



**SITE-SPECIFIC FLOOD RISK ASSESSMENT**

**FOR**

**PROPOSED RESIDENTIAL DEVELOPMENT AT**  
**RIVERSIDE,**  
**KILGOBBIN ROAD,**  
**STEPASIDE, DUBLIN 18**

| Revision | Description and Rationale | Originated | Date       | Checked | Date       |
|----------|---------------------------|------------|------------|---------|------------|
| *        | PLANNING                  | AM/KA      | 26.08.2025 | RG      | 26.08.2025 |
|          |                           |            |            |         |            |
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## **1.0 Introduction:**

### **1.1 Background:**

Molony Millar Consulting Engineers were commissioned by DOWNEY Architecture, on behalf of the client, Kavco Group, to prepare a Site-Specific Flood Risk Assessment (SSFRA) for a site located at Riverside, Kilgobbin Road, Stepside, Dublin 18.

This Site-Specific Flood Risk Assessment has been prepared by Molony Millar as part of documentation in support of a planning application for the proposed development on a site of 1.22 hectares at Riverside, Kilgobbin Road, Stepside, Dublin 18.

This Site-Specific Flood Risk Assessment (SSFRA) has been undertaken to identify and quantify potential flood risk arising to and from the site in question.

### **1.2 Objectives:**

The objectives of this report are to inform the planning authority regarding flood risk for the potential developments of the lands. The report will assess the site and development proposals in accordance with the requirements of the “*Strategic Flood Risk Assessment of the Dun Laoghaire Rathdown County Council Development Plan 2022-2028*”.

This report will provide the following;

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

### **1.3 Flood Risk Assessment Scope:**

This SSFRA relates only to the proposed development site which is located at Riverside, Kilgobbin Road, Stepside, Dublin 18.

This report uses information obtained from various sources, together with an assessment of flood risk for the existing land and proposed development. This report follows the requirements of “*Strategic Flood Risk Assessment of the Dun Laoghaire Rathdown Council Development Plan 2022-2028*”, (referred to as the Guidelines for the remainder of this report).

### **1.4 Existing Site:**

The site is predominantly a green-field site located at Riverside, Kilgobbin Road, Stepside, Dublin 18. The development site spans 12,194m<sup>2</sup> or 1.22 hectares (approx. 3.0 acres), accessible primarily from Belarmine Vale. A small residential building, Riverside, is located to the east on Kilgobbin Road, this is within the ownership of the developer, but does not form part of the current planning application. There are

residential buildings to the north, public open space to the west, Gaelscoil Thaobh Na Coille primary school to the south-west and Kilgobbin Castle (in ruins) with extended undeveloped lands to the south. The Ballyogan Stream is located along the northern boundary, flowing in a west to east direction.

## 1.5 Proposed Development:

The proposed development will comprise two new residential blocks with 120 apartments in total (44 Block A and 76 Block B), offering private open space, parking, bicycle storage, waste bins, and necessary site improvements.

| BLOCK A + BLOCK B  |              |            |            |            |             |             |
|--|--------------|------------|------------|------------|-------------|-------------|
| SCHEDULE OF ACCOMODATION - 4-6 STOREYS                   |              |            |            |            |             |             |
|  | 1 BED (2P)   | 2 BED (3P) | 2 BED (4P) | 3 BED (5P) | TOTAL UNITS | DUAL ASPECT |
| BLOCK A  | 27           | 13         | 1          | 3          | 44          | 28          |
| BLOCK B  | 40           | 12         | 16         | 8          | 76          | 36          |
| TOTAL UNITS  | 67           | 25         | 17         | 11         | 120         | 64          |
| TOTAL %  | 56%          | 21%        | 14%        | 09%        | 100%        | 53%         |
| GROSS EXTERNAL FLOOR AREA OF THE APARTMENT BLOCKS (GEFA) |              |            |            |            |             |             |
| BLOCK A  | 3614.6 SQ.M  |            |            |            |             |             |
| BLOCK B  | 6884.0 SQ.M  |            |            |            |             |             |
| TOTAL  | 10498.6 SQ.M |            |            |            |             |             |

**Figure 1.1: Schedule of Accommodation**



## 2.0. Planning Guidelines & Flood Risk Assessment:

### 2.1.1 The Planning System and Flood Risk Management Guidelines:

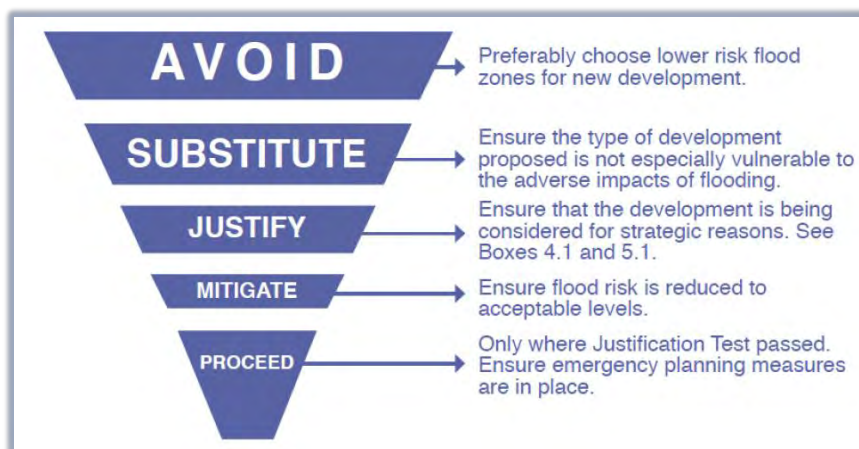
This SSFRA has been prepared with particular reference to the ‘Planning System and Flood Risk Management Guidelines for Planning Authorities’ (including associated Technical Appendices). The Flood Risk Management (FRM) Guidelines provide “mechanisms for the incorporation of flood risk identification, assessment and management into the planning process....”. They ensure a consistent approach throughout the country requiring identification of flood risk and flood risk assessment to be key considerations when preparing development plans, local area plans and planned development.

The core objectives of the FRM Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic and social growth;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure the requirements of EU and national law in relation to the natural environment and nature conservation are complied with for flood risk assessment.

The key principles of The FRM Guidelines are to apply the Sequential Approach to the planning process i.e.;

- Avoid the risk, where possible,
- Substitute less vulnerable uses, where avoidance is not possible, and
- Mitigate and manage the risk, where avoidance and substitution are not possible.



**Figure 2.1:** Sequential Approach Principles in Flood Risk Management

Where the Sequential Test's **avoid** and **substitute** principals are not appropriate then the FRM Guidelines propose that a Justification Test be applied to assess the appropriateness, or otherwise, of particular developments that are being considered in areas of moderate or high flood risk.

**Box 5.1 Justification Test for development management  
(to be submitted by the applicant)**

When considering proposals for development, which may be vulnerable to flooding, and that would generally be inappropriate as set out in Table 3.2, the following criteria must be satisfied:

1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates:
  - (i) The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;
  - (ii) The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
  - (iii) The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and
  - (iv) The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.

The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.

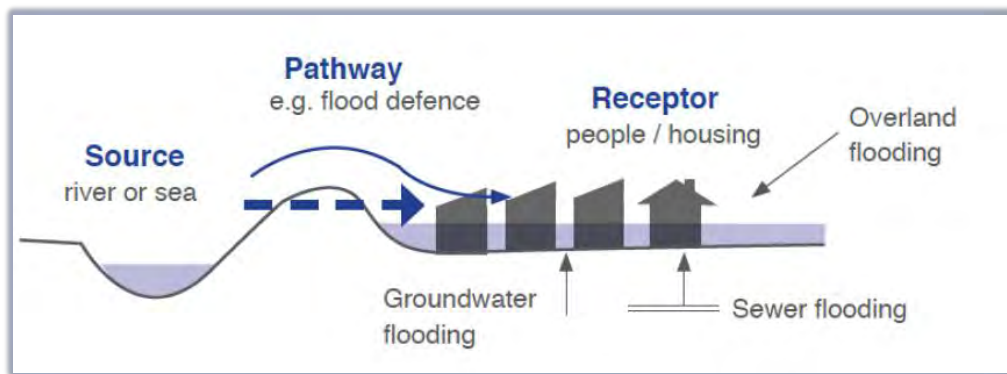
Note: See section 5.27 in relation to major development on zoned lands where sequential approach has not been applied in the operative development plan.

Refer to section 5.28 in relation to minor and infill developments.

**Figure 2.2:** Box 5.1 from the FRA Guidelines – Justification Test for Development Management

## 2.2 Flood Risk Assessment

The assessment of flood risk requires an understanding of where water comes from (the source), how and where it flows (the pathways) and the people and assets affected by it (the receptors).



**Figure 2.3:** *Source-Pathway-Receptor Model*

The principal sources are rainfall or higher than normal sea levels. The principal pathways are rivers, drains, sewers, overland flow and river and coastal floodplains and their defence assets. The receptors can include people, their property, and the environment. All three elements are examined as part of the flood risk assessment including the vulnerability and exposure of receptors to determine potential consequences. Mitigation measures typically used in development management can reduce the impact of flooding on people and communities e.g. by blocking or impeding pathways. The planning process is primarily concerned with the location of receptors and potential sources and pathways that might put those receptors at risk.

Risks to people, property and the environment should be assessed over the full range of probabilities, including extreme events. Flood risk assessment should cover all sources of flooding, including effects of run-off from a development locally and beyond the development site.

### 2.2.1 Flood Risk Assessment Stages:

The FRM Guidelines outline that a staged approach should be adopted when carrying out a flood risk appraisal or assessment.

These stages are:

- Stage 1 - Flood risk identification: to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower-level plan or planning application levels.

- Stage 2 - Initial flood risk assessment: to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps.
- Stage 3 - Detailed flood risk assessment: to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

The FRA Guidelines require an SSFRA be undertaken to assess flood risk for individual planning applications. This SSFRA comprises Stages 1, 2 and 3 involving both identification and more detailed assessment of flood risks and surface water management related to the site under consideration.

### 2.3 Flood Zones:

The FRM Guidelines use flood zones to determine the likelihood of flooding and for flood risk management within the planning process.

