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DUBLIN | LONDON | LIMERICK

Site Specific Flood Risk Assessment

Block 5 and Block 6

Clongriffin, Dublin 13

Client: The Land Development Agency

Job No. C216

August 2024

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SITE SPECIFIC FLOOD RISK ASSESSMENT

BLOCK 5 AND BLOCK 6,
CLONGRIFFIN, DUBLIN 13

CONTENTS

File Location: Job-C216\B_DOCUMENTS\1.0 Planning\Civil Reports\03_SSFRA

BS 1192 FIELD	**CLN-CSC-ZZ-XX-RP-C-0003**

Job Ref.	Author	Reviewed By	Authorised By	Issue Date	Rev. No.
C216	GF	NB	LMN	09.08.2024	P0

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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by the Land Development Agency (LDA) to prepare a Site-Specific Flood Risk Assessment (SSFRA) for a proposed standalone Large-scale Residential Development (LRD) at Block 5 and Block 6, Clongriffin, Dublin 13.

In preparing this report, CS Consulting has made reference to the following:

- Dublin City Development Plan 2022–2028
  (including Strategic Flood Risk Assessment)
- Greater Dublin Strategic Drainage Study (GDSDS) 2005
- The Planning System and Flood Risk Management: Guidelines for Planning Authorities 2009 (Flood Risk Management Guidelines)
- Greater Dublin Regional Code of Practice for Drainage Works
  (Version 6)
- Irish Water Drainage and Supply Records
- Office of Public Works Flood Maps
- Geological Survey of Ireland Maps

The SSFRA is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting, and with all other documentation prepared by other members of the project design team as part of this application.

2.0 SITE LOCATION, CONTEXT, AND PROPOSED DEVELOPMENT

2.1 Site Location

The application site is located within zoned development lands to the north-west of Clongriffin railway station in Dublin 13. It is bounded to the north and west by recently completed residential developments, and to the east and south by undeveloped lands. The site has a total area of approx. 2.2ha and is in the administrative jurisdiction of Dublin City Council (DCC), adjacent to the City Council's boundary with Fingal County Council.

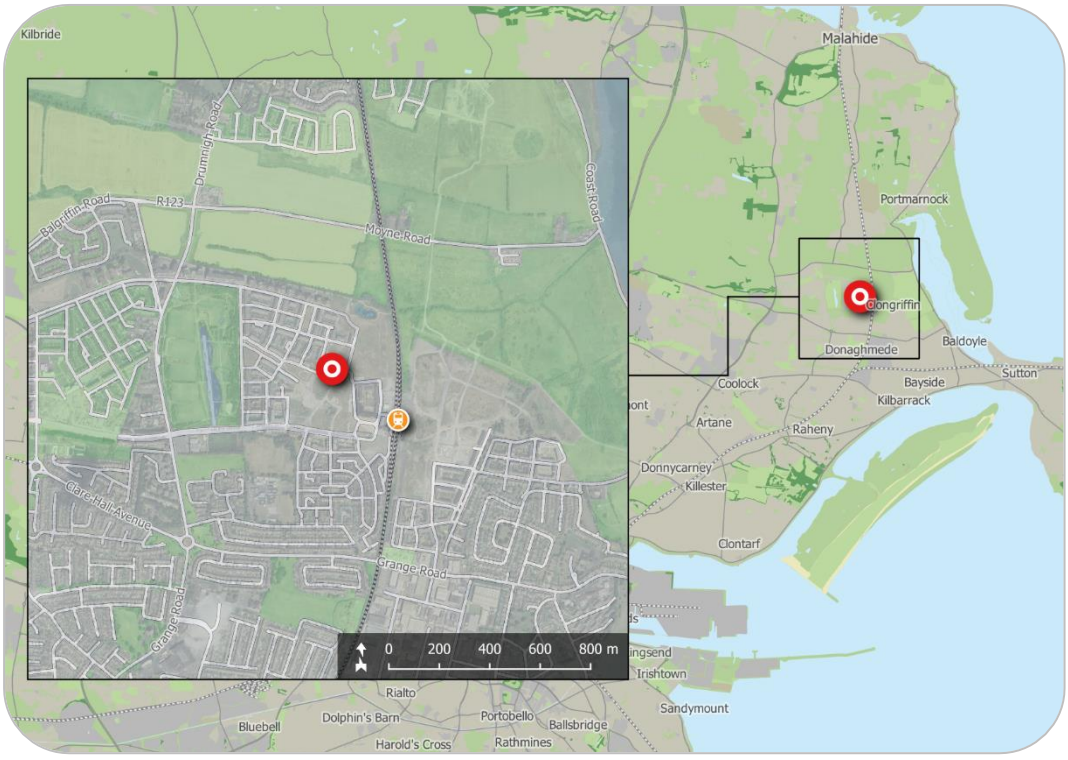

Figure 1 – Development site location
(sources: EPA, OSi, OSM Contributors, Google)

The location of the development site is shown in **Figure 1** above; its extents and environs are shown in more detail in **Figure 2**.

Figure 2 – Development site extents and environs
(sources: NTA, GoCar, OSi, OSM Contributors, Microsoft)

2.2 Existing Subject Site Condition

The subject development site itself is generally greenfield, although parts of it have been used for access and storage to facilitate construction on adjacent lands.

2.3 Description of Proposed Development

The proposed development will consist of the construction of two Blocks ranging in height between 3- to 7-storeys to provide 408 no. apartments (comprising 180 x 1 bed; 226 x 2 bed and 2 x 3 bed units) together with ancillary car- ; bicycle and motorcycle parking provision. Ancillary communal amenity spaces are provided at podium level within the respective courtyards and at 4th floor roof terrace level.

At ground floor level provision is made for 1,209 sq.m Community / Arts and Cultural floorspace and a childcare facility of 413 sq.m (with an ancillary play area of 125 sq.m). Other facilities provided at ground floor level include refuse / bin stores; energy centre, plant rooms and integrated ESB substations and associated switch rooms. On-street loading bays are provided along Lake Street and Dargan Street.

Other works include the provision of road infrastructure and green infrastructure (in the form of a public open space / landscaped pocket park extending to 1,433 sq.m in area) together with street planting and public lighting throughout plus all associated engineering and site works (including an external multi-functional community / arts and cultural events space of 315 sq.m along Market Street and all underground services and utility connections) necessary to serve the proposed development.

2.4 Previously Permitted Developments on Subject Site

The present application is for a standalone development, comprising 2no. apartment blocks only, and does not seek to amend or derive from any extant planning permission. It is however relevant to note that 2no. apartment blocks of very similar design (also referred to as Block 5 and Block 6) are currently permitted within the area subject to this application.

These permissions were granted on 13/12/2019 under separate but concurrent Strategic Housing Development (SHD) applications:

- Block 5 (138no. apartments) as part of the 500-unit SHD permitted under ABP ref. 305319, which also included blocks 4 and 14.
- Block 6 (270no. apartments) as part of the 1,030-unit SHD permitted under ABP ref. 305316, which also included blocks 8, 11, 17, 25, 26, 27, 28, and 29.

Figure 3 – Previously permitted developments within application boundary
(sources: CCK Architects, OSM Contributors, Microsoft)

As permitted under ABP ref. 305319, Block 5 would comprise:

- 52no. 1-bedroom apartments.
- 83no. 2-bedroom apartments.
- 3no. 3-bedroom apartments.
- 4no. retail units with a combined GFA of 393m^2.
- 42no. on-street car parking spaces on Park Street, Dargan Street, and Lake Street.
- 54no. internal (undercroft) car parking spaces, with vehicular access from Park Street to the west.
- 194no. secure long term bicycle parking spaces.
- 30no. publicly accessible short stay bicycle parking spaces.

As permitted under ABP ref. 305316, Block 6 would comprise:

- 123no. 1-bedroom apartments.
- 147no. 2-bedroom apartments.
- A crèche with internal GFA of 418m^2, providing 59no. childcare spaces.
- 65no. on-street car parking spaces on Belltree Avenue, Lake Street, Dargan Street, and Park Street.
- 119no. internal (undercroft) car parking spaces, with vehicular access from Lake Street to the east.
- 550no. secure long term bicycle parking spaces.
- 22no. publicly accessible short stay bicycle parking spaces.

