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Specific Flood Risk Assessment

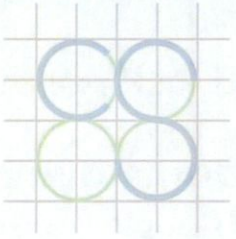
Proposed Adamstown Health Centre and Waste Store

No 1 Adamstown Boulevard, Finstown, Lucan, Co. Dublin

Client: Quintain Developments Ireland Limited

Job No. D020

July 2022



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SPECIFIC FLOOD RISK ASSESSMENT

PROPOSED ADAMSTOWN HEALTH CENTRE AND WASTE STORE, NO 1 ADAMSTOWN BOULEVARD, FINSTOWN, LUCAN, CO. DUBLIN

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BS 1192 FIELD	D020-CSC-ZZ-XX-RP-0002-P1 SSFRA

Job Ref.	Author	Reviewed By	Authorised By	Issue Date	Rev. No.
D020	LJ	SS	MMc	22.07.2022	P1
D020	LJ	SS	MMc	24.06.2022	P0

1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Quintain Developments Ireland Limited to prepare a Site Specific Flood Risk Assessment to accompany a planning application for a Health Centre & Waste Store at No 1 Adamstown Boulevard, Finstown, Lucan, Co. Dublin.

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

- South Dublin County Council Development Plan 2016-2022; (including Strategic Flood Risk Assessment);
- Draft South Dublin County Council Development Plan 2022-2028; (including Strategic Flood Risk Assessment
- Greater Dublin regional Code of Practice for Works;
- Office of Public Works Flood Maps;
- Department of the Environment Flooding Guidelines;
- Geological Survey of Ireland Maps;
- Local Authority Drainage Records.

The Site Specific Flood Risk Assessment is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with the various additional information submitted by the other members of the design team, as part of the Planning Submission.

2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development site is located to the north of Adamstown Station, Co. Dublin. The site is located in the administrative jurisdiction of South Dublin County Council and has a total area of approximately 0.22ha.