The three flood zones are:

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1.0% AEP\* [or 1 in 100] for river flooding **or** 0.5% [or 1 in 200] for coastal flooding)."
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% AEP\* [or 1 in 1000] and 1.0% AEP\* [or 1 in 100] for river flooding **and** between 0.1% AEP\* [or 1 in 1000] year and 0.5% AEP\* [or 1 in 200] for coastal flooding)."
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% AEP\* [or 1 in 1000] for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in Flood Zone A or B."

\*AEP – Annual Exceedance Probability – The % chance that this level of flooding may occur in any one year.

The FRM Guidelines categorises all types of development as either;

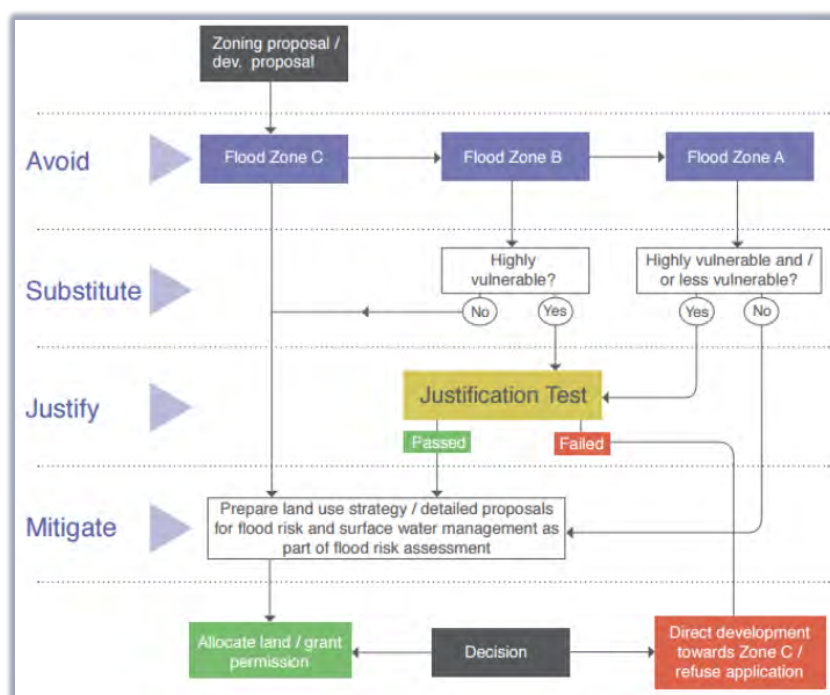
- Highly Vulnerable, e.g. dwellings, hospitals, fire stations, essential infrastructure.
- Less Vulnerable, e.g. retail, commercial or industrial buildings, local transport infrastructure.
- Water Compatible, e.g. flood infrastructure, docks, car-parking, amenity open space.

| Vulnerability class   | Land uses and types of development which include*:  |
|---|---|
| <b>Highly vulnerable development (including essential infrastructure)</b> | <p>Garda, ambulance and fire stations and command centres required to be operational during flooding;</p> <p>Hospitals;</p> <p>Emergency access and egress points;</p> <p>Schools;</p> <p>Dwelling houses, student halls of residence and hostels;</p> <p>Residential institutions such as residential care homes, children's homes and social services homes;</p> <p>Caravans and mobile home parks;</p> <p>Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and</p> <p>Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.</p> |
| <b>Less vulnerable development</b>  | <p>Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions;</p> <p>Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans;</p> <p>Land and buildings used for agriculture and forestry;</p> <p>Waste treatment (except landfill and hazardous waste);</p> <p>Mineral working and processing; and</p> <p>Local transport infrastructure.</p>  |
| <b>Water-compatible development</b>                                       | <p>Flood control infrastructure;</p> <p>Docks, marinas and wharves;</p> <p>Navigation facilities;</p> <p>Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location;</p> <p>Water-based recreation and tourism (excluding sleeping accommodation);</p> <p>Lifeguard and coastguard stations;</p> <p>Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and</p> <p>Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).</p>   |
| *Uses not listed here should be considered on their own merits            |   |

Table 3.1 Classification of vulnerability of different types of development

**Figure 2.4:** Table 3.1 from FRA Guidelines – Classification of vulnerability of different types of development





**Figure 2.5:** Sequential Approach Mechanism in the Planning Process

The Sequential Approach restricts development types to occur within the flood zone appropriate to their vulnerability class, see below Matrix of Vulnerability versus Flood Zone to determine what developments are required to meet the Justification Test.

|  | Flood Zone A       | Flood Zone B       | Flood Zone C |
|--|--------------------|--------------------|--------------|
| Highly vulnerable development (including essential infrastructure) | Justification Test | Justification Test | Appropriate  |
| Less vulnerable development  | Justification Test | Appropriate        | Appropriate  |
| Water-compatible development                                       | Appropriate        | Appropriate        | Appropriate  |

**Figure 2.6:** Table 3.2 from the FRA Guidelines - Matrix of vulnerability versus flood zone

## 2.4 Proposed Development's Vulnerability

The type of proposed development for this site is a residential development (highly vulnerable development). Apartments are categorised from the Guidelines as highly vulnerable developments and appropriate to be located within Flood Zone C. To provide highly vulnerable type developments within Flood Zone A & B, requires a Justification Test to be completed to justify development in this moderate flood risk area. External local access roadways and car parking areas are considered water-compatible development and are therefore considered 'Appropriate' development.

## 2.5 Site-Specific Flood Risk Assessment for Development

The FRM Guidelines require a SSFRA to “gather relevant information sufficient to identify and assess all sources of flood risk and the impact of drainage from the proposal”. It should “*quantify the risks and the effects of any necessary mitigation, together with the measures needed or proposed to manage residual risks*”. It considers the nature of flood hazard, taking account of the presence of any flood risk management measures such as flood protection schemes and how development will reduce the flood risk to acceptable levels. A detailed assessment for a development application should conclude that core flood risk elements of the Justification Test are passed and that residual risks can be successfully managed with no unacceptable impacts on adjacent lands.

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 in question that may warrant further investigation.

To initially identify potential flood risks for the existing site and surrounding area, a number of available data sources were consulted, these are listed below.

- OPW Flood Hazard Maps - <http://www.floodinfo.ie/map/floodmaps/>
- OPW CFRAM Study Catchment Flood Risk Assessment and Management. <https://data.gov.ie/dataset/cfram-river-flood-extents-current-scenario>
- Dun Laoghaire Rathdown County Council Development Plan 2022-2028.
- The Planning System and Flood Risk Management Guidelines for Planning Authorities.
- Various other reports and documents that mention the site and surroundings.

### 2.5.1 SSFRA Key Outputs:

Key outputs of an SSFRA are:

- Plans showing the site and development proposals including its relationship with watercourses and structures which may influence local hydraulics;
- Surveys of site levels and comparison of development levels relative to sources of flooding and likely water levels;
- Assessments of;
  - Potential sources of flood risks;
  - Existing flood alleviation measures;
  - Potential impact of flooding on the site.
- How the layout and form of the development can reduce those impacts, including arrangements for safe access and egress.
- Proposals for surface water management and sustainable drainage.
- The effectiveness and impact of any mitigation measures.
- The residual risks to the site after the construction of any necessary measures and the means of managing those risks; and
- How flood risks are managed for occupants / employees of the site and its infrastructure.

### 3.0 Site Location and Description:

#### 3.1 Site Location:

The proposed development is located at Riverside, Kilgobbin Road, Stepside, Dublin 18. A Site Location Map is provided in Figure 3.1.

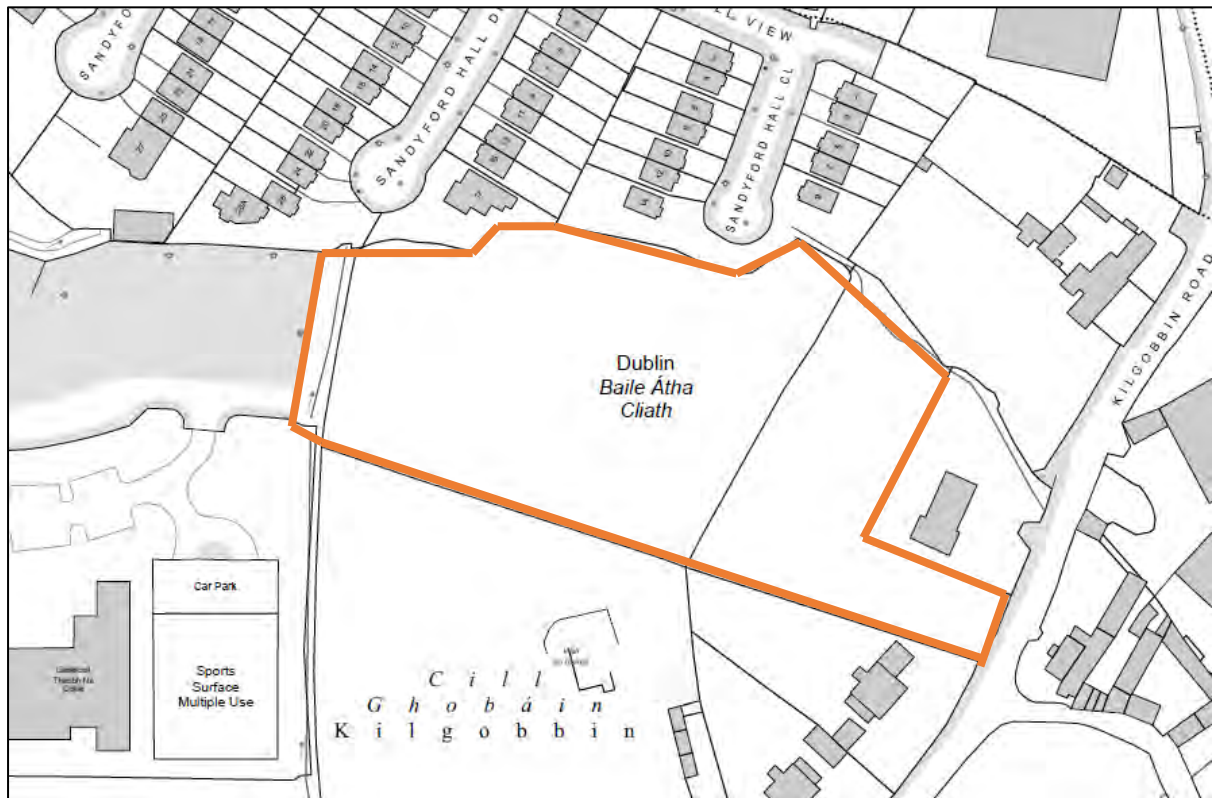


Figure 3.1: Site Location Map

#### 3.2 Site Description:

The site is predominantly a green-field site located at Riverside, Kilgobbin Road, Stepside, Dublin 18. The development site covers 12,194m<sup>2</sup> or 1.22 hectares (approx. 3.0 acres), accessible primarily from Belarmine Vale. A single residential building, Riverside, is located to the east of the site on Kilgobbin Road, this is within the ownership of the applicant, but does not form part of the current planning application. There are residential buildings to the north, public open space to the west, Gaelscoil Thaobh Na Coille primary school to the south-west and Kilgobbin Castle (in ruins), with extended undeveloped lands, to the south. The Ballyogan Stream is located along the northern boundary, flowing in a west to east direction.