3.0 LEVEL OF SERVICE AND FLOOD RISK ZONING

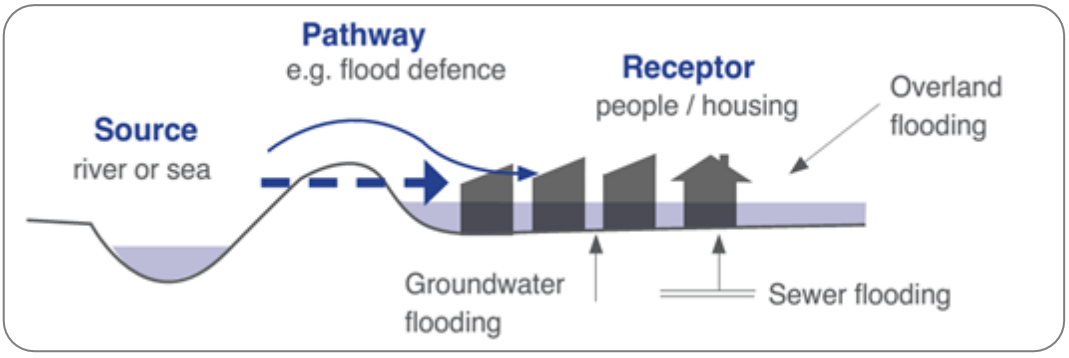

Figure 4 – Source-pathway-receptor model
(*The Planning System and Flood Risk Management Guidelines*)

There is an existing inherent risk of any flood event occurring during any given year. Typically, this likelihood of occurrence was traditionally expressed as a 1-in-100 chance of a 100-year storm event happening in any given year. A less ambiguous expression of probability is the Annual Exceedance Probability (AEP), which may be defined as the probability of a flood event being exceeded in any given year. Therefore a 1-in-100-year event has a 1% AEP; similarly, a 100% AEP can be expressed as a 1-in-1-year event.

The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Flood Risk Management Guidelines), published in 2009, set out the best practice standards for flood risk assessment in Ireland. These are summarised in **Table 1** below (Table 8.1 from Flood Risk Management Guidelines document).

Table 1 – Summary of Level of Service: Flooding Source

Development Category	Flooding Source		
	Drainage	River	Tidal/Coastal
Residential	1% AEP	0.1% AEP	0.1% AEP
Commercial	1% AEP	1% AEP	0.5% AEP
Water-compatible (docks, marinas)	-	>1% AEP	>0.5% AEP

Under these guidelines, a proposed development site has first to be assessed to determine the flood zone category it falls under. The flooding guidelines define three distinct areas of combined flood risk: Zones A, B, and C. These are described below.

- **Zone A** – High Probability of Flooding. Where the average probability of flooding from rivers and sea is highest (greater than 1% AEP for fluvial flooding or 0.5% AEP for tidal flooding).
- **Zone B** – Moderate Probability of Flooding. Where the average probability of flooding from rivers and sea is moderate (between 0.1% AEP and 1% AEP for fluvial flooding, and between 0.1% AEP and 0.5% AEP for tidal flooding).
- **Zone C** – Low Probability of Flooding. All areas outside Zones A and B. Where the probability of flooding from rivers and sea is lowest (less than 0.1% AEP for both fluvial and coastal flooding).

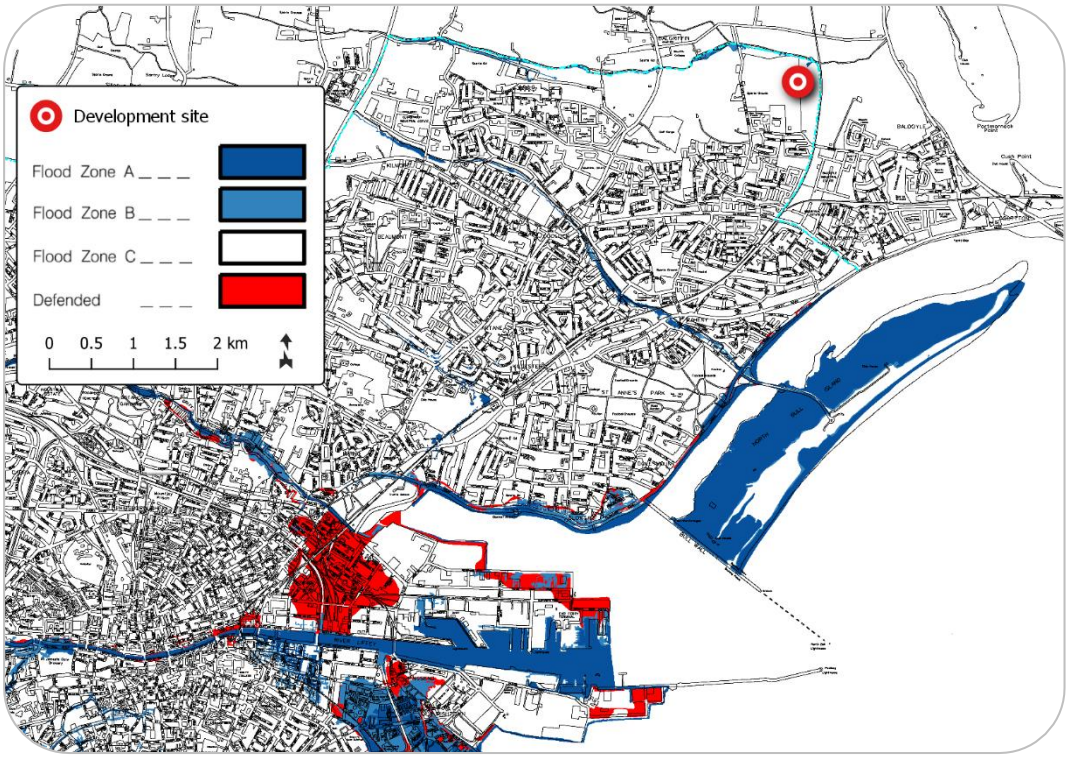

Figure 5 – Extract of DCC 2022-2028 SFRA composite flood risk mapping
(background imagery source: Dublin City Council)

A review of flood risk mapping contained within the *Dublin City Development Plan 2022–2028* Strategic Flood Risk Assessment, an extract of which is shown in **Figure 5**, shows that the subject site is located entirely within **Flood Zone C**. The relevant flood risk map is provided in full within **Appendix A**.

It is a requirement of Dublin City Council, the *Greater Dublin Strategic Drainage Study* (DCC 2005), and the Flood Risk Management Guidelines that the predicted effects of climate change be incorporated into any proposed design. **Table 2** below indicates the predicted climate change variations.

Table 2 – Predicted climate change variations

Design Category	Allowance to be Made for Predicted Impact of Climate Change
Drainage	20% Increase in rainfall
Fluvial (river flows)	20% Increase in flood flow
Tidal / Coastal	Minimum Finished Floor Level 4.0 – 4.15m AOD

The Flood Risk Management Guidelines provide an 'appropriateness' matrix for various developments and their potential risk factors. This matrix, reproduced in **Table 3**, indicates whether a proposed development requires further analysis in the form of a justification test.

Table 3 – Flood Zone vs. Justification Test Matrix

Development Category	Flood Zone A	Flood Zone B	Flood Zone C
Highly Vulnerable Development	***Justification Test Required***	***Justification Test Required***	Appropriate
Less Vulnerable Development	***Justification Test Required***	Appropriate	Appropriate
Water-compatible Development	Appropriate	Appropriate	Appropriate

The Flood Risk Management Guidelines classify residential developments as 'highly vulnerable'. As previously noted, the subject site is however located within **Flood Zones C**; as such, a justification test is not required.

4.0 PAST FLOODING EVENTS

A review of the Office of Public Works flood maps database (at www.floodinfo.ie) does not indicate any recorded historical instances of flooding on or near the development site, from any source. See **Figure 6** below and the OPW Past Flood Event Local Area Summary Report included as **Appendix C**.

