PUNCH
consulting engineers

Proposed Residential Development at the Former Filling Station, Nutgrove Avenue, Rathfarnham, Dublin 14

Site Specific Flood Risk Assessment

202252-PUNCH-XX-XX-RP-C-0005

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1 Introduction

1.1 Background

PUNCH Consulting Engineers were appointed by Sirio Homes to carry out a Site-Specific Flood Risk Assessment for the proposed residential development at the former filling station, Nutgrove Avenue, Rathfarnham, Dublin 14.

The assessment is carried out in full compliance with the requirements of "The Planning System & Flood Risk Management Guidelines" published by the Department of the Environment, Heritage and Local Government in November 2009.

The proposed site layout is detailed in a series of planning drawings provided by Horan Rainsford Architects in the planning documentation.

1.2 Existing Site

The subject site is currently an empty site, formerly a service station, and is bounded by residential developments to the south and west, Nutgrove Avenue to the north, and Rathfarnham Scout Den building to the east. The application area includes the site of the former filling station under Applicant ownership and a portion of land located to the north of the filling station site, where the existing traffic lights and pedestrian crossing are located along Nutgrove Avenue. Access to the development will be via the proposed new access points from Nutgrove Avenue. Figure 1-1 below indicates the proposed development within the surrounding area.

Figure 1-1: Location of the Proposed development (Site Boundary Indicated in Red) © Google Maps

1.3 Nature of the Proposed Development

The proposed development comprises of a multi-storey apartment block. The proposed finished floor levels range from 50.20 mAOD to 50.50 mAOD.

Car, cycle and motorcycle parking will be accommodated on the ground level to the south-east of the development. Vehicular connection to the development will be directly off Nutgrove Avenue. Please refer to Horan Rainsford Architect drawings detailing the associated site development works and services provisions including bin storage areas, substations/switch rooms, plant areas, open spaces, boundary treatments, landscaping and all services required to facilitate the proposed development.

An extract from the site layout is included in Figure 1-2 below . Please refer to Appendix A for proposed site layout drawing.

Figure 1-2: Proposed Site Layout

2 Relevant Guidance

2.1 The Planning System and Flood Risk Management Guidelines

In September 2008, "The Planning System and Flood Risk Management" Guidelines were published by the Department of the Environment, Heritage and Local Government in Draft Format. In November 2009, the adopted version of the document was published.

The Flood Risk Management Guidelines give guidance on flood risk and development. The guidelines recommend a precautionary approach when considering flood risk management in the planning system. The core principle of the guidelines is to adopt a flood risk sequential approach to managing flood risk and to avoid development in areas that are at risk. The sequential approach is based on the identification of flood zones for river and coastal flooding. The guidelines include definitions of Flood Zones A, B and C, as noted in Table 2-1 below. It should be noted that these do not take into account the presence of flood defences, as there remain risks of overtopping and breach of the defences.

Table 2-1: Flood Zone Designation

Flood Zone	Type of Flooding	Annual Exceedance Probability (AEP)
Flood Zone A	Coastal	Less than a 1:200 (0.5% AEP) year event
	Fluvial	Less than a 1:100 (1% AEP) year event
Flood Zone B	Coastal	Greater than a 1:200 (0.5% AEP) and less than a 1:1000 (0.1% AEP) year event
	Fluvial	Greater than a 1:100 (1% AEP) and less than a 1:1000 (0.1% AEP) year event
Flood Zone C	Coastal	Greater than a 1:1000 (0.1% AEP) year event
	Fluvial	Greater than a 1:1000 (0.1% AEP) year event

Once a flood zone has been identified, the guidelines set out the different types of development appropriate to each zone. Exceptions to the restriction of development due to potential flood risks are provided for through the use of the **Justification Test**, where the planning need and the sustainable management of flood risk to an acceptable level must be demonstrated. This recognises that there will be a need for future development in existing towns and urban centres that lie within flood risk zones, and that the avoidance of all future development in these areas would be unsustainable.

A three staged approach to undertaking an FRA is recommended:

Stage 1: Flood Risk Identification - Identification of any issues relating to the site that will require further investigation through a Flood Risk Assessment;

Stage 2: Initial Flood Risk Assessment - Involves establishment of the sources of flooding, the extent of the flood risk, potential impacts of the development and possible mitigation measures;

Stage 3: Detailed Flood Risk Assessment - Assess flood risk issues in sufficient detail to provide quantitative appraisal of potential flood risk of the development, impacts of the flooding elsewhere and the effectiveness of any proposed mitigation measures.

This report addresses the requirements for Stage 2.

2.2 South Dublin County Council Development Plan

Policies relating to flood risk with in the SDCC development Plan 2016-2022 are outlined in section 7.3.0 (Flood Risk Management). Relevant excerpts are copied below:

> It is the policy of the Council to continue to incorporate Flood Risk Management into the spatial planning of the County, to meet the requirements of the EU Floods Directive and the EU Water Framework Directive.

- **IE3 Objective 1:**
  "To support and co-operate with the Office of Public Works in delivering the Catchment-Based Flood Risk Assessment and Management Programme and in particular the Eastern District CFRAMS and associated Flood Risk Management Plan (FRMP), the River Dodder CFRAMS and associated Flood Risk Management Plan (FRMP). The recommendations and outputs arising from the CFRAM study for the Eastern District shall be considered in preparing plans and assessing development proposals."

- **IE3 Objective 2:**
  To support the implementation of the EU Flood Risk Directive (2007/60/EC) on the assessment and management of flood risks and the Flood Risk Regulations (SI No 122 of 2010).

- **IE3 Objective 3:**
  To manage flood risk in the County in accordance with the requirements of The Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and Circular PL02/2014 (August 2014), in particular when preparing plans and programmes and assessing development proposals. For lands identified as being at risk of flooding in (but not limited to) the Strategic Flood Risk Assessment, 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.

- **IE3 Objective 4:**
  To support and facilitate the delivery of flood alleviation schemes in South Dublin County, including the following schemes: Poddle Flood Alleviation Scheme. Ballycullen Flood Alleviation Scheme. Whitechurch River Flood Alleviation Scheme (at Rathfarnham); part of the Dodder CFRAMS.

- **IE3 SLO 1:**
  To require the preparation of a site and catchment specific Flood Risk Assessment and Mitigation Strategy, prepared by a qualified person(s), to be submitted with any proposal for development on the 'EE' zoned lands and demonstration that the development satisfies all the criteria of the Development Management Justification Test as set out in Table 2.3 of the document titled 'Strategic Flood Risk Assessment for SDCC Development Plan - Detailed Report on Flood Risk in the Baldonnell Area'.

2.3 Land Zoning

The land on which the development is proposed is currently zoned as "*RES*" in the SDCC Development Plan (2016-2022). These are areas designated for residential or primarily residential purposes.

2.4 Flood Risk Management Plan

The OPW publish Flood Risk Management Plans detailing the feasible range of flood risk management measures proposed for their respective river basins. The Flood Risk Management Plan for the Liffey & Dublin River Basin was published by the OPW in 2018 and is valid for the period 2018-2021. The plan lists current flood management measures in place and potentially viable Flood Relief Works. There are a number of measures proposed in the plan which are applicable for all areas. The proposed site is located within the plan area but there are no relevant measures pertaining to the site.

3 Flood Risk Identification

3.1 Existing Hydrogeological Environment

The existing hydrological environment is characterised primarily by the presence of the Owendoher River which is located approximately 750m west of the proposed site, and the Little Dargle River approximately 440m to the south-east. There is also a small stream located on the grounds of Castle Golf Club to the north-west of the proposed site. The hydrological environment around the site is shown in Figure 3-1 below.