**Figure 3.2:** *Google Earth Aerial Image of the Site*

## 4.0 Stage 1 Flood Risk Identification:

### 4.1 Available Flood Risk Information:

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 in question that may warrant further investigation.

To initially identify potential flood risks for the existing site and surrounding area a number of available data sources were consulted, these are listed in Table 4.1 below.

|                                     | Information Source             | Coverage   | Quality  | Confidence | Identified Flood Risks   | Flood Risk |
|-------------------------------------|--------------------------------|------------|----------|------------|--|------------|
| Primary Data Source & Modelled Data | OPW CFRAMS - Fluvial           | Regional   | High     | High       | Flood maps indicates that all proposed building structures are located in Flood Zone C (not at risk of fluvial flooding).  | X          |
|                                     | OPW CFRAMS - Tidal             | Regional   | High     | High       | Tidal Flooding Map identifies site to be outside 0.1% AEP event coastal flood zone. The site is located 5.3km west of the nearest coastline. There is no risk of tidal/coastal flooding to the site.   | X          |
|                                     | OPW -Pluvial                   | Nationwide | High     | High       | OPW Pluvial maps indicated that the subject site is outside the extents of the scope of the study. Therefore, no detailed information was available.   | X          |
| Secondary Data Source               | OPW Historic Flood Records     | Nationwide | Varies   | Varies     | Recurring flooding occurred near this site in 2005 (Flood ID No. 2068) and most recently in 2011. Historical problems with the drainage (old culvert) were cited as the cause. We understand relief works were proposed by MCOS on behalf of DLRCC. Refer to the Past Flood Event Local Area Summary Report in Appendix A. | X          |
|                                     | Drainage Records               | County     | Moderate | Moderate   | The Ballyogan Stream forms the northern boundary of the site. A public wastewater sewer also follows along part of the northern site boundary.   | X          |
|                                     | Geological Survey Ireland Maps | Nationwide | Moderate | Low        | From the Geological Survey Ireland maps, no groundwater flood risk was identified within the vicinity of the site.   | X          |
|                                     | Topographic Survey             | Local      | High     | High       | Generally, the site falls towards the north eastern corner of the site towards the Ballyogan Stream and away from the proposed development. The site levels vary from +106.5 m OD to +100.8 m OD.  | X          |

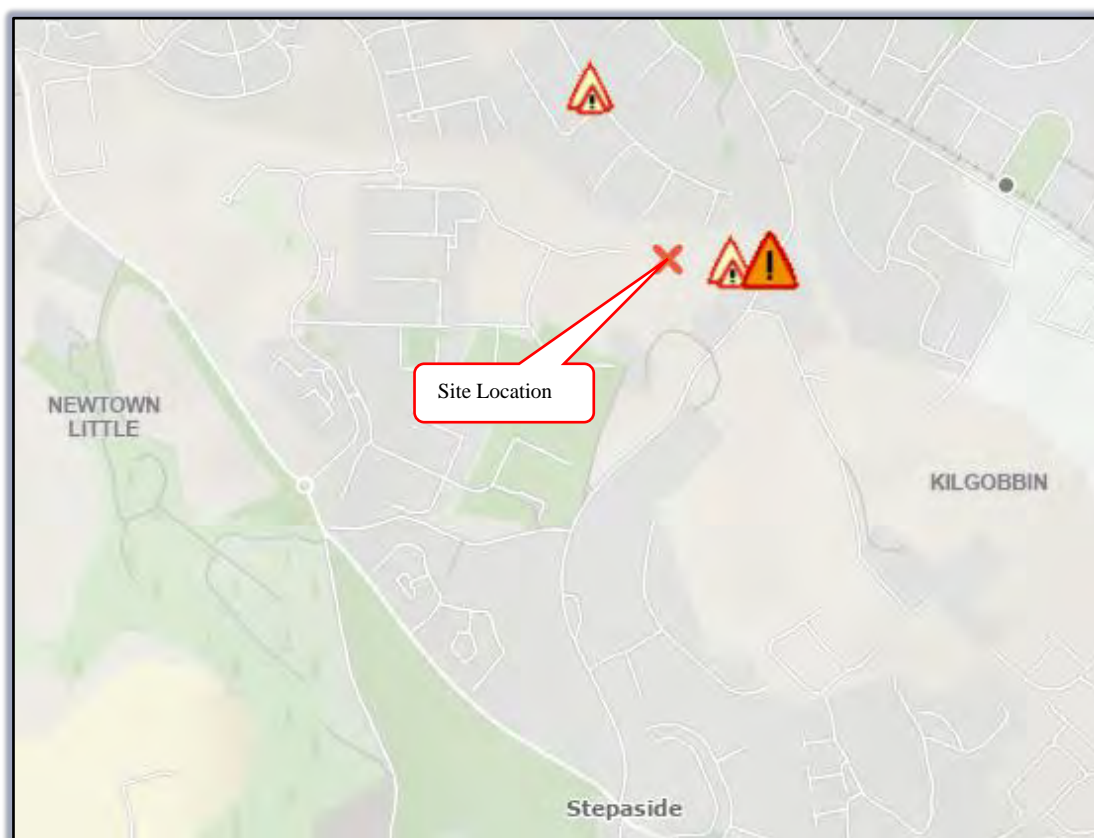
The Flood Risk Assessment and Hydraulic Modelling Report, prepared by Waterman Moylan and RPS Consulting Engineers respectively, from a previous planning application on the same site were also reviewed during the preparation of this report.

## 4.2 Identified Flood Risks/Flood Sources:

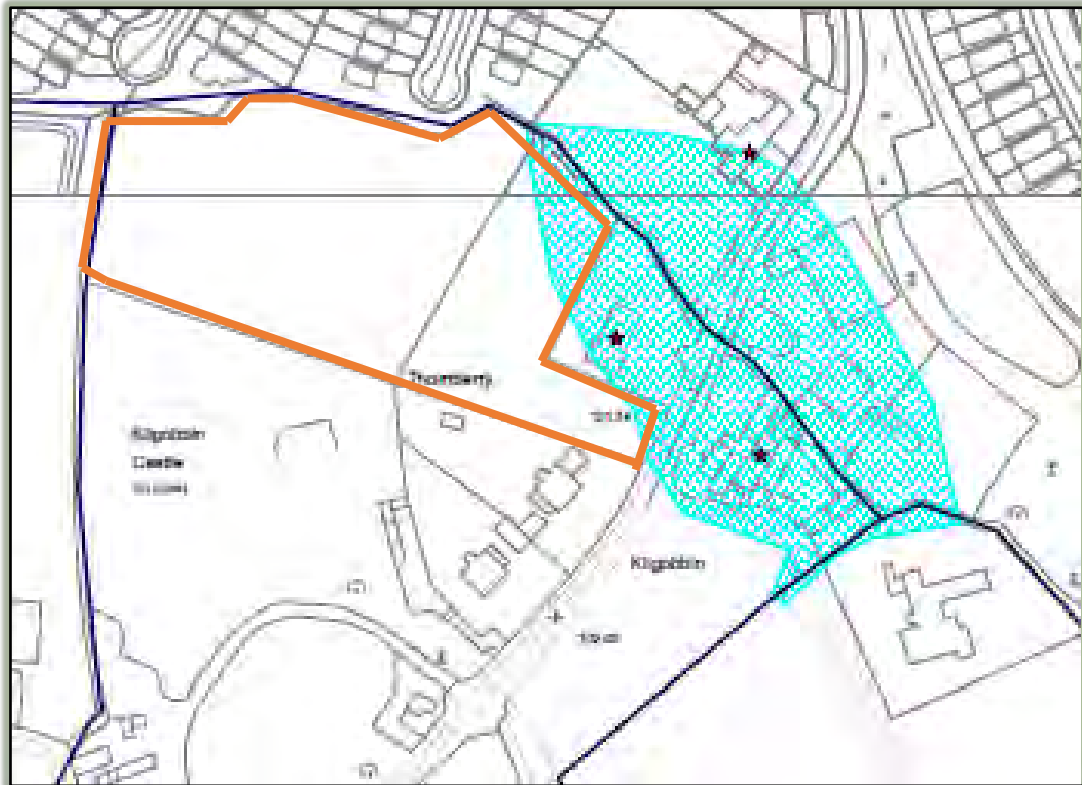
### 4.2.1 OPW Predictive, Historic & Benefiting Land Maps & Flood Hazard Information

From consultation of flood information from the OPW's floodmaps.ie website an area downstream of the site has experienced recurring flooding in the past. There is a record of a flood event occurring on 24 October 2011, with the Ballyogan Stream flooding downstream of the culverted portion on the site.

The OPW map of local flood events is shown in Figure 4.2.1.1 and the flood extent of the 24 October 2011 is shown in Figure 4.2.1.2.



**Figure 4.2.1.1:** OPW Map of Local Flood Events



**Figure 4.2.1.2:** *Flood extent of the flooding on 24 October 2011*

Refer to the Past Flood Event Local Summary Report in Appendix A for further information.

#### **4.2.2 Flood Risk from Fluvial Flooding:**

River flooding occurs when the capacity of a watercourse is exceeded or the channel is blocked or restricted, and excess water spills out from the channel onto the adjacent low-lying areas (the floodplain).

The OPW's South Eastern CFRAM Study & Strategic Flood Risk Assessment for the Dun Laoghaire Rathdown Council Development Plan 2022-2028 have produced flood risk maps and the assessment of fluvial flood plains over the south eastern region of Ireland and of Dublin. Refer to Appendix B for further Information

The Ballyogan Stream forms the northern boundary of the site. The proposed development site is partially located within the fluvial flood extents of this stream at the northern side of the site, refer to Figure 4.2.2.1.