Figure 6 – OPW mapping of past flood events
(background imagery source: www.floodinfo.ie)

5.0 SPECIFIC FLOOD EVENTS

5.1 Fluvial Flooding

Recent modelling of the surrounding area as part of the *Fingal East Meath Flood Risk Assessment and Management Study* (FRAMS) project indicates that the subject site is outside of the area at risk from a 0.1% AEP fluvial flooding event. The relevant FRAMS fluvial flood extent map (as published at www.floodinfo.ie) is included within **Appendix B** to this report; an extract is shown in **Figure 7**.

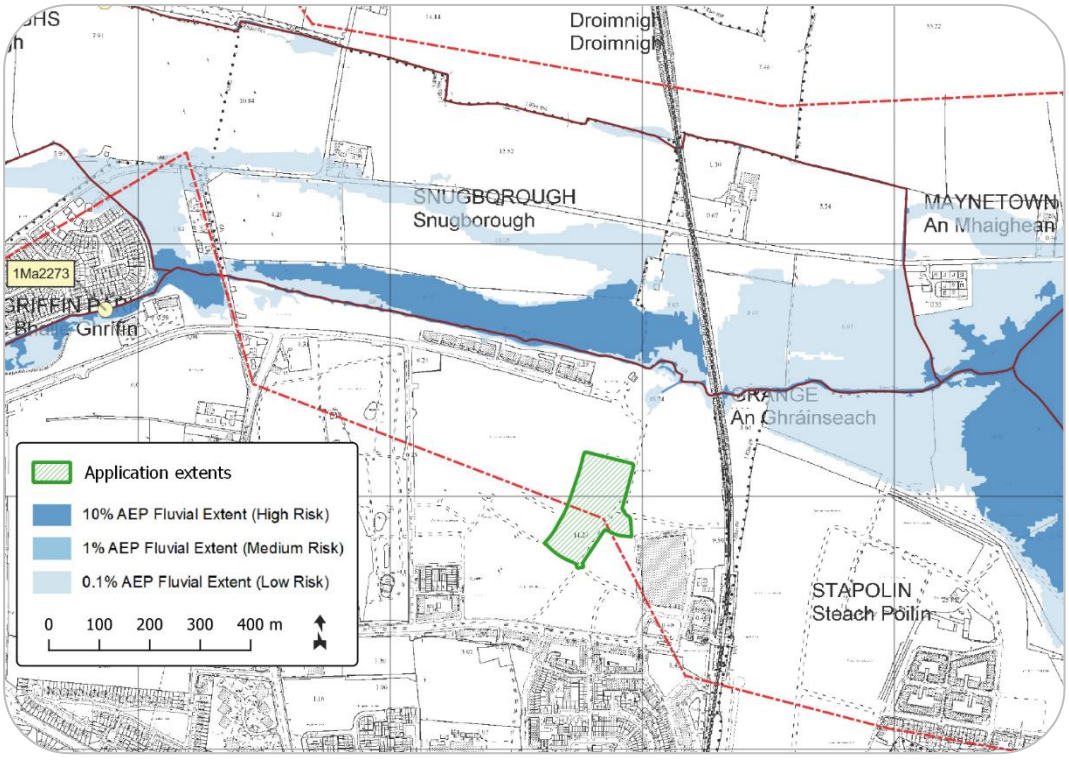

Figure 7 – FRAMS mapping of fluvial flood risk extents
(background imagery source: Office of Public Works)

In the 0.1% AEP fluvial flood event scenario (the lowest probability, most severe modelling scenario), the projected flooding extents reach no closer to the subject site than the Clongriffin attenuation pond, approximately 130m to the north. At this location, the projected flood depth is between

1.0m and 1.5m. The normal water level within the pond is never more than 5.2m aOD, as this is the level of the top of the embankment surrounding it. In this fluvial flood modelling scenario, the highest possible water level within 130m of the subject site is therefore 6.7m aOD. The lowest finished floor level (FFL) within the proposed development is at 7.4m aOD, providing a freeboard of 700mm with respect to the most severe fluvial flood modelling scenario.

The risk of fluvial flooding impacting upon the subject development is therefore minimal, even during a 0.1% AEP (i.e. 1-in-1000-year) flooding event, and no specific additional mitigation measures are required.

It is noted that the FRAMS fluvial flood risk modelling results covering this area are currently under review by the OPW following the identification in 2018 of an error in the flood map source data. The nature and scale of this error have not been made public. Given the freeboard described above, it is however considered unlikely that any corrections made to the FRAMS fluvial flood risk model would result in a significant increase in flood hazard at the subject site.

5.2 Coastal Flooding

Recent modelling of the surrounding area as part of the *Fingal East Meath Flood Risk Assessment and Management Study* (FRAMS) project, the results of which are reproduced in **Figure 8**, indicates that the subject site is outside the area at risk from a 0.1% AEP tidal flooding event (i.e. a 1-in-1000-year occurrence).

Under even the highest-probability (10% AEP) coastal flood event scenario, floodwater extents are projected to reach no closer than a point approximately 250m north-east of the subject site. In the 0.1% AEP coastal flood event scenario (the lowest probability, most severe modelling scenario), the projected water level at this point is approximately 3.4m

aOD. The lowest finished floor level (FFL) within the proposed development is at 7.4m aOD, providing a freeboard of 4.0m with respect to the most severe coastal flood modelling scenario.

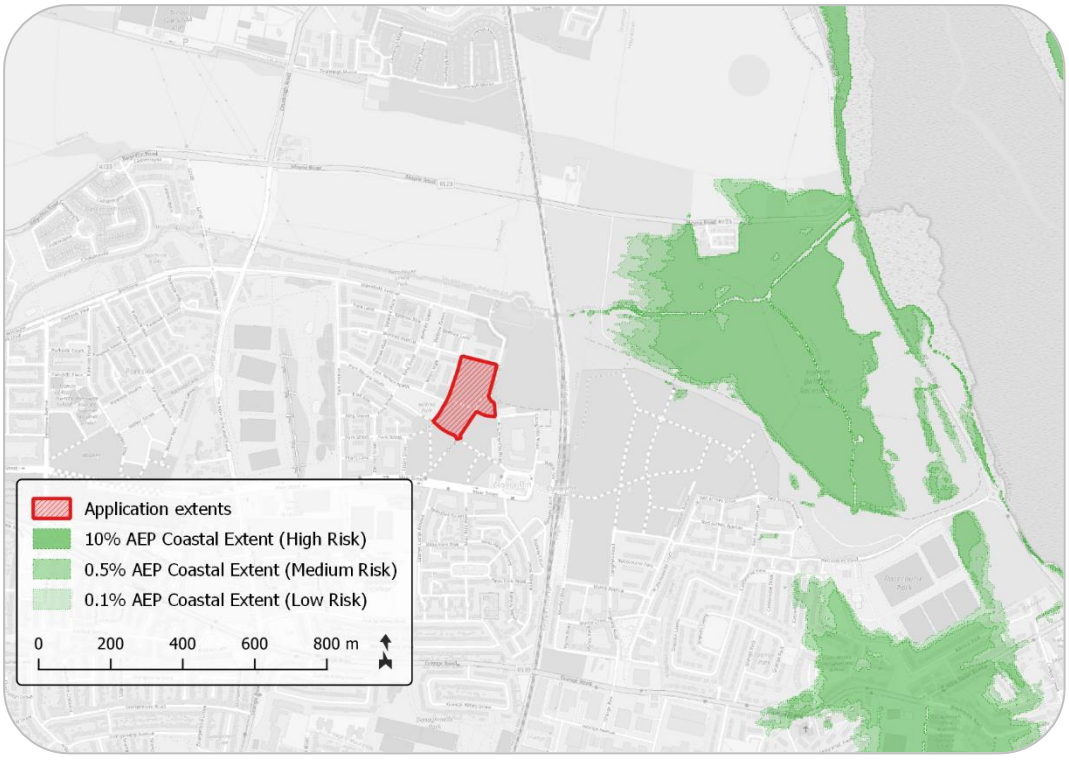

Figure 8 – FRAMS mapping of coastal (tidal) flood risk extents
(sources: Office of Public Works, OSM Contributors)

The risk of coastal flooding impacting upon the subject development is therefore negligible, even during a 1-in-1000-year flooding event, and no specific additional mitigation measures are required.

