

Strategic Flood Risk Assessment

for

Proposed Variation

(No. 28)

of the

**Dublin City Development Plan
2016-2022**

1.1 Introduction

Dublin City Council has commenced the preparation of proposed variation no. 28 for lands identified north and south of the River Liffey at Islandbridge as the location that will enable the an Office of Public Works (OPW) to prepare a proposal for a pedestrian/cycle bridge crossing the River Liffey. See Figure 1 below.

The OPW is the lead agency for flood risk management in Ireland. The coordination and implementation of Government policy on the management of flood risk in Ireland is part of its responsibility.

The European Communities (Assessment and Management of Flood Risks) Regulations 2010 (S.I. No. 122) identifies the Commissioners of Public Works as the 'competent authority' with overall responsibility for implementation of the Floods Directive 2007/60/EC.

The Office of Public Works is the principal agency involved in the preparation of Flood Risk Assessment and Management studies (FRAMs).

As a variation to the Dublin City Development Plan 2016 – 2022, the preparation of the proposed variation no. 28 documentation includes a Strategic Environmental Assessment (SEA) Screening, an Appropriate Assessment (AA) Screening and this document, which represents the Strategic Flood Risk Assessment (SFRA) of the variation.

The SFRA which was prepared as part of the Dublin City Development Plan (CDP) 2016 – 2022 and informed the preparation of the CDP had regard to the DEHLG Guidelines for Planning Authorities (DEHLG & OPW, 2009) on '*The Planning System and Flood Risk Management*' as amended by Circular PI2/2014 together with Technical Appendices.

These Guidelines (the 2009 Guidelines) were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of Spatial Planning.

The Strategic Flood Risk Assessment (SFRA) is Volume 7 of the CDP, with Chapter 9 (Sustainable Environmental Infrastructure) of Volume 1, the Written Statement, of the CDP citing policies and objectives relating to Flood Management. Any future planning application

arsing form this variation will be required to comply with the flood risk management provisions from the City Development Plan.

1.2 The Proposed Variation

It is proposed to vary the Dublin City Development Plan 2016-2022, Written Statement, Volume 1, by amending objective MT031 (from Chapter 8: Movement and Transport) to include an objective for a pedestrian/cycle bridge across the River Liffey, from the Irish National War Memorial Gardens (INWMG)/Islandbridge to the Chapelizod Road (the R109), Islandbridge.

From:

To:

<p>MT031: To initiate and/or implement the following road improvement schemes and bridges within the six year period of the development plan, subject to the availability of funding and environmental requirements and compliance with the ‘Principles of Road Development’ set out in the NTA Transport Strategy.</p> <p>Roads</p> <ul style="list-style-type: none"> • River Road • Richmond Road • Malahide Road/R107 (including North Fringe Improvements) • Blackhorse Avenue (commenced) • Clonsaugh Road Industrial Estate • Ballymun (improved town centre linkage) • Kilmainham/South Circular Road • Link from Military Road to Conyngham Road • East Wall Road/Sheriff Street to North Quays • Cappagh Road. <p>Bridges</p> <ul style="list-style-type: none"> • Dodder Bridge • Liffey Valley Park pedestrian/cycle bridge • Cycle/pedestrian bridges that emerge as part of the evolving Strategic • Cycle Network and Strategic Green Infrastructure Network • Three new bridges proposed as part of the North Lotts and Grand Canal Dock SDZ. 	<p>MT031: To initiate and/or implement the following road improvement schemes and bridges within the six year period of the development plan, subject to the availability of funding and environmental requirements and compliance with the ‘Principles of Road Development’ set out in the NTA Transport Strategy.</p> <p>Roads</p> <ul style="list-style-type: none"> • River Road • Richmond Road • Malahide Road/R107 (including North Fringe Improvements) • Blackhorse Avenue (commenced) • Clonsaugh Road Industrial Estate • Ballymun (improved town centre linkage) • Kilmainham/South Circular Road • Link from Military Road to Conyngham Road • East Wall Road/Sheriff Street to North Quays • Cappagh Road. <p>Bridges</p> <ul style="list-style-type: none"> • Dodder Bridge • Liffey Valley Park pedestrian/cycle bridge • Irish National War Memorial Gardens /Islandbridge pedestrian/cycle bridge • Cycle/pedestrian bridges that emerge as part of the evolving Strategic • Cycle Network and Strategic Green Infrastructure Network • Three new bridges proposed as part of the North Lotts and Grand Canal Dock SDZ.
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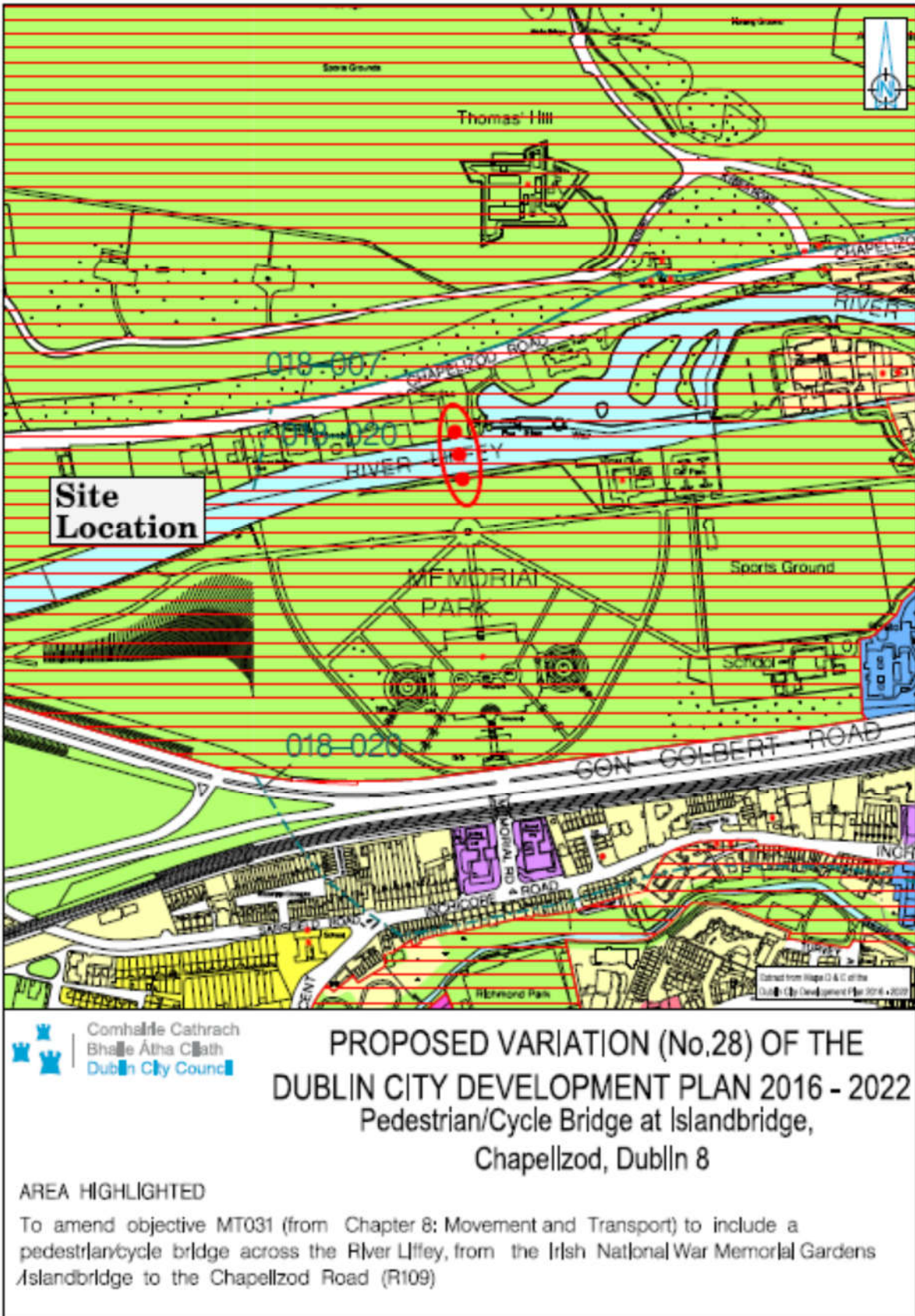


Figure 1 Location of proposed Variation No. 28

1.3 Purpose Of The Proposed Draft Variation

The Planning Authority considers that it is appropriate to amend objective MTO31 (Chapter 8: Movement and Transport) to include a pedestrian/cycle bridge at the Irish National War Memorial Gardens/Islandbridge for the following reasons:

- The current Dublin City Development Plan promotes walking and cycling as healthy and sustainable forms of transport that can lead to improved levels of health in the community.

In this regard, it is an Objective of Dublin City Council to:

'GIO4 in Chapter 10: Green Infrastructure, Open Space & Recreation

Improve pedestrian and cycle access routes to strategic level amenities while ensuring that ecosystem functions and existing amenity uses are not compromised and existing biodiversity and heritage is protected and enhanced.'