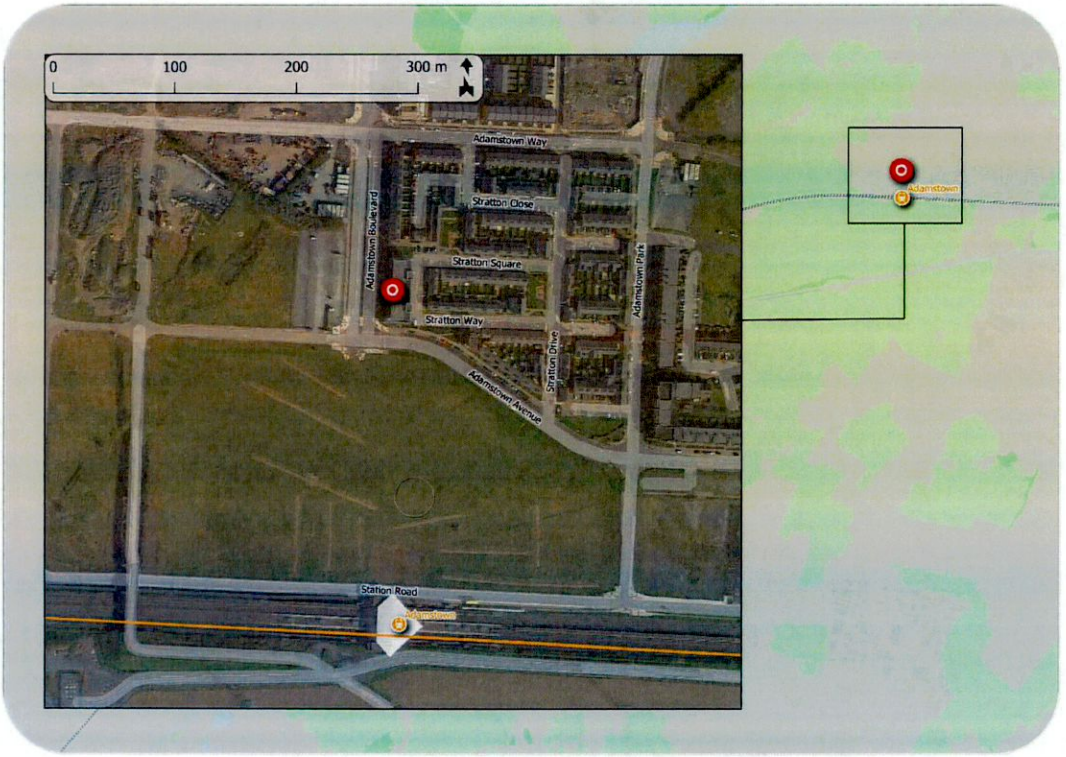


Figure 1 – Location of proposed development site
(map data & imagery: EPA, OSM Contributors, Google)

The location of the proposed development site is shown in Figure 1 above; the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in Figure 2.

The site is bounded to the north and east by existing residential buildings, to the south by Adamstown Avenue, and to the west by Adamstown Boulevard.

Figure 2 – Indicative site extents
(map data & imagery: SDCC, OSM Contributors, Google)

2.2 Existing Land Use

The subject site comprises of a commercial building, which shall be retained and refurbished.

2.3 Proposed Development

The proposed development is on a site of approximatelly 0.22Ha in Development Area 9 – Adamstown Square, in the Adamstown SDZ Planning Scheme. The proposed development comprises:

- Change of use of existing 4 storey office building to health centre, including associated minor internal layout revisions.
- Alteration to the façade of the existing building.
- Bin store.

- Bycicle parking.
- Alterations to existing Adamstown Boulevard Road consisting of relocaiton of cycle lane and footpath to allow for creation of emergency vehicle set down area and layby area, and all associated ancilliary site development and landscape works.

3.0 LEVEL OF SERVICE

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 return period of 1% AEP flood event, 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 set out the best practice standards for flood risk assessment in Ireland. These are summarised in Table 1 below (from 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.

It is a requirement of both South Dublin County Council, Greater Dublin Strategic Drainage Study, (DCC 2005) & the Department of the Environment, community & Local Government flooding guidelines, The Planning System and Flood Risk Management, Guidelines for Planning

Authorities, that the predicted effects of climate change are incorporated into any proposed design. Table 2 below indicates the predicted climate change variations.

Table 2 – Predicted climate change variations

Design Category	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 flooding guidelines categorize the risks associated with flooding into three areas, Zone A, B & C. This categorisation is indicated below.

- **Zone A** – High Probability of Flooding. Where the average probability of flooding from rivers and sea is highest (greater than 1% annually or 1 in 100 for river flooding or 0.5% annually or 1 in 200 for coastal flooding).

- **Zone B** – Moderate Probability of Flooding. Where the average probability of flooding from rivers and sea is moderate (risk between 0.1% annually or 1 in 1000 years and 1% annually or 1 in 100 years for river flooding, and between 0.1% or 1 in 1000 years and 0.5% annually or 1 in 200 for coastal flooding).

- **Zone C** – Low Probability of Flooding. Where the probability of flooding from rivers and sea is moderate (risk is less than 0.1% annually or 1 in 1000 years for both rivers and coastal flooding).

In accordance with the *Planning Systems and Flood Risk Management Guidelines for Planning Authorities*, dwellings are classified as 'highly vulnerable developments' and buildings used for commercial and retail are classified as 'less vulnerable developments'.

Following a review of the *South Dublin County Council flood maps*, the subject site is located in Flood Zone C. See **Appendix A**.