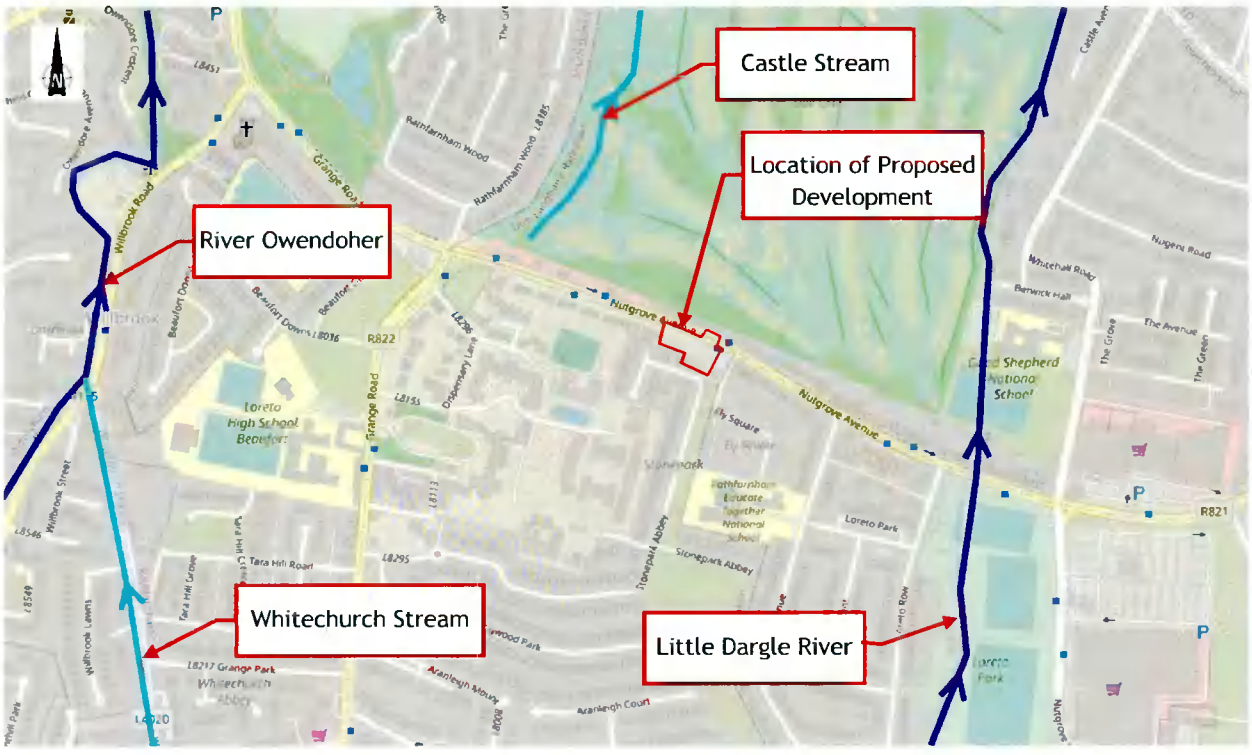


Figure 3-1: Hydrological Environment around the site

3.2 Topographical Survey

A topographical survey of the site and its environs was completed in 2007. This survey was taken when the site was a service station. It is now a vacant site with the service station building and amenities having been removed. The survey provides the sites existing levels and layout.

3.3 Site Walkover

PUNCH Consulting Engineers visited the site on 8th of September 2018 to assess the conditions and key features of the site, to establish any potential sources of flooding and to identify the likely routes of flood waters.

The following was established from the site visit:

- Site Boundary confirmed as per surveyed information.
- Existing drainage manholes locations noted.
- Existing hardstanding areas noted.

Please refer to Appendix B for site visit photos.

3.4 Site Geology

The geology of the site was reviewed using data from the Geological Survey of Ireland (available at www.gsi.ie). The GSI quaternary maps for the region indicate that the soil type is at the interface between two types of soil: till derived from limestones (boulder clay) and gravels derived from limestones as shown in below Figure 3-2.

Adjacent ground investigation records from www.gsi.ie indicate that, for a site nearby, immediately to the north of Nutgrove Ave has a clay ground profile.

Figure 3-2: Map Extract from Quaternary Map at www.gsi.ie with and site indicated.

The GSI Teagasc soils maps were also reviewed, and these indicated that the site consists of made ground. No areas of alluvial soils were noted on the site. The presence of alluvial soils can indicate areas which are liable to flooding. See below Figure 3-3.

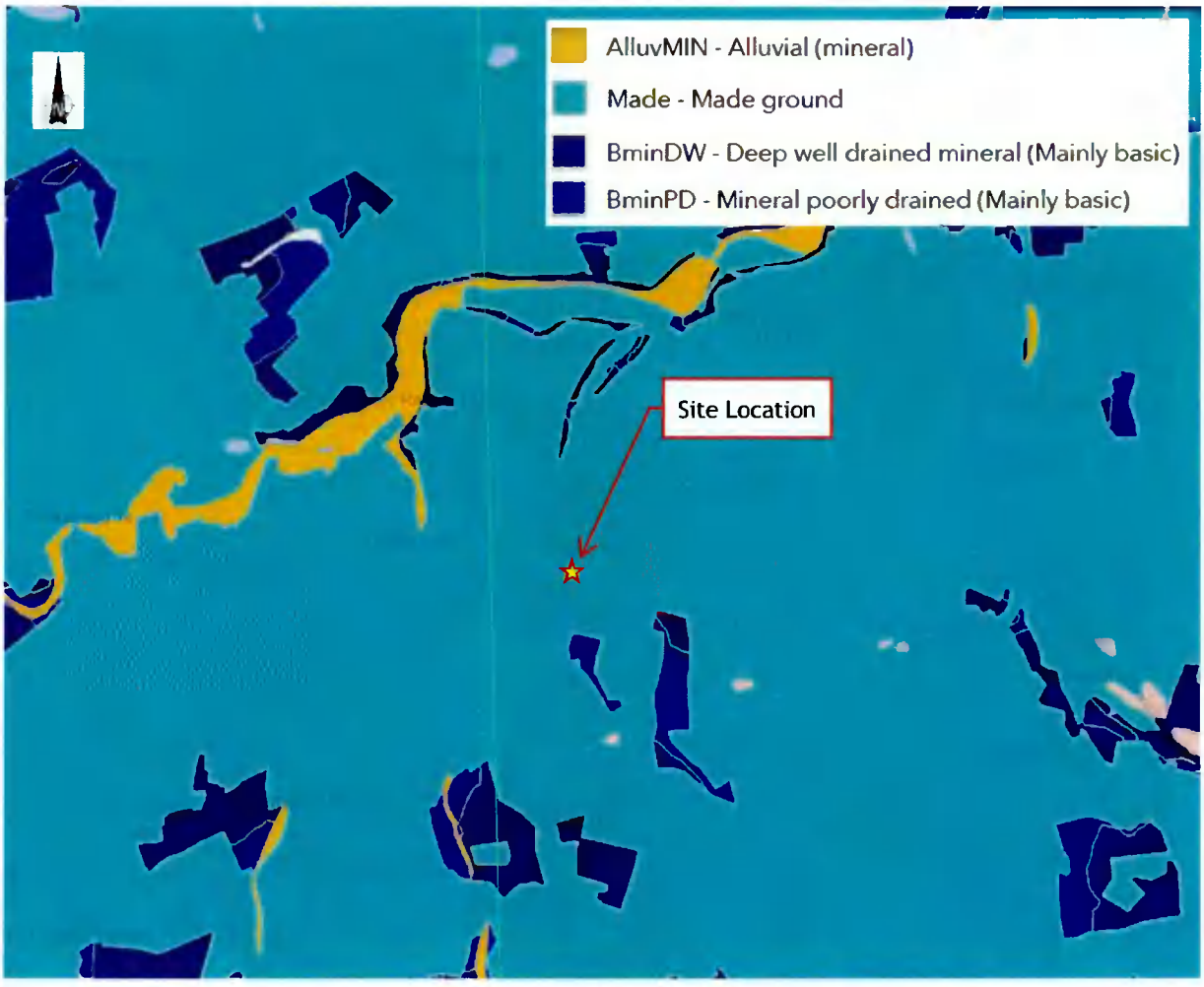


Figure 3-3: Map Extract from Teagasc Soils at www.gsi.ie with and site indicated.

Based on this information, the site is taken to have an intermediate soil natural ground profile. Therefore, a SOIL type of 3 (moderate runoff potential) has been utilised for the development, with a consequent SOIL value of 0.4 for the calculation of Qbar.

3.5 Review of Existing Surface Water Infrastructure

SDCC was contacted with regards existing surface water infrastructure in the vicinity of the site. Figure 3-4 below is an extract from the relevant record drawing showing existing surface water drainage surrounding the site. For a full copy of the drawing please refer to Appendix C. Records indicate the following existing services:

- 225mm surface water sewer from the south west of the site, within Stonepark Orchard.
- 600mm concrete surface water sewer from the south east of Stonepark Orchard.
- 900mm culvert / 1200mm concrete culvert surface water sewer draining through the site and discharging to the west of the site.
- 600mm concrete surface water sewer, discharging from the site through adjacent lands and to the golf course on the north side of Nutgrove Ave.
- 450mm concrete sewer draining east to west along the north side of Nutgrove Ave.

It is proposed that the existing 900mm culvert / 1200mm concrete culvert, and the 600mm concrete surface water sewers draining through the site and discharging to the west of the site will be diverted and replaced with a new proposed drainage network as part of the development. For more details please refer to the Engineering Planning Report prepared by PUNCH Consulting Engineers which accompanies this report.