- The Planning Authority recognises that investing in open spaces and recreational areas in urban areas creates a greater sense of community and helps combat social exclusion and isolation. Green infrastructure creates opportunities to connect urban areas and to provide appealing places to live and work. In this regard, it is an Objective of Dublin City Council to:

'GIO14 (ii) in Chapter 10: Green Infrastructure, Open Space & Recreation

Protect and conserve the historic landscape of the Phoenix Park and its archaeological, architectural and natural heritage whilst facilitating visitor access, education and interpretation, facilitating the sustainable use of the park's resources for recreation and other appropriate activities, encouraging research and maintaining its sense of peace and tranquillity.'

- Fig. 18 'Main Cultural Attractions' of the current Dublin City Development Plan identifies the INWVG as one of the city's key cultural attractions. It considers that the proposed bridge will contribute positively to the INWVG's tourism / cultural attraction status. The Bridge will act as pivot point with the potential to link recognised walking, cycling and military trails, connecting Kilmainham across the Liffey, on to the Phoenix Park and beyond.

Since the adoption of the Dublin City Development Plan in 2016, the OPW's ***The Irish National War Memorial Gardens Conservation Management Plan, 2018*** has been published. The Planning Authority has given consideration to the issue of access, as raised in the Management Plan for the Gardens. This proposed variation supports a more visible and high profile pedestrian and cyclist access point to the Gardens. This proposed bridge will also complete the original Lutyens design for the Irish War Memorial Gardens that will effectively connect two significant parcels of Z9 zoned open space lands at the Irish National War Memorial Gardens and the Phoenix Park, subject to a future planning application for the lands.

1.4 Planning Context

Under the *Dublin City Development Plan 2016-2022*, the subject site (both north and south of the River Liffey) is zoned *Zone Z9 - Amenity/Open Space Lands/Green Network: 'To preserve, provide and improve recreational amenity and open space and green networks'*.

The Phoenix Park is also zoned Z9 and is separated from the northern section of the Z9 subject site by the Chapelizod Road only.

The River Liffey, across which the bridge will traverse is zoned Z11, Waterways Protection: *'To protect and improve canal, coastal and river amenities'*.

This section of the River Liffey, its river banks and both the Memorial Gardens and the Phoenix Park all lie within the Conservation Area (red hatch) specific objective. Policy CHC4 states: *'To protect the special interest and character of all Dublin's Conservation Areas. Development within or affecting a conservation area must contribute positively to its character and distinctiveness, and take opportunities to protect and enhance the character and appearance of the area and its setting, wherever possible.'*

Two of the enhancements opportunities identified with Policy CHC4 include;

'Improvement of open spaces and the wider public realm....' and

'Contemporary architecture of exceptional design quality, which is in harmony with the Conservation Area.'

This proposed variation will satisfy the above.

The proposed project that requires this variation, the pedestrian/cycle bridge, will join two pieces of Z9 zoned lands together that will facilitate access from the Irish National War Memorial Gardens to the Phoenix Park. The project will be required fully address its site specific flood risk requirements as part of a detailed planning application.

2.0 Flood Risk Guidance

The 2009 Guidelines recommend a staged approach to Flood Risk Assessment (pg 14):

Stage 1 – identify any flood risks issues

Stage 2 – where flood risk issues arise, identify the sources and access available mapping with flood risk extents

Stage 3 – detailed flood risk assessment

The CDP's SFRA provides a flood extents map for the entire area of the city. This comprises the three flood zone classifications identified in the Guidelines, Flood Zones A, B and C. Flood Zones A and B are described as being of high probability of flooding and moderate probability of flooding respectively and low probability of flooding for Flood Zone C (pg 24).

These are colour coded (dark blue and lighter blue for Flood Zones A and B respectively) and where no colour is equivalent to Flood Zone C.

