

102025-IEC-RP-Z-0001-XX-XX

# Site Specific Flood Risk Assessment

Dalymount Stadium Redevelopment, Phibsborough, Dublin 7



July 2023

# Site Specific Flood Risk Assessment

Client: IDOM

Location: Dalymount Stadium Redevelopment, Phibsborough,  
Dublin 7

Date: 07<sup>th</sup> July 2023

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## 1. Introduction

IE Consulting was requested by IDOM to undertake a Site Specific Flood Risk Assessment (SSFRA) in support of a planning application for the proposed redevelopment of the existing Dalymount Stadium Phibsborough, Dublin 7.

The purpose of this SSFRA is to assess the potential flood risk to the site of the proposed development and to assess the impact that the development as proposed may or may not have on the hydrological regime of the area.

A hydrological engineer from IE Consulting undertook a survey of the site area and surrounding catchment on 8<sup>th</sup> December 2021.

Quoted ground levels or estimated flood levels relate to Ordnance Datum (Malin) unless stated otherwise.

This flood risk assessment study has been undertaken in consideration of the following guidance document:-

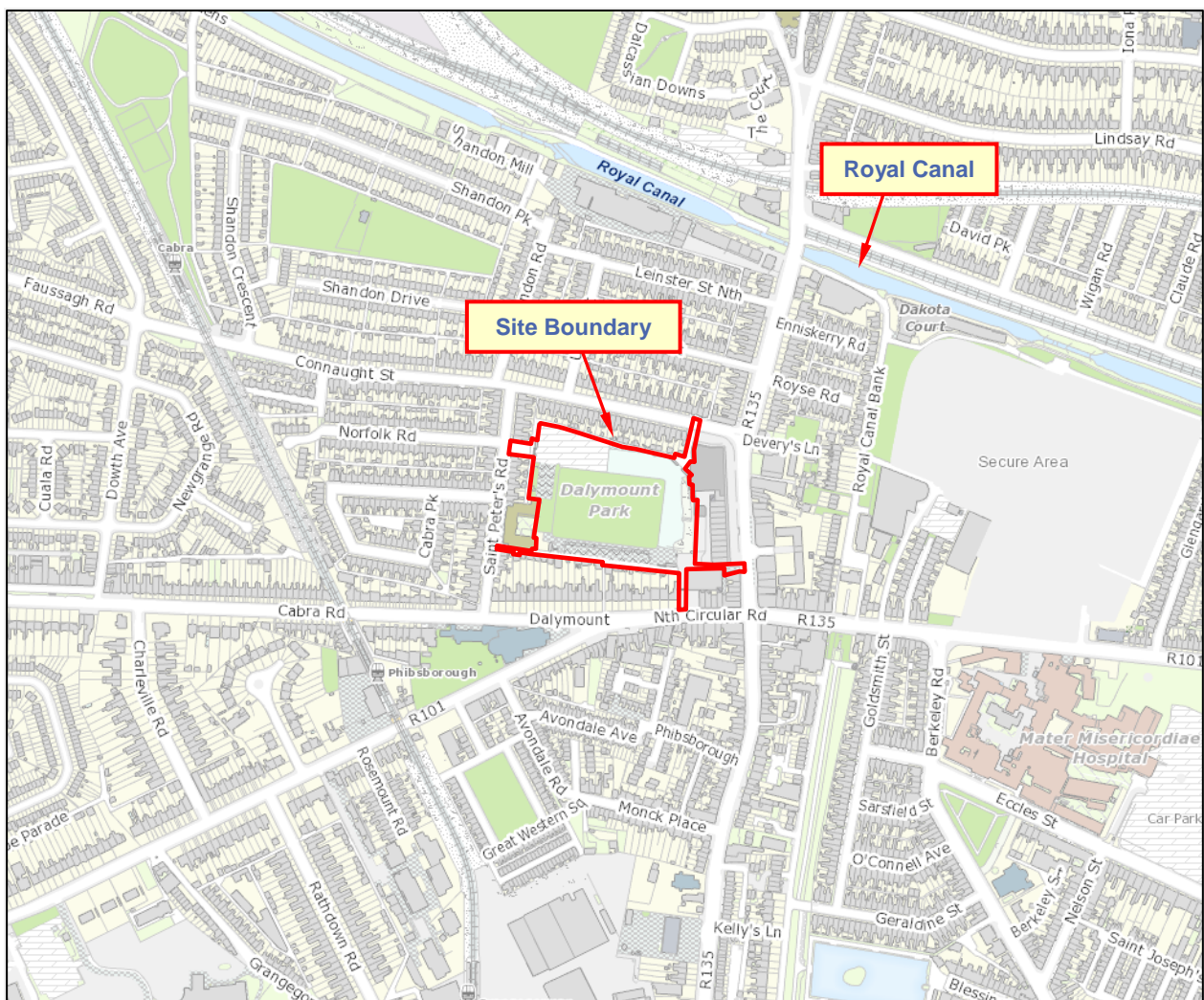
*'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' DOEHLG 2009.*

## 2. Proposed Site Description

### 2.1. General

The site of the proposed development is located at Dalymount Stadium, Phibsborough, Dublin 7. The site is bounded to the north, west and south by existing residential properties, to the south-west by a national school and to the east by a commercial property. The total area of the site of the proposed development is approximately 1.82 hectares.

The location of the development site is illustrated on *Figure 1* below and shown on *Drawing Number IE2438-001-B.Appendix A*.



**Figure 1 – Site Location**

## 2.2. Existing Topography Levels at Site

The site of the proposed development site slopes very gently in a north-west to south-east direction at a gradient of approximately 1.372% (1 in 72.9).

Existing ground elevations range from approximately 31.60m OD (Malin) in the north-west corner of the site to 28.70m OD (Malin) at the south-east corner of the site.

## 2.3. Local Hydrology, Landuse & Existing Drainage

On the day of the site survey the development site appeared to be well drained and free from any standing water.

There are no significant surface hydrological features or natural fluvial water bodies located in the vicinity of the site of the proposed development. As illustrated in *Figure 1* above the Royal Canal is located approximately 267m beyond the northern boundary of the site.

### 3. Initial Flood Risk Assessment

The flood risk assessment for the site of the proposed development is undertaken in three principal stages, these being ‘Step 1 – Screening’, ‘Step 2 – Scoping’ and ‘Step 3 – Assessing’.

#### 3.1. Possible Flooding Mechanisms

Table 1 below summarises the possible flooding mechanisms in consideration of the site:

Source/Pathway	Significant?	Comment/Reason
Tidal/Coastal	No	The site is not located within a coastal or tidally influenced region.
Fluvial	No	There are no significant hydrological features or fluvial water bodies located in the vicinity of the development site.
Pluvial (urban drainage)	Possible	There is urban drainage and water supply infrastructure located in the immediate vicinity of the site.
Pluvial (overland flow)	No	The site is not surrounded by significantly elevated lands and does not provide an important surface water discharge point to adjacent lands.
Blockage	No	There are no significant or restrictive hydraulic structures located in the vicinity of the development site.
Groundwater	No	There are no significant springs or groundwater discharges mapped or recorded in the immediate vicinity of the site.

**Table 1: Flooding Mechanisms**

The primary potential flood risk to the site of the proposed development can be attributed to potential pluvial flooding due to blockage/surcharge of the urban drainage and/or water supply infrastructure located in the vicinity of the site.

In accordance with ‘The Planning System and Flood Risk Management – Guidelines for Planning Authorities - DOEHLG 2009’ the potential flood risk to the site of the proposed development is analysed in the subsequent ‘Screening Assessment’ and “Scoping Assessment” section of this study report.

## 4. Screening Assessment

The purpose of the screening assessment is to establish the level of flooding risk that may or may not exist for a particular site and to collate and assess existing current or historical information and data which may indicate the level or extent of any flood risk.

If there is a potential flood risk issue then the flood risk assessment procedure should move to 'Step 2 – Scoping Assessment' or if no potential flood risk is identified from the screening stage then the overall flood risk assessment can end at 'Step 1'.

The following information and data was collated as part of the flood risk screening assessment for the site of the proposed development.

### 4.1. OPW/EPA/Local Authority Hydrometric Data

Existing sources of OPW, EPA and local authority hydrometric data were investigated. As illustrated in *Figure 2* below, this assessment has determined that there are no hydrometric gauging stations located in the vicinity of the site of the proposed development.





Figure 2 - Hydrometric Gauging Stations

#### 4.2. OPW PFRA Indicative Flood Mapping

Preliminary Flood Risk Assessment (PFRA) Mapping for Ireland was produced by the OPW in 2011. OPW PFRA flood map number 2019/MAP/238/A illustrates indicative flood zones within this area of Dublin.