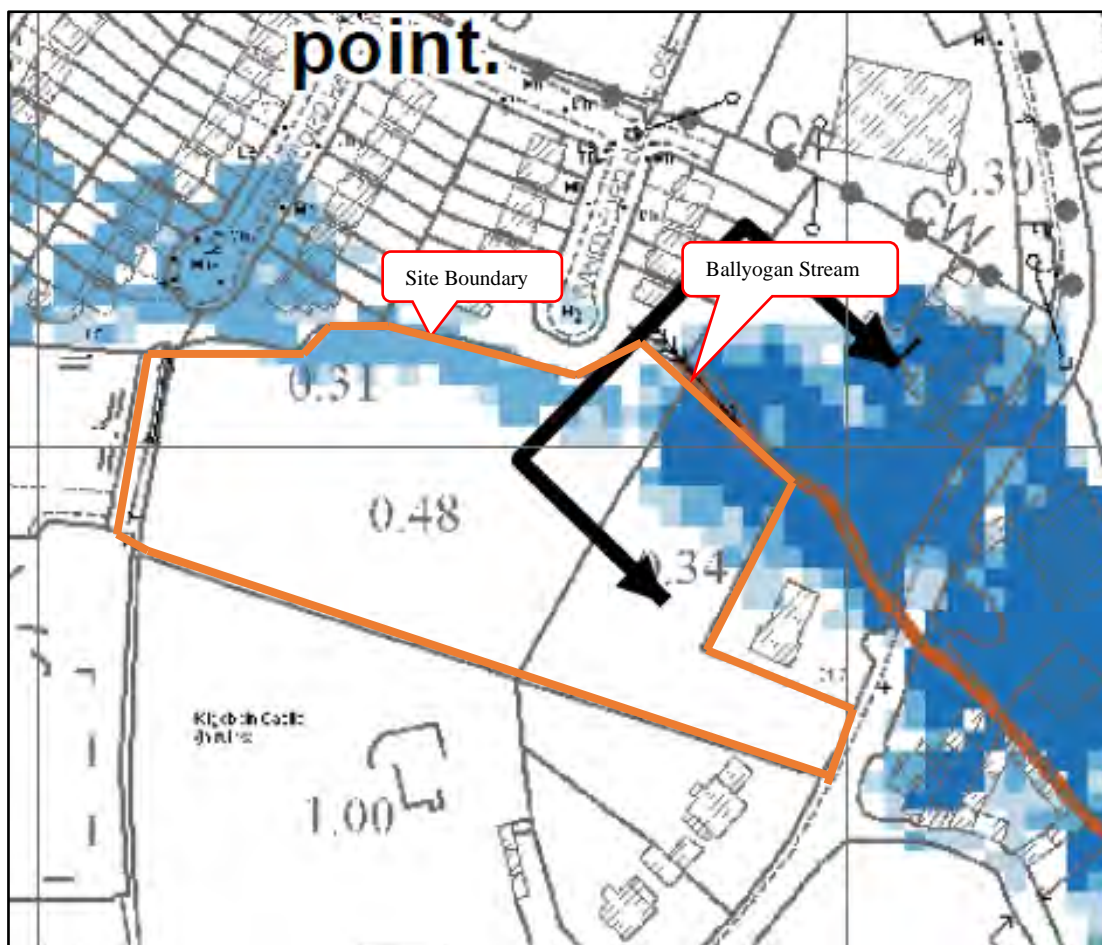
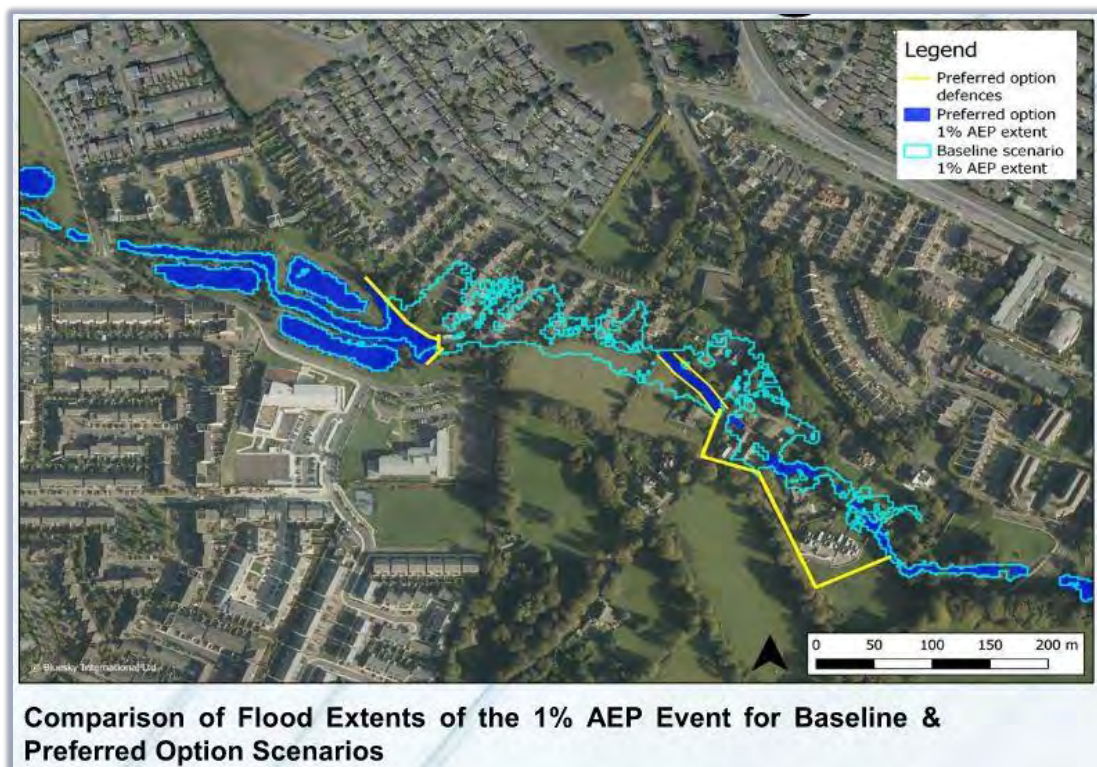


Figure 4.2.2.1: OPW Eastern CFRAM Study - Fluvial Flood Extent Map - All Probabilities

The lowest proposed building finished floor level is **+103.60m OD Malin** which is at least 300mm freeboard above the CFRAM AEP 0.1% (1:1000 year) fluvial flood level of the Ballyogan Stream to the northern side of the site. In addition, the proposed building structures have been sited outside the extents of the CFRAM AEP 0.1% (1:1000 year) designated flood zone.

It is therefore determined that the residual risk from fluvial flooding will be low when the above fluvial flood mitigation measures are adopted for the development.

In addition, it is noted that the Carrickmines-Shanganagh River Flood Relief Scheme (CSFRS) was lodged for planning approval on 20/02/2025, An Coimisiún Pleanála - Case reference: JA06D.321937 [<https://www.pleanala.ie/en-ie/case/321937>]. This proposed development is for flood defences at key locations along the Carrickmines and Shanganagh rivers including new walls/raised existing walls, culverts, localised screens upgrades and localised works in the river. The subject development site will be direct beneficiary of this flood relief scheme when planning permission is approved. The planning application is currently under review by An Coimisiún Pleanála. The case was due to be decided by 18/08/2025 and is expected soon at time of writing. All proposed new building structures have been located outside the extents of the CSFRS 1.0% AEP Baseline Scenario, see Figure 4.2.3 below. Refer also to Molony Millar drawing 1285-8-51 and 1285-8-52 in Appendix C for further information.



**Figure 4.2.2.2: CSFRS 1.0% AEP Baseline Scenario**

### 4.2.3 Flood Risk from Tidal Flooding:

Tidal flooding, which is caused by higher sea levels than normal, largely as a result of storm surges, resulting in the sea overflowing onto the land.

Tidal flooding is influenced by the following three factors, which often work in combination:

- High tide level;
- Storm surges caused by low barometric pressure exacerbated by high winds (the highest surges can develop from hurricanes); and
- Wave action which is dependent on wind speed and direction, local topography and exposure.

Tidal flooding will not be considered as part of this Site-Specific Flood Risk Assessment as the site is located 5.3km to the nearest coastline and therefore beyond any tidal influence.

### 4.2.4 Flood Risk from Pluvial Flooding:

Flooding from drainage systems results when flow entering a drainage system, such as an urban storm water drainage system, exceeds its discharge capacity and the system becomes blocked, and / or cannot discharge due to a high-water level in the receiving watercourse. This mostly occurs as a rapid response to intense rainfall. Together with overland flow, it is generally known as pluvial flooding. Flooding arising from a lack

of capacity in the urban drainage network has become an important source of flood risk, as evidenced during recent summers.

The OPW PFRA mapping does not show pluvial flooding in the vicinity the site. In any case, the addition of SuDS such as sedum green blue roofs and permeable paving within the site will improve the current on-site surface water drainage system.

#### **4.2.5 Flood Risk from Groundwater Flooding:**

Groundwater flooding can occur when groundwater rises up from the underlying water table. Water emerges at the ground surface or into basements, flooding both surface and subsurface infrastructure. This tends to occur after much longer periods of sustained rainfall or very high tides. Higher rainfall means that more water will infiltrate into the ground, causing the water table to rise. Groundwater flooding tends to occur in low lying areas, where with additional groundwater flowing towards these areas, the water table can rise to the surface causing flooding. High river, estuary or tide levels can prevent groundwater escaping into them in times of significant rainfall thus causing ground water flooding.

We reviewed the Geological Survey of Ireland (GSI) Groundwater Flooding Probability Maps on the floodmaps.ie website. We found no records of any flood risk associated with groundwater flooding. Groundwater flooding on the proposed site is not considered to be an issue, as there is no basement proposed and any construction excavations will be relatively shallow.

#### **4.2.6 Human / Mechanical Errors:**

The subject site will be drained by an internal storm water drainage system which discharges partially within the site to ground with equivalent greenfield discharge restricted outflow to the Ballyogan Stream watercourse. The internal surface water network is a source of possible flooding from the system if it were to become blocked.