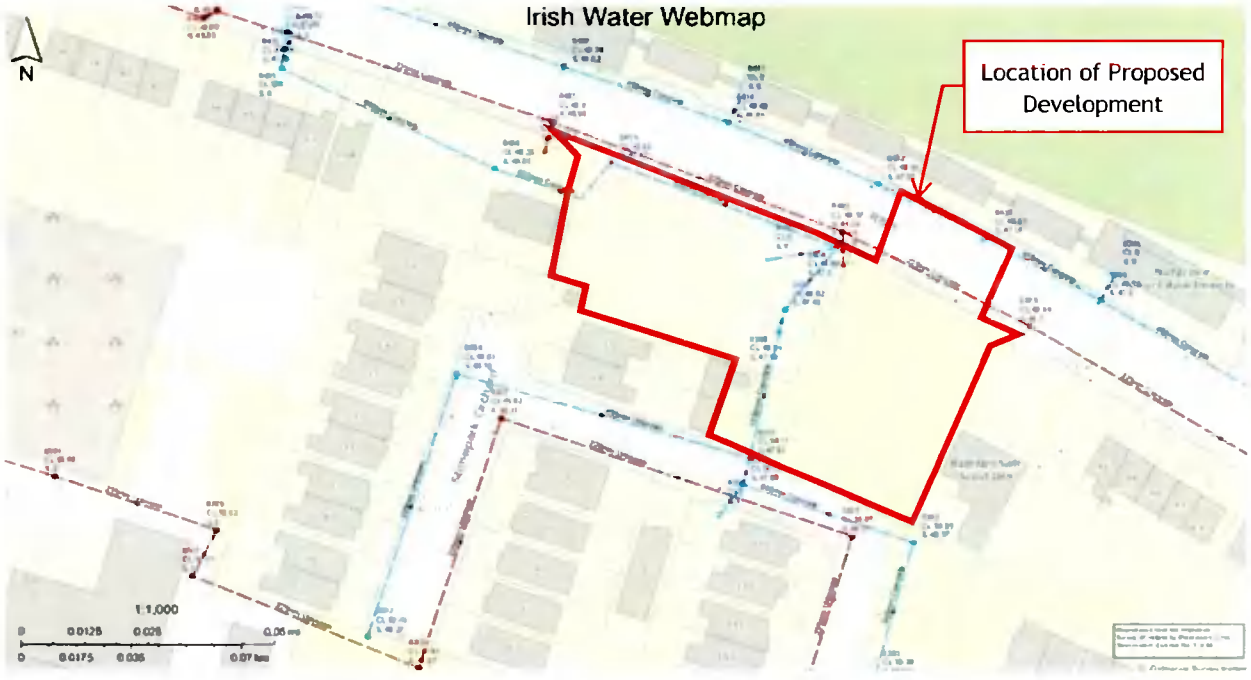


Figure 3-4: Existing stormwater drainage surrounding the site (Source Irish Water Records)

3.6 Review of Historic Mapping

A review of the OSI Historical maps[1] was carried out. Figure 3-5 shows an extract from the 25-inch historic map for the site. The site is not' indicated as "liable to flood" in the available historic OSI maps. Historic maps also indicate the site area was previously a school. In its more recent history, the site contained a service station.

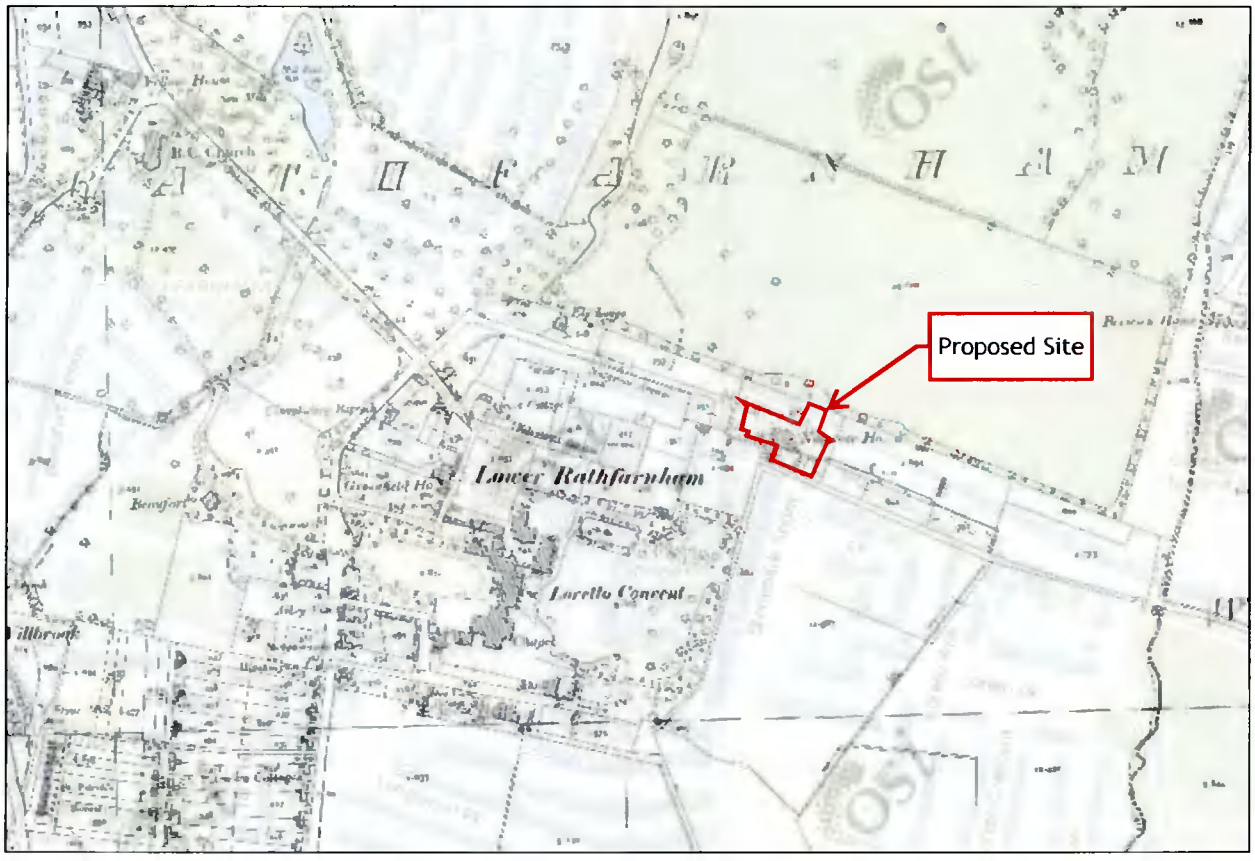


Figure 3-5: Extract from OSI historical 25-inch map (1888-1913)

[1] Maps available: http://map.geohive.ie/mapviewer.html

3.7 History of Flooding

The Office of Public Works (OPW) Flood Hazard Mapping website holds a record of historic flood events and shows all past flood events within a 2.5 km radius, as shown below in Figure 3-6.

