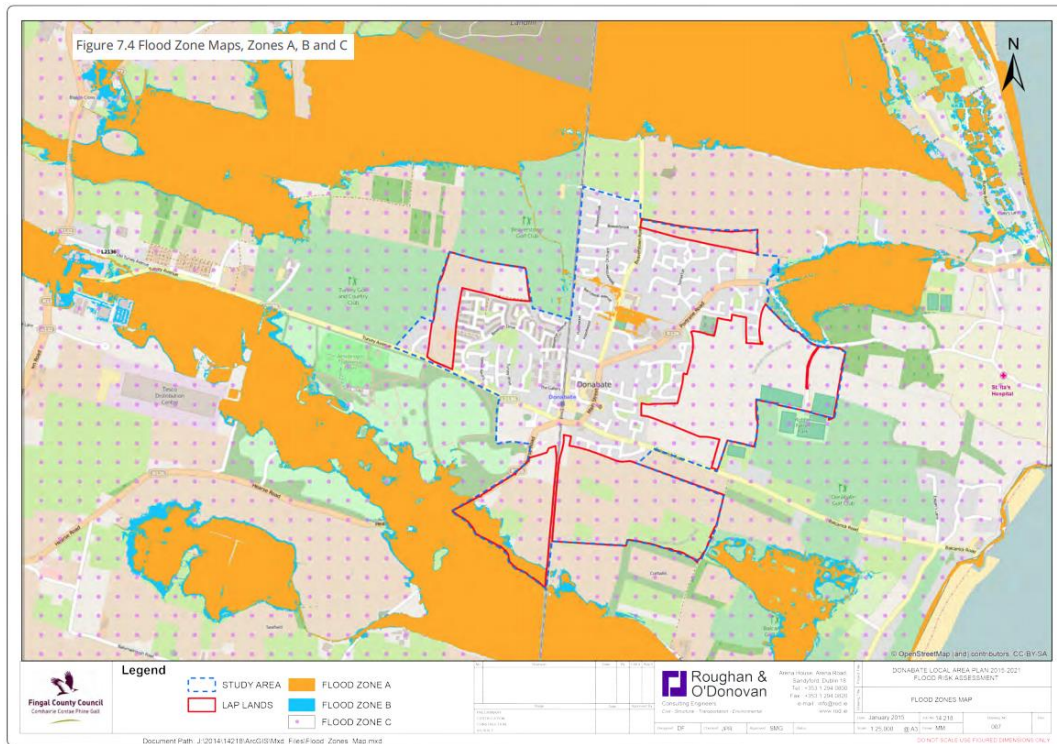


Figure 5: Donabate (LAP) Strategic Flood Risk Assessment Map

3.2.3 Tidal Flood Maps

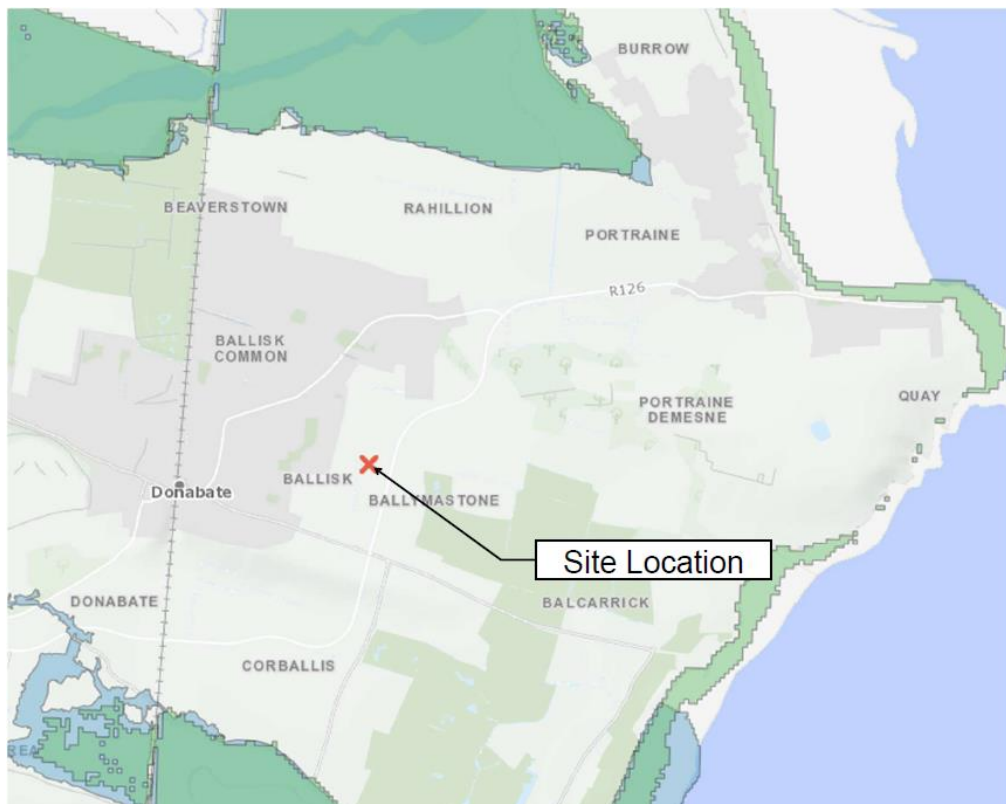


Figure 6: Extract of OPW Coastal Flood Mapping (CFRA)