Figure 3 below illustrates an extract from the above indicative flood map in the vicinity of the site of the proposed development.

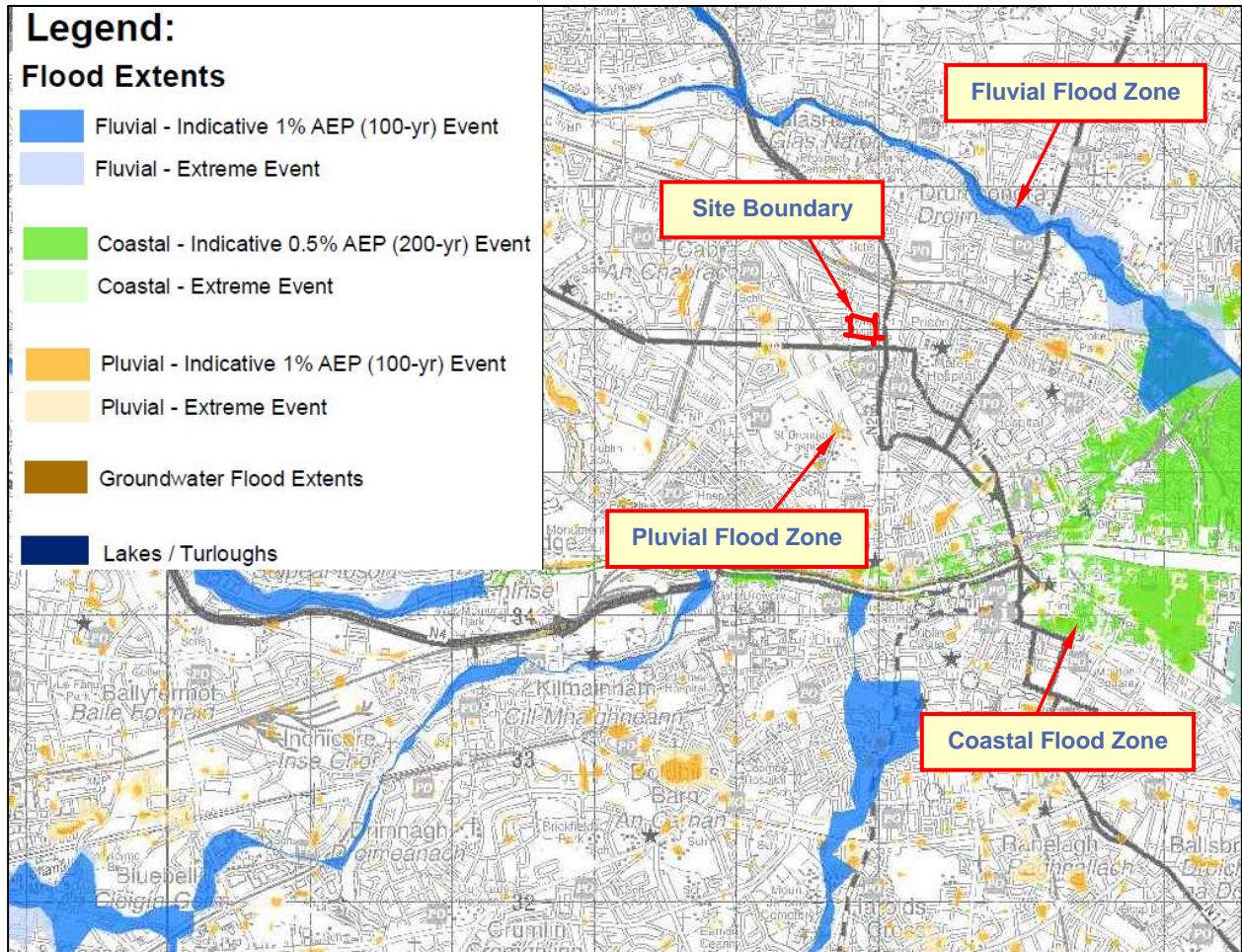


Figure 3 - OPW PFRA Mapping

Figure 3 above indicates that the site of the proposed development does not fall within an indicative fluvial, pluvial, coastal or groundwater flood zone.

It should also be noted that the indicated extent of flooding illustrated on these maps was developed using a low resolution digital terrain model (DTM) and illustrated flood extents are intended to be indicative only. The flood extents mapped on the PFRA maps are not intended to be used on a site specific basis.

#### 4.3. OPW Flood Maps Website

The OPW Flood Maps Website ([www.floods.ie](http://www.floods.ie)) was consulted in relation to available historical or anecdotal information on any flooding incidences or occurrences in the vicinity of the site of the proposed development. *Figure 4* below illustrates mapping from the Flood Maps website in the vicinity of the site.

# Past Flood Event Local Area Summary Report



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

Report Produced: 23/1/2022 11:07

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.

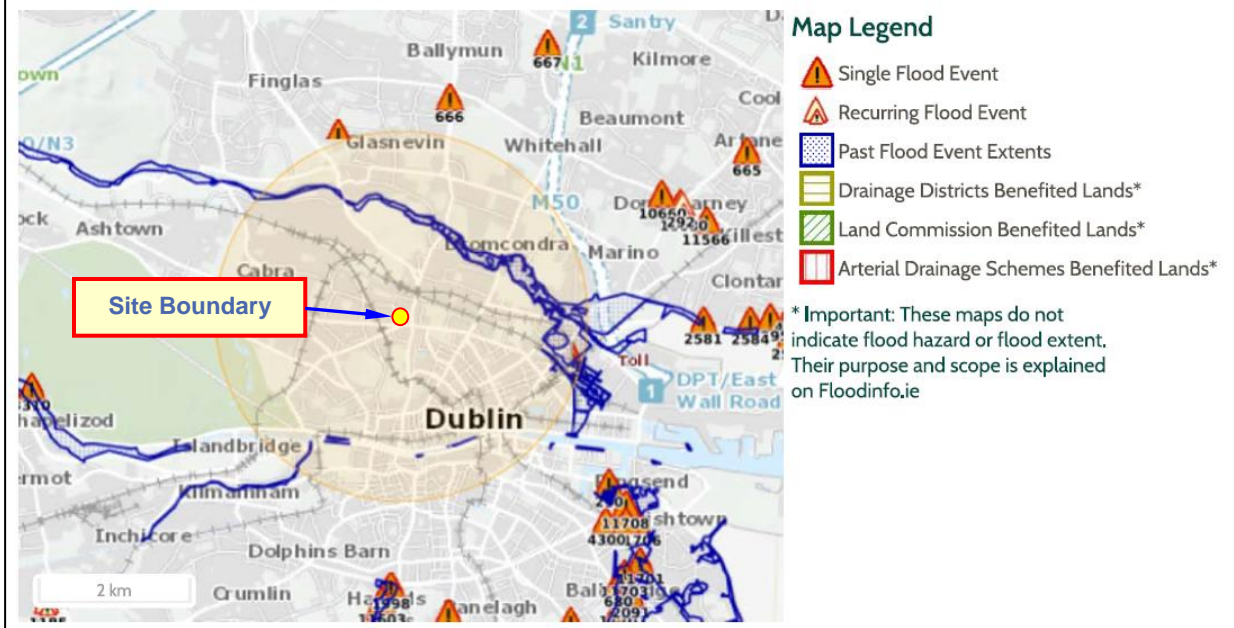


Figure 4 - OPW Flood Maps

Figure 4 above reports no incidents of anecdotal or historical flooding recorded in the general vicinity of the site.

## 4.4. Ordnance Survey Historic Mapping

Available historic mapping for the area was consulted, as this can provide evidence of historical flooding incidences or occurrences. The maps that were consulted were the historical 6-inch maps (pre-1900), and the historic 25-inch map series. Figure 5 and Figure 6 below show the historic mapping for the area of the site of the proposed development.