It is noted that the FRAMS coastal flood risk modelling results covering this area are currently under review by the OPW following the identification in 2020 of an error in the flood map source data. The nature and scale of this error have not been made public. Given the freeboard described above, it is however considered unlikely that any corrections made to the FRAMS coastal flood risk model would result in a significant increase in flood hazard at the subject site.

5.3 Pluvial Flooding

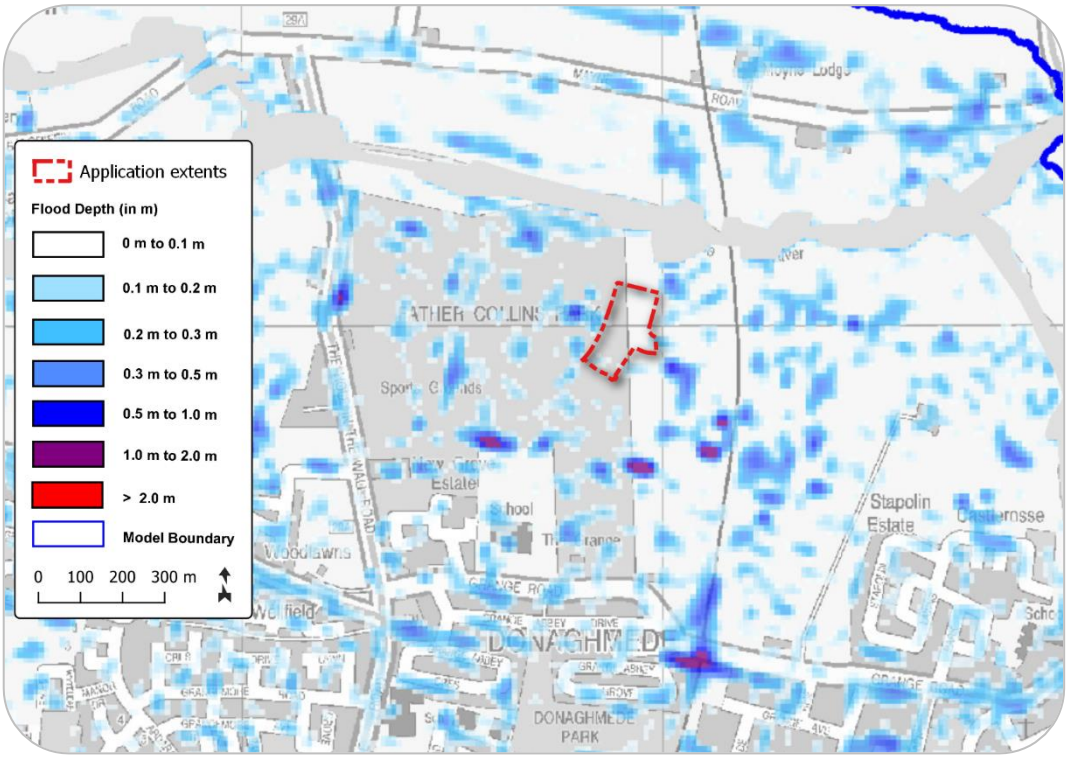

Figure 9 – Extract of DCC 2022-2028 SFRA pluvial flood depth mapping
(*background imagery source: DCC*)

Pluvial flooding is flooding that has originated from overland flow resulting from high intensity rainfall. The *Dublin City Development Plan 2022–2028* Strategic Flood Risk Assessment includes a map of modelled pluvial flooding depths for a 3-hour duration rainfall event with 1% AEP. For such a rainfall event, this model indicates that the subject site is unlikely to experience significant pluvial flooding. This map is included within **Appendix A** to this report; an extract of the map is shown in **Figure 9**.

As previously described (see Section **4.0**), the OPW database of previous flooding events includes no records of flood events on or near the subject site. In view of the local topography, which is characterised by a general slight fall to the north, the subject site is deemed to be at no significant risk of pluvial flooding.

5.4 Groundwater Flooding

Geological Survey of Ireland (GSI) mapping (available at www.gsi.ie) indicates that the development site is underlain with argillaceous bioclastic limestone and shale of the Malahide Formation. The site is shown as overlaying a locally important bedrock aquifer that is "moderately productive only in local zones" and is in an area of low groundwater vulnerability. See **Appendix D** for GSI mapping of the area encompassing the development site.

Although within a limestone region, no karstic rock formations are recorded on or near the development site, and no instances of past groundwater flooding have been recorded. The development site is therefore considered at negligible risk of groundwater flooding.

6.0 POTENTIAL FOR DEVELOPMENT TO CONTRIBUTE TO OFF-SITE FLOODING

An existing local surface water drainage network serves the wider Clongriffin area; this was designed and constructed as permitted under Reg. Ref. 0132/02. All runoff collected by this network drains to the Clongriffin attenuation pond, which is located adjacent to the Mayne River, at the northern boundary of the wider Clongriffin area and approximately 130m from the development site. The attenuation pond discharges to the Mayne River at a controlled rate of 249 l/s, as permitted under Reg. Ref. 0132/02. The attenuation pond was designed and sized to accommodate rainfall events exceeding a 1% Annual Exceedance Probability (AEP) and has over 6,400m^3 of attenuation storage on top of a permanent volume of approximately 2,500m^3.

In discussions with DCC Drainage Division, it has been agreed that surface water runoff from the proposed Block 5 and Block 6 development shall discharge to this existing local surface water drainage network, through which it shall continue to the existing attenuation pond and outfall to the Mayne River, as described above.

Integration of the proposed development with this existing infrastructure ensures that stormwater runoff from the development site shall not flow into neighbouring sites but shall instead be collected and subsequently released in a controlled manner after the peak storm duration has passed. The risk of surface water runoff from the proposed development adversely affecting adjacent lands or contributing to downstream flooding is thereby mitigated.

7.0 CONCLUSIONS

This Site Specific Flood Risk Assessment has been carried out in accordance with the requirements of the national flood guidelines and Dublin City Council's Development Plan. Its conclusions are summarised as follows:

- The development site historically has no recorded flood events, as noted in the OPW's historical flood maps.
- Predicted flood hazard mapping for fluvial flood events shows that the development site is at low risk of flooding from this source.
- Predicted flood hazard mapping for coastal and pluvial flood events show that the development site is at low risk of flooding from these sources.
- The proposed development is in an area for which the risk of groundwater flooding is considered low.
- As agreed with DCC Drainage Division, the proposed development shall be integrated with the existing stormwater collection and attenuation system for the wider Clongriffin lands (as permitted under Reg. Ref. 0132/02), thereby mitigating the risk of offsite flooding due to runoff from the development site.

The proposed development is deemed to be suitable for the site location, as historical and potential flood routes have been reviewed and the likelihood of the development being subject to flooding is low.

Appendix A

Dublin City Council Flood Risk Maps

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Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

Dublin City Development Plan 2022-2028

Composite Flood Map for Dublin City Council

Note: The Composite Flood Map, and all other map extracts, illustrate Flood Zone A, B and Defended Areas (in red), where defended areas indicates lands defended to the 1% AEP fluvial and /or the 0.5% AEP tidal flood events and should therefore be considered also to be Flood Zone A.