## 5.0 Stage 2 Initial Flood Risk Assessment Stage:

The primary sources of flood risk identified from Stage 1 are;

- A fluvial flood risk associated with the flood extents of the Ballyogan Stream at the northern side of the development site.
- A human / mechanical risk is associated with the proposed storm water drainage system should it ever become blocked.

### 5.1 Initial Fluvial Flood Risk Assessment:

As stated above, there is a residual fluvial flood risk associated with the flooding extents of the Ballyogan Stream at the northern side of the development site.

To minimise this risk, the proposed finished floor levels have been designed at a minimum freeboard of 300mm above the predicted CFRAM AEP 0.1% (1 in 1000 year) flood water depth. In addition, all building structures have been designed to be located outside the extents of the CFRAM AEP 0.1% (1 in 1000 year) flood extents.

The external roads and car parking areas at the northern side of the site have generally been designed at or below the pre-existing ground levels to ensure that there is no reduction in the available flood plain storage volume. There remains a moderate flood risk to the roadways and car parking areas during the 1 in 100-year (1.0% AEP) fluvial flood event due to the proximity to the Ballyogan Stream. This is deemed acceptable.

With full implementation of the above flood mitigation measures, the overall fluvial flood risk for the development site, and elsewhere, will be significantly reduced, and the **low** residual fluvial flood risk can be managed to an acceptable level. Future flood defences to be constructed under the CSFRS will further mitigate any residual risk.

### 5.2 Initial Human / Mechanical Errors Flood Risk Assessment:

As stated above, there is a human / mechanical error risk associated with the developments proposed storm water drainage system should it ever become blocked.

The proposed finished floor levels have been designed to be a minimum of 150mm above the surrounding ground levels and roadways to allow for any residual flooding risk at the site. This will help minimize the risk of flooding if the surface water drainage network was ever to become blocked.

To minimise this risk, the role of maintenance in the drainage system is important to prevent blockages occurring. Particular care should be given to the maintenance regime for the SUDs (permeable paving, green blue roofs etc.) proposed for this development to ensure no blockages occur.

We designed the surface water network to avoid/minimise the risk of blockages generally in accordance with Civil SuDS Manual. Nevertheless, in the event of a blockage occurring the natural watershed falls to the open ditches/streams at the North East and North West boundaries. Please refer to drawings 1285-8 C51 & 1285-8 C52.



## 6.0 Stage 3 Detailed Flood Risk Assessment:

No Stage 3 detailed flood risk assessment is required due to the **low** residual risks associated with the site:

- A **low** fluvial flood risk associated with the flood extents of the Ballyogan Stream at the northern side of the development site.
- A **low** human / mechanical risk is associated with the proposed storm water drainage system should it ever become blocked.

### In summary:

The proposed development has been considered as part of this Site-Specific Flood Risk Assessment which demonstrates the following;

- i. The proposed development will not increase the flood risk elsewhere.
- ii. The proposed development includes measures to minimise flood risk to people, property, the economy, and the environment. We have calculated, based on the OPW CFRAM fluvial flood extents maps, that the AEP 0.1% (1 in 1000 year) flood water level at the northern side of the site varies with the existing ground level along the northern frontage of the site. Where the flood line is closest to the proposed building structures, at the northernmost side of Block B, the 1 in 1000-year flood level is approximately **+103.123m** OD Malin. Therefore, we have proposed that the proposed floor level should be set at **+103.600m** OD Malin, i.e., having a minimum 300mm freeboard above the 1 in 1000-year fluvial flood water level of the Ballyogan Stream at the northern side of the site. The proposed finished floor levels of the development are **+105.4m** and **+105.0m** OD Malin (Block A at the western side of the site) and **+103.6m** OD Malin (Block B at the eastern side of the site). In addition, based on the OPW fluvial flood extents map, we have proposed that all habitable building structures should be located in designated Flood Zone C, outside the AEP 0.1% (1 in 1000-year) flood water extents of the Ballyogan Stream at the northern side of the site.
- iii. The proposed development includes measures to ensure that all residual flood risks can be managed to an acceptable level. Since the residual flood risk is deemed to be low following implementation of the above flood mitigation strategies, operational flood risk management will consist of regular surveillance and maintenance regime to minimise the risk of blockages occurring in the proposed drainage systems.
- iv. The proposed development, and the above flood mitigation strategies, will also be compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes with design in accordance with the Design Manual for Urban Roads and Streets (DMURS) and with the implementation of Sustainable Urban Drainage Systems (SuDS) features.

## 7.0 Conclusion:

This SSFRA concludes the following;

- This SSFRA relates to the proposed development of new residential apartment blocks with 120 apartment units in total, offering private open space, parking, bicycle storage, waste bins, and necessary site improvements.
  - From the information gathered, the proposed development site is primarily located in Flood Zone C, and only partially located in Flood Zone A/B. A small proportion of the site, along the northern boundary, borders the Ballyogan Stream which is susceptible to flooding. With full implementation of the proposed flood mitigation strategies, there will remain a **low** residual risk of fluvial flooding on the subject site which can be managed to acceptable levels.
  - This site requires no Justification Test as all Highly Vulnerable Development (building structures) are located in Flood Zone C and only 'Water Compatible' development (local access roadways, carparking and landscaping etc.) is located in Flood Zone A/B.
  - Tidal flooding on the subject site is not considered to be an issue as the site is located 5.3km distance from the nearest coastline, and therefore beyond any tidal influence. Therefore, we have no tidal flooding concerns with the proposed development.
  - Groundwater flooding on the subject site is not considered to be an issue, as there is no basement proposed and all construction excavations will be relatively shallow.
  - The pluvial flood risk is minimised by implementing SUDs features including permeable paving, green blue roofs and stormwater detention basin storage within the site and also due to the finish floor levels being generally 150mm above the adjacent ground levels. In some localised areas, where the adjacent ground levels are above floor levels, linear drainage channels will be installed to intercept local rainwater runoff.
  - The human / mechanical error risks can be reduced by implementing a regular surveillance and maintenance regime for the SuDS features proposed as part of this development to minimise the risk of blockages occurring.

## 8.0 References:

<https://www.floodinfo.ie/map/floodmaps/>

<https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>

<https://www.dublincity.ie/residential/planning/strategic-planning/dublin-city-development-plan/development-plan-2022-2028>

<https://www.gov.ie/en/publication/7db50-the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-nov-09/>

Flood Risk Assessment (Issue 2) dated August 2018 [Planning Reference 18A 0074]  
(prepared by *Waterman Moylan Engineering Consultants*)

Hydraulic Modelling Report dated December 2018 [Planning Reference 18A 0074]  
(prepared by *RPS Consulting Engineers*)

## **Appendix A – Past Flood Event Local Area Summary Report**

# Past Flood Event Local Area Summary Report

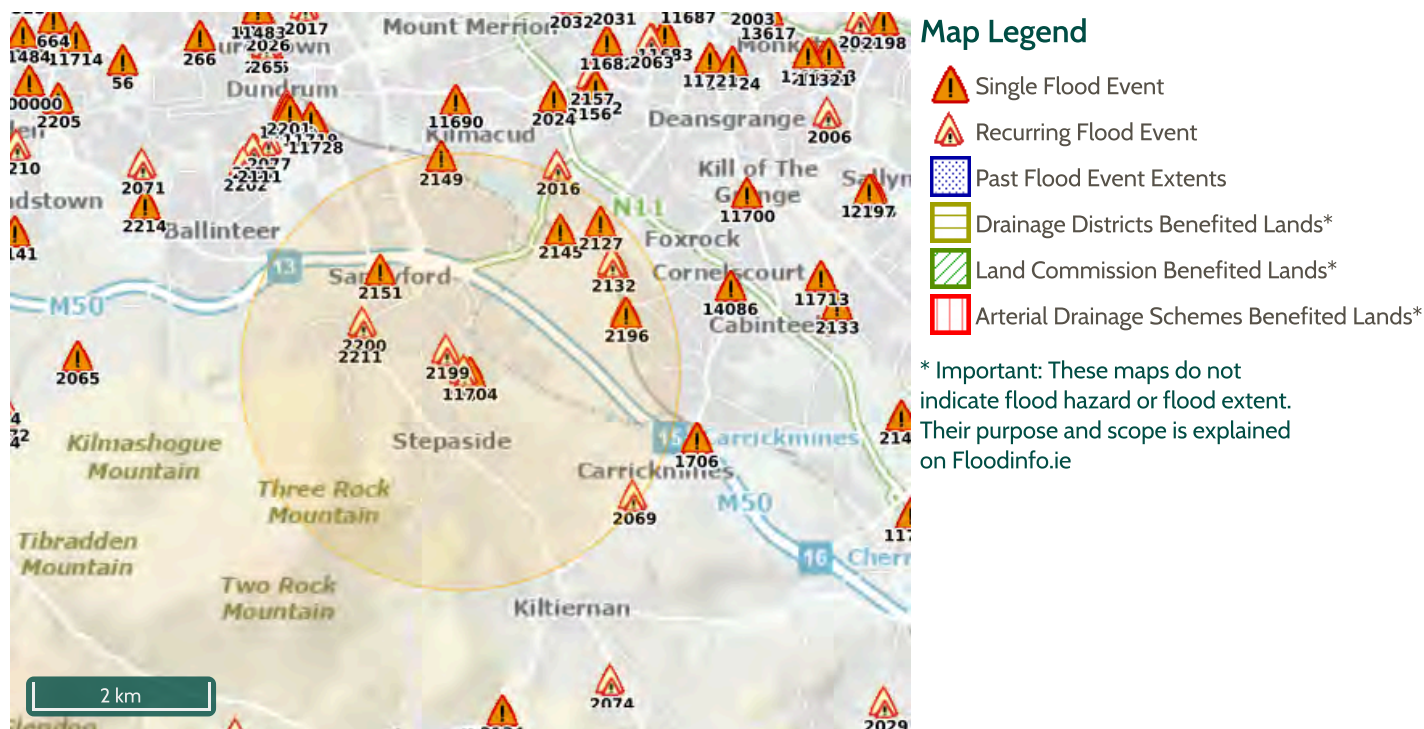


**OPW** Oifig na nOibreacha Poiblí  
Office of Public Works

Report Produced: 21/7/2025 17:45



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](http://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.



