Comhairle Contae Lú
Louth County Council

WESTGATE 2040 REGENERATION SCHEME

SITE-SPECIFIC FLOOD RISK ASSESSMENT

November 2023

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LOUTH COUNTY COUNCIL

WESTGATE 2040 REGENERATION

SITE-SPECIFIC FLOOD RISK ASSESSMENT

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1 INTRODUCTION

This Site Specific Flood Risk Assessment (SSFRA) Report has been prepared by Nicholas O'Dwyer Ltd., on behalf of Louth County Council, to accompany a planning application for public realm regeneration works on lands within the Westgate Vision Area of Drogheda, Co. Louth.

This assessment has been undertaken to determine the following:

- Identify whether flood risk is an issue and the degree to which it is an issue;
- Identify flood zones if not already identified;
- Develop appropriate flood risk mitigation and management measures for the development site.

The assessment is undertaken over three stages in increasing detail depending on the outcome of each stage. The procedures carried out in this SSFRA are in accordance with the guidance document, *The Planning System and Flood Risk Management'*, was published by the Department of Housing, Planning and Local Government (DECLG) in 2009, and technical appendices referenced in Section 1.3 below.

1.1 Development Description

The overall objective of the project (known as the 'Westgate 2040 Project') is to act as a catalyst to support positive regeneration, compact growth and sustainable development in the Westgate Vision Area and the broader Drogheda Town Centre.

The application site covers an area of approx. 1.89 hectares and includes the following lanes/streets/roads/areas and their adjoining footpath/public realm areas: R132/Bridge of Peace/George's Street; George's Square; Father Connolly Way; Dominick Street; Patrickswell Lane; Old Abbey Lane; Scholes Lane; R900/West Street/Narrow West Street; Fair Street; and Wellington Quay, in the townland of Moneymore, Drogheda, Co Louth.

There is a significant change in topography across the proposed development site. The Riverfront area (Father Connolly Way) is generally quite flat with the road level varying between 3.5 – 4.5m AOD. There is a significant rise up to West Street, which is located north of 'The Abbey', which has a road level varying between 8.0 – 11.0m AOD. There is again a further rise in topography to the northern end of the proposed site where Fair Street is located. The road level here varies around 17 – 18m AOD.

The subject site is approximately 1.89 hectares as denoted by the outer red line in Figure 1-1.

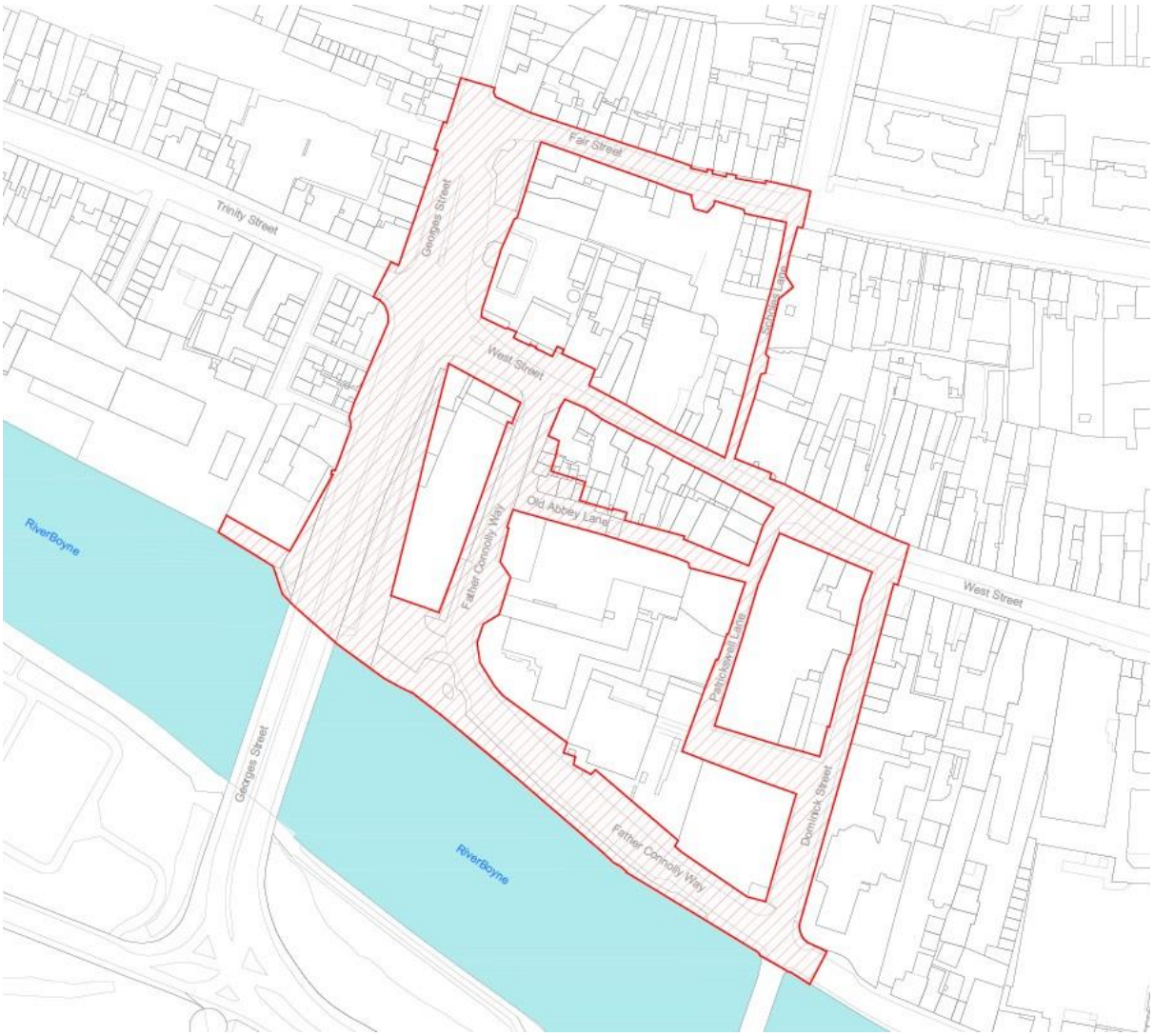

Figure 1-1: Location of proposed development (red line boundary)