Flood Zone A

Flood Zone B

Flood Zone C

Defended

City Boundary

Refer To OPW Website – Floodinfo.ie

John O'Hara
Dublin City Planner

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

Dublin City Development Plan 2022-2028

Map C

MAP A	MAP B	MAP C
MAP D	MAP E	MAP F
MAP G	MAP H	

LAND USE ZONING OBJECTIVES[4]

- Zone Z1 Sustainable Residential Neighbourhoods
- Zone Z2 Residential Neighbourhoods (Conservation Areas)
- Zone Z3 Neighbourhood Centres
- Zone Z4 Key Urban Villages / Urban Villages
- Zone Z5 City Centre
- Zone Z6 Employment/Enterprise
- Zone Z7 Employment (Heavy)
- Zone Z8 Georgian Conservation Areas
- Zone Z9 Amenity /Open Space Lands /Green Network
- Zone Z10 Inner Suburban and Inner City Sustainable Mixed-Uses
- Zone Z11 Waterways Protection
- Zone Z12 Institutional Land (Future Development Potential)
- Zone Z14 Strategic Development and Regeneration Areas (SDRAs)
- Zone Z15 Community and Social Infrastructure

SPECIFIC OBJECTIVES

- Conservation Areas
- Architectural Conservation Areas
- Protected Structures. (RPS takes precedence) ***
- Record of Monuments and Places (RMP) as Established under Section 12 of the National Monuments (Amendment) Act 1994[3]
- Record of Monuments and Places (RMP) as Established under Section 12 of the National Monuments (Amendment) Act 1994[3]
- National Monuments[3]
- COMAH establishments (SEVESO establishments)
- LAP (Local Area Plan) & SDZ (Special Development Zone)
- Dublin Airport Outer Public Safety Zone
- Dublin Airport Noise Zones
- ROADS
  - Roads, Street and Bridge Schemes

FLOOD ZONES
- Flood Zone A
- Flood Zone B
- Defended

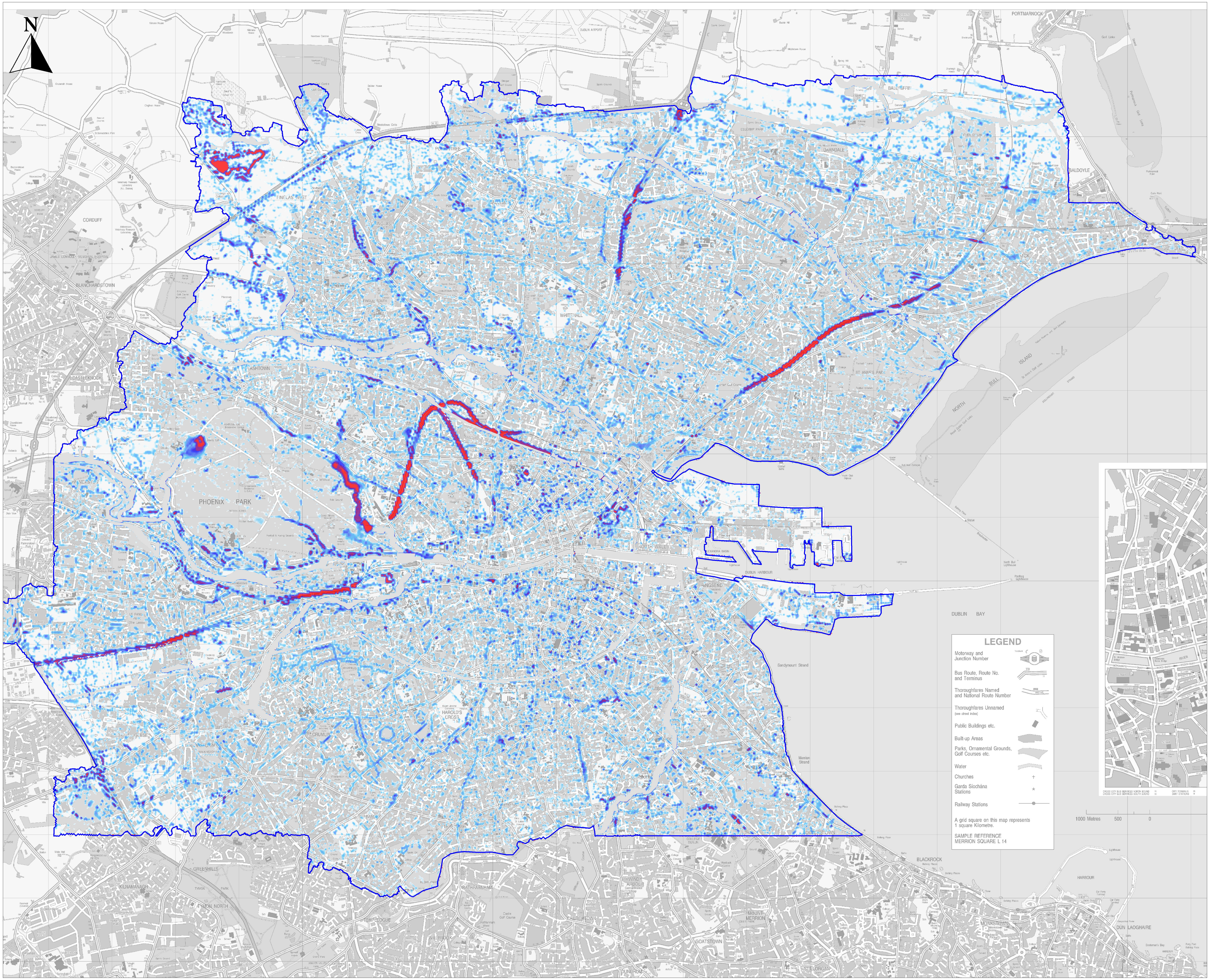
Refer to OPW website – Floodinfo.ie

1. Map to be read in conjunction with the written statement
2. Roads objectives are shown diagrammatically
3. *See Record of Monuments and Places (RMP) at https://www.archaeology.ie/publication-forms-legislation/record-of-monuments-and-places.ie For updated information see the Historic Environment Viewer at https://maps.archaeology.ie/HistoricEnvironment/ The RMP does not include all known archaeological sites and monuments, given that further such sites and monuments are found on an ongoing basis. For that reason, it is very important (in the context of considering proposed development) to take account of all information available on the Historic Environment Viewer (HEV)
4. See written statement (Chapter 14) for full zoning text

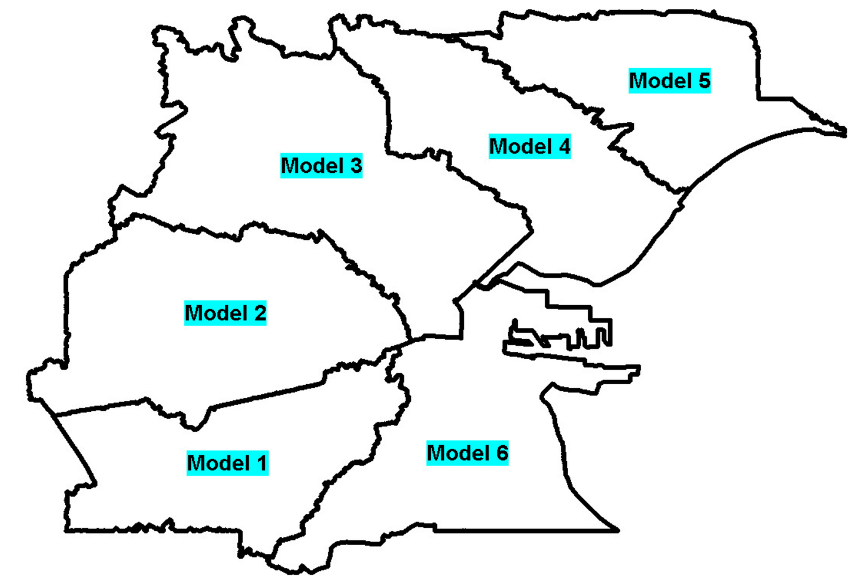
City Boundary

Scale: 0 100 200 300 400 500 metres

John O'Hara
Dublin City Planner



Flood Depth Map



Dublin City Model boundaries

Legend

Flood Depth (in m)

- 0 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.5 m
- 0.5 m to 1.0 m
- 1.0 m to 2.0 m
- > 2.0 m
- Model Boundary

Notes

JACOBS

Client	FRC · Dublin City Baile Átha Cliath · Investing in Opportunities nwe INTERREG IVB
Project	FloodResilienCity Project
Title	Type 1 Model - Flood Depth Map Dublin - 1% AEP Event - 3hr Duration
Drawing Status	DRAFT
Job No.	32102500
Figure No.	32102500/D/OV/FD/0010 — Revision 0
Scale	Date :
Drawn MM	Checker MV · Review PS · Approved CF

Appendix B

FRAMS Flood Risk Mapping

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Tidal flooding may also occur within area shown on this map.
Please refer to the tidal flood extent map. Figure No. MAY/HPW/EXT/CURS/T/003