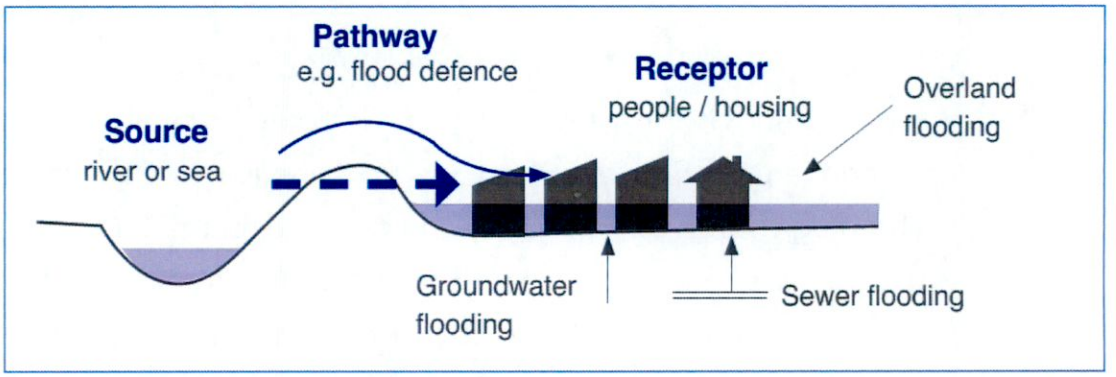


Figure 3 – Source-pathway-receptor model
(*imagery: The Planning System and Flood Risk Management Guidelines*)

The flooding guidelines have developed an 'appropriateness' matrix for various developments and their potential risk factor. The table indicates if further analysis is required in the form of a justification test. Table 3 below outlines the conditions that require 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

As noted above the subject site is located within **Flood Zone C**, as such a justification test is not required.

4.0 FLOOD RISKS & MIGRATION MEASURES

4.1 Fluvial Flooding

A review of the Office of Public Works flood maps database, www.floodmaps.ie, for the area does not indicate historical flooding at the site. See the OPW Map-report included in **Appendix B**. Recent modelling of the area as part of the local authorities Development Plan's Strategic Flood Risk Assessment does not indicate that the site is located near any fluvial sources of flooding. See **Appendix A** for South Dublin County Council Flood Risk Map.

In addition, the *Eastern Catchment Flood Risk Assessment Mapping, CFRAM* project, indicates that the subject site is deemed to be located outside of the 0.1% AEP fluvial floodplain, based on the currently available maps. See **Appendix C** for CFRAM Fluvial Flood Extent Map.

Therefore, the risk of fluvial flooding is not deemed to be significant.

4.2 Tidal Flooding

The sites elevated location indicates that the subject site will not be affected by tidal flooding. In addition, the councils flood risk map does not indicate that the site is located in a tidal flood zone.

4.3 Pluvial Flooding

Pluvial flooding is flooding which has originated from overland flow resulting from high intensity rain fall. A high-level pluvial flood map has been produced but it is of for high level use than for a specific site. Previous flood events in the area can be reviewed on the Office of Public Works web site, www.floodmaps.ie.

4.4 Potential for Site to Contribute to Off-Site Flooding

The existing drainage arrangements shall be retained for the proposed development. Please refer to Engineering Services Report submitted with this planning application for further details.

4.5 Existing Off-Site Drainage

It is the understanding of CS Consulting that at present there are no issues with the local drainage arrangements, as the local infrastructure has been designed in accordance with the SDZ master plan to accommodate the proposed development.