1.2 Description of Proposed Works

The overall objective of the 'Westgate 2040' project' is to act as a catalyst to support positive urban regeneration and public realm improvements in the Westgate Vision Area of Drogheda Town Centre. The proposed development consists of the following:

(1) Public realm improvement works comprising: new hard landscaping including resurfacing, soft landscaping including new tree planting, a water feature channel with stepped concrete elements and integrated landscaping, a Corten steel ground insert delineating the location of the former medieval town wall, a wayfinding Corten steel ground insert, Corten steel signs, Corten steel walkways, street furniture, new pedestrian connections, a SUDS rainwater retention pond, cycle lanes, pedestrian footpaths, external steps, tactile paving, road signs, cycle parking stands and provision of new railings;

(2) Public realm improvement works will also include the creation of a new urban plaza gateway/arrival area at Georges Square and a new enhanced public amenity area adjacent

the River Boyne riverfront including a new pedestrian wooden deck promenade/boardwalk;

(3) Demolition of the existing public toilet block at George's Square (between the junctions of George's Street/Fair Street and George's Street/West Street), a section of boundary wall located between Old Abbey Lane and Father Connolly Way and a section of wall located between Dominick Street and Dominick Street car park;

(4) A new raised, free-standing, curved walkway located between the R132 and the existing Medieval Wall to provide a universally accessible connection from West Street to the River Boyne riverfront;

(5) A new freestanding Corten steel pavilion located adjacent the River Boyne riverfront to create a new mixed use/public space;

(6) A new freestanding Corten steel canopy located within, and offset from, the remains of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) to create a new flexible community and cultural space;

(7) Two freestanding Corten steel structures located at the junction of West Street and the R132/George's Street to mark the location of the former medieval West Gate;

(8) Repair and restoration of the old Medieval Wall located adjacent the R132/George's Street (being a Protected Structure – ID No. DB-188 and a recorded monument - RMP No. LH024-041014);

(9) Repair and restoration of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) including the west gable of its north aisle located within Old Abbey Lane;

(10) Reprioritisation of traffic and movement patterns for the streets/roads/lanes/footpaths within the application site to accommodate the proposed public realm improvement works and integrate with the Council's emerging Active Travel projects to the north and south of George's Street/R132;

(11) Road improvement works to include alteration of road alignment, resurfacing, shared surface treatments, revised access arrangements, cycle lanes, pedestrian crossing points, parking bays, loading bays, accessible parking bays, bus stops and new public lighting; and

(12) All associated site works including: drainage, undergrounding of services and all associated ancillary development works.

1.3 Relevant Guidelines

The relevant guidelines used by the Planning Authorities for Flood Assessment, '*The Planning System and Flood Risk Management'*, was published by the Department of Housing, Planning and Local Government (DECLG) in 2009. The purpose of the guidelines is to ensure that where relevant, flood risk is a key consideration in preparing development plans and assessing planning applications to avoid inappropriate development in areas at risk of flooding or increasing flood risk elsewhere as a result of development.

This report follows the DECLG guidance for the staged approach to flood risk management as follows:

- *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. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped; and*
- *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.*

(Source: Extract from Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009 DEHLG/OPW).

2 FLOOD RISK ASSESSMENT

2.1 Stage 1 Flood Risk Identification

Stage 1 identifies whether there are any flooding or surface water management issues related to the area indicated from Regional Planning Guidelines or Development Plans that may warrant further investigation. This will provide a general indication of the potential flood risk to the site and identify whether there are any flooding or surface water management issues that may warrant further investigation work in the form of a Stage 2 (Initial Flood Risk Assessment) and Stage 3 (Detailed Flood Risk Assessment) as required.

The following risks were considered during this assessment.

a. Fluvial Flooding
b. Pluvial Flooding
c. Coastal Flooding
d. Surface Water Flooding
e. Groundwater Flooding

The following data sources were used to determine the flood risk in the area of interest:

a. OPW Flood Hazard Mapping
b. CFRAM Indicative Flood Zone Maps
c. National Coastal Protection Strategy Study
d. Strategic Flood Risk Assessment
e. Site Walkover and other Background Information

Note: RPS Consulting have been appointed to undertake the design of the Drogheda and Baltray Flood Relief Scheme as part of Project Ireland 2040. This scheme is currently at an early stage and therefore no information exists to inform this Flood Risk Assessment. It has therefore been excluded from the above identified data sources to determine the flood risk in the area of interest.

2.1.1 OPW Flood Hazard Maps – Past Flooding Events

The OPW flood hazard mapping was accessed through www.floodinfo.ie to establish if any flood events were documented in the vicinity of the site. According to the portal there is one area in close proximity to the site where a flooding event was recorded on 3rd January 2014. This flood event was at Wellington Quay which is located along the Riverfront immediately to the east of Father Connelly Way and the proposed development Red Line boundary. The flood source of this event was identified as the River Boyne.

According to reports, the floods were caused by the river bursting its banks causing and damage to certain areas of the town centre. The areas affected by the flooding included Greenhills Industrial Estate, North Quay, Merchant's Quay, Wellington Quay, Ship Street and Marsh Road, none of these areas are within the application site.

Figure 2-1 below shows the flooding incidents identified in the OPW Hazard Mapping Portal relative to this development site.

Figure 2-1: OPW Hazard Mapping Portal – Past Flood Event Locations

Further information on other flooding events in Drogheda that are relevant to this Assessment are detailed below.

2.1.2 OPW Fluvial Flood Hazard Maps

The fluvial flood risk extents from the River Boyne for the proposed development site are displayed in an extract from the OPW Hazard Mapping Portal drawing, see Figure 2-2.