1Mab2028

1Mac743D

1Ma2273

1Maa675

SAINTDOOLAGHS
Clochar Dúiligh

DRUMNIGH
Droimnigh
Droimnigh

SNUGBOROUGH
Snugborough

MAYNETOWN
An Mhaighean

BALGRIFFIN P.P.
Páirc Bhaile Ghriffin

GRANGE
An Ghráinseach

STAPOLIN
Steach Póilín

STAPOLIN
Steach Póilín

Node Label	Water Level (mOD) 10% AEP	Flow (m3/s) 10% AEP	Water Level (mOD) 1% AEP	Flow (m3/s) 1% AEP	Water Level (mOD) 0.1% AEP	Flow (m3/s) 0.1% AEP
1Ma2273	11.79	8.56	11.97	13.89	12.17	21.34
1Maa675	2.50	0.43	2.85	0.68	3.46	1.05
1Mab2028	12.62	0.47	12.82	0.87	13.10	1.55
1Mac743D	16.80	5.02	17.13	9.87	17.35	18.35

321500 322000 322500 323000 323500 324000 324500

242500 242000 241500 241000 240500

250 0 250 500 750 1000 Meters

Location Plan:

LEGEND

- AFA Boundary
- Defended Area
- Modelled River Centreline
- Node Point
- 10% AEP Fluvial Extent (High Risk)
- 1% AEP Fluvial Extent (Medium Risk)
- 0.1% AEP Fluvial 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.

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

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

Project:
FINGAL EAST MEATH FRAM STUDY

Map: **Mayne Model**
FLUVIAL FLOOD EXTENT MAP

Map Type:	EXTENT		
Source:	FLUVIAL		
Map Area:	HPW		
Scenario:	CURRENT		
Drawn by:	IH	Date:	Nov - 2017
Checked by:	JM	Date:	Nov - 2017
Approved by:	JM	Date:	Nov - 2017

Map No.:
MAY/HPW/EXT/CURS/003

Revision: F1

Map Scale: 1:10,000 Plot Scale: 1:1 @ A3

321500 322000 322500 323000 323500 324000 324500

242500 242000 241500 241000 240500

SAINTDOOLAGHS
Clochar Dúiligh

DRUMNIGH
Droimnigh
Droimnigh

SNUGBOROUGH
Snugborough

MAYNETOWN
An Mhaighean

BALGRIFFIN PARK
Páirc Bhaile Ghrífín

GRANGE
An Ghráinseach

STAPOLIN
Steach Póilín

STAPOLIN
Steach Póilín

321500 322000 322500 323000 323500 324000 324500

250 0 250 500 750 1000 Meters

Location Plan:

LEGEND

Modelled River Centreline

10% AEP Fluvial Flood Depth

- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1.0m
- 1.0 - 1.5m
- 1.5 - 2m
- > 2.0m

IMPORTANT USER NOTE:
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OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

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

Project:
FINGAL EAST MEATH FRAM STUDY

Map: **Mayne Model**
FLUVIAL FLOOD DEPTH MAP

Map Type:	DEPTH		
Source:	10% AEP FLUVIAL		
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.:
MAY/HPW/DEP/10/003

Revision: F0

Map Scale: 1:10,000 Plot Scale: 1:1 @ A3

321500 322000 322500 323000 323500 324000 324500

242500 242000 241500 241000 240500

SAINTDOOLAGHS
Clochar Dúiligh

DRUMNIGH
Droimnigh
Droimnigh

SNUGBOROUGH
Snugborough

MAYNETOWN
An Mhaighean

BALGRIFFIN PARK
Páirc Bhaile Ghrífín

GRANGE
An Ghráinseach

STAPOLIN
Steach Póilín

STAPOLIN
Steach Póilín

321500 322000 322500 323000 323500 324000 324500

250 0 250 500 750 1000 Meters

Location Plan:

LEGEND

Modelled River Centreline

1% AEP Fluvial Flood Depth

- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1.0m
- 1.0 - 1.5m
- 1.5 - 2m
- > 2.0m

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

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

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

Project:

FINGAL EAST MEATH FRAM STUDY

Map:

Mayne Model
FLUVIAL FLOOD DEPTH MAP

Map Type:	DEPTH		
Source:	1% AEP FLUVIAL		
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.:	MAY/HPW/DEP/100/003		
Revision:	F0		
Map Scale:	1:10,000	Plot Scale:	1:1 @ A3

321500 322000 322500 323000 323500 324000 324500

242500 242000 241500 241000 240500

SAINTDOOLAGHS
Clochar Dúiligh

DRUMNIGH
Droimnigh
Droimnigh

SNUGBOROUGH
Snugborough

MAYNETOWN
An Mhaighean

BALGRIFFIN PARK
Páirc Bhaile Ghrífín

GRANGE
An Ghráinseach

STAPOLIN
Steach Póilín

STAPOLIN
Steach Póilín

321500 322000 322500 323000 323500 324000 324500

250 0 250 500 750 1000 Meters

Location Plan:

LEGEND

Modelled River Centreline

0.1% AEP Fluvial Flood Depth

- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1.0m
- 1.0 - 1.5m
- 1.5 - 2m
- > 2.0m

IMPORTANT USER NOTE:
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The Office of Public Works
Jonathan Swift Street
Trim
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Project:

FINGAL EAST MEATH FRAM STUDY

Map:

Mayne Model
FLOOD DEPTH MAP

Map Type:	DEPTH		
Source:	0.1% AEP FLUVIAL		
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.:
MAY/HPW/DEP/1000/003

Revision: F0

Map Scale: 1:10,000 Plot Scale: 1:1 @ A3

Appendix C

OPW Past Flood Event Local Area Summary Report

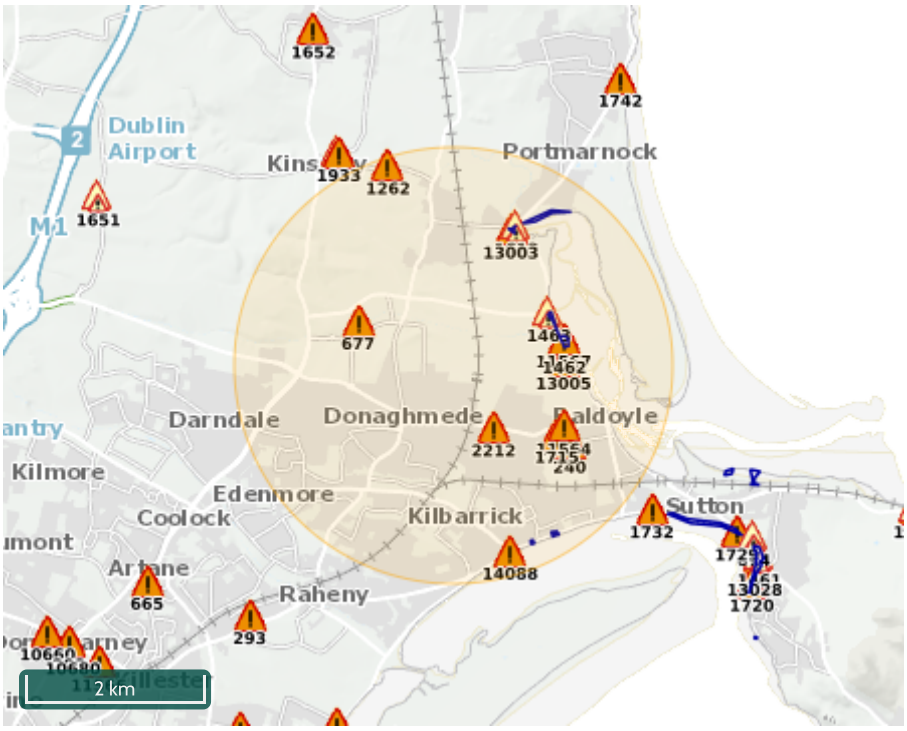
CS CONSULTING
GROUP

Past Flood Event Local Area Summary Report

Report Produced: **13/5/2024 10:15**

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

14 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Flooding at Portmarnock on 03/01/2014 (ID-13003)	03/01/2014	Approximate Point
	Additional Information: Reports (0) Press Archive (0)		
2.	Flooding at Baldoyle on 03/01/2014 (ID-13005)	03/01/2014	Approximate Point
	Additional Information: Reports (0) Press Archive (0)		
3.	The Grange Road Baldoyle Oct 2002 (ID-1715)	19/10/2002	Exact Point
	Additional Information: Reports (1) Press Archive (0)		
4.	Grange Road Donaghmede Nov 1982 (ID-2212)	07/11/1982	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		
5.	Grange Stream Baldoyle Dec 1954 (ID-240)	08/12/1954	Exact Point
	Additional Information: Reports (1) Press Archive (0)		
6.	Sluice River Strand Road Portmarnock Recurring (ID-1613)	n/a	Exact Point
	Additional Information: Reports (5) Press Archive (0)		