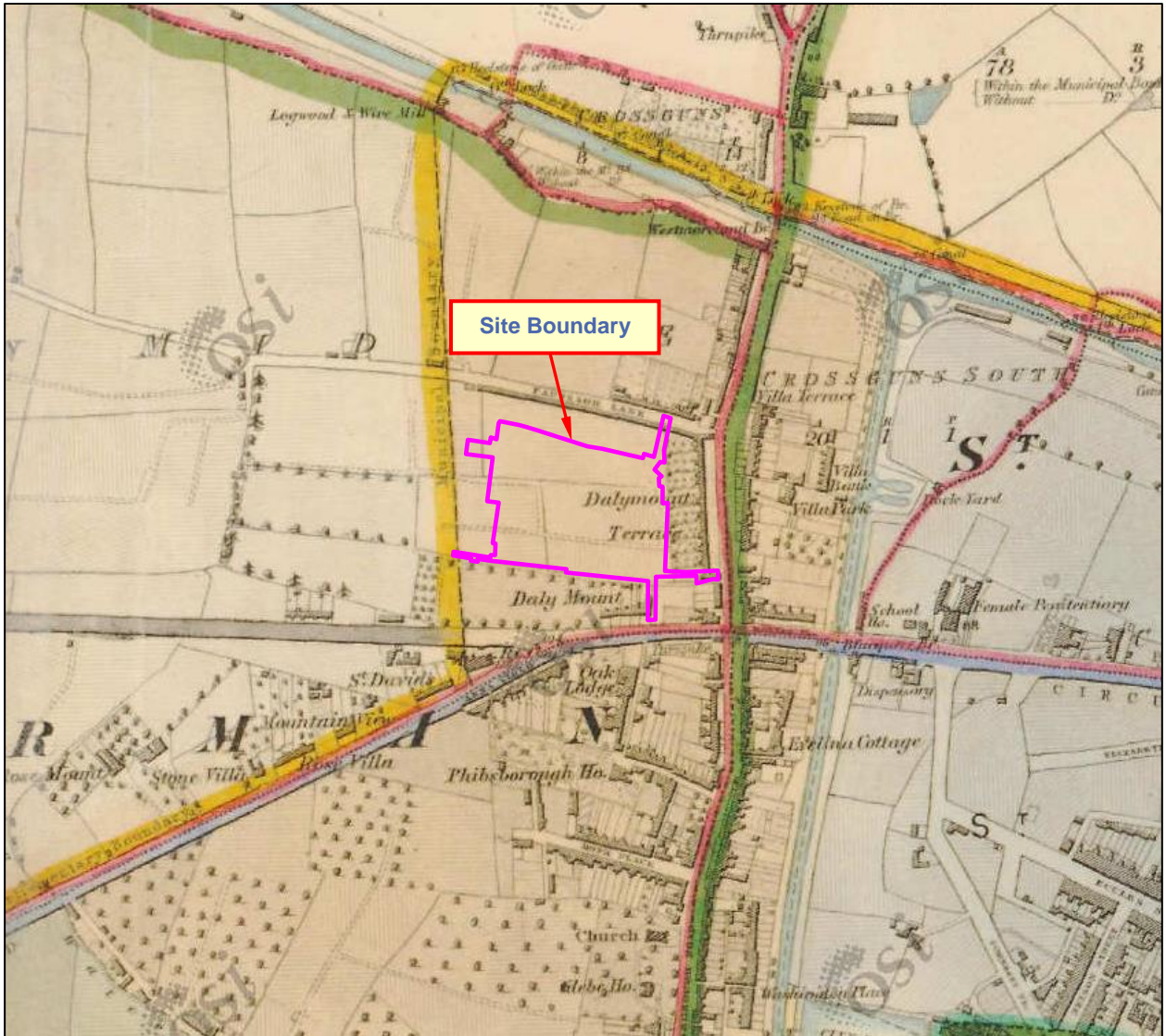
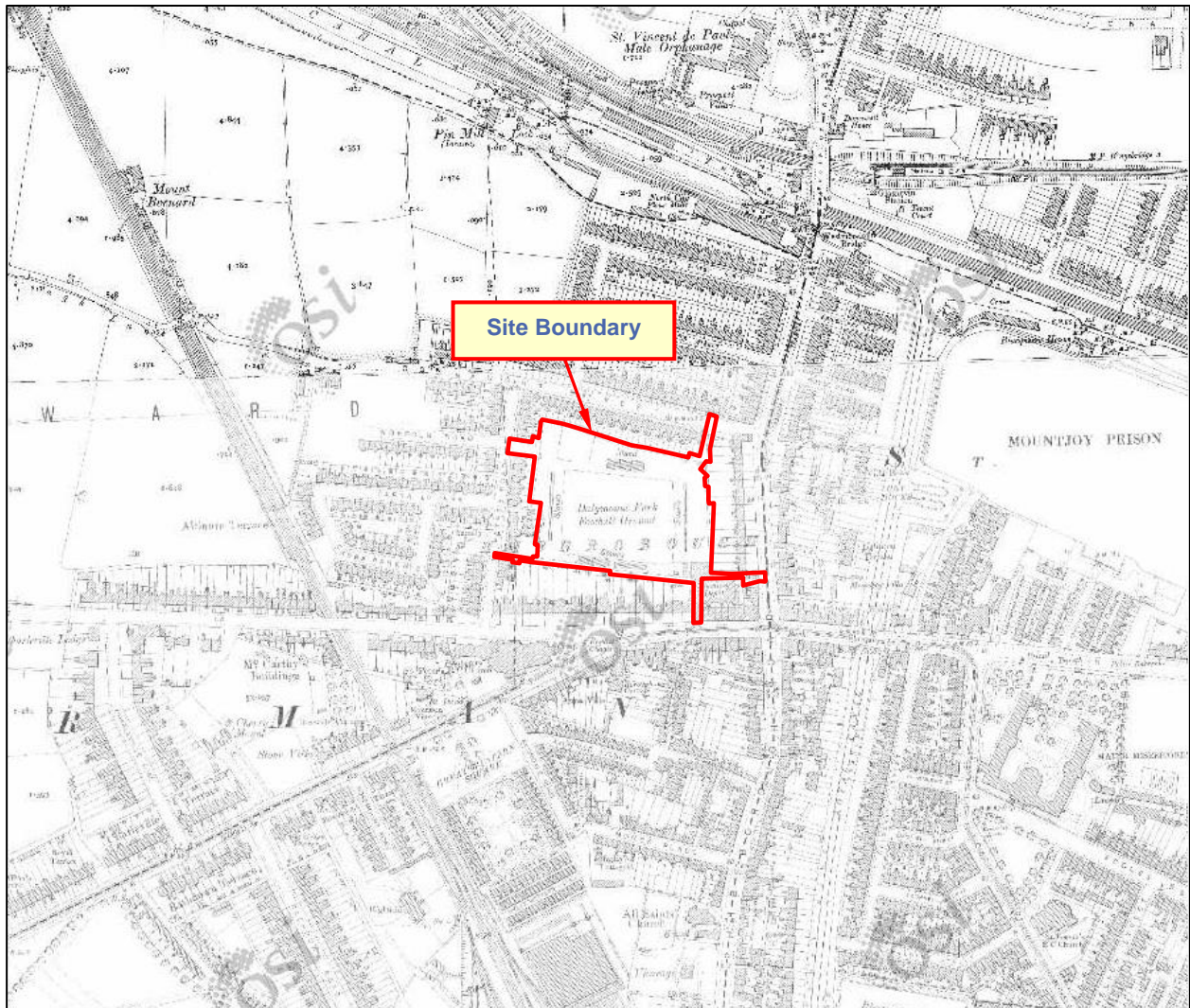