3.2.4 Other Sources

Other information sources were consulted to determine if there was any additional flood risk to the subject site, these included;

- Topographical surveys of the area – no evidence based on topography.
- Flood defences Information from OPW – no flood defence existing or proposed.
- Soil data from EPA and GSI – subsoils identified as tills derived from limestones.
- Groundwater information from GSI – no information available.
- Walkover survey – No evidence of flooding within the development lands.
- Development Plan & Local Area plan – lands are zoned for residential development.
- Donabate Local Area Plan (LAP) 2016 includes a Strategic Flood Risk Assessment which highlights flood zones within the LAP boundary. The subject site is classified as Flood Zone C.
- Existing Local Authority Drainage Records – an existing network of surface water ditches traverse the site.
- Existing Local Authority Drainage Records – an existing surface water sewer is located within the Donabate Distributor Road as well as within the Links access road.
- Local Information & Local Authority Consultation – no evidence of flood risk to lands.
- Historic Maps – no evidence of flooding or marsh areas within the Site.

From a review of the 'other sources' above there does not appear to be evidence of flood risk to the development lands.

3.3 Source-Pathway-Receptor Model

A Source-Pathway-Receptor model was produced to summarize the possible sources of floodwater, the people, and assets (receptors) that could be affected by potential flooding (with specific reference to the proposals) and the pathways by which flood water for a 0.1% AEP (Annual Exceedance Probability) and 1% AEP storms could reach the receptors, see Table 2. It provides the probability and magnitude of the sources, the performance and response of pathways and the

consequences to the receptors in the context of the LAP development proposals. These sources, pathways and receptors will be assessed further by the initial flood risk assessment stage.

Source	Pathway	Receptor	Likelihood	Consequence	Risk
Tidal	Tidal flooding from coast, 1.5km away	Entire Site	Remote		
Fluvial	From the existing ditches traversing the site	Residents (people), apartments, vehicles, roads;	Low	Medium	Moderate
Surface Water Drainage (Pluvial)	Flooding from development's surcharging drainage systems	Residents (people), apartments and vehicles. Roads, pathways, and open space areas.	Possible	Medium	Moderate
Groundwater flooding	Rising GWL on the site	Entire Site	Remote		
Human or Mechanical Error (Pluvial)	New drainage network blocks	Areas of development draining to the surface water network	Possible	Medium	Moderate

Table 2 – Source-pathway-receptor analysis

4 Stage 2 – Initial Flood Risk Assessment Stage

Flood risks identified during Stage 1 – Flood Risk Identification, are outlined in Table 2 (Source Pathway Receptor Analysis) and noted below. These risks are assessed further in this section of the SSFRA.

- A low risk of fluvial flood risk from the existing ditch.
- Pluvial flood risk following development.

The information sources identified in Section 3.2 are considered adequate for the purpose of an Initial Flood Risk Assessment for the site and no further technical studies are proposed.

4.1 Initial Fluvial Flood Risk Assessment

The Preliminary Flood Risk Assessment (PFRA) flood extents map identified no risk of fluvial flooding on the subject site up to the 1% AEP (Annual Exceedance Probability) event, (see PFRA maps in Appendix C).

The Donabate Local Area Plan, 2016 - Strategic Flood Risk Assessment indicate the subject site is in Flood Zone C (Low risk).

4.2 Initial Pluvial Flood Risk Assessment

The Source-Pathway-Receptor model identified that there could be potential for pluvial flood risk within the LAP lands related to future drainage networks to serve the proposed development. These have potential to cause local flooding unless they are designed in accordance with the regulations e.g., GDSDS and to take account of flood exceedance e.g., for storms return periods over 1%AEP.

The Source-Pathway-Receptor model also identified that the proper operation and maintenance of the drainage system is necessary to reduce the risk of human or mechanical error causing pluvial flood risk from blockages etc.

4.3 Flood Zone Category

Following assessment of the flood risks to the Site and available flood data it is considered that the Site is within Flood Zone Category C as defined by the Guidelines. The residential type of development proposed is therefore appropriate for this flood zone category. The Guidelines Sequential Approach is therefore met and the 'Avoid' principal achieved.

5 Stage 3 – Detailed Flood Risk Assessment Stage

5.1 General

Since the type of development proposed is appropriate for the Flood zone category C of the Site, the detailed flood risk assessment stage will only consider pluvial flood risk in relation to the following;

- Proposed Surface Water Management measures.
- Flood Exceedance.
- Impact of proposals on flood risk to adjacent areas.
- Effects of climate change.
- Sustainable Urban Structure.
- Residual risks.
- Effectiveness of any flood mitigation measures.