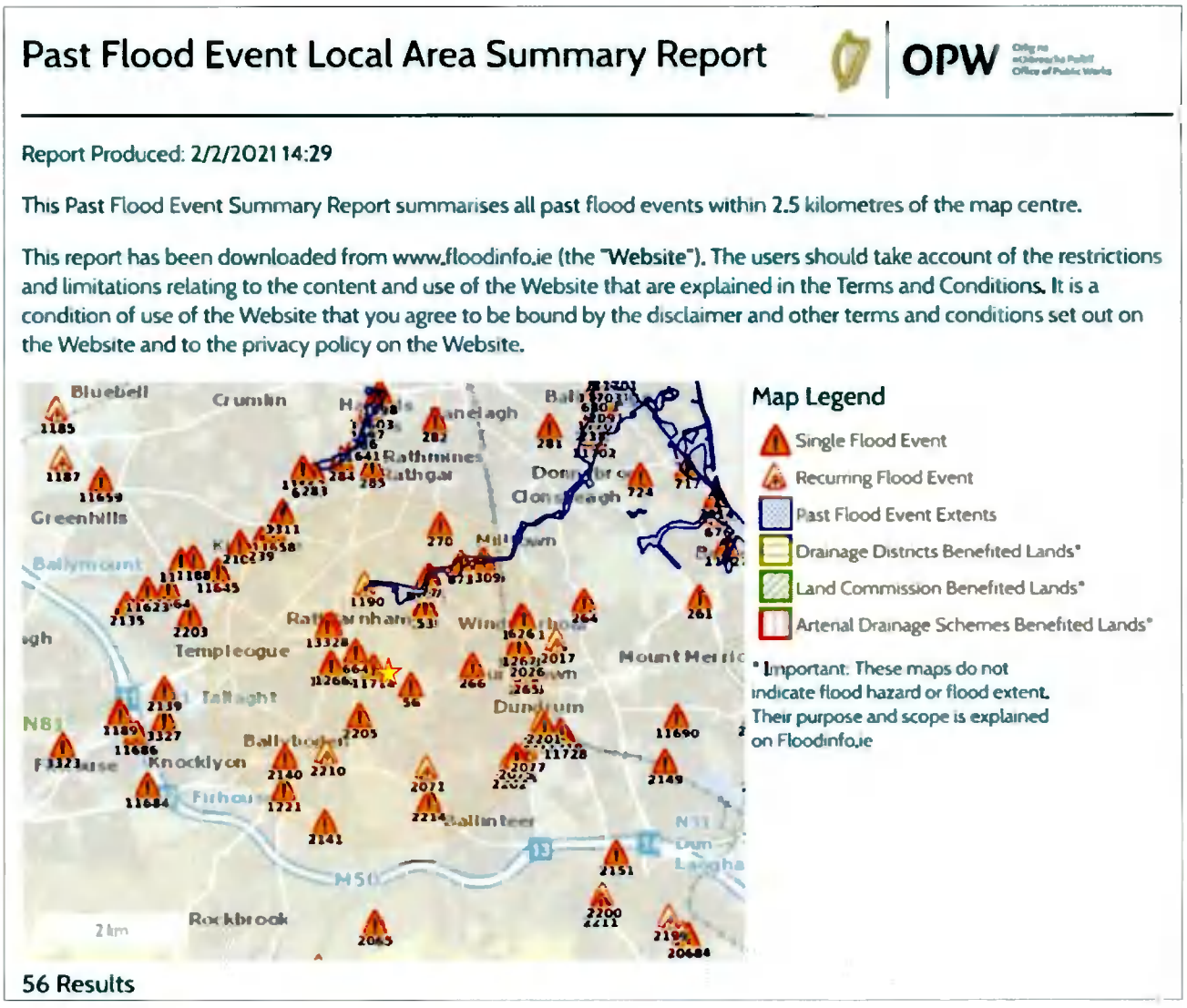


Figure 3-6: Extract from OPW Floodmaps Database Report (see Appendix C for full report)
https://www.floodinfo.ie/map/floodmaps/

A review of the database indicated that: there has been historical instances of flooding along Nutgrove Avenue in October 2011 as shown in Figure 3-7 and Figure 3-8 below.

The report on the OPW database notes the source of the flooding was the overtopping of the Little Dargle River to the east of the site, which is in the Dodder Catchment. The culvert on the Little Dargle River at Nutgrove Avenue was exceeded by flows, which may have been as a result of the entrance screen becoming blinded. Water spilled on to Nutgrove Avenue and flowed downhill to a number of commercial premises and accumulated behind a boundary wall. The wall collapsed and flows entered the Castle Stream on Castle Golf Course.

The report also notes that a DCC Main Drainage Department report in April 1958 (area was formerly under DCC remit) describes similar flooding in September 1957 (i.e. culvert on Nutgrove Ave exceeded and flows travelling westwards down Nutgrove Ave collapsing a wall and flowing onto Castle Golf Course). See Appendix C for full reports.

The above-mentioned instances both involved suspected maintenance issues with regards to the culvert inlet on the Little Dargle River to the east of the site. Screening has been improved at this location, and this mitigates the risk of future flooding at the proposed site.

In the event of the existing culvert becoming blocked again, there is potential for minor flooding at the site, similar to that which occurred in the previous flood event. Flooding of the site would be in the expected region of 100mm based on the previous flooding events described in the above-mentioned reports. The flooding would likely only occur in the north-west corner of the site, and the expected depths would not pose a significant risk to the site.

Other historical flood events in the surrounding area include:

- House and garden flooding due to surface water network blockage on Barton Drive circa 1994.
- Owendoher River flooding in 1986 due to Hurricane Charlie.
- Flooding at Millrace Sluice Gates on Grange Road in 1958.
- Minor Flooding in the Dodder Catchment in 2000.

None of the above events were found to have affected the proposed site area.
Please note that this is not a guaranteed record of all flood events.

Figure 3-7: Extract from the OPWs National Flood Information Portal Showing Flood Events in the Proposed Sites Surrounding Area. https://www.floodinfo.ie/map/floodmaps/

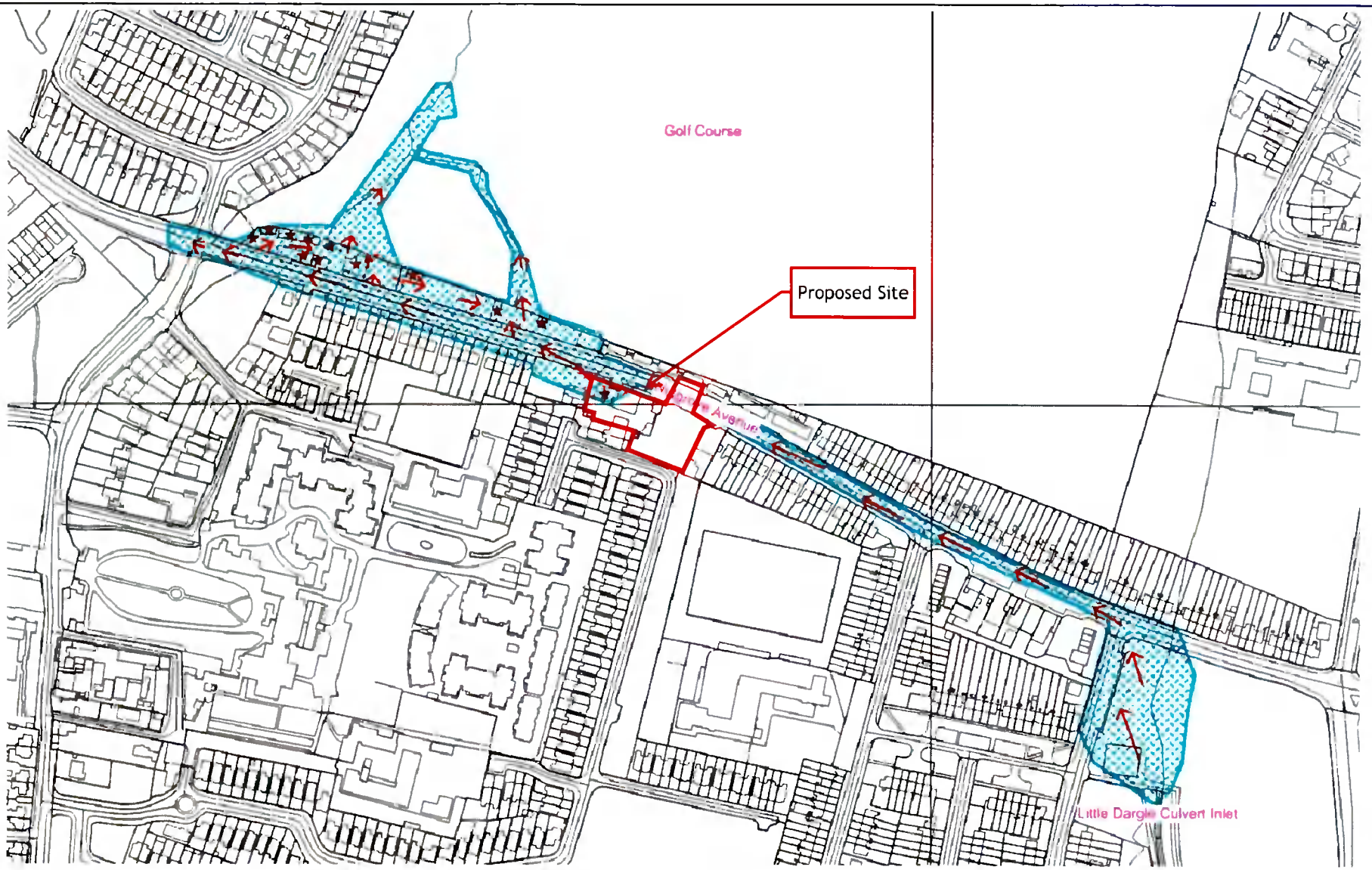


Figure 3-8: Extract Showing Past Flood Event on Nutgrove Avenue in October 2011
https://www.floodinfo.ie/map/pf_addinfo_report/11714/

3.8 Proposed Diversion of Existing Storm Network

As part of the development, it is proposed to divert the existing surface water sewer that crosses the site. Please refer to the Engineering Planning Report for Details in this regard.