Figure 5 - Historic 6 Inch Mapping



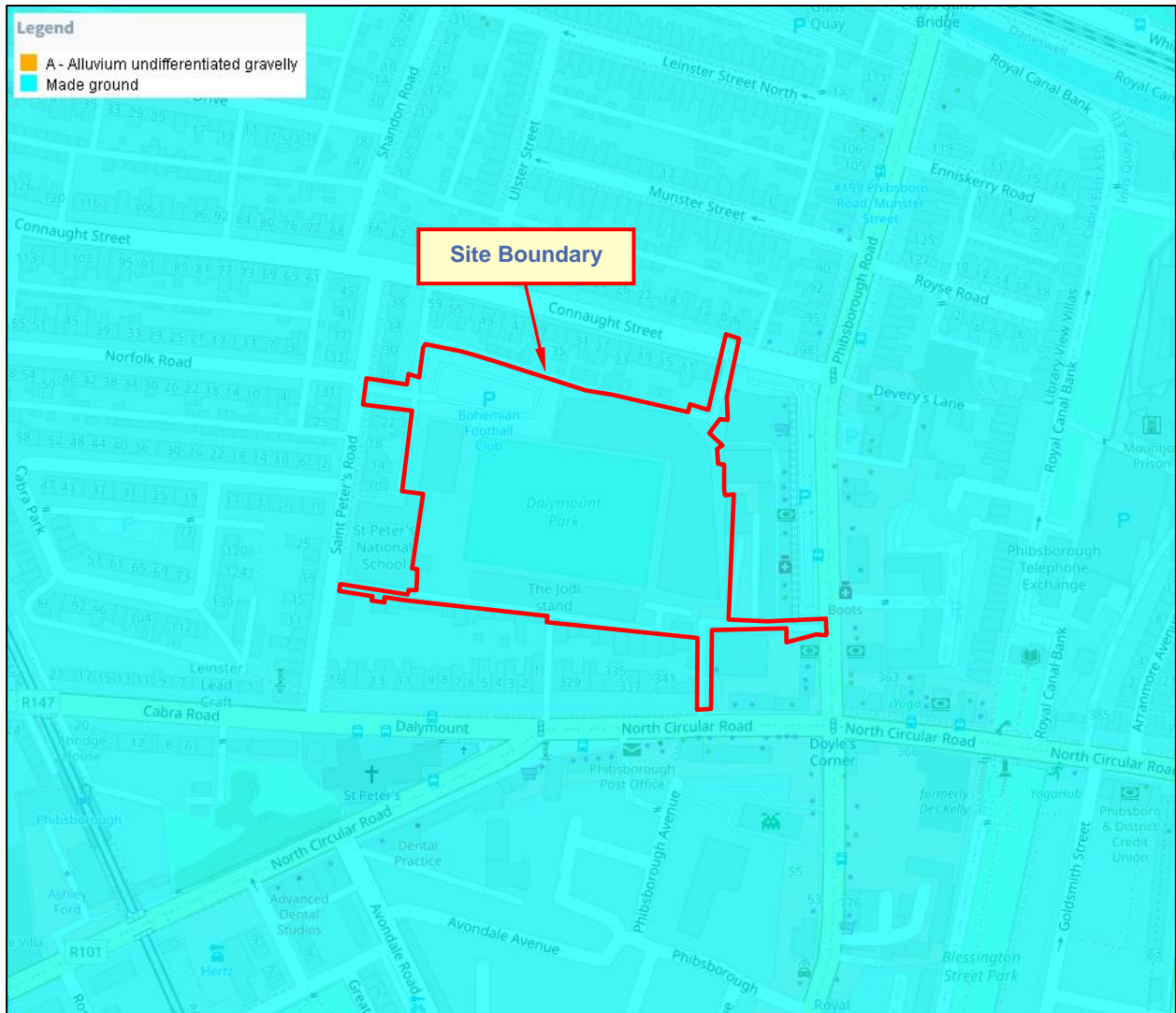
**Figure 6 - Historic 25 Inch Mapping**

The historic 6 inch and 25 inch mapping does not indicate any historical or anecdotal instances of flooding within or adjacent to the boundary of the site of the proposed development.

#### 4.5. Geological Survey of Ireland Mapping

The alluvial deposit maps of the Geological Survey of Ireland (GSI) were consulted to assess the extent of any alluvial deposits in the vicinity of the site of the proposed development. Alluvial deposits can be an indicator of areas that have been subject to flooding in the recent geological past.

*Figure 7* below illustrates the sub-soils mapping for the general area of the site.



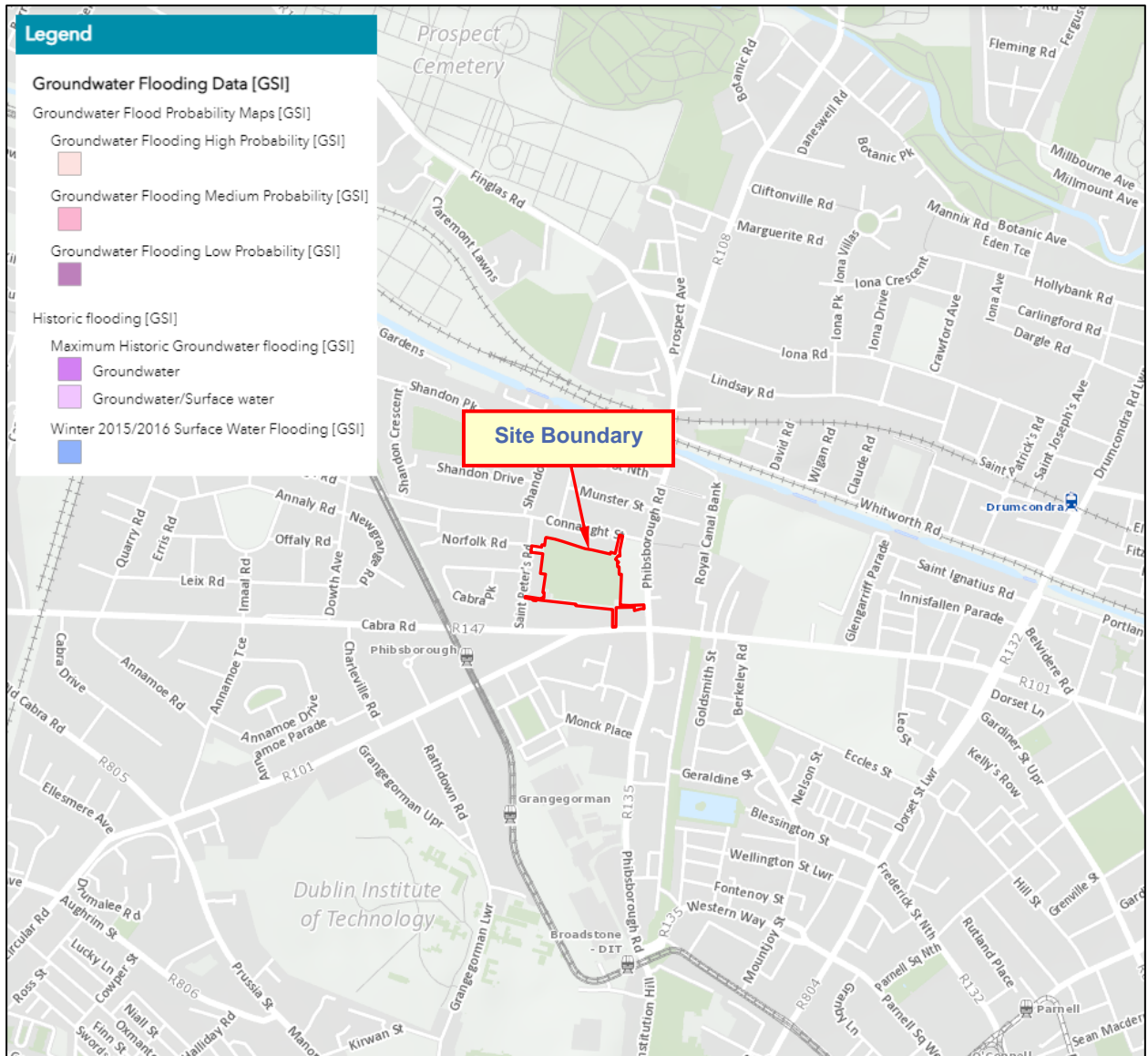
**Figure 7 - GSI Subsoil Mapping**

Figure 7 above indicates that the site of the proposed development is entirely underlain by Made Ground. There are no Alluvium deposits mapped within or in the immediate vicinity of the site.

#### 4.6. Geological Survey of Ireland Groundwater Flood Mapping

Historic and Predictive Groundwater Mapping for Ireland was prepared by the GSI Department of Communication, Climate Action and Environment in collaboration with Trinity College Dublin and the Institute of Technology Carlow.

Figure 8 below illustrates an extract from the above groundwater flood mapping in the vicinity of the site of the proposed development.



**Figure 8 - GSI Groundwater Flood Mapping**

The above GSI Groundwater Mapping indicates no areas of predictive or historical groundwater or surface water flooding located in the vicinity of the site.