	Name (Flood_ID)	Start Date	Event Location
7.	Mayne Balgriffin Park June 1993 (ID-677) **Additional Information:** Reports (1) Press Archive (0)	10/06/1993	Approximate Point
8.	Baldoyle Coastal Recurring (ID-1462) **Additional Information:** Reports (5) Press Archive (0)	n/a	Approximate Point
9.	Mayne River Bridge Baldoyle Recurring (ID-1463) **Additional Information:** Reports (4) Press Archive (0)	n/a	Exact Point
10.	Flooding at Kilbarrack on 02/12/2021 (ID-14088) **Additional Information:** Reports (0) Press Archive (0)	02/12/2021	Approximate Point
11.	Dublin City Tidal Feb 2002 (ID-456) **Additional Information:** Reports (45) Press Archive (27)	01/02/2002	Area
12.	Flooding at Brookstone Road, Baldoyle, Dublin 13 on 24th Oct 2011 (ID-11564) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Approximate Point
13.	Flooding at Coast Road, Baldoyle, Dublin 13 on 24th Oct 2011 (ID-11567) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Approximate Point
14.	Sluice Kinsaley Hall August 1986 (ID-1262) **Additional Information:** Reports (1) Press Archive (0)	24/08/1986	Approximate Point

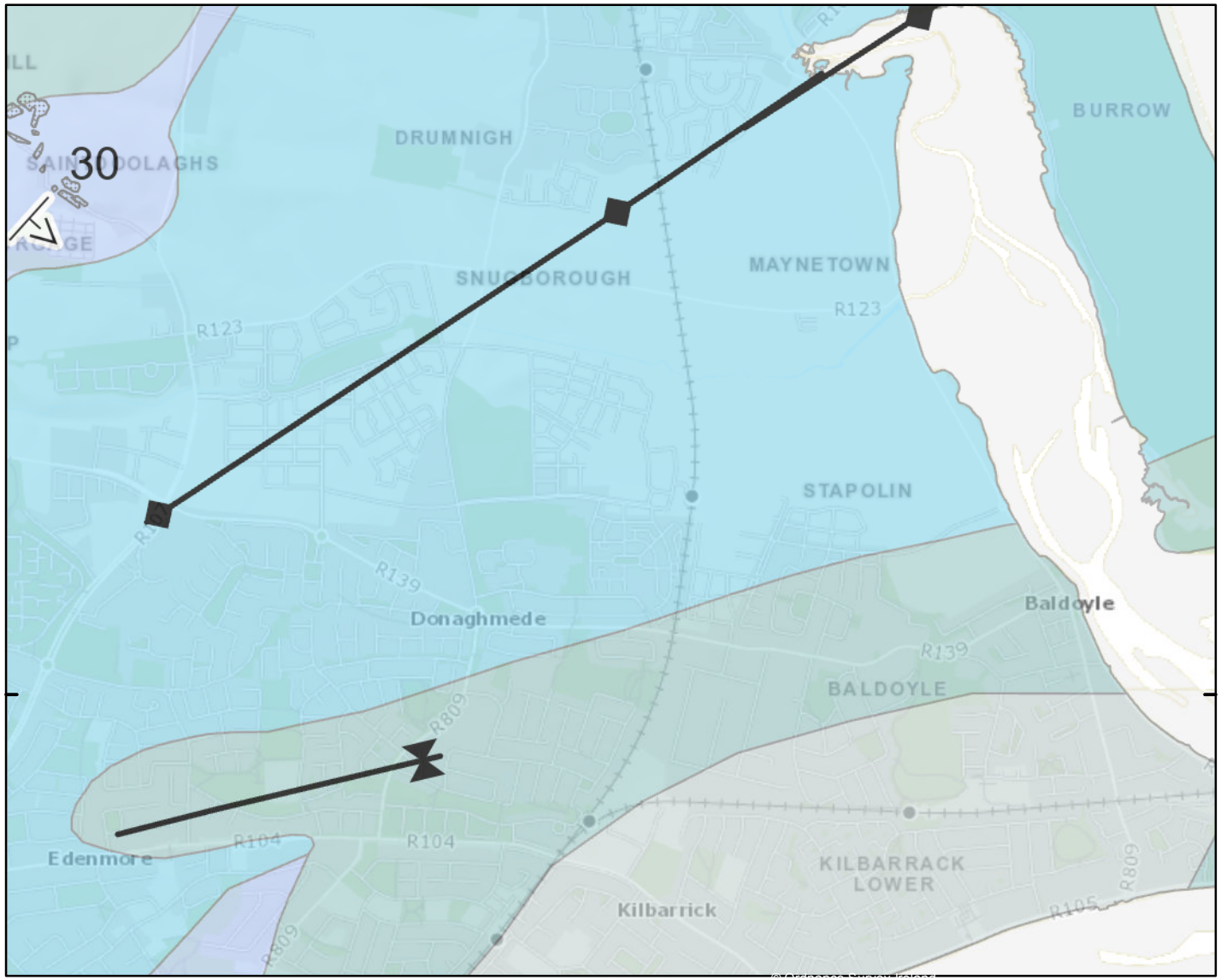
Appendix D

GSI Geology and Hydrogeology Mapping

CS CONSULTING
GROUP

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

C216 Bedrock Geology



Legend

Structural Symbols 100K ITM 2018

- Dip of bedding or main foliation, old GSI data
- First foliation parallel to bedding
- Foliation trend, Thorr and Rosses Granites
- Horizontal Bedding
- Strike and dip of bedding, right way up
- Strike and dip of bedding, way up unknown
- Strike and dip of first foliation
- Strike and dip of overturned bedding
- Strike and dip of second foliation
- Strike and dip of third foliation
- Strike and plunge of first generation fold axis
- Strike and plunge of second generation fold axis
- Strike and plunge of third generation fold axis
- Strike of vertical bedding/foliation
- Strike of vertical first foliation
- <all other values>

- Bedrock Outcrops 100 ITM 2018

Bedrock Linework 100k ITM 2018

- Anticlinal Axis
- Antiformal axis
- Aquifer Boundary
- Area
- Coal seam
- Dyke
- Fault
- Ghost Line
- Goniatite marine band (R1-R4)
- Lithological boundary offshore
- Metadolerite sheet, mainly sills
- Paleogene/ Tertiary Dyke
- Synclinal Axis
- Synformal axis
- Tectonic Slide, barbs on hanging-wall
- Thin stratigraphical unit, diagrammatic
- Thrust, barbs on hanging-wall side
- Tuff band
- Unconformity, dots on younger side
- X-Section