A hydraulic assessment has been undertaken as outlined in the engineering planning report. The assessment demonstrate that during a number of storms in the 30 year and 100 year return period, flooding occurs at several manholes both in the existing situation and as part of the proposed diversion. Flooding occurs during the same storms for both the existing and proposed arrangement, and the flooded volume in the proposed arrangement is less than the flooded volume in the existing scenario. In addition, the pipe volume proposed is greater than the existing pipe volume.

It should be noted that the scope for pipeline capacity as part of the diversion is limited by the size of the pipe downstream of the site.

The proposed levels on site will provide an overland flow path from the surface sewer manholes to Nutgrove Avenue. The proposed ground levels along the overland flow path will be lower than the proposed adjacent building floor levels and provide positive drainage to the road.

For further information regarding this surface water sewer diversion, please refer to the Engineering Planning Report accompanying this submission.

3.9 Preliminary Flood Risk Assessment Mapping

The Catchment Flood Risk Assessment and Management Study (CFRAMS) is a national programme which to date has produced both a series of Preliminary Flood Risk Assessments (PFRA) which cover the entire country, as well as more detailed flood maps in certain catchments across the country.

Prior to the publication of the detailed CFRAMS flood mapping, a series of Preliminary Flood Risk Assessment (PFRA) maps were published. These maps indicated preliminary tidal and fluvial flood zones (which have been superseded by the more detailed CFRAMS maps) along with pluvial and groundwater risks. The PFRA flood zones for the proposed site are shown in Figure 3-9 below.

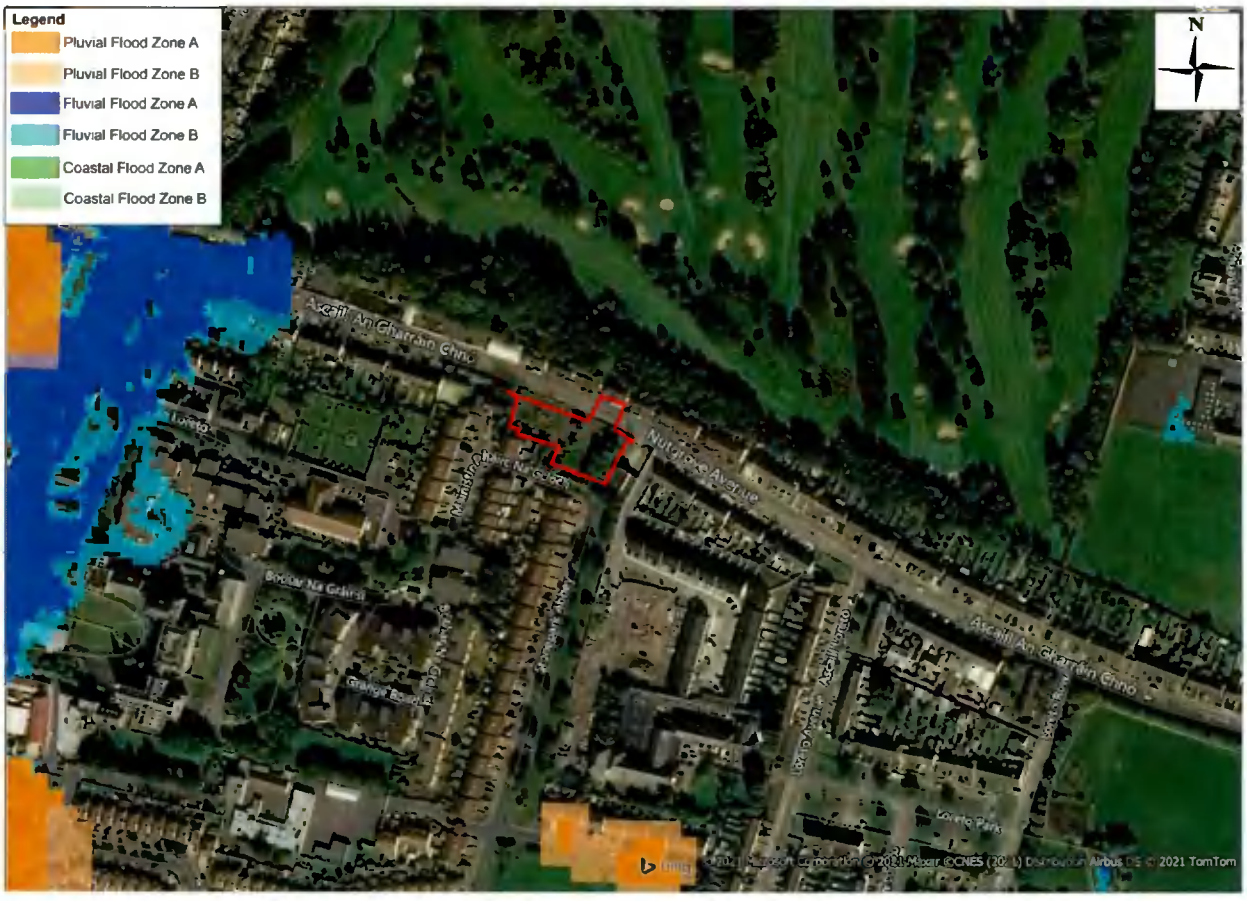


Figure 3-9: PFRA Flood Zone Map Indicating Extents of Preliminary Flood Zone

The PFRA mapping indicates that the site is not located within the pluvial, fluvial or coastal flood zones. It is noted that the PFRA modelling is a high-level study which uses a coarse ground to represent the topography of the country and does not take flood defences into account. As such PFRA fluvial, pluvial and coastal flood extents are to be utilised as an initial assessment only.

3.10 CFRAMS Mapping

As part of the CFRAMS programme, mapping is available online for public viewing, and the local area has been assessed as part of the Dodder CFRAMS. The OPW has published detailed flood hazard mapping for the area based on results from the CFRAMS. This includes flood extent and flood depth mapping for a number of return periods for fluvial and coastal flood events. The CFRAMS assessment in this area is based on hydraulic modelling of the River Dodder and its tributaries.

Figure 3-10 and Figure 3-11 below are extracts from the relevant Dodder CFRAMS fluvial flood maps for the area surrounding the proposed development site. Full CFRAMS maps for these areas are included in Appendix D of this report.