5.2 Surface Water Management

The proposed storm-water drainage design for the development is generally a standard gully and pipe-work collection system combined with SUDs features such as swales and tree pits with an attenuated outfall and associated attenuation storage.

The proposed new development will increase the impermeable area and run-off volume when compared with the existing green-field site. The new drainage system has the following features;

- Discharged flows are reduced to equivalent green-field run-off rates in accordance with the GDSDS.
- Attenuation storage is provided; in accordance with the GDSDS.

5.2.1 Sustainable Urban Drainage System Proposals

The SUDS proposals for the development include;

- Underground geo cellular Attenuation system
- Above Ground Attenuation basins
- Permeable paving for on-street parking under the control of a management company.
- Green Roofs on all apartment blocks

- Hydrobrake and associated storage to limit outflows to greenfield run-off rates.
- Rain Gardens
- Swales

5.2.2 Surface Water Attenuation and Storage

Storm-water attenuation for the development has been sized in accordance with the requirements of the GDSDS. Run-off rates from the proposed development to the public system are also attenuated to existing green-field run-off rates as per the GDSDS.

The total surface water storage volume available is in the region of 2180m³ provided within the attenuation facilities. The total storage volume is based on the site's available outflow of 29.7l/sec.

5.3 Flood Exceedance

For storms greater than the 1% AEP pluvial event, the development's drainage network design will be exceeded and areas with low ground levels will begin to flood. Proposed road levels all fall towards the surface water drainage outfalls, see flood exceedance layout in Appendix E. This will ensure that the proposed residential units are protected from flooding when the drainage network may be exceeded.

Lowest building floor levels are set a minimum of 0.5m above the top water level in the corresponding attenuation facility in accordance with recommended minimum freeboards.

5.4 Impact on Adjacent Areas

Adjacent areas will not be impacted by the development for up to the 1%AEP flood event, however if larger storms >1%AEP exceed the capacity of the development's drainage system then overland flood routes may be directed towards the surface water drainage outfalls.

5.5 Climate Change

The potential impact of climate change has been allowed for as follows;

- Pluvial flood risk - drainage system and attenuation storage design allow for a 20% increase in rainfall intensities, as recommended by the GDSDS.

5.6 Sustainable Urban Structure

The development has been designed in accordance with the GDSDS.

5.6.1 Access & egress during flood events

The proposed development and its essential infrastructure such as roads, is in flood zone C. Additionally, based on relevant fluvial flood information from PFRA and the Donabate LAP, it is anticipated that for a 0.1% AEP flood event, the development can be safely accessed and exited through the proposed vehicular entrances from the DDR and via the Links access road.

5.7 Residual Risks

Remaining residual flood risks, following the detailed assessment include the following;

1. Pluvial flooding from the private drainage system related to a pipe blockage or from flood exceedance.
2. Pluvial flooding from the development's drainage system for storms in excess of the design capacity.

5.8 Mitigation Measures

Proposed mitigation measures to address residual flood risks are summarized below;

- M1. Proposed drainage system to be maintained on a regular basis to reduce the risk of a blockage.
- M2. In the event of storms exceeding the 100-year design capacity of the drainage system, then possible flooding is directed towards green areas or the drainage outfalls

5.8.1 Effectiveness of Mitigation Measures

It is considered that the flood risk mitigation measures if implemented are sufficient to provide a suitable level of protection to the proposed development. A regularly maintained drainage system will ensure that it remains effective and in good working order should a large pluvial storm occur.

Should extreme pluvial flooding occur that is in excess of the development's drainage capacity i.e., probability less than 1%AEP, then overland flood routes to the drainage outfall could protect the development and dwellings with lower floor levels.

6 Conclusions

The Site-Specific Flood Risk Assessment for the proposed Phase 2 development at Ballymastone, Donabate was undertaken in accordance with the requirements of the Planning System and Flood Risk Management Guidelines for Planning Authorities”, November 2009.

Following the flood risk assessment stages, it was determined that the Site is within Flood Zone C as defined by the Guidelines.

It is concluded that the;

- Residential development proposed is appropriate for the Site’s flood zone category.
- Planning System and Flood Risk Management Guidelines Sequential Approach is met and the ‘Avoid’ principal achieved.

The development was concluded as having a good level of flood protection up to the 100-year return event. For pluvial floods exceeding the 100-year capacity of the drainage system then proposed flood routing mitigation measures are recommended.

Appendix A : PROPOSED SCHEME LAYOUT

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NOTES:

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE HIGH SPECIFICATION FOR ROADWORKS UNLESS OTHERWISE STATED IN LOCAL OVERSEASING AUTHORITY'S STANDARDS.

2. ALL ROAD MARKINGS SHALL COMPLY FULLY WITH THE TRAFFIC SIGNS MANUAL PUBLISHED BY THE DEPARTMENT OF TRANSPORT, JUNE 2015.