This map demonstrates the following:

- For a 10% Fluvial AEP event (1 in 10 year storm return period), there are two areas shown to be at risk from flooding within the proposed red line boundary. These two locations are the existing road at Father Connelly Way outside Drogheda Courthouse and a small area at the southeast corner of Dominic Street Car Park.
- For a 1% Fluvial AEP event **(Flood Zone A equating to 1 in 100 year storm return period)**, the lower section of Father Connelly Way from the junction with Dominic Street to the corner beside the Medieval Wall is shown to be at risk from

flooding. A small, localised hardstanding area in front of the Drogheda Courthouse to the northern side of the road is also shown to be at risk.

- For a 0.1% Fluvial AEP event **(Flood Zone B equating to a 1 in 1000 year storm return period)**, the Dominic Street Car Park, lower section of the car park beside the medieval wall and hardstanding areas around the Courthouse and Drogheda Garda Station are shown to be at risk of flooding. This is in addition to the roadway at Father Connelly Way as described above.

The OPW Fluvial Flood Hazard Mapping indicates that areas of the proposed development site, namely certain parts of the Riverfront area at Father Connolly Way, do fall within the Flood Zones A and Flood Zone B.

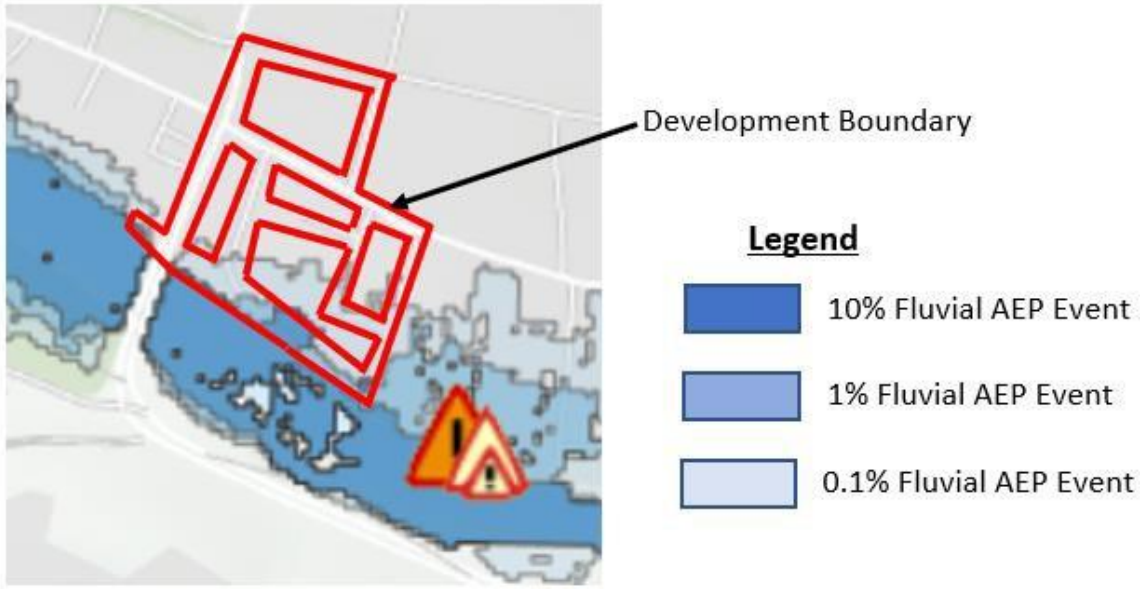

Figure 2-2: OPW Hazard Mapping Portal – Fluvial Flood Extents

2.1.3 OPW Coastal Flood Hazard Maps

The coastal flood risk extents for the proposed development site are displayed in an extract from the OPW Hazard Mapping Portal drawing, see Figure 2-3 below.

The flood hazard maps for the fluvial and coastal elements are similar for the 10% and 1% Fluvial AEP Events. There is however a difference in the 0.1% Fluvial AEP Event. The fluvial mapping shows a more widespread coverage of the Father Connelly Way area. In addition, the coastal mapping shows a more defined narrow tail extending towards the junction of West Street and Dominic Street, along with a less widespread coverage of the Father Connelly Way area.

Given this particular area of Drogheda is located only approximately 5km from where the mouth of the River Boyne meets the Irish Sea, it is to be expected the fluvial and coastal

maps are similar in nature as the flood extents from both mechanisms overlap to some degree.

The OPW Coastal Flood Hazard Mapping indicates that areas of the proposed development site, namely certain parts of the Riverfront area at Father Connolly Way, do fall within the Flood Zones A and Flood Zone B.