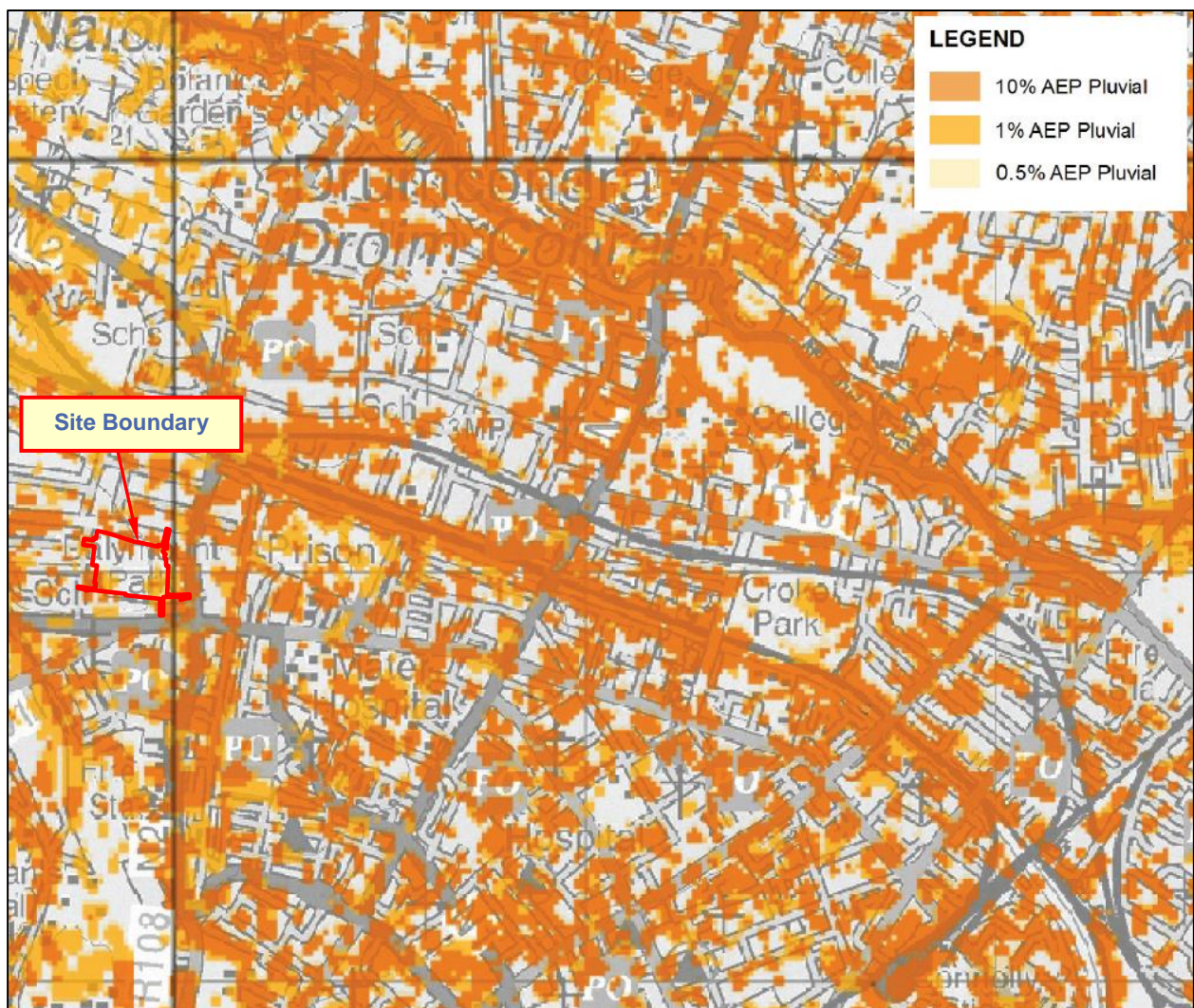
#### 4.7. Eastern CFRAM Study

This area of Dublin City has not been included as an Area of Further Assessment as part of the OPW Eastern CFRAM study

#### 4.8. Dublin Pluvial Study

The Dublin Pluvial Study has been undertaken by the OPW and current scenario pluvial flood maps were issued in August 2016. Pluvial flood risk extent and depth maps for the Dublin environs have been produced. The Pluvial Study flood map number *E09DCC\_EXPCD\_F0\_02* illustrates predictive pluvial flood extents in the vicinity of the site of the proposed development.

As illustrated in *Figure 9* below (extracted from Pluvial Study flood map *E09DCC\_EXPCD\_F0\_02*) areas of indicative extreme pluvial flood zone are mapped adjacent to the northern, southern, eastern and western boundaries of the site.



**Figure 9 – Dublin Pluvial Study - Pluvial Flood Map**

The Dublin Pluvial Study mapping also provides information and data on indicative pluvial flood depths in the general area of the site of the proposed development in consideration of the extreme 10% AEP (1 in 10 year), 1% AEP (1 in 100 year) and 0.5% AEP (1 in 200 year) pluvial flood events.



Figure 10, Figure 11 and Figure 12 below (extracted from Pluvial Study flood map numbers E09DCC\_DPPCD100\_F0\_02, E09DCC\_DPPCD010\_F0\_02 and E09DCC\_DPPCD005\_F0\_02) illustrate the indicative 10% AEP (1 in 10 year), 1% AEP (1 in 100 year) and 0.5% AEP (1 in 200 year) pluvial flood depths in the general vicinity of the site of the proposed development.

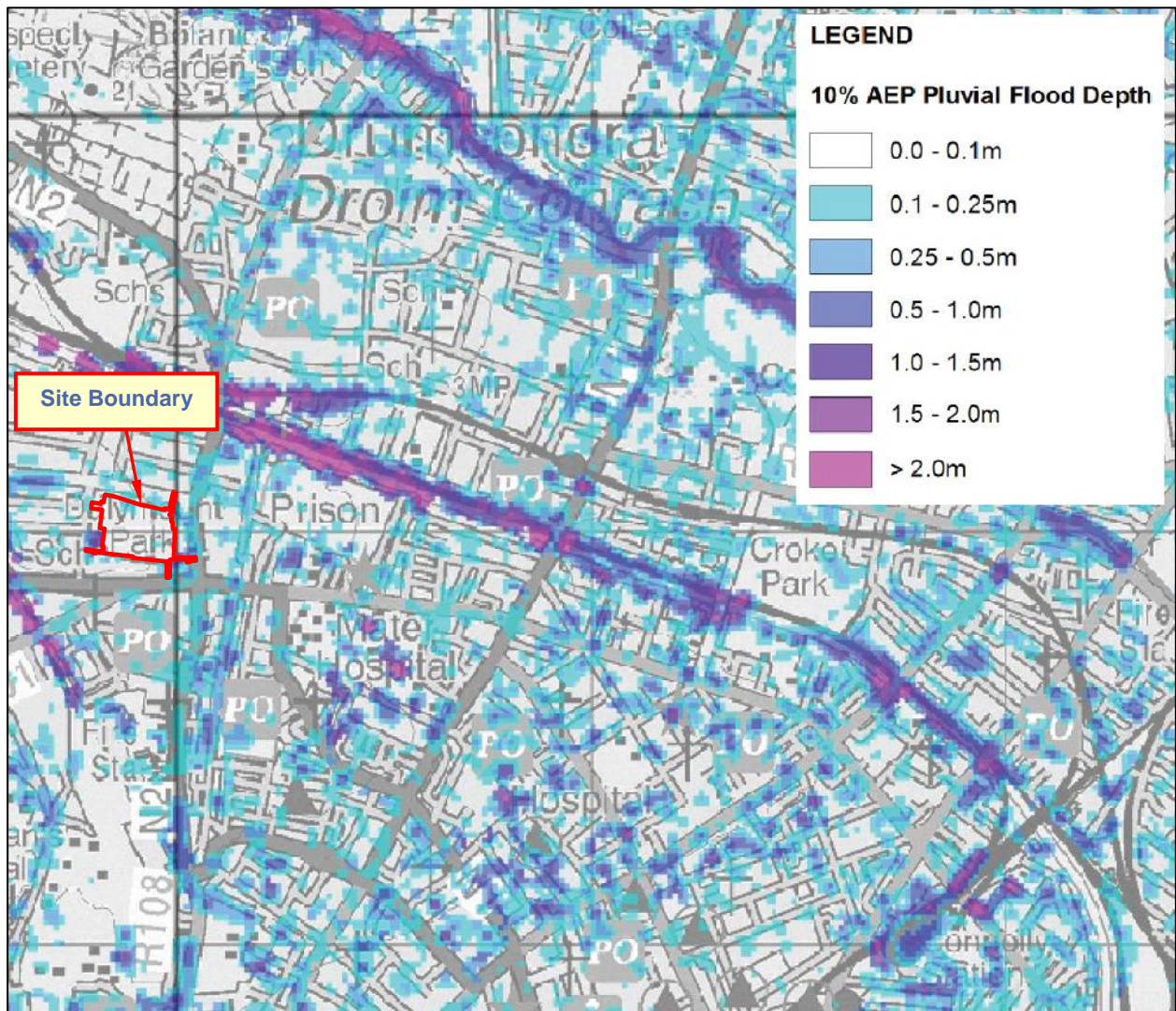


Figure 10 – Dublin Pluvial Study 10% AEP Pluvial Flood Depth Map

Figure 10 above indicates that the site of the proposed development would not be significantly impacted during the occurrence of a 10% AEP (1 in 10 year) pluvial flood event.