3. SLOPE LAMINATE CONTRACTOR TO CHAIN PREPARE SETTING OUT WITH EMPLOYERS REPRESENTATIVE PRIOR TO CONSTRUCTION.

4. ALL SIGNS TO BE MOUNTED ON 19mm GALVANIZED STEEL POSTS WITH COLOURED REFLECTIVE GLASS TO SPECIFICATION IN ACCORDANCE WITH THE TRAFFIC SIGNS MANUAL, MOUNTING HEIGHT TO BOTTOM OF SIGN + 2m UNLESS OTHERWISE STATED.

5. ALL TRAFFIC MANAGEMENT TO COMPLY FULLY WITH THE PROVISIONS OF CHAPTER 10 OF THE TRAFFIC SIGNS MANUAL.

6. ALL COORDINATES ARE TO THE IRISH TRANSVERSE MERCATOR.

7. ALL LEVELS ARE TO ORDNANCE DATUM AND ARE IN METRES.

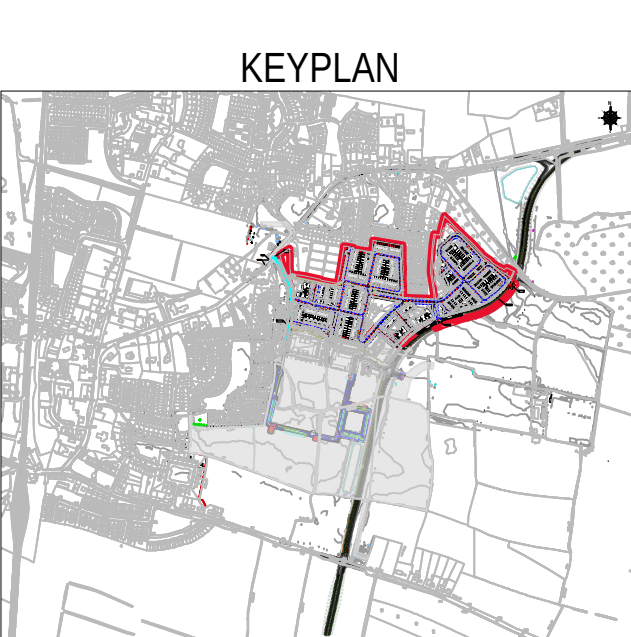
8. ALL EXISTING SLOPE LAMINATE SHALL BE TAKEN UP OR COVERED AND TEMPORARY MEASURES APPLIED IN ACCORDANCE WITH CONTRACTORS TRAFFIC MANAGEMENT PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF THEIR TRAFFIC MANAGEMENT PLAN.

9. ALL EXISTING CHANGERS SHALL BE REMOVED PRIOR TO POSITION IDENTIFIED ON SITE SURVEY LAYOUT DRAWING.

10. ALL PEDESTRIAN CYCLE AND VEHICULAR ROUTES MUST BE RETAINED IN ACCORDANCE WITH APPROVED TRAFFIC MANAGEMENT PLAN.

11. ALL UNDESIRABLE TO BE EXPOSED OFF SITE SHALL BE RETAINED TO ALIGNED FACILITY APPROVED BY THE LOCAL OVERSEASING AUTHORITY.

- ROADS LEGEND**
- PROPOSED SITE BOUNDARY
 - PROPOSED ROAD
 - PROPOSED FOOTPATH
 - PROPOSED KERNELEDGE & PAVED VERGE
 - PROPOSED CYCLE TRACK
 - PROPOSED SHARED CYCLIST AND PEDESTRIAN ROUTE PATH
 - PROPOSED ROAD RASSED TABLE
 - PROPOSED PERMANENT PAVING
 - PROPOSED PERMANENT PAVING (PUBLIC PARKING)
 - PROPOSED PERMANENT PAVING (BAY / EV CAR PARK SPACE)
 - PROPOSED PERMANENT PAVING (EV CAR PARK SPACE)
 - PROPOSED CYCLE PROTECTION KERB
 - PROPOSED LANDSCAPE AREA
 - PROPOSED DROPPED CURB
 - PROPOSED BUTTLE PAVING AT UNCONTROLLED CROSSINGS
 - PROPOSED BUTTLE PAVING AT CONTROLLED CROSSINGS
 - PROPOSED FINISHED FLOOR LEVEL
 - PROPOSED ROAD LEVEL
 - PROPOSED BACK OF FOOTPATH LEVEL
 - DRIVE SURVEY SPOT LEVEL
 - BLACK STEP
 - ROAD GRADIENT
 - PEDESTRIAN CYCLIST LINKAGES
 - PRIMARY SIGNAL HEAD (TYPE NO. 1)
 - SECONDARY SIGNAL HEAD (TYPE NO. 2)
 - PROPOSED PEDESTRIAN SIGNAL WITH PEDESTRIAN SIGNAL UNIT (TYPE 2)
 - EXISTING DOR ROAD
 - EXISTING DOR FOOTPATH
 - EXISTING DOR SHARED SURFACE
 - EXISTING DOR OFF ROAD CYCLE PATH
 - EXISTING DOR ON ROAD CYCLE TRACK
 - EXISTING DOR VERGE
 - FLUSH KERB (900 MM MAX)
 - LOW KERB
 - INTERMEDIATE LATERAL INLET KERB
 - TRANSITION KERB
 - PIN KERB