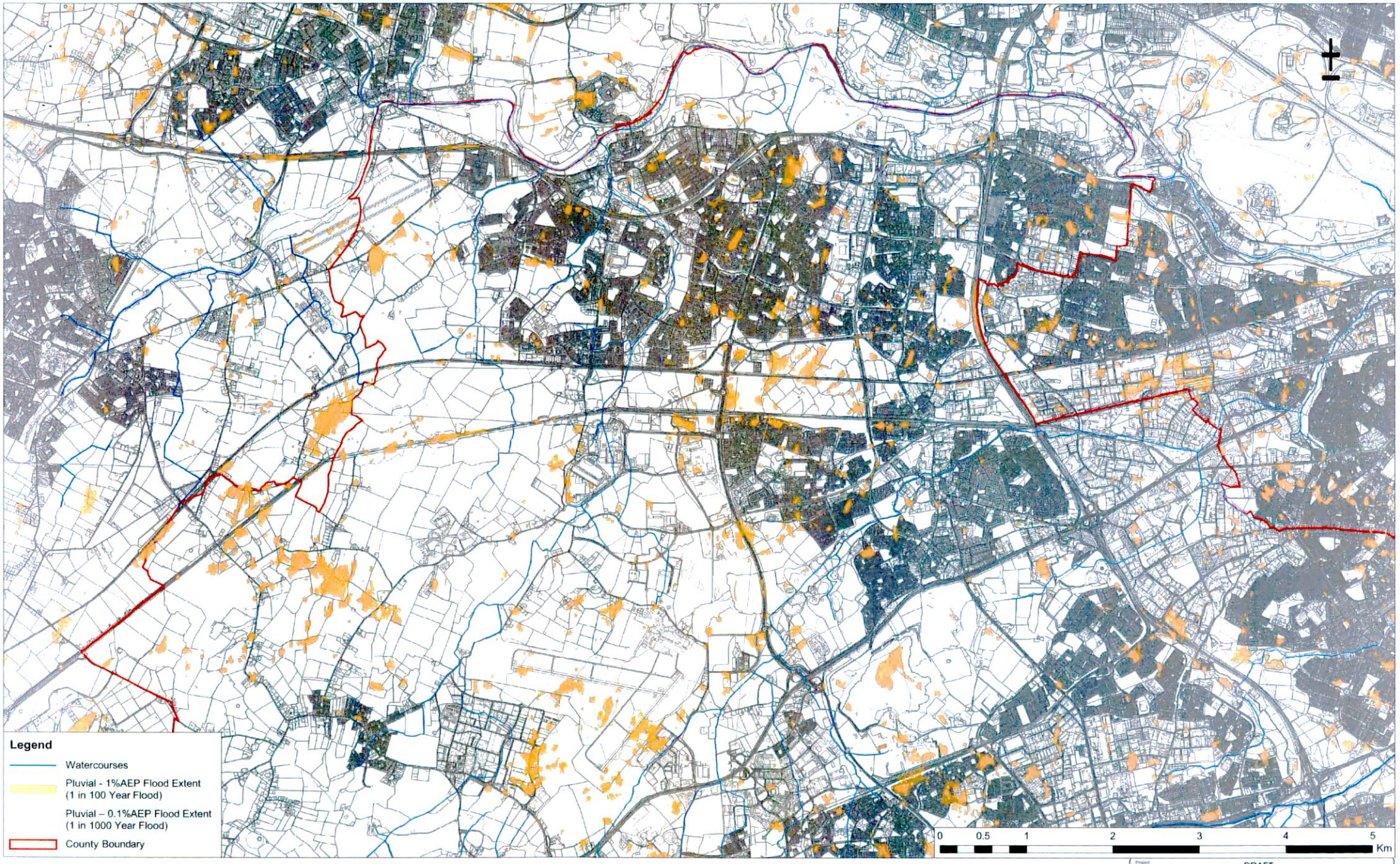
4.6 Groundwater Flooding

According to the Geological Survey of Ireland interactive maps, the subject site is underlain with *Dark limestone & shale*. The area is listed as overlaying a locally important aquifer which has bedrock which is *moderately productive only in local zones*. The groundwater vulnerability assessment of the site shows that the vulnerability of groundwater in the area is *extreme*. A review of the GSI *Historical Groundwater Flood Map* for Ireland does not indicate previous flooding from groundwater sources. The proposed development and the general geology of the subject lands means that the potential risk from groundwater is deemed acceptable.

5.0 CONCLUSION

- The site historically has no recorded flood events as noted in the OPW's historical flood maps for pluvial or fluvial events.
- Predicted flood mapping for pluvial / tidal & Fluvial flood events will not affect the subject lands.
- The site is deemed to be located in **Flood Zone 'C'**, outside the predicated 1-in-1000-year flood zone.
- The likelihood of onsite flooding from groundwater due to hydrogeological conditions are deemed to be minor and within acceptable levels.