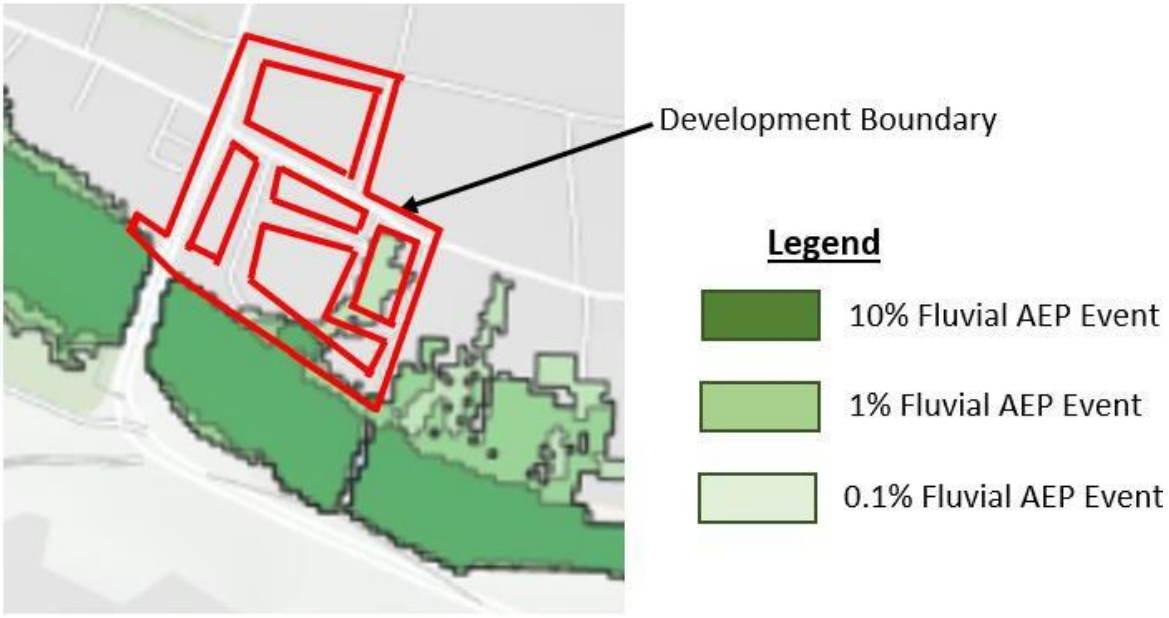

Figure 2-3: OPW Hazard Mapping Portal – Coastal Flood Extents

2.1.4 CFRAM Indicative Flood Zone Maps

The Eastern Catchment Flood Risk Assessment and Management ("*Eastern CFRAM*") Study of Drogheda concluded that the town should be considered as an '*Area for Further Assessment*' (AFA) for fluvial and coastal flooding based on a review of historic flooding and the extents of flood risk determined during the Preliminary Flood Risk Assessment (PFRA). Mapping for the Drogheda town centre extracted from the Eastern CFRAM is included in Appendix 1.

A detailed sector showing the proposed development area in the context of the analysis undertaken in the CFRAM study is shown in Figure 2-5 (Fluvial) and Figure 2-6 (Coastal).

The CFRAM Indicative Flood Zone Maps indicates that areas of the proposed development site, namely certain parts of the Riverfront area at Father Connolly Way, do fall within the Flood Zones A and Flood Zone B.

The coastal map in Appendix 1 denotes the boundary of the tidally influenced flooding zone. The proposed development site is located upstream of this point.

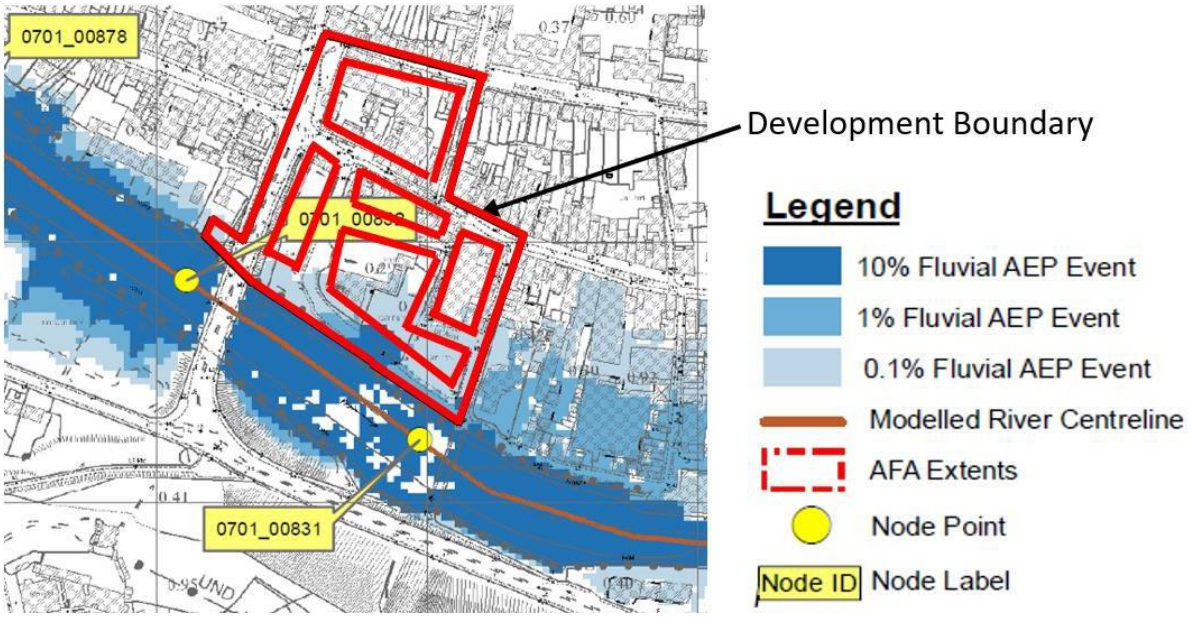

Figure 2-5: CFRAM Indicative Flood Zone Maps (Fluvial)

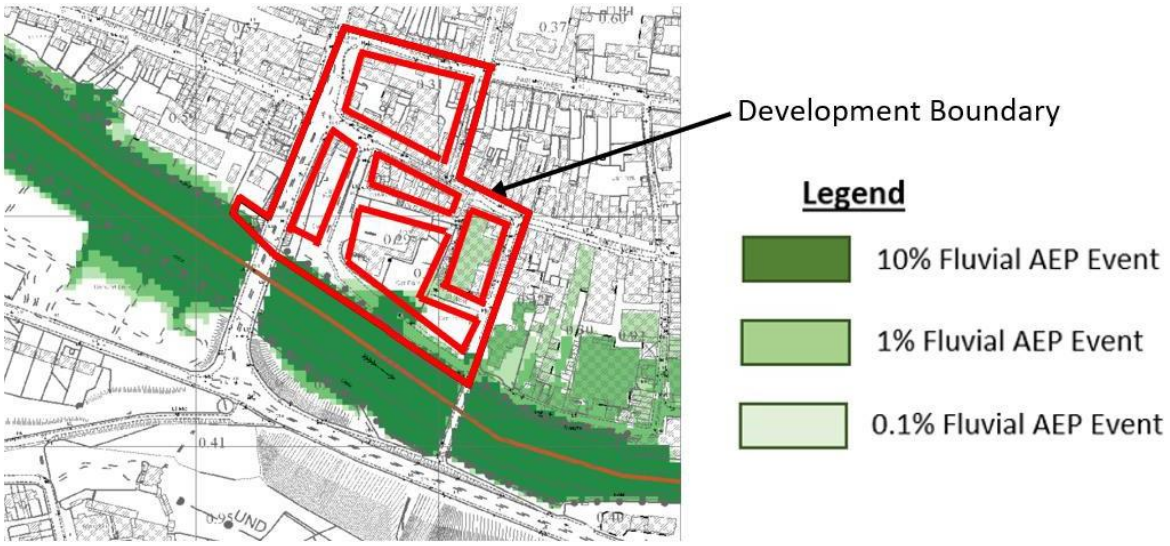

Figure 2-6: CFRAM Indicative Flood Zone Maps (Coastal)

2.1.5 National Coastal Protection Strategy Study

Drogheda and the surrounding coastal area were modelled as part of the Irish Coastal Protection Strategy Study (ICPSS), Phase 3 – North East Coast. One of the study deliverables was the predictive coastal flood extent maps for the 0.1% and 0.5% annual exceedance probabilities (AEPs). These maps have been produced at a strategic level to provide an overview of coastal flood hazard and risk in Ireland and they indicate the extents associated with flooding from the coastal areas and the sea.