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PGD	02-10-20	LRD Stage 3 Submission	AAC	BCU
PGD	02-06-20	LRD Stage 2 Submission	RT	BCU
rev	001	Discussion	BY	PMG

STATUS CODES
P3 - PLANNING PERMISSION | S - ISSUED

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project ref
BALLYMASTONE_PHASE 3 LRD

drawing title
OVERALL ROAD LAYOUT

author
MDO

designed by	author	scale	sheet size
BCU	RT	1:1000	A0
drawing no.	20003-DBF-XXXX-XX-DR-C01-123000		P02

Appendix B : OPW FLOOD HAZARD WEBSITE REPORT

Past Flood Event Local Area Summary Report

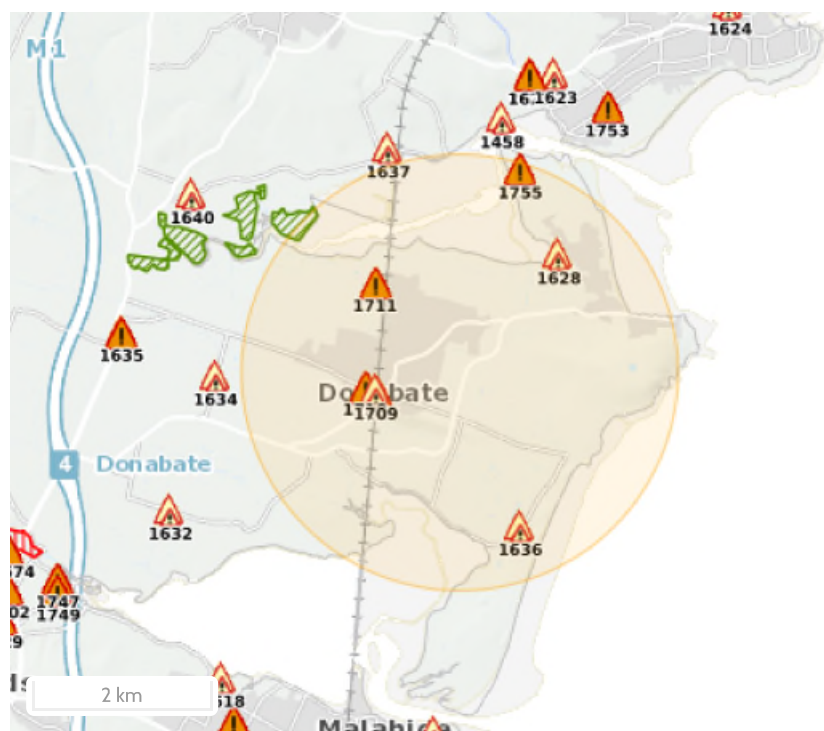


OPW Oifig na nOibreacha Poiblí
Office of Public Works

Report Produced: 7/9/2021 17:25

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "Website"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.



Map Legend

- Single Flood Event
- Recurring Flood Event
- Past Flood Event Extents
- Drainage Districts Benefited Lands*
- Land Commission Benefited Lands*
- Arterial Drainage Schemes Benefited Lands*