Appendix A: South Dublin County Council Flood Risk Map



Comhairle Contae
Átha Cliath Theas
South Dublin County Council

No.	Revision	Date	By	Chk'd	Apprd

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Drawn	Designed	Checked	Approved	Suitability Code - Description
LA	WV	WV	JPR	S2 - Information

Project Stage: DRAFT

Project Title: SDCC County Development Plan
Strategic Flood Risk Assessment

Drawing Title: Indicative Pluvial Flood Mapping
Sheet 1 of 4

Drawing Number	Project	Originator	Volume	Location	Type	Role	Number
	SDSFRA	ROD	EWE	SW_AE	DR	ENV	40101

Scale (A1)	Date	Job No.	Rev.
1:20,000	April 2021	20.126	

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

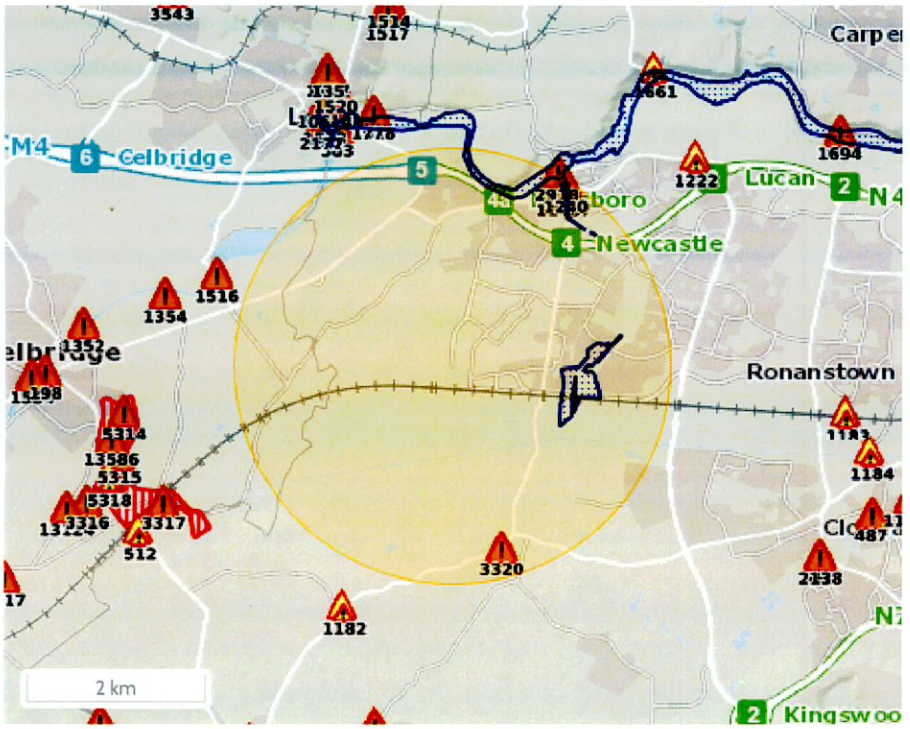
Appendix B: Office of Public Works Historic Flood Report