The coastal flood extent map is provided in Appendix 2.

According to this map, for the current scenario, Mid-Range Future Scenario (20% increase due to climate change) and for the High End Future Scenario (30% increase due to climate change), the flooding extents are within the area of proposed works, namely the Riverfront area at Father Connolly Way.

2.1.6 Strategic Flood Risk Assessment (SFRA)

A Strategic Flood Risk Assessment (SFRA) has been undertaken for County Louth as part of the draft Louth County Development Plan 2021-2027. The draft Plan specifically references the proposed Westgate area regeneration and development.

The following extracts are taken from the Plan:

- *Site 5: These lands are zoned 'Regeneration' (D1), are affected by fluvial and coastal flooding and are in Flood Zones A and B. Within the Draft Plan these lands are referred to at the 'Westgate Vision Area'.*
- *"The 'Westgate Vision' development strategy succeeded in securing funding under the Urban Regeneration and Development Fund (URDF). Implementation and development of these lands will enable infill/brownfield development that might not otherwise occur… A Justification Test was not carried out on these lands as they are already developed. Further development of the lands will be of an infill/brownfield nature."*
- *"Within areas of existing development, proposals for extensions and minor works shall be assessed with reference to Section 5.28 of the Planning System and Flood Risk Management Guidelines, in accordance with Policies IU 24-30 of the LCDP. Any highly vulnerable land uses covered by Flood Zone A and B should employ the sequential approach when considering the site layout and an appropriately detailed Site Specific FRA must be submitted at development management stage."*
- *"Sections of the existing Westgate area zoned for future regeneration are inundated within the predicted Flood Zone A and B extents. The low lying areas adjacent to the bank of the River Boyne are the worst affected. Development and regeneration of this area should be carried out in accordance with the Guidelines specifically circular PL02/2014 (August 2014). The circular specifically addresses regeneration areas and flood risk management of their development. The sites identified can be cognisant of the progression and implementation of the Drogheda Flood Alleviation*

Scheme as identified as a measure in the FRMP. The scheme could protect parts of the town centre for the 1% AEP event."

2.1.7 Other Background Information

The Flood Risk Management Plan by OPW (2018) details further flooding events recorded in Drogheda in addition to the January 2014 event as described above. This includes instances this century of reported flooding in Drogheda in January 2016, November 2014, October 2011, October 2004, February 2002, October 2002, November 2002 and November 2000. None of these flooding events refer to flooding within the proposed development area, however small scale or localised flooding cannot be discounted.

The HA07 Hydraulics Report (2014), which forms part of the Eastern CFRAM Study, also does not specifically identify the proposed development area as having experienced flooding during one of the events described above.

In addition to this, Figure 4.3.38 of the 2040 Report includes a map detailing the mapped flood extents for Drogheda town centre for the January 2014 flooding event in comparison with the flood OPW Fluvial Hazard Flood Hazard Maps. A screenshot of this map is provided in Figure 2.7 below. This map shows the proposed development area was not recorded as a mapped flooding area during the January 2014 flooding event.

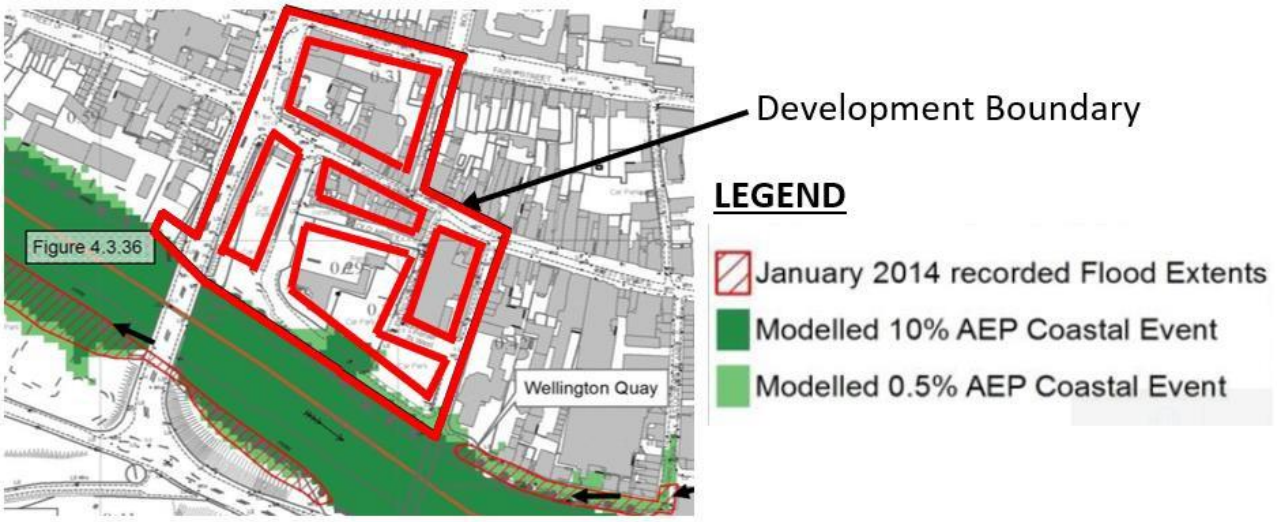

Figure 2-7: HA07 Hydraulics Report – January 2014 Mapped Flood Extents

2.1.8 Conclusion from Stage 1 Assessment

From the above assessment, it is established the predominant source of flood risk within the proposed development site is fluvial and coastal flooding from the River Boyne along the Riverfront area at Father Connolly Way. Therefore, a more detailed analysis of fluvial and coastal flood levels is required as part of a Stage 2 Initial Flood Risk Assessment.