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained on Floodinfo.ie

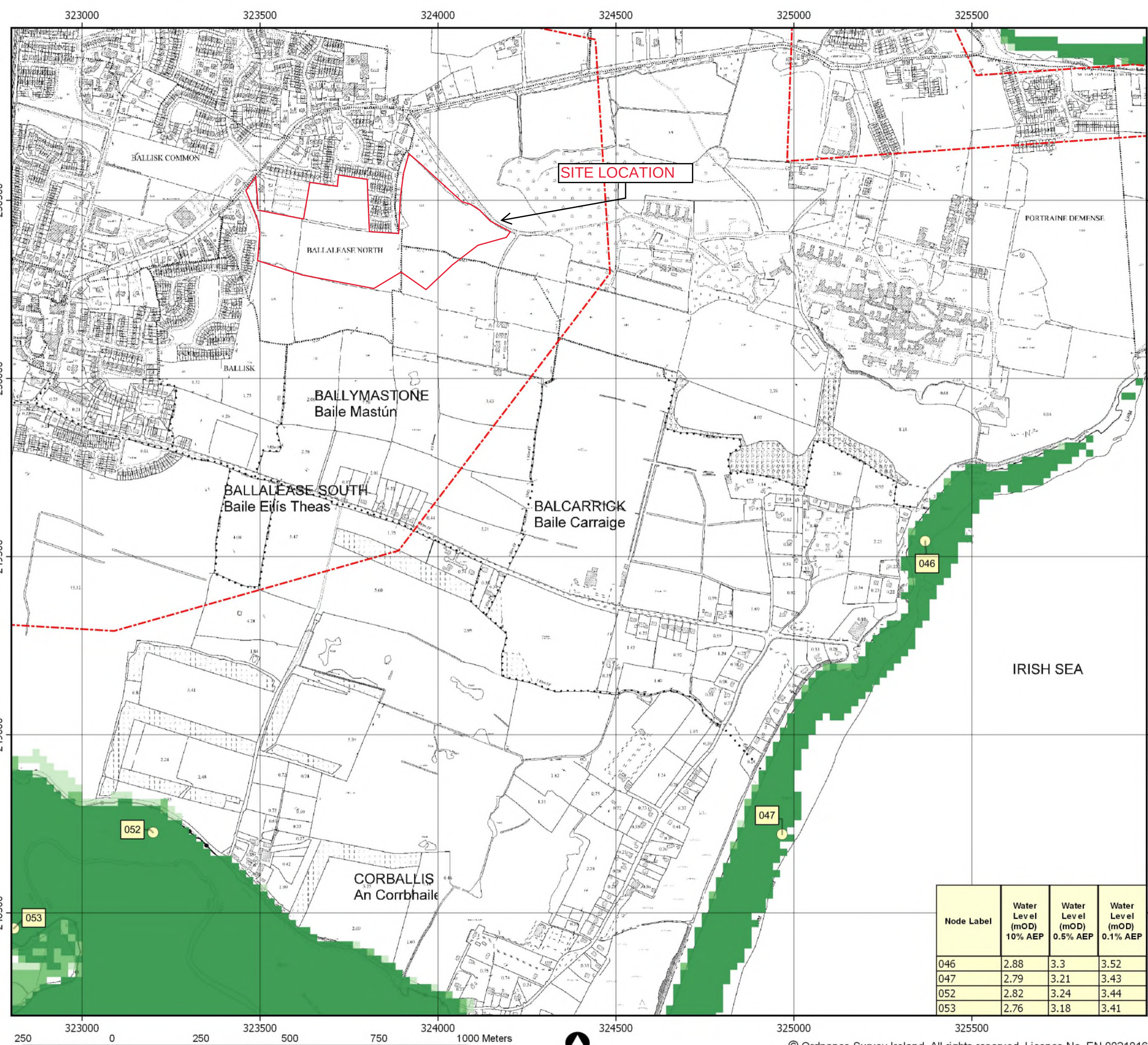
7 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Ballisk Donabate Nov 2002 (ID-1709) Additional Information: Reports (5) , Press Archive (0)	14/11/2002	Approximate Point
2.	Beaverstown Nov 2002 (ID-1711) Additional Information: Reports (1) , Press Archive (0)	14/11/2002	Exact Point
3.	The Burrow Portrane Recurring (ID-1628) Additional Information: Reports (3) , Press Archive (0)	n/a	Exact Point
4.	Corballis Road Donabate Recurring (ID-1636) Additional Information: Reports (2) , Press Archive (0)	n/a	Exact Point
5.	Hearst Road Donabate Nov 2002 (ID-1710) Additional Information: Reports (1) , Press Archive (0)	14/11/2002	Approximate Point
6.	The Burrow Portrane Feb 2002 (ID-1755) Additional Information: Reports (2) , Press Archive (0)	01/02/2002	Exact Point

	Name (Flood_ID)	Start Date	Event Location
7.	 Ballisk Lane Donabate Recurring (ID-1457)	n/a	Exact Point
Additional Information: Reports (6) , Press Archive (0) .			

Appendix C : PRELIMINARY FLOOD RISK ASSESSMENT (PRFA)

MAP EXTRACT OPW



Location Plan:



LEGEND

- AFA Boundary
- Defended Area
- Modelled River Centreline
- Node Point
- 10% AEP Tidal Extent (High Risk)
- 0.5% AEP Tidal Extent (Medium Risk)
- 0.1% AEP Tidal Extent (Low Risk)
- Flood Defence - Embankment
- Flood Defence - Wall
- Gate
- NODE123 Node Label
- x.x% AEP Standard of Protection of Flood Defence

IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE
DISCLAIMER, GUIDANCE NOTES AND CONDITIONS
OF USE THAT ACCOMPANY THIS MAP.