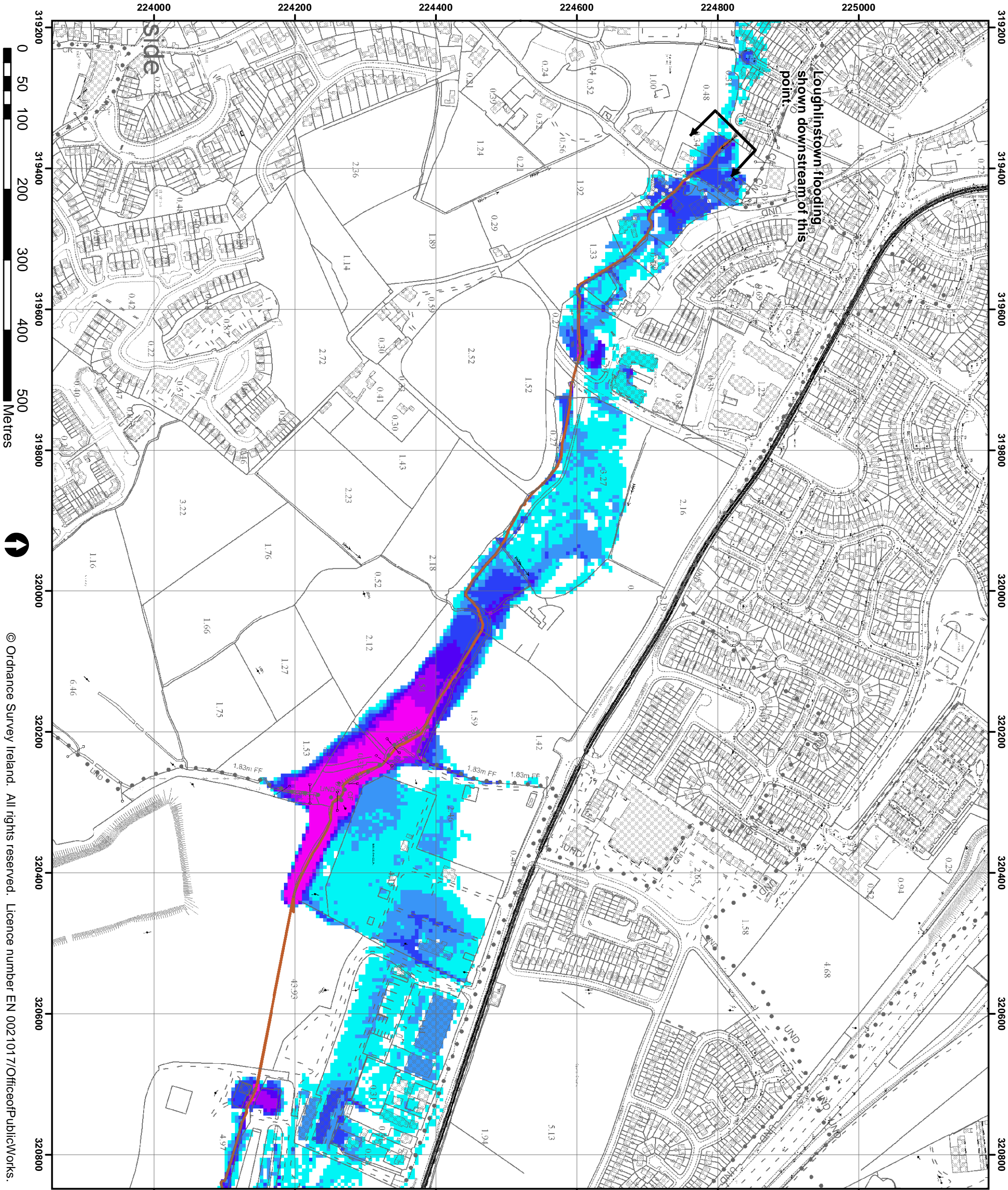
16 Results

| Name (Flood_ID)  | Start Date | Event Location    |
|--|------------|-------------------|
| 1.  Flooding at Clonskeagh Road, Dublin 6 on 24th Oct 2011 (ID-11704)<br>Additional Information: <a href="#">Reports (1)</a> , <a href="#">Press Archive (0)</a>             | 23/10/2011 | Exact Point       |
| 2.  Flooding at Kilgobbin Road, Stepaside, Co. Dublin on 24th Oct 2011 (ID-11712)<br>Additional Information: <a href="#">Reports (1)</a> , <a href="#">Press Archive (0)</a> | 23/10/2011 | Exact Point       |
| 3.  Brighton Cottages Foxrock Recurring (ID-2196)<br>Additional Information: <a href="#">Reports (7)</a> , <a href="#">Press Archive (0)</a>                                 | n/a        | Exact Point       |
| 4.  Ramore Leopardstown Road May and June 1993 (ID-2127)<br>Additional Information: <a href="#">Reports (2)</a> , <a href="#">Press Archive (0)</a>                          | 30/04/1993 | Approximate Point |
| 5.  Torquay Road Foxrock Nov 1982 (ID-2132)<br>Additional Information: <a href="#">Reports (1)</a> , <a href="#">Press Archive (0)</a>                                       | 05/11/1982 | Approximate Point |
| 6.  Leopardstown Road Dec 1979 (ID-2145)<br>Additional Information: <a href="#">Reports (1)</a> , <a href="#">Press Archive (0)</a>  | 14/12/1979 | Exact Point       |

|     | Name (Flood_ID)   | Start Date | Event Location    |
|-----|---|------------|-------------------|
| 7.  |  Lakelands Close Stillorgan Jan 1980 (ID-2149)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>          | 21/01/1980 | Approximate Point |
| 8.  |  Sandyford Church Jan 1980 (ID-2151)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>                    | 21/01/1980 | Exact Point       |
| 9.  |  Brighton Terrace Jan 1980 (ID-2152)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>                    | 01/01/1980 | Approximate Point |
| 10. |  Brighton Cottages Dec 1978 (ID-2154)<br>Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>                   | 26/12/1978 | Exact Point       |
| 11. |  School House Lane Sandyford Nov 1982 (ID-2211)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>         | 26/11/1982 | Approximate Point |
| 12. |  Kilgobbin Road Recurring (ID-2068)<br>Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>                     | n/a        | Exact Point       |
| 13. |  Glenamuck Stream Glenamuck Road Recurring (ID-2069)<br>Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>    | n/a        | Exact Point       |
| 14. |  Torquay Road Recurring (ID-2195)<br>Additional Information: <a href="#">Reports (4)</a> <a href="#">Press Archive (0)</a>                       | n/a        | Exact Point       |
| 15. |  Carrickmines River Sandyford Hall Recurring (ID-2199)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a> | n/a        | Exact Point       |
| 16. |  Ballyogan Stream Lambs Cross Recurring (ID-2200)<br>Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>     | n/a        | Exact Point       |

## **Appendix B – OPW Flood Maps**





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

**Legend**

**0.1% Fluvial AEP Flood Depth**

- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1m
- 1.0 - 1.5m
- 1.5 - 2m
- >2m

**Modelled River Centreline**

**AFA Extents**

**Map:**

**Carystfort Mareimno Fluvial Flood Depths**

**Map Type:** DEPTH

**Source:** FLUVIAL

**Map Area:** HPW

**Scenario:** CURRENT

**Drawn By:** C.McG. **Date:** 27 October 2017

**Checked By:** A.S. **Date:** 27 October 2017

**Approved By:** G.G. **Date:** 27 October 2017

**Drawing No.:** E09CAR\_DPFC001\_F2\_01

**Map Series:** Page 1 of 7

**Drawing Scale:** 1:5,000 @A3

**OPW**  
Office of Public Works  
First Office of Public Works

**RPS**  
RPS GROUP  
RPS GROUP

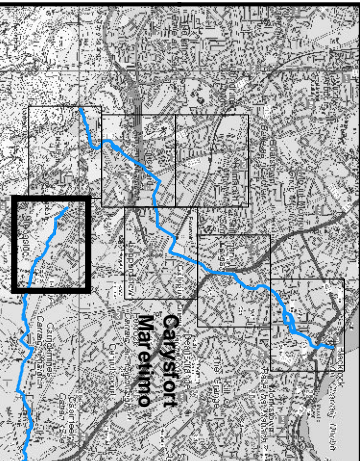
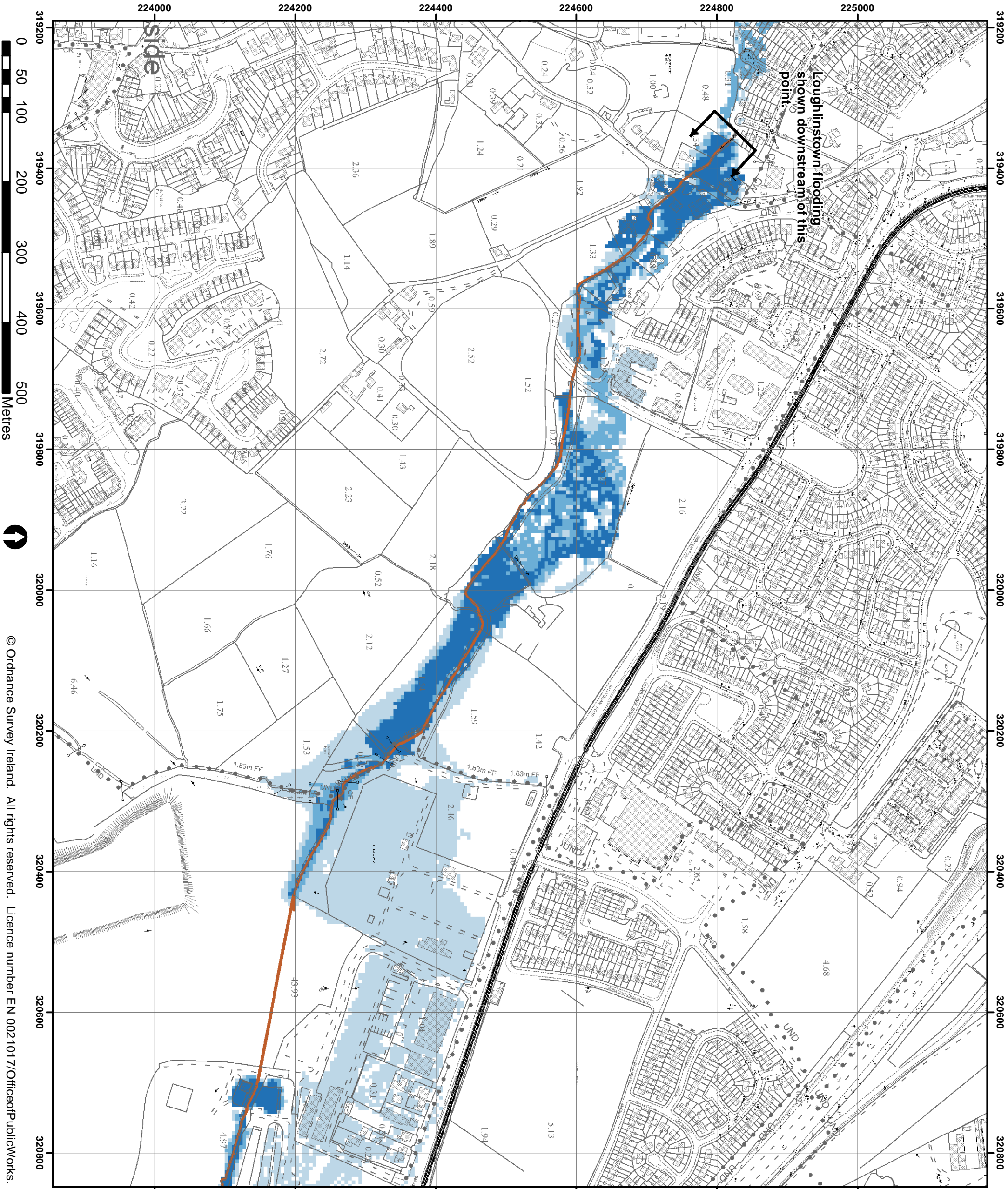
**CFRAM**  
CFRAM  
CFRAM