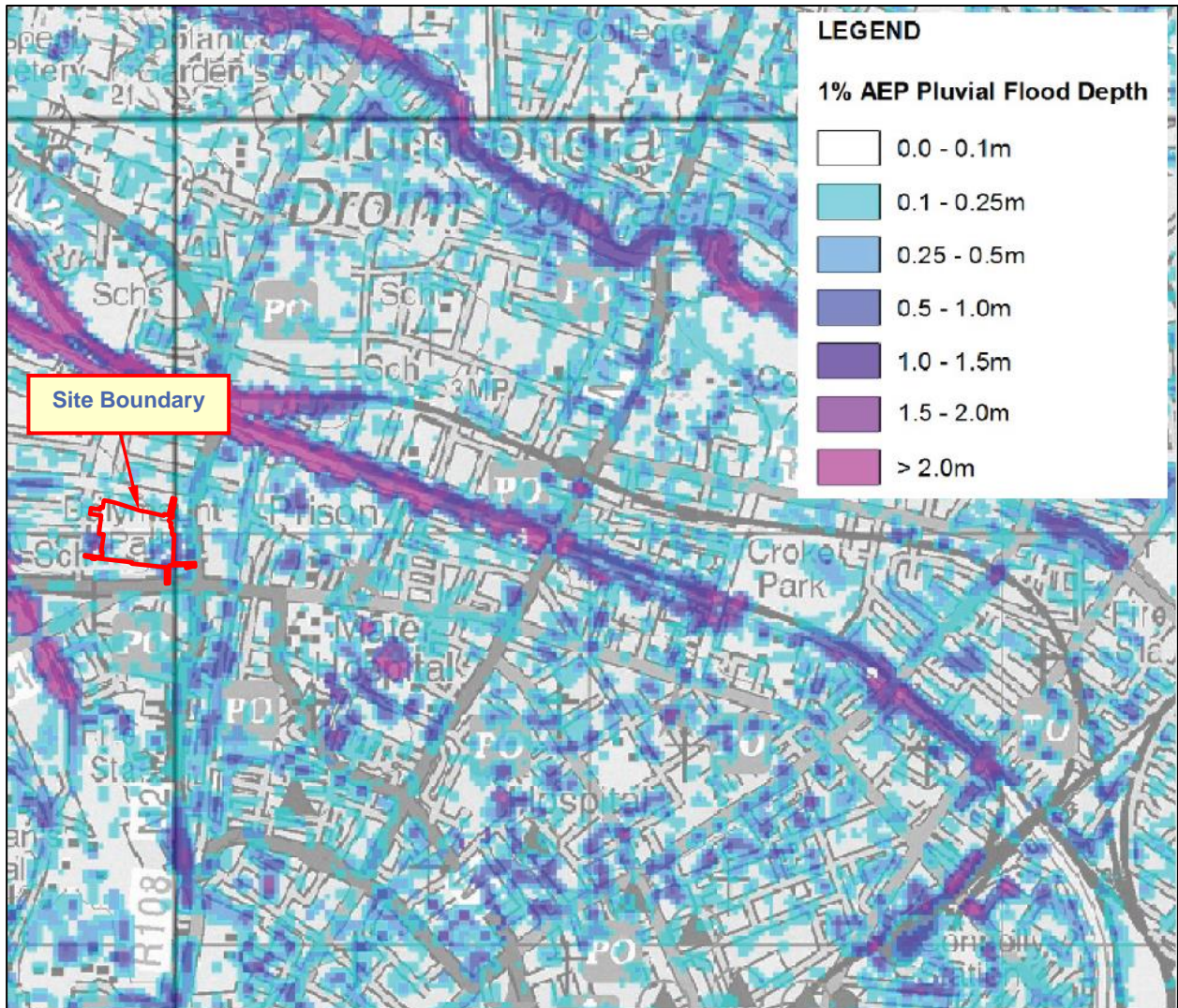
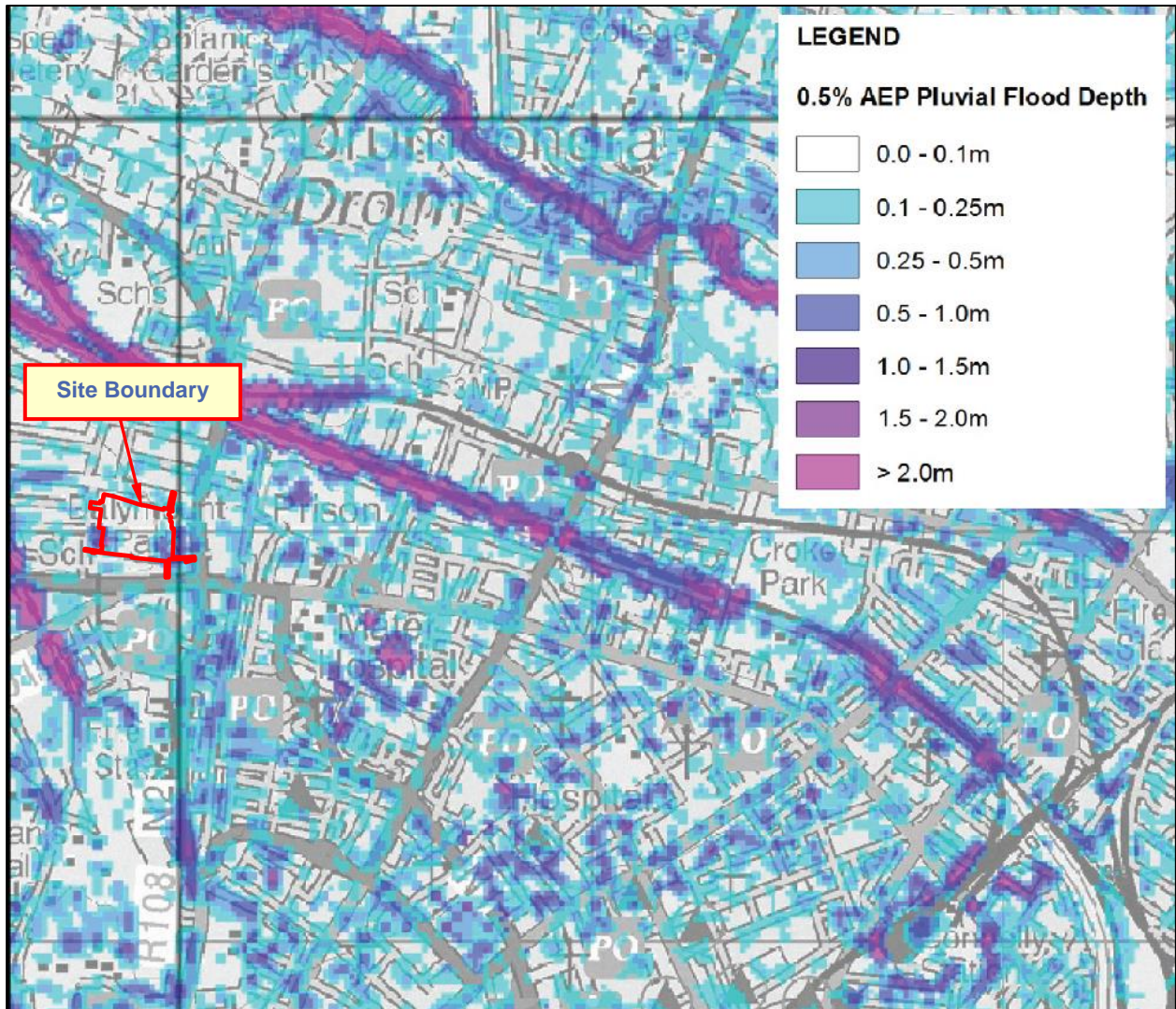


Figure 11 – Dublin Pluvial Study 1% AEP Pluvial Flood Depth Map

Figure 11 above indicates that indicative 1% AEP (1 in 100 year) pluvial flood zones are mapped adjacent to the western and eastern boundaries of the site with potential pluvial flood depths in the range of 0.1m – 0.5m.



**Figure 12 – Dublin Pluvial Study 0.5% AEP Pluvial Flood Depth Map**

Figure 12 above indicates that indicative 0.5% AEP (1 in 200 year) pluvial flood zones are mapped adjacent to the western and eastern boundaries of the site with potential pluvial flood depths in the range of 0.1m – 1.0m.

Table 2 below summarises the indicative pluvial flood depths within the vicinity of the site of the proposed development for the current scenario 10% AEP, 1% AEP and 0.5% AEP pluvial flood events.

Scenario	Extreme Pluvial Flood Depth		
	10% AEP Depth (m)	1%AEP Depth (m)	0.5% AEP Depth (m)
Current	0	0.1-0.50	0.1-0.1.0

**Table 2: Pluvial Flood Water Depth**

## 5. Scoping Assessment

The purpose of the scoping stage is to identify possible flood risks and to implement the necessary level of detail and assessment to assess these possible risks, and to ensure these can be adequately addressed in the flood risk assessment. The scoping exercise should also identify that sufficient quantitative information is already available to complete a flood risk assessment appropriate to the scale and nature of the development proposed.

The above screening assessment indicates that the site of the proposed development site is not at risk of primary and direct fluvial, pluvial, coastal or groundwater flooding. The above screening assessment indicates that the primary flood risk to the proposed development site can be attributed to a potential pluvial flooding from the existing urban drainage/water supply infrastructure within the vicinity of the site boundary.

In consideration of the information collated as part of the screening exercise, and the availability of other information and data specific to the proposed development site, it is considered that sufficient quantitative information to complete an appropriate flood risk assessment can be derived from the information collated as part of the screening exercise alone.