Scale: 1:25,000

Geological Survey Ireland

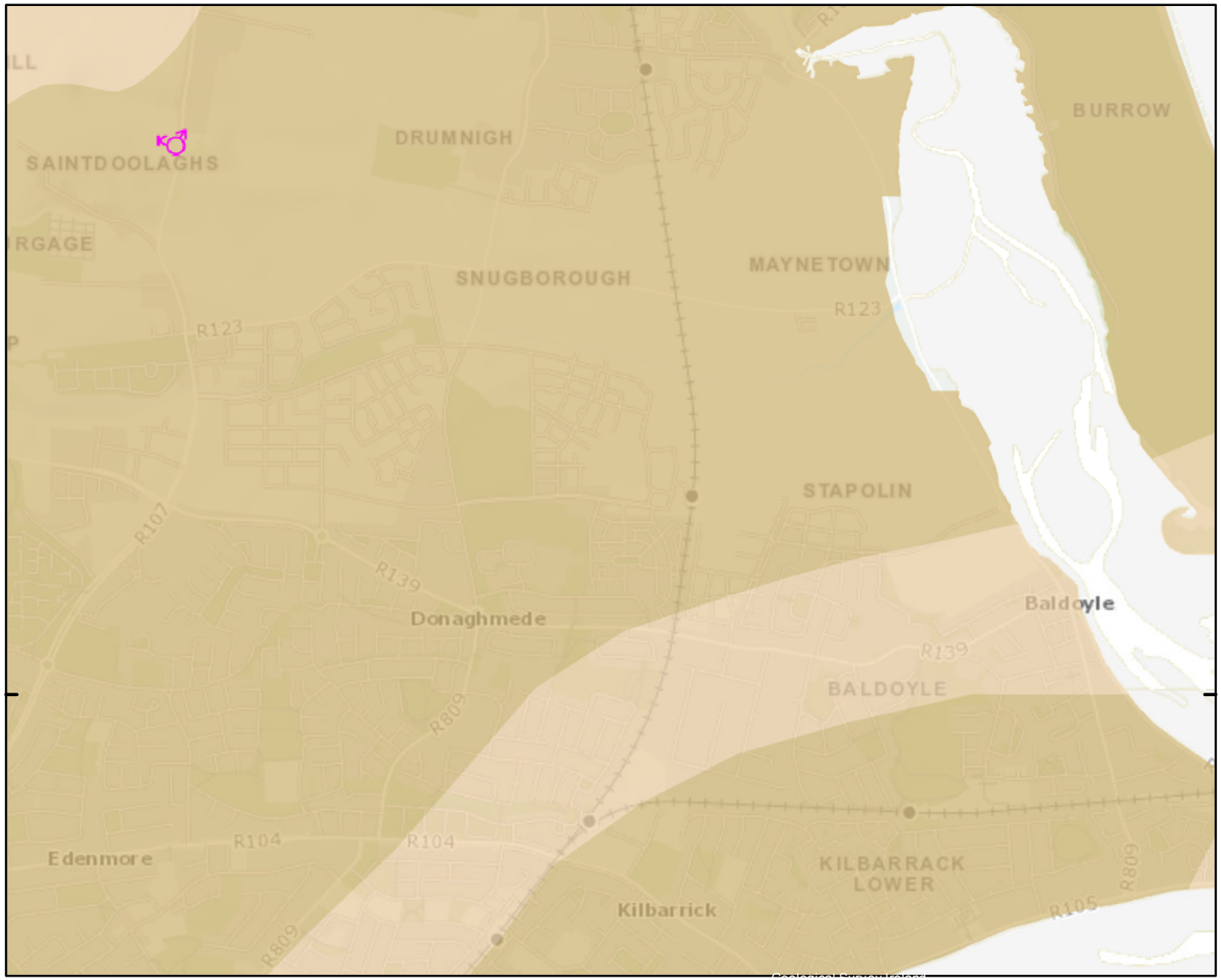
N W E S

0 0.175 0.35 0.7 mi
0 0.275 0.55 1.1 km

Map Centre Coordinates (ITM) 722,773 740,790
13/5/2024, 13:09:05

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

C216 Groundwater Resources



Legend

IE_GSI_Karst_Landforms_4...

- Borehole
- Cave
- Dry Valley
- Enclosed Depression
- Estavelle
- Spring
- Superficial Solution Feature
- Swallow Hole
- Turlough

IE_GSI_Traced_U...

IE_GSI_Sand_and_Gr...

- Regionally important gravel aquifer
- Locally important gravel aquifer

IE_GSI_Aquifer_G...

Scale: 1:25,000

Geological Survey Ireland

N W E S

0 0.175 0.35 0.7 mi

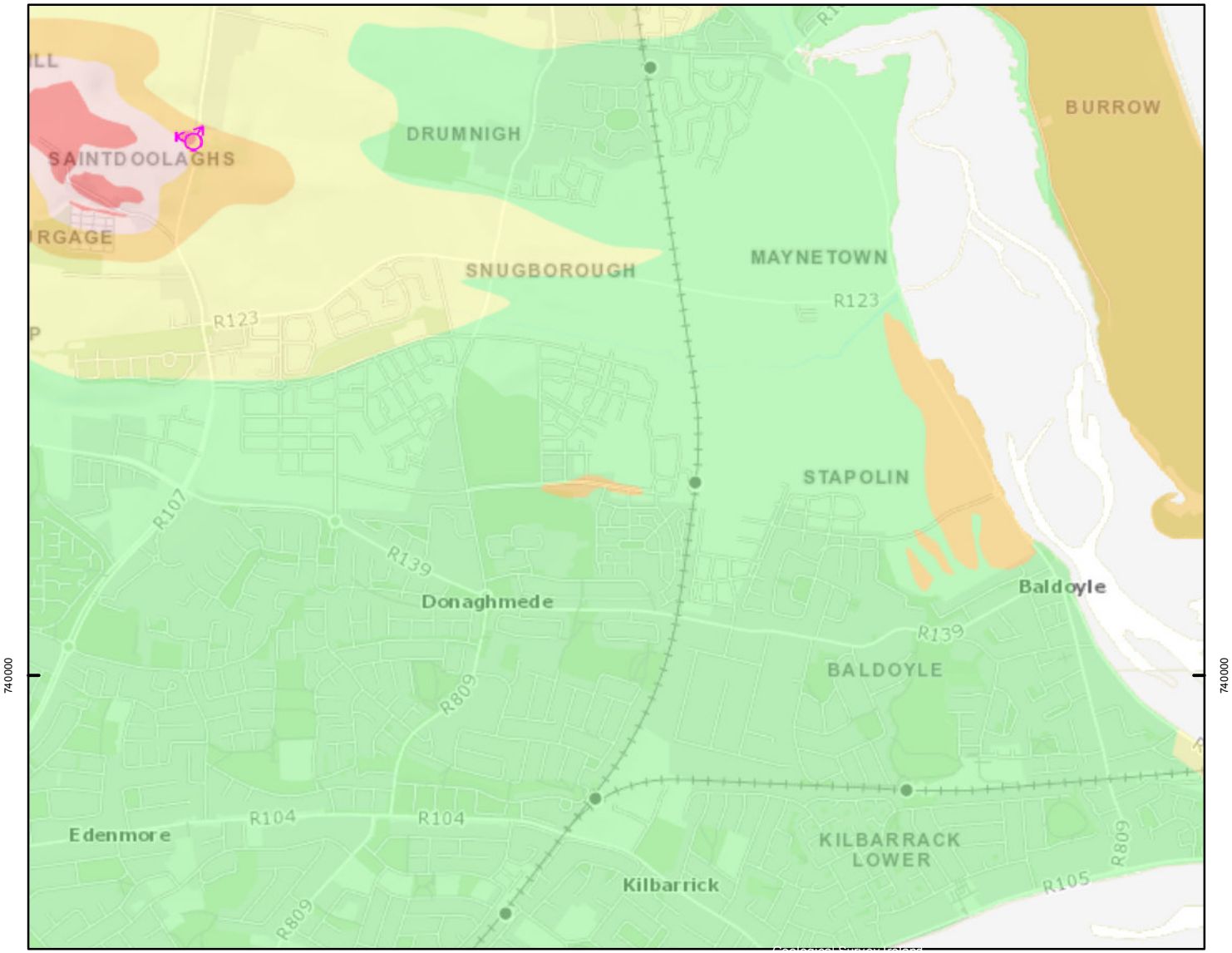
0 0.275 0.55 1.1 km

Map Centre Coordinates (ITM) 722,773 740,790

13/5/2024, 13:05:32

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

C216 Groundwater Vulnerability



Legend

IE_GSI_Karst_Landforms_4...

- Borehole
- Cave
- Dry Valley
- Enclosed Depression
- Estavelle
- Spring
- Superficial Solution Feature
- Swallow Hole
- Turlough

IE_GSI_Traced_U...

IE_GSI_Groundwater_...

- Rock at or near Surface or Karst
- Extreme
- High
- Moderate
- Low
- Water

Scale: 1:25,000

Geological Survey Ireland

0 0.175 0.35 0.7 mi
0 0.275 0.55 1.1 km

Map Centre Coordinates (ITM) 722,773 740,790
13/5/2024, 13:07:36