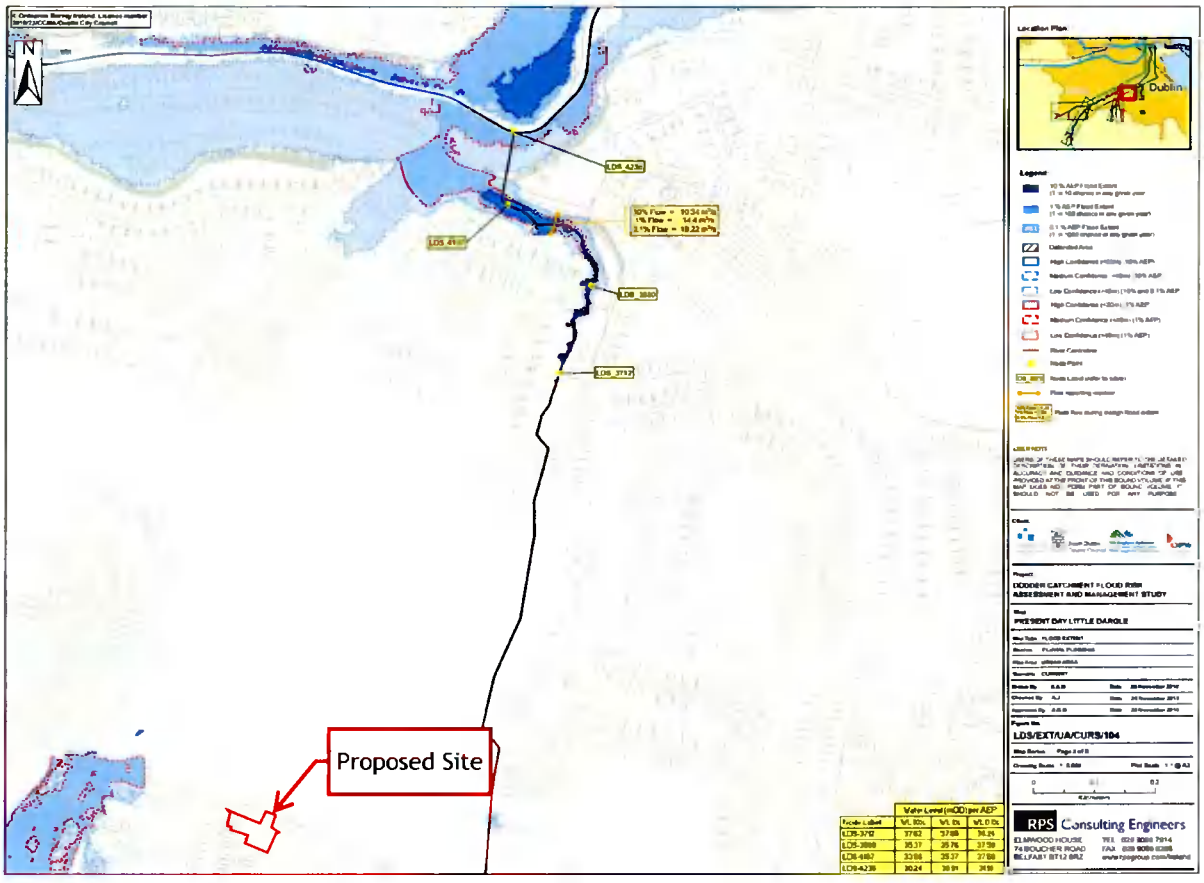


Figure 3-10: Extract from the CFRAMS Fluvial Map for the Area (Site Indicated in Red)
https://www.floodinfo.ie/map/floodmaps/ (Active Layer - PDF Maps)

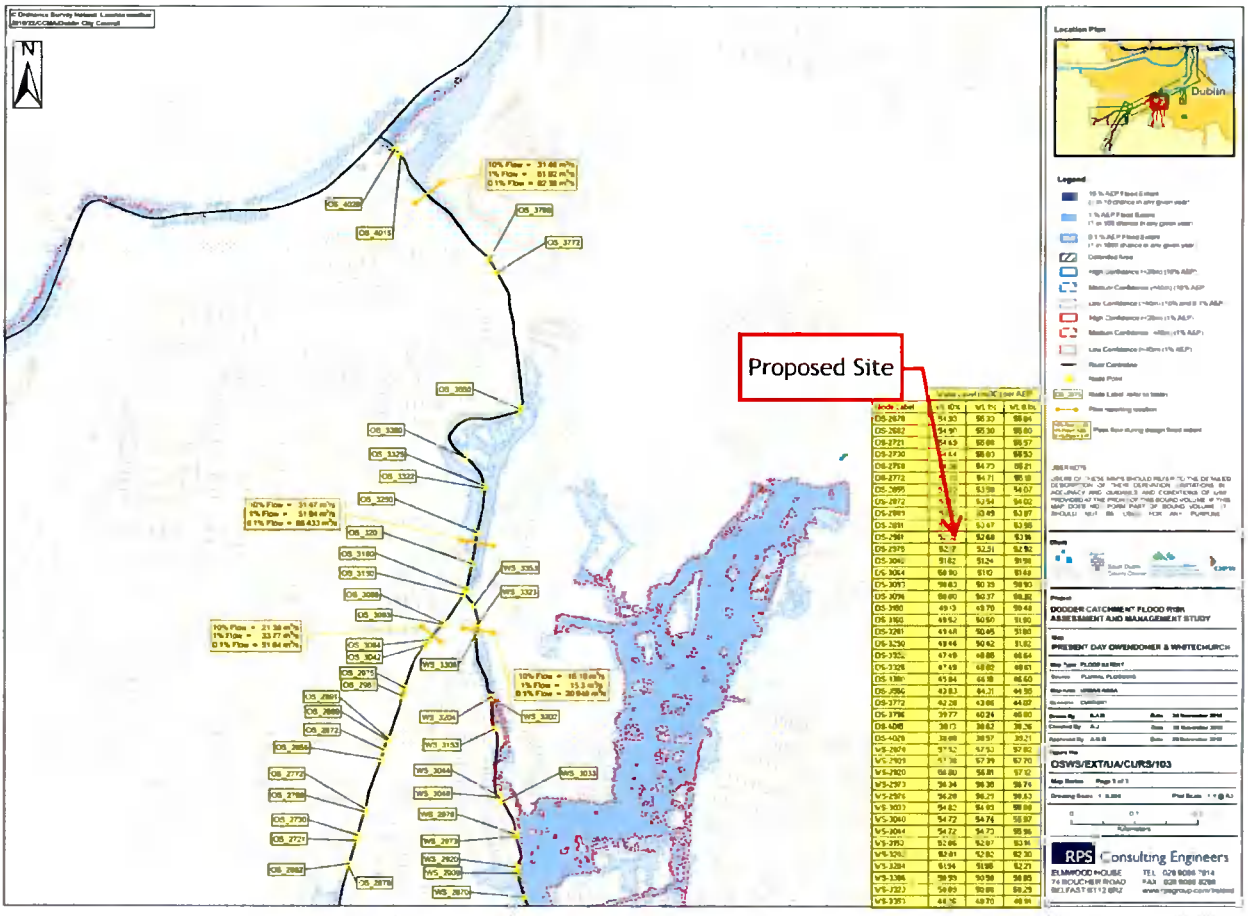


Figure 3-11: Extract from the CFRAMS Fluvial Map for the Area
https://www.floodinfo.ie/map/floodmaps/ (Active Layer - PDF Maps)

The CFRAM mapping indicates that there is no flooding noted on the site.

3.11 Existing Flood Defences

The CFRAM maps do not indicate any existing flood defences in the area of the site.

3.12 Estimate of Flood Zone

PUNCH Consulting Engineers have reviewed the available information as outlined in the above sections. There is no coastal flood risk to the site. The site is located in Flood Zone C for fluvial, pluvial and coastal flooding and is therefore at low risk of flooding.

4 Flood Risk Assessment

4.1 Sources of Flooding

When carrying out a Flood Risk Assessment, one should consider all potential risk and sources of flood water at the site. In general, the relevant flood sources are:

Fluvial Flooding

Fluvial flooding is the result of a river exceeding its capacity and excess water spilling out onto the adjacent floodplain.

The proposed site is located approximately 750m east of the Owendoher River, and 440m west of the Little Dargle River. CFRAM mapping indicates that the proposed development is located in Flood Zone C, and that there is no fluvial flood risk to the site of the proposed development.

Coastal Flooding

Coastal flooding is the result of sea levels which are higher than normal and result in sea water overflowing onto the land during high tides or storm surges. The site is located 5.5km from the coast. There is no risk associated with coastal flooding for this site as general ground levels for the site (16.8m-30m) are much higher than expected extreme coastal flood levels.

Pluvial Flooding

Pluvial Flooding is the result of rainfall-generated overland flows which arise before run-off can enter any watercourse or sewer. It is usually associated with high-intensity rainfall. Modelling of the existing drainage network passing through the site indicates the site is currently at risk to pluvial flooding. However, the provision of a diversion of the existing surface water network traversing the site, in addition to the proposed development surface water drainage system reduces the risk of flooding in the model. The proposed developments drainage system has been designed for a 1 in 100-year return period with a 10% allowance for climate change. Where flooding has been found to still occur, albeit at a reduced amount to the existing, the risk of flooding to the proposed dwellings has been mitigated by the provision of overland flow paths along the route of the proposed surface sewer diversion. The proposed ground levels are lower than the proposed building. Please refer to section 3.8 and the engineering planning report.

Groundwater Flooding

Groundwater flooding occurs when the level of the water stored in the ground rises as a result of prolonged rainfall. The proposed development does not include and basements and there is no risk of groundwater flooding to the site.

4.2 Site Vulnerability

The proposed development is residential in nature, which is classified as "Highly Vulnerable Development". The Planning System and Flood Risk Management Guidelines gives definitions for the type of developments that can take place in each Flood Zone. Only Coastal and Fluvial flood zones are considered in determining whether a Justification Test is required. Please refer Table 4-1 below.

Table 4-1: Matrix of Vulnerability versus Flood Zone to indicate Justification Requirement

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

As the site is located in Flood Zone C, a Justification Test is not required as this type of development is considered appropriate as per Table 4-1 above.

5 Conclusions

PUNCH Consulting Engineers were appointed by Sirio Homes to carry out a Site-Specific Flood Risk Assessment for a proposed residential development at the former filling station, Nutgrove Avenue, Rathfarnham, Dublin 14.

This Site-Specific Flood Risk Assessment has been carried out in accordance with *"The Planning System & Flood Risk Management Guidelines"* published by the Department of the Environment, Heritage and Local Government in November 2009 and the South Dublin County Council Local Area Plan.

A review of the flood risk in the area was carried out as the site is located near the Owendoher River and Little Dargle River.