The specific pluvial flood risk to and from the site of the proposed development is assessed in the subsequent 'Assessing Flood Risk' stage of this study report.

## 6. Assessing Flood Risk

The screening undertaken as part of this Site Specific Flood Risk Assessment indicates that the site of the proposed development site is not at risk of primary and direct fluvial, pluvial, coastal or groundwater flooding. The screening assessment indicates that the primary flood risk to the site can be attributed to a potential pluvial flooding from the existing urban drainage/water supply infrastructure within the vicinity of the site boundary.

The following section assesses the pluvial flood risk to and from the site of the proposed development.

### 6.1. Assessment of Pluvial Flood Risks

The Dublin Pluvial Study pluvial flood mapping illustrated in *Figure 10*, *Figure 11* and *Figure 12* above indicate that areas within the site of the proposed development adjacent to the western and eastern boundaries fall within and indicative pluvial flood zone.

In order to assess the impact to and impact from the development as proposed with respect to these indicative pluvial flood zones, the indicative pluvial flood depths illustrated in *Figure 10*, *Figure 11* and *Figure 12* above have been thematically mapped onto the proposed development layout.

*Figure 13* below illustrates the indicative 10% AEP (1 in 10 year) pluvial flood extents and depths mapped onto the proposed development layout.

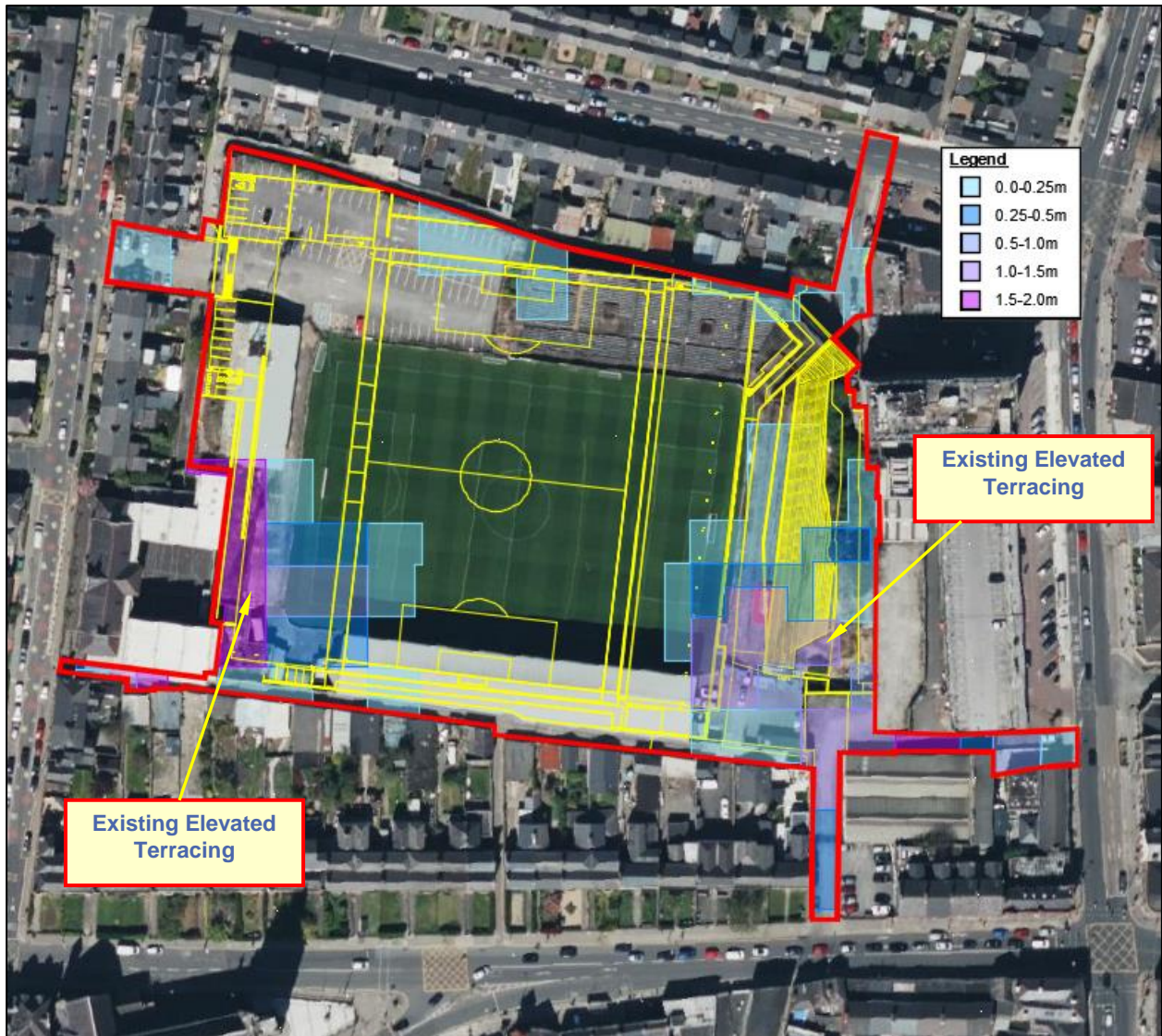
*Figure 14* below illustrates the indicative 1% AEP (1 in 100 year) pluvial flood extents and depths mapped onto the proposed development layout.

*Figure 15* below illustrates the indicative 0.5% AEP (1 in 200 year) pluvial flood extents and depths mapped onto the proposed development layout.



**Figure 13 – Dublin Pluvial Study - 10% AEP (1 in 10 year) Pluvial Flood Extent Depth Mapping Overlaid onto Proposed Site Layout**

As illustrated in *Figure 13* above, the development as proposed would not be significantly impacted during the occurrence of a 10% AEP (1 in 10 year) pluvial flood event.



**Figure 14 – Dublin Pluvial Study - 1% AEP (1 in 100 year) Pluvial Flood Extent Depth Mapping Overlaid onto Proposed Site Layout**

As illustrated in *Figure 14* above, an indicative 1% AEP (1 in 100 year) pluvial flood zone is mapped within the boundary of the site, with a maximum potential depth of 0.5m. However, this area of the existing site comprises elevated terracing, therefore it is unrealistic to assume that any potential pluvial flooding may impact this area of the site.

The indicative pluvial flood extents illustrated in the Dublin Pluvial Study maps are based on a strategic level pluvial modelling exercise, the results of which are displayed in pluvial flood extent block cells of a particular dimensional resolution. Therefore areas of elevated terracing within the existing site area indicated as falling within a pluvial flood zone are simply as a result of the indicative pluvial flood block cells from lower elevated areas to the west overlapping the area of existing elevated terracing. This does not imply that these areas of the existing site would be impacted by or subject to pluvial inundation.



**Figure 15 – Dublin Pluvial Study – 0.5% AEP (1 in 200 year) Pluvial Flood Extent Depth Mapping Overlaid onto Proposed Site Layout**

As illustrated in *Figure 15* above, indicate 0.5% AEP (1 in 200 year) pluvial flood zones are mapped adjacent to the western and eastern boundaries of the site, with maximum potential depth of 1.0m. However, these areas of the existing site comprises elevated terracing, therefore it is unrealistic to assume that any potential pluvial may impact this area of the site.

The indicative pluvial flood extents illustrated in the Dublin Pluvial Study maps are based on a strategic level pluvial modelling exercise, the results of which are displayed in pluvial flood extent block cells of a particular dimensional resolution. Therefore areas of elevated terracing within the existing site area indicated as falling within a pluvial flood zone are simply as a result of the indicative pluvial flood block cells from lower elevated areas to the west overlapping the area of existing elevated terracing. This does not imply that these areas of the existing site would be impacted by or subject to pluvial inundation.



In summary, the assessment and analysis presented above indicates that the development as proposed is not expected to result in an adverse impact to the existing hydrological regime of the area or increase pluvial flood risk elsewhere.

The new proposed spectator stands along the western and eastern boundaries of the site shall primarily be constructed within area of existing development and areas of existing elevated terracing, therefore these proposed structures shall not result in any significant displacement of potential extreme pluvial flood waters. In addition the reconfigured playing pitch shall be constructed at or close to the ground level of the existing playing pitch, which shall not result in any adverse impact.

As illustrated in *Figure 14* and *Figure 15* above, during the occurrence of an extreme 1% AEP (1 in 100 year) or 0.5% AEP (1 in 200 year) pluvial flood event, maximum potential pluvial flood depths in the range of 0.5m – 1.0m may occur adjacent to the western and eastern boundaries of the site of the proposed development. It is therefore recommended that consideration be given to the feasibility of implementing pluvial flood risk mitigation measures for any structures such as spectator stands or critical infrastructure associated with development at these locations. For example access and egress doorways for the spectator stands may need to implement appropriate finished floor levels or flood barriers (e.g. flood gates) and critical infrastructure such as electrical cabinets, heating and ventilation systems, etc. may need to be of flood proof construction or fitted within an elevated position of at least 1.0m above existing external ground levels.