The Office of Public Works
Jonathan Swift Street
Trim
Co. Meath

Project:
FINGAL EAST MEATH FRAM STUDY

Map: **DONABATE
TIDAL FLOOD EXTENT MAP**

Map Type: EXTENT
Source: TIDAL
Map Area: HPW
Scenario: CURRENT

Drawn by: IH Date: Sep - 2016
Checked by: MC Date: Sep - 2016
Approved by: JM Date: Sep - 2016

Map No.:
E08DOB_EXCCD_F0_23

Revision: F0

Map Scale: 1:10,000

Plot Scale: 1:1 @ A3

Appendix D : DONABATE (LAP) STRATEGIC FLOOD RISK ASSESSMENT MAP

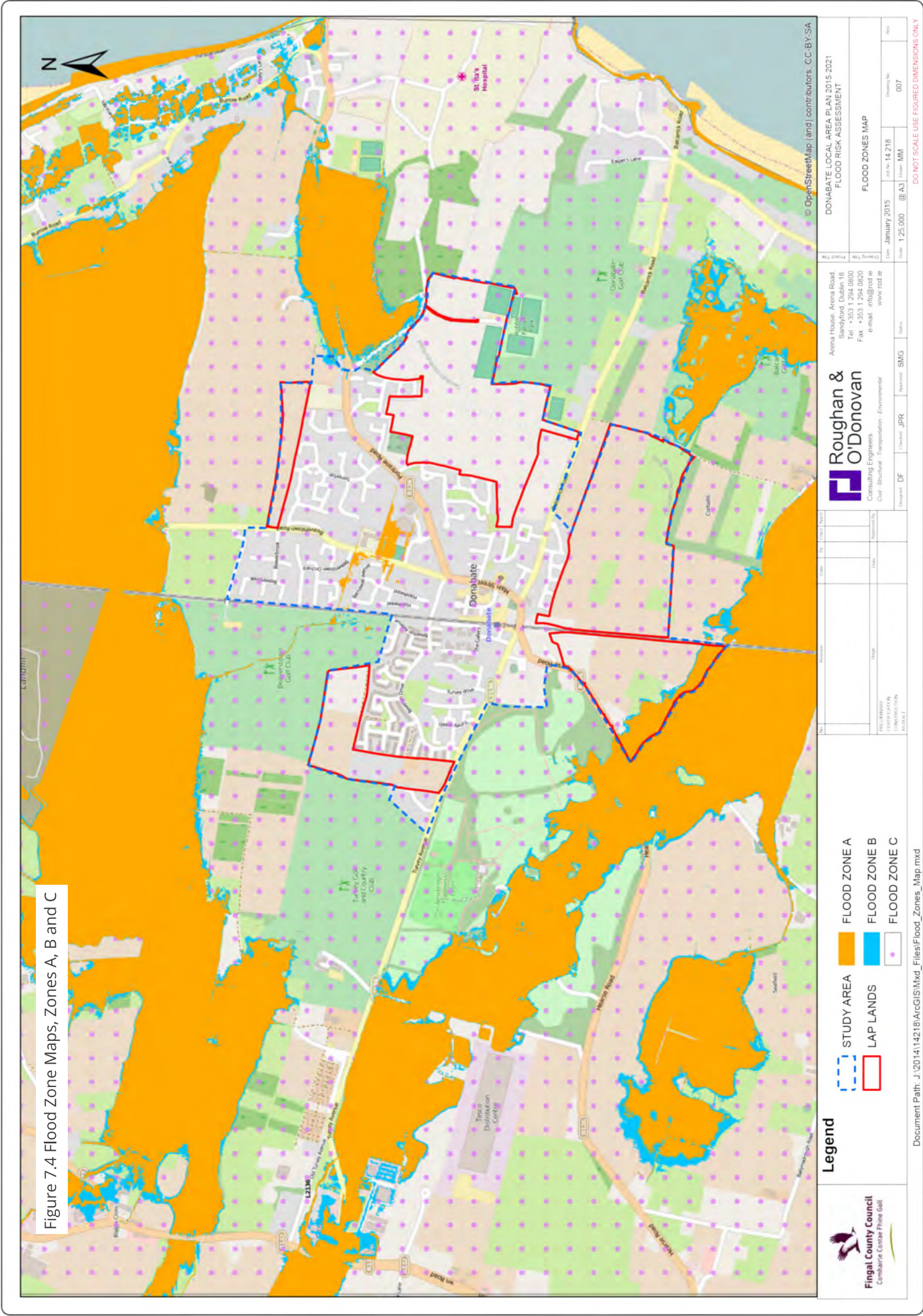
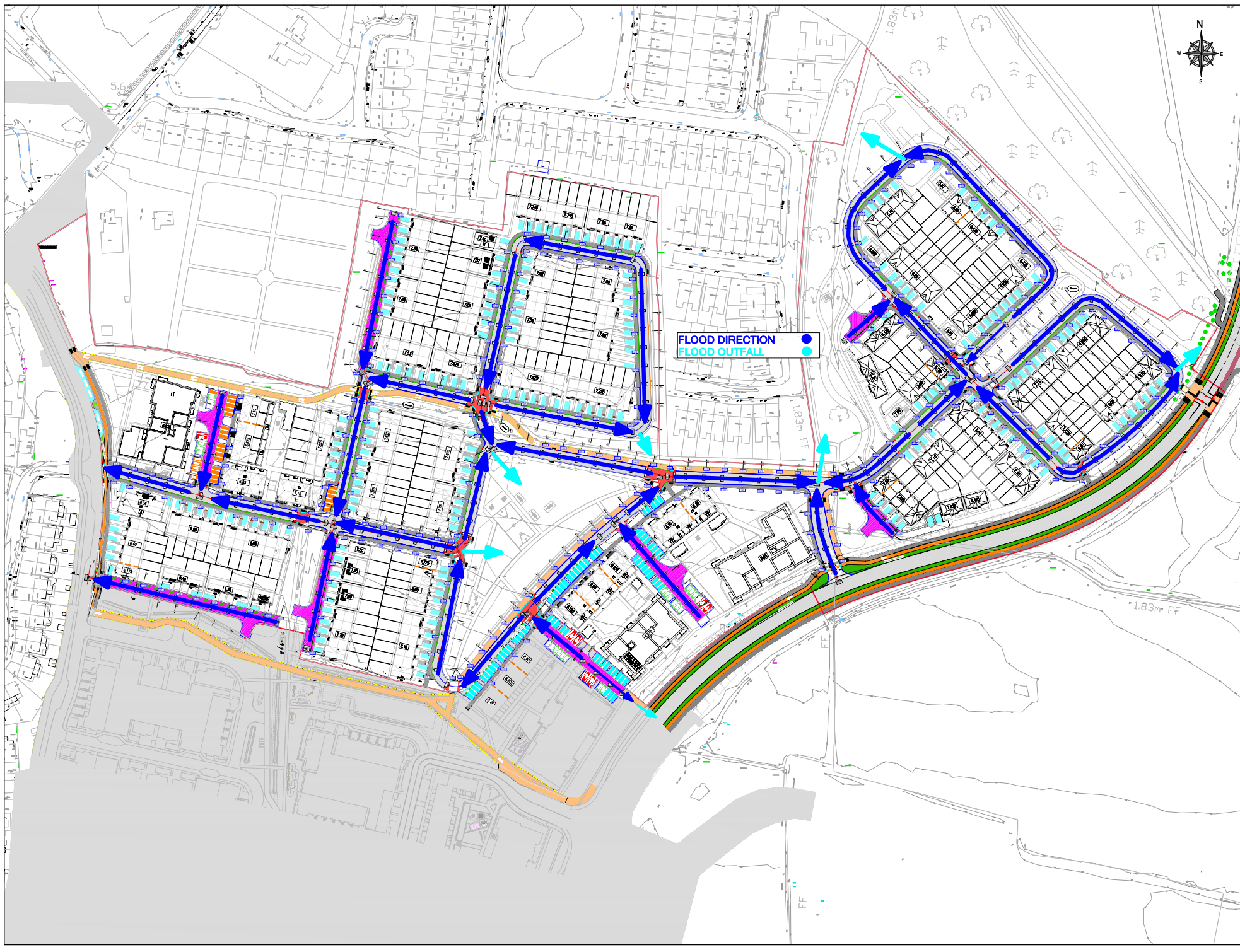