Past Flood Event Local Area Summary Report

OPW Oifig na nOibreacha Poiblí Office of Public Works

Report Produced: **28/6/2022 12:14**

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



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

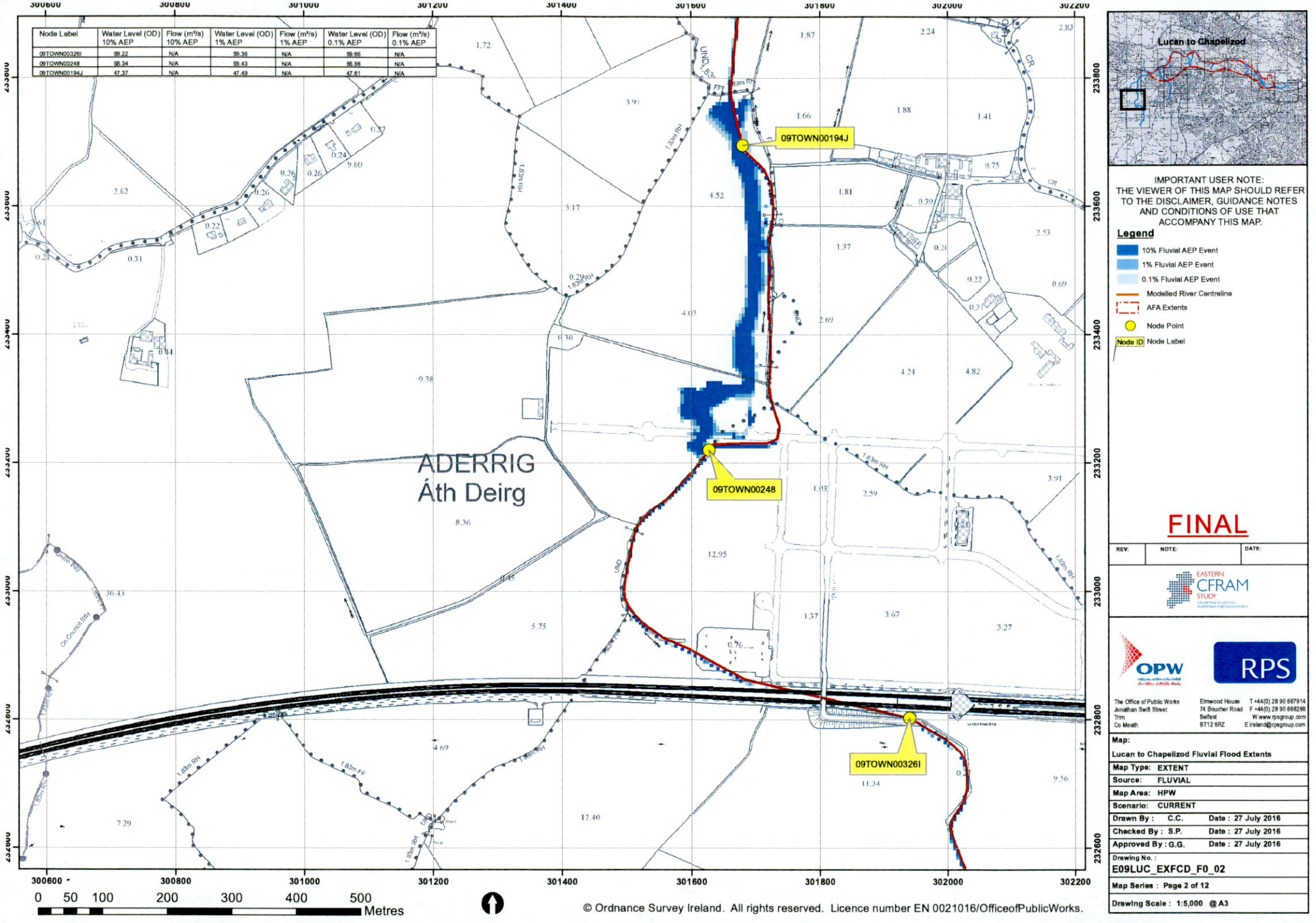
7 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Griffeen November 2000 (ID-1237)	05/11/2000	Area
	Additional Information: Reports (16) Press Archive (6)		
2.	Griffeen June 1993 (ID-1240)	10/06/1993	Approximate Point
	Additional Information: Reports (7) Press Archive (0)		
3.	Liffey Lower - Dec 1954 (ID-241)	08/12/1954	Area
	Additional Information: Reports (5) Press Archive (2)		
4.	Griffeen River 24th Oct 2011 Lucan (ID-11487)	23/10/2011	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		
5.	Griffeen Nov 2002 (ID-350)	15/11/2002	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		
6.	Peamount R134 R120 junction Nov 2000 (ID-3320)	05/11/2000	Approximate Point
	Additional Information: Reports (1) Press Archive (1)		

	Name (Flood_ID)	Start Date	Event Location
7.	Griffeen Aug 1986 (ID-1239)	24/08/1986	Approximate Point

Additional Information: Reports (3) Press Archive (0)

Appendix C: Eastern Catchment Flood Risk Assessment and Management (CFRAM) Fluvial Map



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

Legend

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Node Point
- Node ID Node Label

FINAL

REV:	NOTE:	DATE:

EASTERN CFRAM STUDY

OPW

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Map:
Lucan to Chapelizod Fluvial Flood Extents

Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By : C.C.	Date : 27 July 2016
Checked By : S.P.	Date : 27 July 2016
Approved By : G.G.	Date : 27 July 2016
Drawing No. :	E09LUC_EXFCD_F0_02
Map Series :	Page 2 of 12
Drawing Scale :	1:5,000 @ A3