While there was some historic flooding on the site due to blockages at the culvert on the Little Dargle River, the risk to the site is deemed to be low, due to the mitigation measures put in places at the culvert, and the relatively low level of flooding at the site previously.

Flood Maps produced as part of the CFRAMS were consulted to establish the Flood Zone. It was determined that the proposed development site is currently located in Flood Zone C for fluvial, pluvial and coastal flooding.

The proposed development is at a low risk of flooding and is deemed appropriate within the proposed site location.

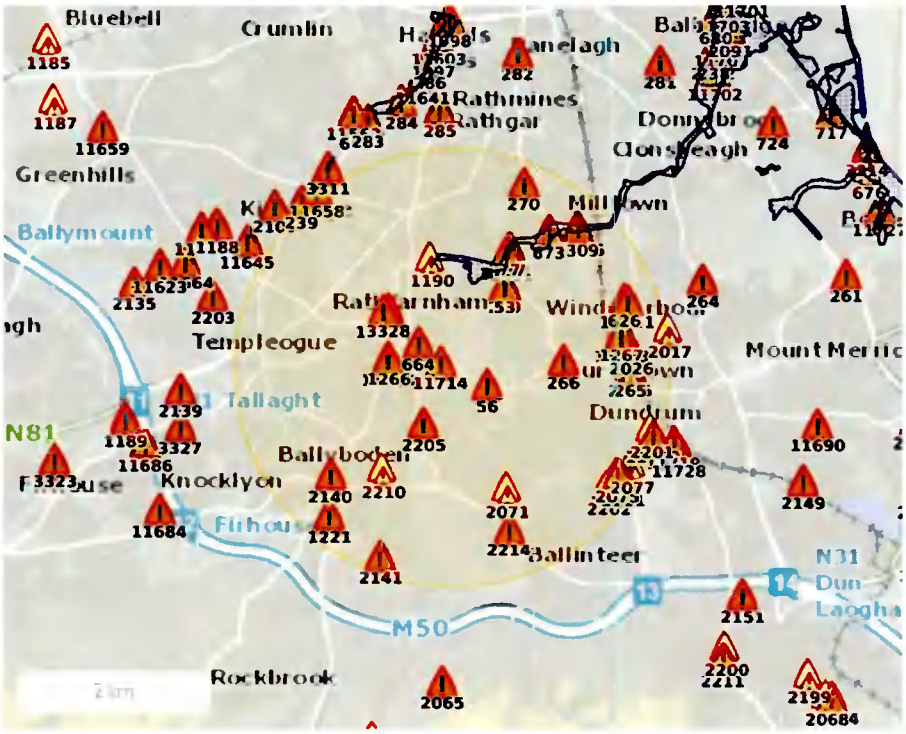
Appendix A Site Layout

Appendix D OPW Historic Flood Events Record

Past Flood Event Local Area Summary Report

Report Produced: **2/2/2021 14:29**

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

56 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Rosemount Dundrum Road Recurring (ID-2026)	n/a	Exact Point
	Additional Information: Reports (3) Press Archive (0)		
2.	Slang Old Ballinteer Road Recurring (ID-2077)	n/a	Exact Point
	Additional Information: Reports (4) Press Archive (0)		
3.	Dodder August 1986 (ID-1)	25/08/1986	Area
	Additional Information: Reports (21) Press Archive (18)		
4.	Little Dargle Sept 1931 (ID-53)	03/09/1931	Approximate Point
	Additional Information: Reports (4) Press Archive (0)		
5.	Little Dargle Sept 1957 (ID-56)	24/09/1957	Approximate Point
	Additional Information: Reports (3) Press Archive (0)		
6.	Little Dargle Feb 1958 (ID-60)	10/02/1958	Approximate Point
	Additional Information: Reports (2) Press Archive (0)		

	Name (Flood_ID)	Start Date	Event Location
7.	Dodder Lr Dodder Road Orwell Gardens Dec 1958 (ID-77) Additional Information: Reports (7) Press Archive (0)	18/12/1958	Approximate Point
8.	Dodder Sept 1931 (ID-237) Additional Information: Reports (9) Press Archive (3)	03/09/1931	Approximate Point
9.	Little Dargle Dec 1956 (ID-259) Additional Information: Reports (3) Press Archive (0)	25/12/1956	Approximate Point
10.	Dundrum June 1963 (ID-265) Additional Information: Reports (4) Press Archive (8)	11/06/1963	Exact Point
11.	Churchtown June 1963 (ID-266) Additional Information: Reports (4) Press Archive (2)	11/06/1963	Exact Point
12.	Rathgar June 1963 (ID-270) Additional Information: Reports (4) Press Archive (2)	11/06/1963	Exact Point
13.	Dodder Dec 2003 (ID-349) Additional Information: Reports (1) Press Archive (0)	02/12/2003	Approximate Point
14.	Dundrum River Sept 1957 (ID-626) Additional Information: Reports (1) Press Archive (0)	24/09/1957	Exact Point
15.	Dodder August 1905 (ID-657) Additional Information: Reports (5) Press Archive (4)	24/08/1905	Approximate Point
16.	Dodder August 1946 (ID-658) Additional Information: Reports (7) Press Archive (2)	11/08/1946	Approximate Point
17.	Dodder October 1886 (ID-659) Additional Information: Reports (4) Press Archive (2)	16/10/1886	Approximate Point
18.	Dodder August 1912 (ID-660) Additional Information: Reports (5) Press Archive (0)	26/08/1912	Approximate Point
19.	Willbrook Rathfarnham Dec 1958 (ID-664) Additional Information: Reports (1) Press Archive (0)	16/12/1958	Approximate Point
20.	Dodder Dartry Cottages Nov 2000 (ID-673) Additional Information: Reports (3) Press Archive (0)	05/11/2000	Approximate Point
21.	Dodder Sept 1957 (ID-731) Additional Information: Reports (5) Press Archive (0)	24/09/1957	Approximate Point
22.	Dodder November 1968 (ID-1231) Additional Information: Reports (2) Press Archive (0)	02/11/1968	Approximate Point
23.	Dodder Lower Dodder Road Recurring (ID-1190) Additional Information: Reports (3) Press Archive (0)	n/a	Approximate Point

Name (Flood_ID)	Start Date	Location
24. Owenadoher Edmondstown Road. Nov 2000 (ID-1221) Additional Information: Reports (3) Press Archive (0)	05/11/2000	Approximate Point
25. Dodder Oct 1880 (ID-1228) Additional Information: Reports (2) Press Archive (0)	27/10/1880	Approximate Point
26. Dodder October 1891 (ID-1229) Additional Information: Reports (3) Press Archive (0)	19/10/1891	Approximate Point
27. Dodder November 1898 (ID-1230) Additional Information: Reports (2) Press Archive (0)	23/11/1898	Approximate Point
28. Dodder November 1901 (ID-1232) Additional Information: Reports (2) Press Archive (0)	10/11/1901	Approximate Point
29. Dodder November 1915 (ID-1233) Additional Information: Reports (3) Press Archive (0)	11/11/1915	Approximate Point
30. Dodder September 1883 (ID-1234) Additional Information: Reports (2) Press Archive (0)	03/09/1883	Approximate Point
31. Dodder December 1956 (ID-1235) Additional Information: Reports (2) Press Archive (0)	29/12/1956	Approximate Point
32. Owendoher Willbrook Road August 1986 (ID-1266) Additional Information: Reports (2) Press Archive (1)	25/08/1986	Approximate Point
33. Slang Frankfort August 1986 (ID-1267) Additional Information: Reports (1) Press Archive (0)	25/08/1986	Approximate Point
34. Old Railway line Dundrum recurring (ID-2025) Additional Information: Reports (5) Press Archive (0)	n/a	Exact Point
35. Manor Rise Recurring (ID-2071) Additional Information: Reports (2) Press Archive (0)	n/a	Exact Point
36. Pine Copse Willow Road Recurring (ID-2075) Additional Information: Reports (2) Press Archive (0)	n/a	Exact Point
37. Ashlawn Ballinteer Road June 1993 (ID-2111) Additional Information: Reports (1) Press Archive (0)	11/06/1993	Approximate Point
38. Boden Villas Feb 1994 (ID-2140) Additional Information: Reports (1) Press Archive (0)	03/02/1994	Exact Point
39. Whitechurch Court Feb 1994 (ID-2141) Additional Information: Reports (1) Press Archive (0)	03/02/1994	Exact Point
40. Slang Pyelands Dundrum recurring1 (ID-2201) Additional Information: Reports (1) Press Archive (0)	n/a	Approximate Point
41. Ludford Area Ballinteer Recurring (ID-2202)	n/a	Approximate Point