**Eastern**  
Eastern  
Eastern

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Edinwood House T +44(0) 28 90 66 914  
7A Boulcher Road F +44(0) 28 90 66 828  
Bellfast W www.rpsgroup.com  
BT12 6RZ E ireland@rpsgroup.com





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
  - AFR Extents
  - Embankment
  - Wail
  - Defended Area
  - Standard of Protection of Flood Defence (Walls / Embankments)
  - 1% AEP
  - Node Point
  - Node ID
  - Node Label

**FINAL**



**OPW**

The Office of Public Works  
Jonathan Swift Street  
Tinn  
Co Meath

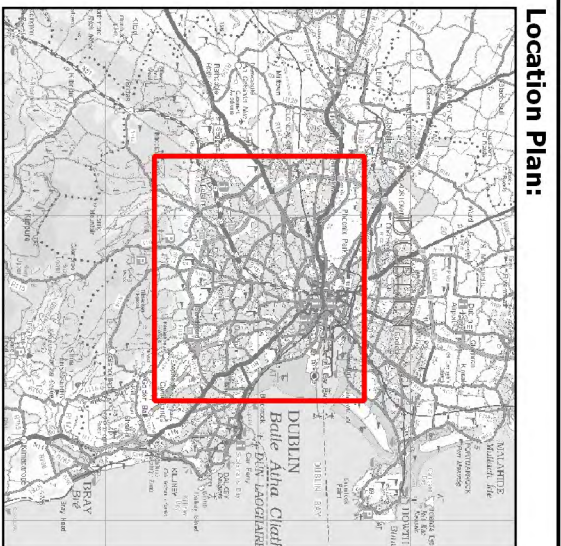
**RPS**

Elmwood House T +44(0) 28 90 669 14  
74 Boucher Road F +44(0) 28 90 668286  
Belfast W www.rpsgroup.com  
BT12 6BZ E ireland@rpsgroup.com

Map: Carysfort Marefino Fluvial Flood Extents

|                |                    |
|----------------|--------------------|
| Map Type:      | EXTENT             |
| Source:        | FLUVIAL            |
| Map Area:      | HPW                |
| Scenario:      | CURRENT            |
| Drawn By:      | C.C.               |
| Checked By:    | A.S.               |
| Approved By:   | S.P.               |
| Drawing No.:   | E09CAR_EXFCD_F2_01 |
| Map Series:    | Page 1 of 7        |
| Drawing Scale: | 1:5,000 @ A3       |





- LEGEND**
- 10% AEP Pluvial
  - 1% AEP Pluvial
  - 0.5% AEP Pluvial

**IMPORTANT USER NOTE:**  
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DISCLAIMER, GUIDANCE NOTES AND CONDITIONS  
OF USE THAT ACCOMPANY THIS MAP.