The need and requirement or not to implement pluvial flood risk mitigation measures will depend on the potential risk of occurrence of an extreme pluvial flood event that the developer or promoter of the proposal is prepared to accept and the vulnerability of the development and users of the development in the context of potential pluvial flood risk.

## 7. Development in the Context of the Guidelines

In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009' three flood zones are designated in consideration of flood risk to a particular development site.

Flood Zone 'A' – where the probability of flooding from rivers and watercourses is the highest (greater than 1% or 1 in 100 year for river and watercourse flooding and 0.5% or 1 on 200 for coastal or tidal flooding).

Flood Zone 'B' – where the probability of flooding from rivers and watercourses is moderate (between 0.1% or 1 in 1000 year for river and watercourse flooding and 0.5% or 1 on 200 for coastal or tidal flooding).

Flood Zone 'C' – where the probability of flooding from rivers and watercourses is low or negligible (less than 0.1% of 1 in 1000 year for both river and watercourse and coastal flooding). Flood Zone 'C' covers all areas that are not in Zones 'A' or 'B'.

The 'Planning System and Flood Risk Management Guidelines' list the planning implications for each flood zone, as summarised below:-

**Zone A – High Probability of Flooding.** Most types of development would not be considered in this zone. Development in this zone should be only be considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the 'Planning System and Flood Risk Management Guidelines' justification test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space and outdoor sports and reaction would be considered appropriate in this zone.

**Zone B – Moderate Probability of Flooding.** Highly vulnerable development such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses, strategic transport and essential utilities infrastructure would generally be considered inappropriate in this zone, unless the requirements of the justification test can be met. Less vulnerable development such as retail, commercial and industrial uses and recreational facilities might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone 'C' and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to the development can be adequately managed and that development in this zone will not adversely affect adjacent lands and properties.

**Zone C – Low to Negligible Probability of Flooding.** Development in this zone is appropriate from a flood risk perspective. Developments in this zone are generally not considered at risk of fluvial flooding and would not adversely affect adjacent lands and properties from a flood risk perspective.

In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009' this Site Specific Flood Risk Assessment indicates that the site of the proposed development does not falls within a delineated fluvial or coastal Flood Zone 'A' or Flood Zone 'B'. The development as proposed falls within a Fluvial Flood Zone 'C'

In accordance with the 'Planning System & Flood Risk Management Guidelines, DOEGLG, 2009' the development as proposed is not subject to the requirements of the Justification Test.

## 8. Summary Conclusions and Recommendations

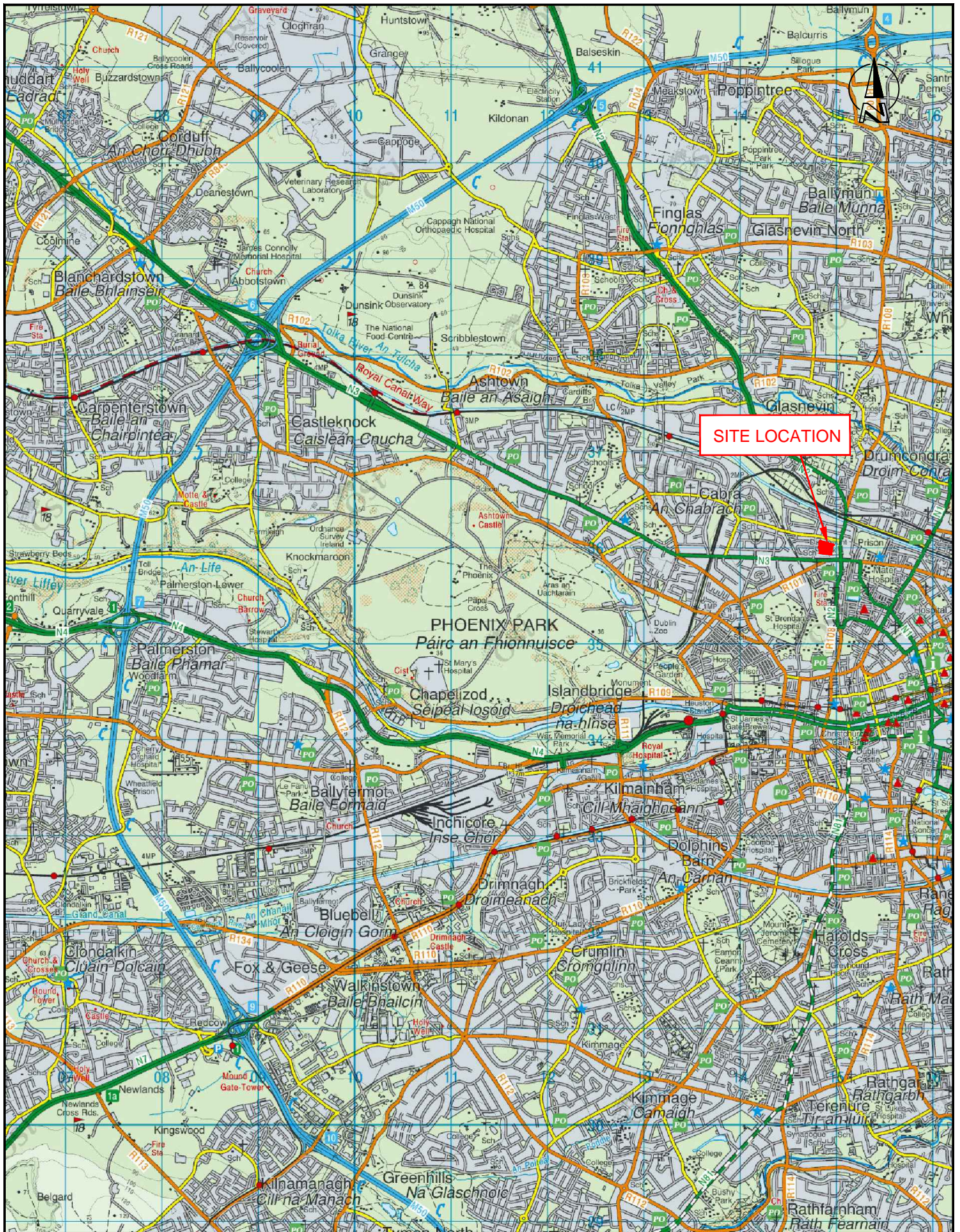
In consideration of the findings of this Site Specific Flood Risk Assessment and analysis the following conclusions and recommendations are made in respect of the development as proposed:

- *A Site Specific Flood Risk (SSFRA) assessment, appropriate to the type and scale of development proposed, and in accordance with 'The Planning System and Flood Risk Management Guidelines – DoEHLG-2009' has been undertaken.*
- *The site of the proposed development has been screened, scoped and assessed for flood risk in accordance with the above guidelines.*
- *The primary flood risk to the development site can be attributed to potential pluvial flooding flood event. The site is not at risk of fluvial, coastal or groundwater flooding.*
- *During the occurrence of an extreme 1% AEP (1 in 100 year) or 0.5% AEP (1 in 200 year) pluvial flood event, maximum potential pluvial flood depths in the range of 0.5m – 1.0m may occur adjacent to the western and eastern boundaries of the site of the proposed development.*
- *It is therefore recommended that consideration be given to the feasibility of implementing pluvial flood risk mitigation measures for any structures such as spectator stands or critical infrastructure associated with development at these locations.*
- *In the context of 'The Planning System & Flood Risk Management Guidelines – 2009' the site of the proposed development falls within a fluvial and coastal Flood Zone 'C'.*
- *The assessment and analysis undertaken as part of this SSFRA indicates that the development as proposed is not expected to result in an adverse impact to the existing hydrological regime of the area or increase pluvial flood risk elsewhere.*

# Appendices

# Appendix A. Drawings

IE2438-001-A Site Location



**SITE LOCATION**

**PHOENIX PARK**  
Páirc an Fhionnuisce

Chapelizod  
Seipéal Iosáid

Inchicore  
Inse Chéir

Bluebell  
An Cloigin Gorm

Walkinstown  
Baile Bhaileáin

Greenhills  
Na Glaschnoil

Project Title:		FLOOD RISK ASSESSMENT				
Project Address:		DALYMOUNT STADIUM, PHIBSBOROUGH, DUBLIN 7				
Client:		IDOM				
Drg. Title:		SITE LOCATION MAP				
Dwg. Scale:	Date:	Dwg.No:	Job No:	Revision:	Dwg.By:	
1:50,000	06/02/22	IE2438-001	IE2438	A	LMC	

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