2.2 Stage 2: Initial Flood Risk Assessment

2.2.1 Sources of Flooding

A Stage 2 Initial Flood Risk Assessment involves a qualitative appraisal to develop and understand the risk of flooding to the site and the potential impacts the development may have on flood risk elsewhere.

The sources of flooding to the site that are required to be reviewed and assessed include:

1. Fluvial Flooding;
2. Coastal Flooding;
3. Pluvial Flooding - Surface Water Runoff;
4. Groundwater Flooding; and
5. Human / Mechanical Error.

2.2.2 Appraisal of Flood Sources

A brief appraisal of the potential sources of flooding and their impact on the aforementioned sites are summarized in Table 2-1**.** The review of the information collated for Stage 1 indicates that the main source of flood risk is fluvial and coastal.

Table 2-1: Appraisal of Flood Risk Sources

Source	Pathway	Receptor	Likelihood	Consequence	Risk= Likelihood x consequence
Fluvial	Adjacent to Boyne River	People/ property	Probable	High	Significant
Coastal	Adjacent to river that is tidal	People/ property	Probable	High	Significant
Pluvial	Blockage and/or surcharging of drainage network	People/ property	Possible	Low	Moderate
Groundwater	Rising water level	People/ property	Rare	Low	Low
Human / Mechanical Error	Gate Left Open	People / property	Negligible	Low	Very Low

The sources, pathways and receptors identified above will be assessed further in this initial flood risk assessment stage, with exception to Human / Mechanical Error which is considered to be a negligible risk in this instance.

2.2.3 Fluvial and Coastal

The fluvial and coastal flood risks are considered together in this section of the Report, as the flood mapping and background information presented in Stage 1 above demonstrate that the both the fluvial and coastal mechanisms overlap.

A significant level of risk has been assessed for fluvial and coastal flooding as part of the Source-Pathway-Receptor model.

The OPW Flood Hazard maps, CFRAM maps and background information, particularly reporting and mapping produced following the January 2014 flooding event, provide a good level of information to help identify the areas of the proposed development site which are at risk from fluvial and coastal flooding.

In particular, the CFRAM Fluvial map in Appendix 1 identifies two nodes on the River Boyne adjacent to the proposed site. These nodes state flood levels at these particular locations and they are provided in Table 2-2 below.

Table 2-2: CFRAM Maps Node Levels

Node Reference	0701_00852	0701_00831
Water Level 10% AEP	3.389m	3.348m
Water Level 1% AEP	3.877m	3.808m
Water Level 0.1% AEP	4.639m	4.533m

The levels presented above can be cross referenced against the topographic survey completed for the proposed development site to provide a more accurate analysis of the flood risk areas. This is presented in Figure 2-8.

Taking the precautionary approach, the levels at node 0701_00852 are used for this assessment. This node is located just upstream of the site at George's Street Road bridge to the west of the proposed development site i.e. in the upstream direction.