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

Dublin City Council  
Civic Offices  
Wood Quay  
Dublin 8

**Project:**

**DUBLIN PLUVIAL STUDY (FloodResiliency)**

**Map:** **DUBLIN CITY - PLUVIAL**  
**FLOOD EXTENT MAP**

**Map Type:** EXTENT - 180min Rainfall

**Source:** PLUVIAL

**Map Area:** URBAN

**Scenario:** CURRENT

**Drawn by:** IH Date: Aug - 2016

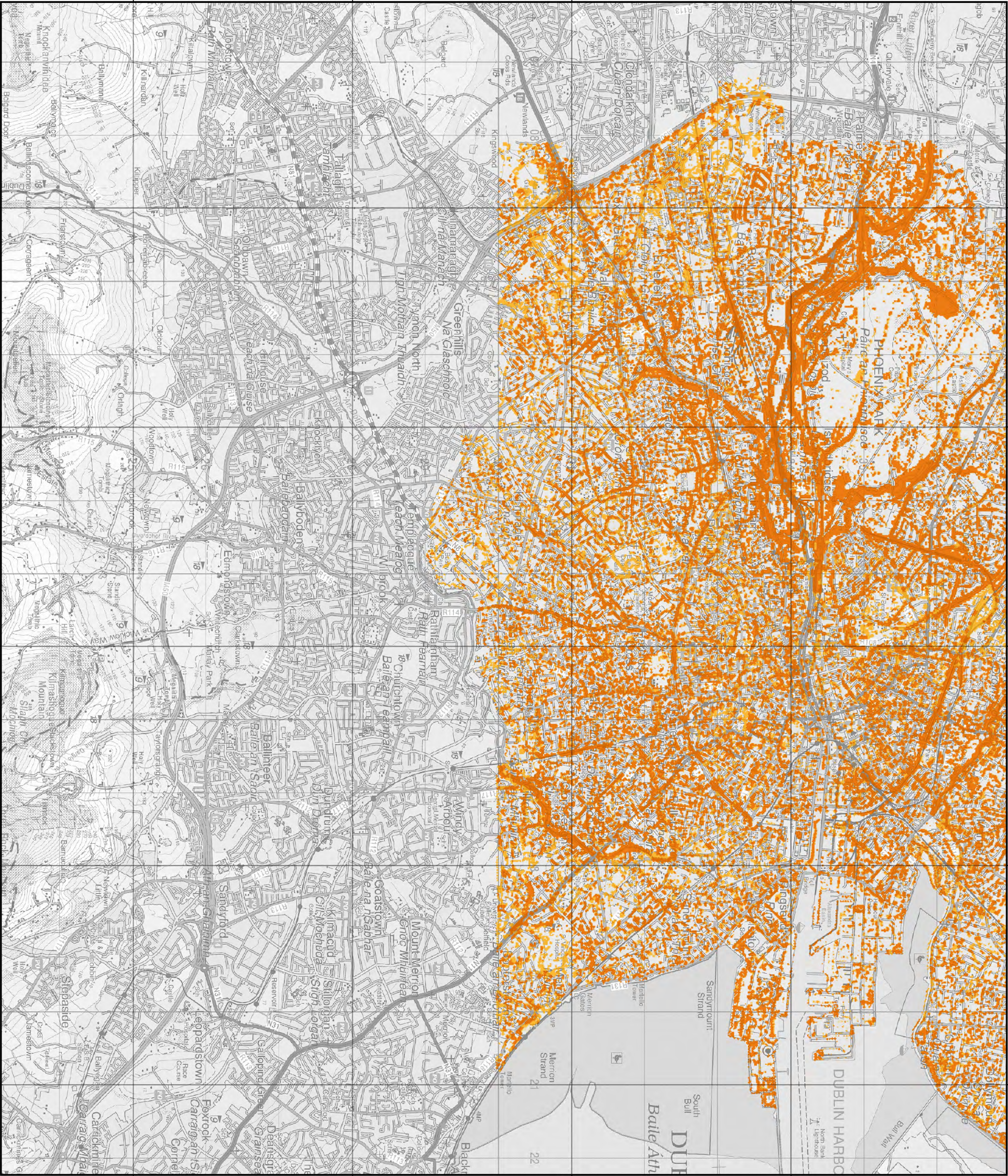
**Checked by:** MC Date: Aug - 2016

**Approved by:** JM Date: Aug - 2016

**Map No.:** E090DC\_EXP\_CD\_F0\_03

**Revision:** F0

**Map Scale:** 1:50,000 **Plot Scale:** 1:1 @ A3

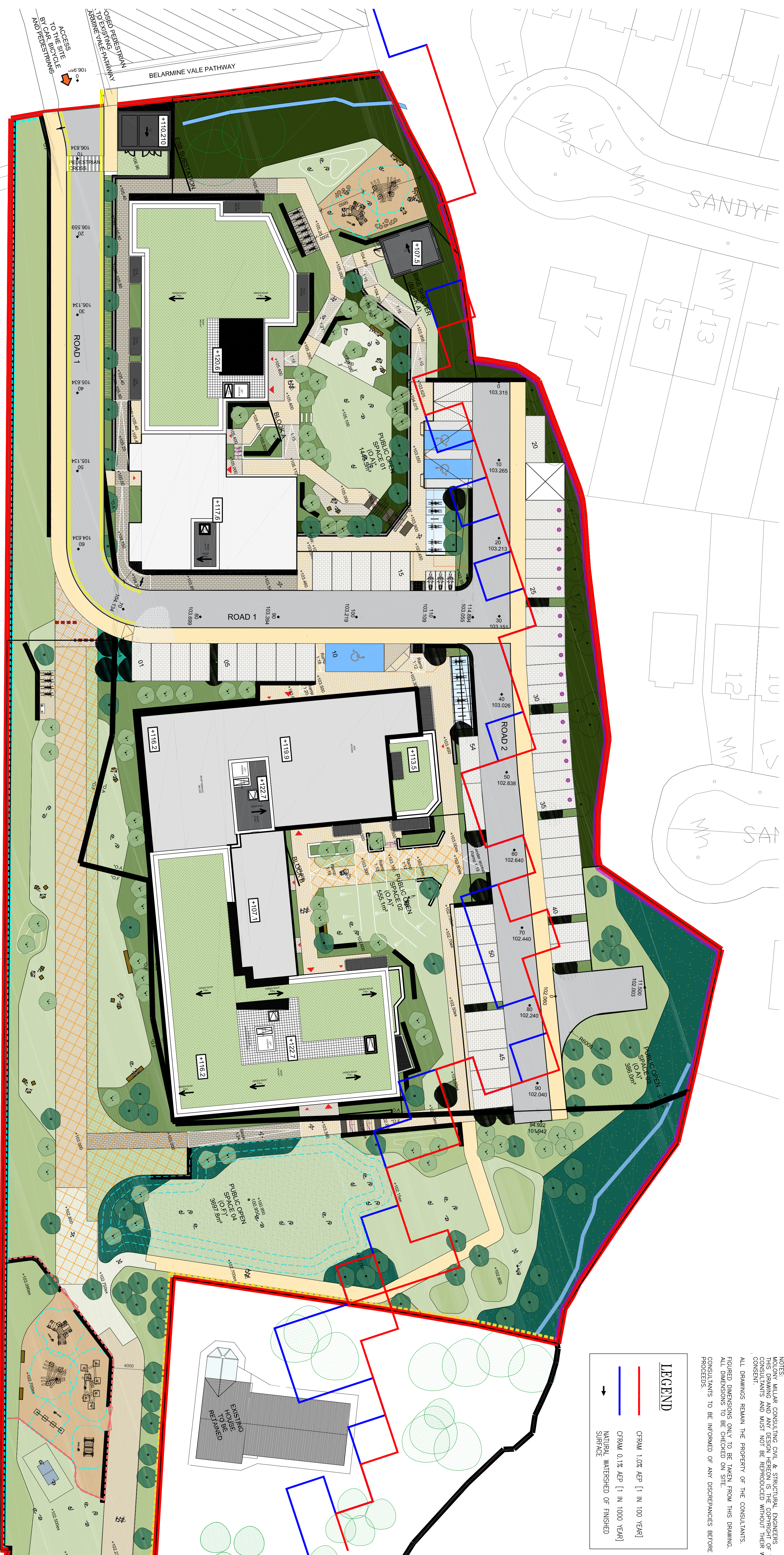
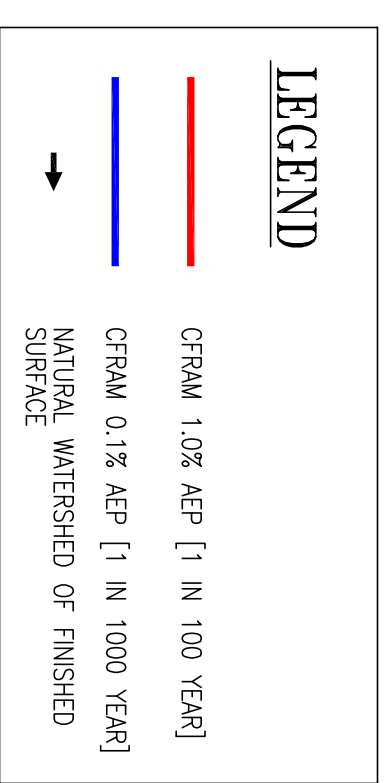




## **Appendix C – Molony Millar Flood Risk Assessment Drawings**



NOTES:  
MOLLOY MILLAR CONSULTING CIVIL & STRUCTURAL ENGINEERS, INC. HAS DRAWING AND DESIGN HEADQUARTERS IN THE CATHLAMET, WASHINGTON OFFICE. ALL DIMENSIONS AND MATERIALS MUST BE REPRODUCED WITHOUT WRITTEN CONSENT.  
ALL DIMENSIONS REMAIN THE PROPERTY OF THE CONSULTANTS.  
FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE.  
CONSULTANTS TO BE INFORMED OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.



|     |           |  |    |      |
|-----|-----------|--|----|------|
| Rev | Date      | Description                            | By | Chkd |
| B   | 26.08.'25 | DWNY ARCHITECTURAL LAYOUT (21/08/2025) | KA | RG   |
| A   | 18.07.'25 | DWNY ARCHITECTURAL LAYOUT (24/06/2025) | KA | RG   |

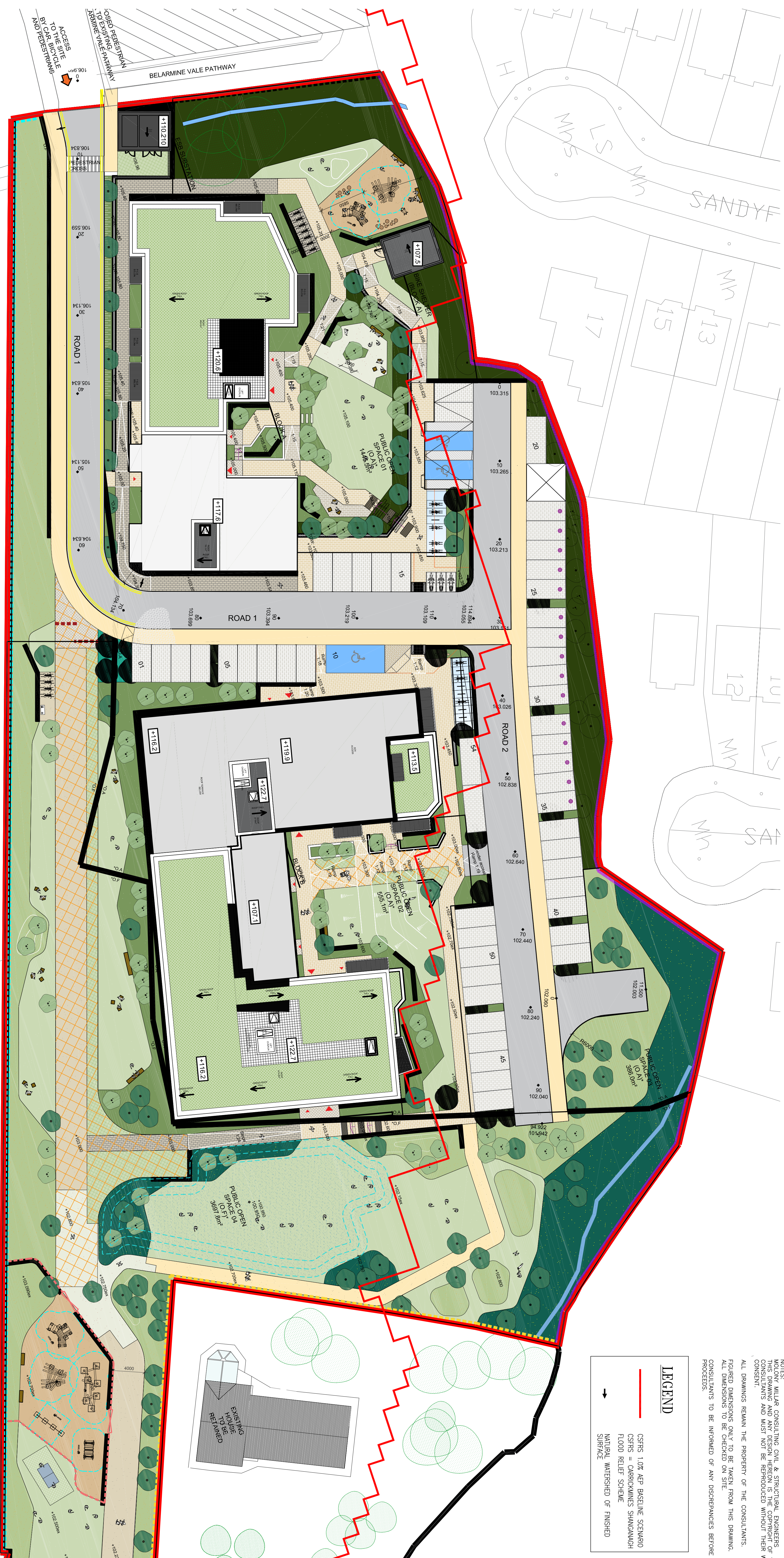
|               |  |
|---------------|--|
| Client        | KAYO GROUP   |
| Project Title | RESIDENTIAL DEVELOPMENT AT<br>RIVERSIDE, KILGOBBIN ROAD,<br>STEPHENSIDE, CO. DUBLIN        |
| Drawing title | FLOOD RISK ASSESSMENT<br>CFRAM 1.0% AEP AND 0.1% AEP<br>(1 IN 100 YEAR AND 1 IN 1000 YEAR) |
| Architect     | DOWNE PLANNING & ARCHITECTURE  |
| Scale         | 1:250 @ A1   |
| Date          | SEPT 24  |
| Drawn by      | CHAD LAYCOCK   |
| Check File:   | 5/1/2001/2854  |



NOTES:  
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ALL DIMENSIONS REMAIN THE PROPERTY OF THE CONSULTANTS.  
FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE.  
CONSULTANTS TO BE INFORMED OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

## LEGEND


↓



### Comparison of Flood Extents of the 1% AEP Event for Baseline & Preferred Option Scenarios

|     |           |  |    |      |
|-----|-----------|--|----|------|
| Rev | Date      | Description                            | By | Chkd |
| B   | 26.08.'25 | DWNY ARCHITECTURAL LAYOUT (21/08/2025) | KA | RG   |
| A   | 18.07.'25 | DWNY ARCHITECTURAL LAYOUT (24/06/2025) | KA | RG   |

|                |  |
|----------------|--|
| Client         | KAYO GROUP   |
| Project Title  | RESIDENTIAL DEVELOPMENT AT<br>RIVERSIDE, KILCOBBIN ROAD,<br>STEPHENSIDE, CO. DUBLIN        |
| Drawing Title  | FLOOD RISK ASSESSMENT<br>CSFRS 1.0% AEP BASELINE SCENARIO<br>(1 IN 100 YEAR FLOOD EXTENTS) |
| Architect      | DOMENY PLANNING & ARCHITECTURE   |
| Scale          | 1:250 @ A1   |
| Drawing Number | CHD RAY0001  |
| Date           | SEPT 24  |





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