Figure 7.4 Map showing Flood Zone A and B.

Appendix E : FLOOD EXCEEDANCE LAYOUT



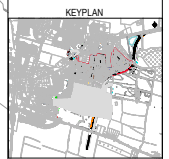
LEGEND

ROADS

- Proposed Road
- Existing Road
- Proposed Footpath
- Existing Footpath
- Proposed Cycleway
- Existing Cycleway
- Proposed Drainage
- Existing Drainage
- Proposed Sewer
- Existing Sewer
- Proposed Water Main
- Existing Water Main
- Proposed Gas Main
- Existing Gas Main
- Proposed Electricity Main
- Existing Electricity Main
- Proposed Telecommunications Main
- Existing Telecommunications Main
- Proposed Stormwater Drain
- Existing Stormwater Drain
- Proposed Sewer
- Existing Sewer
- Proposed Water Main
- Existing Water Main
- Proposed Gas Main
- Existing Gas Main
- Proposed Electricity Main
- Existing Electricity Main
- Proposed Telecommunications Main
- Existing Telecommunications Main

ROADS

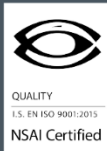
- Proposed Road
- Existing Road
- Proposed Footpath
- Existing Footpath
- Proposed Cycleway
- Existing Cycleway
- Proposed Drainage
- Existing Drainage
- Proposed Sewer
- Existing Sewer
- Proposed Water Main
- Existing Water Main
- Proposed Gas Main
- Existing Gas Main
- Proposed Electricity Main
- Existing Electricity Main
- Proposed Telecommunications Main
- Existing Telecommunications Main
- Proposed Stormwater Drain
- Existing Stormwater Drain
- Proposed Sewer
- Existing Sewer
- Proposed Water Main
- Existing Water Main
- Proposed Gas Main
- Existing Gas Main
- Proposed Electricity Main
- Existing Electricity Main
- Proposed Telecommunications Main
- Existing Telecommunications Main



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