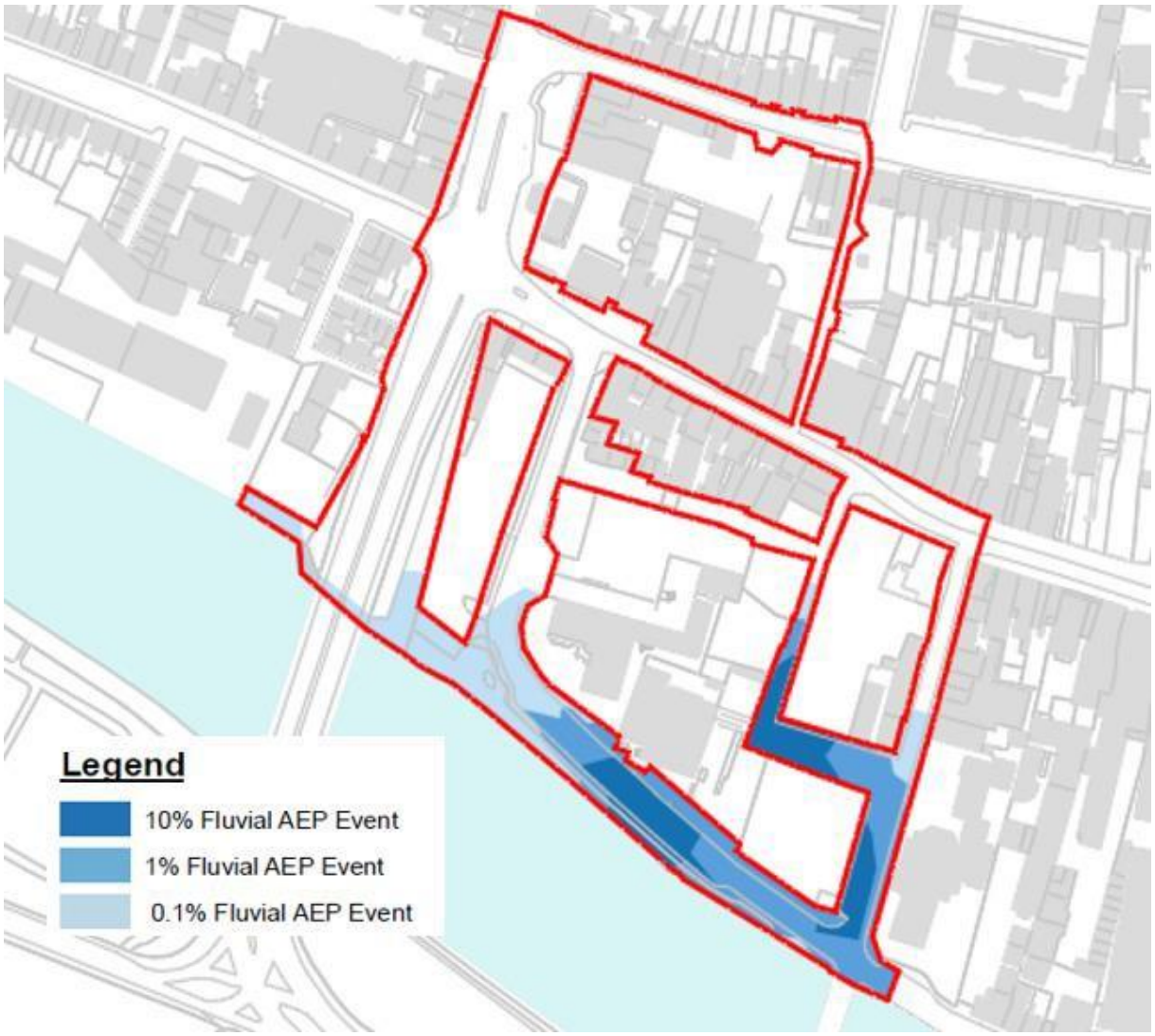

Figure 2-8: Flood Risk Areas from Topographical Survey and Levels Information (Table 2-2)

The following has been established from review of Figure 2-8:

- The proposed Westgate, The Abbey and Medieval Wall development areas (see Figure 1-2) are located outside the 0.1% AEP and therefore the flood risk here is very low. These findings are also consistent with the OPW Flood Hazard Maps and CFRAM Mapping.
- The proposed Riverfront area (Father Connolly Way) and lower sections of Dominic Street and St Patrickswell Lane are within the flood risk area. This is broadly consistent with the OPW Flood Hazard Maps and CFRAM Mapping. Accordingly, a further detailed risk assessment for fluvial and coastal flooding is required for these areas.

The topographical survey has also been reviewed to identify the levels of the existing wall that runs along the top of the riverbank to the south of Father Connolly Way. The 'top of

wall' levels varies across the site, however there is an approximately 40 metre long section where the top of wall level is below the 3.389m (10% AEP) level. Therefore, the effect of this wall in consideration of flood risk for an event of 10% AEP or greater is considered to be negligible i.e., it does not serve as a flood defence wall.

2.2.4 Pluvial

A moderate level of risk has been assessed for pluvial flooding / surface water runoff as part of the Source-Pathway-Receptor model.

This risk of flooding from surface water would arise from accumulation of rainfall runoff across the site and surrounding areas. There are no records of surface water flooding having been encountered within the proposed development area. There are records of flooded foul and/or surface water drains encountered in areas adjacent to the proposed site, i.e., Wellington Quay, however these events are almost certainly to have been caused due to flooding either from combination of extreme high tides, storm surges and fluvial / coastal flooding.

The proposed development includes a surface water drainage system to prevent any localized surface water flooding events within the site. No major modifications are planned for the main drainage infrastructure. The existing drainage is to be reset for the most part of the proposed development where surface water will run into the existing network. Flows aren't expected to increase since there are fewer impermeable areas in the proposed works.

The vast majority of the regeneration works are proposed within existing hardstanding areas where minimum re-profiling of levels will take place. It is proposed the current drainage regime will be followed for the development of these hardstanding areas. By incorporating new green spaces in existing hardstanding areas and implementing Sustainable Drainage Systems (SuDS) techniques, a reduction in surface water runoff can be anticipated as part of the surface water management design.

There are some regeneration works proposed at the existing embankment in front of the medieval wall which is an existing green space. SuDS drainage design will be utilised where required in this area to ensure there is no discharge to the existing surface water drains that would increase surface water runoff. As part of the proposed SuDS works there is a proposed rainwater retention pond at the southern portion of the site near the riverfront.

Accordingly, given the nature of the proposed development works and due to the significant mitigations as outlined above, a further detailed risk assessment for pluvial flooding is not considered necessary and the risk is categorised as being low.

2.2.5 Groundwater

A nationwide groundwater flood hazard map was produced by the OPW under the National Preliminary Flood Risk Assessments Groundwater Flooding Report in 2010. The proposed development site is not located in an area at risk of groundwater flooding.

Accordingly, the risk of groundwater flooding is considered low and a further detailed risk assessment for groundwater flooding is not considered necessary.

2.2.6 Requirement for a Stage 3 – Detailed Flood Risk Assessment

Table 2-3 illustrates the circumstances in which the Justification Test is required for a proposed development, depending on the flood zone where the development is located and on the vulnerability classification of the development. The flood zones are geographical areas within which the likelihood of flooding is in a particular range.

Table 2-3 Requirement for Detailed Flood Risk Assessment

	Flood Zone A	Flood Zone B	Flood Zone C
High Vulnerability	Justification Test	Justification Test	Appropriate
Low Vulnerability	Justification Test	Appropriate	Appropriate
Water Compatible	Appropriate	Appropriate	Appropriate

The three defined levels of flood zones are outlined in Table 2-4.

Table 2-4 Flood Zone Classifications

Flood Zone	Return Period in years
A	1:100 from rivers and 1:200 from Sea
B	1:1000 from Rivers and Sea
C	<1:1000 from rivers, sea, and estuaries

Table 2-5 describes the vulnerability classification of the proposed site. The vulnerability to flooding depends on the nature of the development, its occupation and the construction methods used. The classification of different land uses and types of development as highly vulnerable, less vulnerable and water-compatible is influenced primarily by the ability to manage the safety of people in flood events and the long-term implications for recovery of the function and structure of buildings.

Table 2-5 Type of Development or Vulnerability Class

Class	Type of Development
Highly Vulnerable	Residential, Hospitals, Schools, fire stations, etc.
Less Vulnerable	Buildings for retail, leisure, warehouses, commercial, industrial, and non-residential institutions etc.
Water-Compatible	Flood Control Structures, Docks, etc.

It has been established in Section 2.2.3 above that the proposed Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane are within Flood Risk A and Flood Risk B refer to figure2-8.

The proposed Westgate, The Abbey and Medieval Wall development areas of the site are within Flood Zone C.

The nature of the activity work, namely public realm and urban regeneration type work is assessed as Less Vulnerable type development, in accordance with Table 3.1 of the Flood Risk Management Guidelines published in 2009 by the OPW and the then Department of the Environment, Heritage & Local Government.