Name (Flood_ID)	Start Date	Location
Additional Information: Reports (1) Press Archive (0)		
42. Barton Drive Ballyboden Feb 1994 (ID-2205)	03/02/1994	Exact Point
Additional Information: Reports (1) Press Archive (0)		
43. Ballyboden Road Whitecliff Recurring (ID-2210)	n/a	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
44. Little Dargle Grange Road Nov 1982 (ID-2214)	07/11/1982	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
45. Dodder Classon's Bridge Nov 2000 (ID-3309)	05/11/2000	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
46. Dodder Woodview Cottages Rathfarnham Nov 2000 (ID-3328)	05/11/2000	Approximate Point
Additional Information: Reports (1) Press Archive (3)		
47. Dodder Orwell Gardens Nov 1965 (ID-3342)	17/11/1965	Approximate Point
Additional Information: Reports (10) Press Archive (0)		
48. Flooding at Nutgrove Avenue, Rathfarnham, Dublin 14on 24th Oct 2011 (ID-11714)	24/10/2011	Exact Point
Additional Information: Reports (1) Press Archive (0)		
49. Flooding at Church Lane, Rathfarnham, Dublin 14.on 24th Oct 2011 (ID-11717)	24/10/2011	Exact Point
Additional Information: Reports (1) Press Archive (0)		
50. Flooding at Dundrum Shopping Centre and Taney Cross, Co. Dublin on 24th Oct 2011 (ID-11720)	24/10/2011	Exact Point
Additional Information: Reports (1) Press Archive (0)		
51. Pine Copse Road Ballinteer Nov 1982 (ID-2137)	05/11/1982	Exact Point
Additional Information: Reports (1) Press Archive (0)		
52. Dodder 24th Oct 2011 Waldron's Br (ID-11482)	24/10/2011	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
53. Slang River 24th Oct 2011 Frankfort (ID-11483)	24/10/2011	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
54. Owendoher River 24th Oct 2011 Willbrook Road (ID-11484)	24/10/2011	Approximate Point
Additional Information: Reports (1) Press Archive (0)		
55. Flooding at Milltown, Dublin 6 on 24th Oct 2011 (ID-11705)	24/10/2011	Exact Point
Additional Information: Reports (1) Press Archive (0)		
56. Flooding at Dundrum, Dublin 14 on 24th Oct 2011 (ID-11711)	24/10/2011	Exact Point
Additional Information: Reports (1) Press Archive (0)		

Flooding at Nutgrove Avenue, Rathfarnham, Dublin 14. 24th October 2011

The information contained in this report has been extracted from a Flood Data Collection Form submitted to The Office Of Public Works (OPW) by Consultants working on the Eastern River Basin District (RBD) Catchment Flood Risk Assessment and Management (CFRAM) Project.

1 Location and date of flood event:

Location: Nutgrove Avenue, Rathfarnham, Dublin 14.
Irish Grid Co-ordinates: 314,836 228,484

This flooding event started at 6pm on 24th October 2011 and ended at 6am on 25th October 2011, the peak flood occurred at 10pm on 24th October 2011.

2 Source and cause:

The source of the flooding was the overtopping of the Little Dargle River, which is in the Dodder Catchment. The culvert at Nutgrove Avenue was exceeded by flows, which may have been as a result of the entrance screen becoming blinded. Water spilled on to Nutgrove Avenue and flowed downhill to a number of commercial premises and accumulated behind a boundary wall. The wall collapsed and flows entered the Castle Stream on Castle Golf Course.

3 Flood data:

The following flood information was provided:

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	1950mm	300mm	Max. depth measure at watermark at rear of Ely House.
Flood Flow (m^3/s)			
Flood Velocity (m/s)			

A Main Drainage Department report (DCC, April 1958) describes similar flooding in September 1957(i.e. culvert on Nutgrove Ave exceeded and flows travelling westwards down Nutgrove Ave collapsing a wall and flowing onto Castle GC.

4 Impacts of flooding event:

Impacts to people: There was no loss of life as a result of this flooding event.
Impacts to Property:
Residential – There were 2 properties and 8 people affected by this event.
Commercial: There were 10 commercial properties affected by this event, they included a Beauty Salon, Garages, Dealership and Car Parts Fabricators.

5 Documents attached:

A map and photographs of the affected area are attached.

Nutgrove Avenue, Rathfarnham

25.jpg

26.jpg

27.jpg

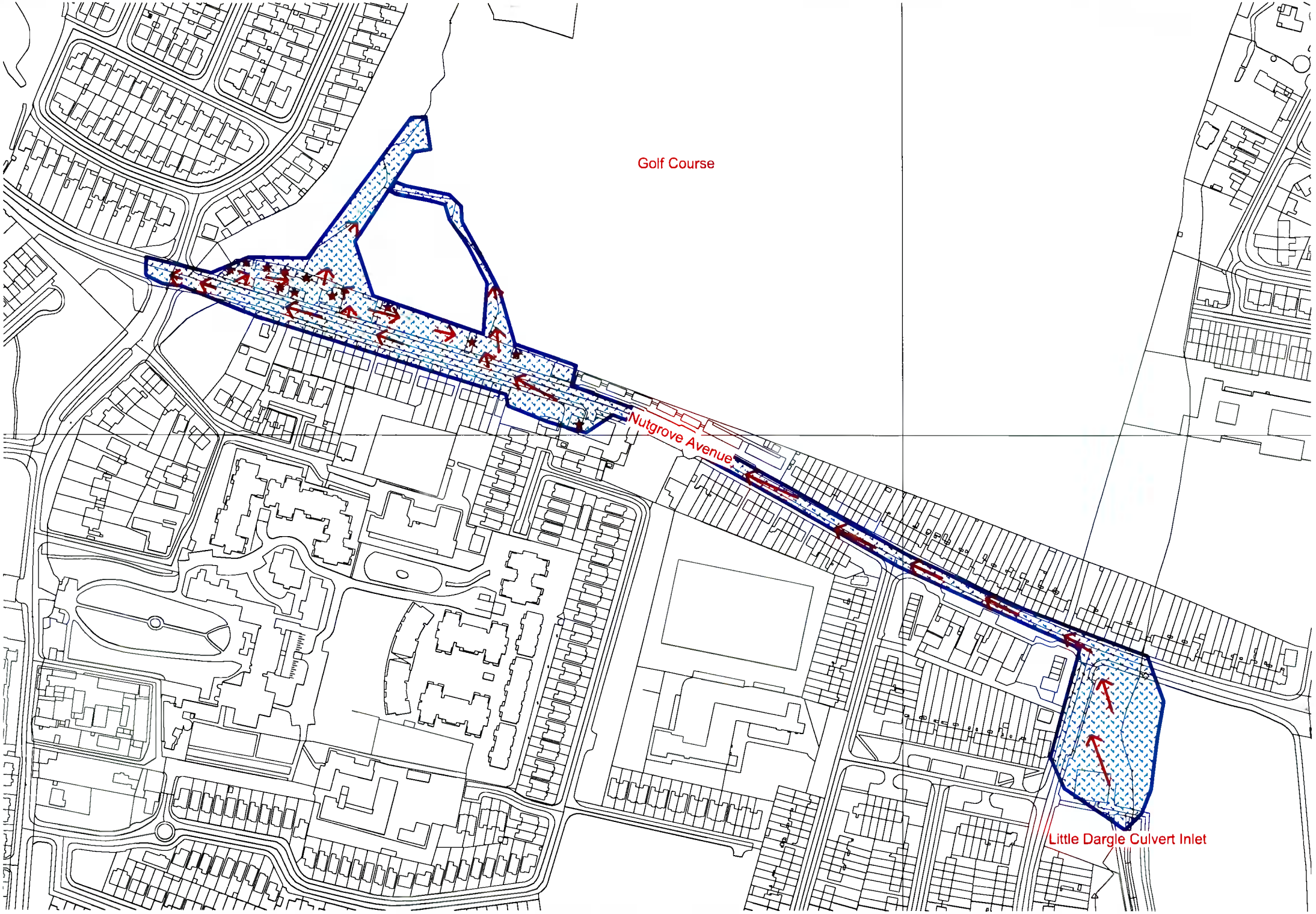
28.jpg

29.jpg

30.jpg

31.jpg

32.jpg


Golf Course
Nutgrove Avenue
Little Dargle Culvert Inlet

Nutgrove Avenue, Rathfarnham

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02.jpg

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Nutgrove Avenue, Rathfarnham

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Nutgrove Avenue, Rathfarnham

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Appendix E CFRAMS Mapping