From Table 2-3 above:

- A Justification Test is required for the development works to a section of the Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane that are within Flood Zone A.
- A Justification Test is not required for other areas of the proposed development.

2.2.7 Conclusion from Stage 2 Assessment

A Stage 3 Detailed Flood Risk Assessment is required for those proposed areas of the development that are at risk from fluvial and coastal flooding, namely the Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane that are within Flood Zone A and Flood Zone B.

A Justification Test required for the development works to a section of the Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane that are within Flood Zone A.

The proposed Westgate, The Abbey and Medieval Wall development areas (see Figure 1-2) are located outside the 0.1% AEP (Flood Zone C) and therefore the flood risk here is low. In consideration that development of these areas is of a public realm and urban regeneration nature with limited changes to existing site levels, a further detailed risk assessment for fluvial and coastal flooding is not considered necessary.

2.3 Stage 3: Detailed Flood Risk Assessment

2.3.1 Design Risks and Required Mitigation Measures

This Stage 3 Detailed Flood Risk Assessment applies to the Riverfront area and lower section of Dominic Street and St Patrickswell Lane. The development works proposed in these areas can be seen in Figure 1-3 and comprises new hardstanding public realm and soft landscaping, i.e., roadways, footways, cycle paths, seating areas and planted areas etc. There is a proposed Corten steel pavilion at the Riverfront and a freestanding Corten steel structure to be erected within the confines of the Abbey.

The current land use in this area is predominantly hardstanding roads and footpaths, with a small amount of soft landscaping along the top of the riverbank between the wall and footpath on Father Connolly way.

The following risks that could arise from the proposed development works in Flood Zone A are presented below:

1. Inundation of site with floodwater (including risk of escape).
2. Increase in flood risk elsewhere.
3. Public Realm – Interference with existing riverbank and channel;
4. Viewing Platform – Interference with existing riverbank and channel.

A discussion of the risks and required mitigation measures is presented below.

1. Inundation of site with floodwater (including risk of escape).

   By comparing the CFRAM Fluvial Map flood levels in Table 2-2 with the topographical survey, it is possible there could be up to 700mm depth of floodwater in Father Connolly Way and the lower section of Dominic Street for a 1 in 100-year return period (1% AEP) and up to 1300mm depth for a 1 in 1000-year return period (0.1% AEP).

   Mitigation measures as follows:

   - Materials selected for the proposed hard standings must not become damaged or dislodged as a result of being submerged under this depth of flood water.
   - All existing drainage infrastructure to be retained and/or replaced. New drainage to be provided if any low-lying areas are introduced.
   - Consideration that any soft landscaping introduced does not increase risk of blockage to gullies and/or aco drains.
   - Father Connolly Way and Dominic Street are two-way roads with vehicular and pedestrian access to higher areas so there is an accessible route of escape from the accumulation of flood water during an event. There is also access to the area for emergency services.

2. Increase in flood risk elsewhere;
    - No infilling works are proposed and there will be minimum re-profiling of levels for new roadways, footways, cycle paths and seating areas.
    - No overall increase in hardstanding area in comparison to the existing and SuDS methodologies to be employed where feasible. Therefore, flood risk at the site and elsewhere arising from surface run off is likely to reduce.

3. Public Realm – Interference with existing riverbank and channel;
    - All proposed development along the Riverfront within the footprint of the existing developed areas i.e., all development north of the existing boundary wall that separates the riverbank from the Father Connolly Way.

2.3.2 Justification Test

The Planning Guidelines on the Planning System and Flood Risk requires that where a planning authority is considering proposals for new development in areas at a high or moderate risk of flooding, that includes types of development that are vulnerable to flooding, then they must be satisfied the development satisfies all of the criteria of the Justification Test.

It has been established in Section 2.2.6 above that Justification Test is required for the Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane that are within Flood Zone A. This is presented in Table 2-6 below:

Table 2-6: Justification Test

Box 5.1 Justification Test for Development Management
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.
The subject land is zoned and designated for regeneration, as confirmed in the Strategic Flood Risk Assessment (SFRA) that formed part of the draft Louth County Development Plan 2021-2027. Refer to Section 2.1.6 above for further details.
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;
The development generally replaces existing hardstanding and there are minimal changes to existing levels. The initial and detailed flood risk assessment stages above have determined there is no increased to flood risk elsewhere.
ii. The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
The development proposal will include measures to minimise the flood risk. These mitigations are outlined particularly in Section 2.3.1 above.
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
The development proposal will include measures to ensure that residual risks to the area and/or development can be managed to an acceptable level. This is summarised in Section 2.3.1 above.
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 purpose of this scheme is to regenerate the Westgate area through the enhancement of public realm, creation of a new transformative gateway / arrival space, public spaces and pedestrian linkages.
Conclusion: The proposed development site passes the Justification Test.

3 CONCLUSION

A Site Specific Flood Risk Assessment has been completed as part of the planning application for the Westgate 2040 regeneration project.

The Stage 1 FRA identified that from flood mapping and other background information, a potential flood risk exists, particularly to the Riverfront and lower Dominic Street and St Patrickswell Lane areas, of the proposed development.

The Stage 2 FRA identified that certain parts of these particular areas of the development are within Flood Zone A (1% AEP) and Flood Zone B (0.1% AEP) and are therefore at risk of a combination of fluvial and coastal flooding. Other areas of the proposed development set in higher areas, namely Westgate, Medieval Wall and The Abbey, are situated in Flood Zone C (outside 0.1% AEP) and therefore the risk of fluvial and coastal flooding is low.

The Stage 2 FRA also identified the risk of pluvial flooding, groundwater flooding and flooding from human / mechanical error were low.

A Stage 3 FRA was undertaken to analyse the risks and mitigation measures that needed to be employed to address the fluvial and coastal flooding risk. A Justification Test was also undertaken for the proposed development works within the footprint of the Flood Zone A. This Justification Test concluded the proposed development satisfies all the criteria applicable to development management.

In conclusion, the sustainable management of flood risk to an acceptable level has been demonstrated.