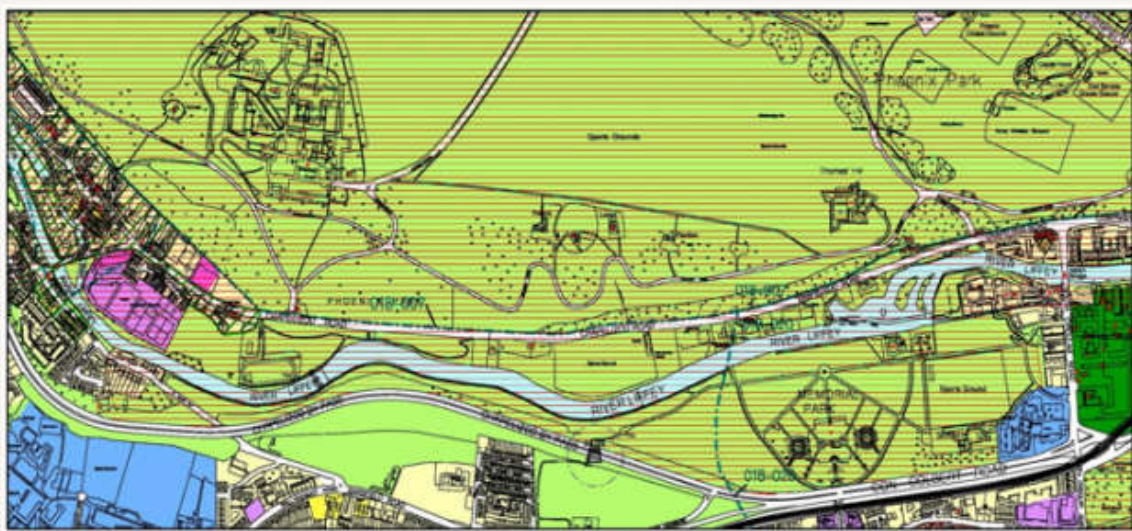
Land-uses and types of development are accorded a vulnerability class, as set out in Table 3.1 of the Guidelines (pg 25). A matrix of what vulnerability class is appropriate for each flood zone has been provided in Table 3.2 of the Guidelines (pg 26). Where the 'mix' is not appropriate, a plan-making justification test is required. The justification text is set out in the Guidelines under Box 4.1 (pg 37) and specifically cite variations along with development plans and local area plans.

The location of the Proposed Variation which traverses the River Liffey at Islandbridge is identified as lying in Flood Zones A/B with the banks of the River Liffey lying in Flood Zones B/C as per the composite map prepared for the SFRA for the CDP. A pedestrian/ cyclist Bridges is not specifically named under the vulnerability classes. The Guidelines states that *'Uses not listed here should be considered on their own merits.'* (pg 25).

It should be noted that the function of the bridge is to carry pedestrians and cyclists (i.e. non-motorised traffic) across the River, as part of a recreational route that joins two significant parcels of Z9 zoned open space park lands, the Irish War Memorial Gardens on the south of the river and the Phoenix Park on the north-side of the river to create better access and permeability between two OPW managed high value amenity assets within the city and will be managed and operated by the OPW.

The proposed variation forms part of a site that has been studied in closer detail under Appendix 3 Justification Test Tables (pg 120, Volume 7 of the CDP), as set out below. This site is Site 6. Liffey: Sarah Bridge, South Circular Road – Anna Livia Br. Chapelizod.

Site: 6. Liffey: Sarah Bridge, South Circular Road - Anna Livia Br. Chapelizod



Dublin City Council Development Plan 2016–2022 (zoning map key at back of tables)

Figure 2 – extract from Appendix 3, Volume 7, of the CDP

Under Development Options, bridges are specifically identified as requiring evaluation for critical sea level rises (Climate change).

Development Options:

The main flood cells are located just north and south of the River Estuary, which is currently zoned a mixture of some Z1 which is to protect, provide and improve residential amenities, and where it flows through the War Memorial Gardens, the land is zoned Z9 which is to preserve [provide and improve recreational amenity, open space and green networks] in the Development Plan. As the river flows into Chapelizod, part of the lands are zoned Z6 which is to provide for the creation and protection of enterprise and facilitate opportunities for employment creation. The river also flows through areas zoned for residential uses (Zone Z1 and Z2). No new development should be allowed in these green areas (Z9 zonings) except for water compatible ones such as boat clubs. All existing embankments should be evaluated for new developments behind them. New bridges and tunnels should be evaluated for critical sea level rises.

Commercial, Industrial, and Residential development (mainly infill) would be a natural extension of existing development downstream of Anna Livia bridge. However, any development could reasonably be accommodated within the extents of Flood Zone C and should not need to extend into Flood Zone A or B.

Figure 3 – extract from Appendix 3, Volume 7, of the CDP

Discussions have been held with DCC Flood Projects/ Water Framework Office to advise on the levels for the proposed bridge with respect to increases in river levels expected from climate change and increases in frequency of the in 1 in a 100 year rainfall event.

3.0 Conclusion

The Flood Risk Assessment for the Proposed Variation no. 28 at Islandbridge has been undertaken in accordance with the requirements of Section 28 Guidelines for Planning Authorities: *'The Planning System and Flood Risk Management'*, 2009.

Any future planning proposal for development will be required to comply with the Greater Dublin Strategic Drainage Study for surface water management. This is to ensure that there is no increase in flood risk to properties upstream or downstream as a result of future development. Having carried out flood risk assessment in accordance with the above Guidelines the following has been determined:

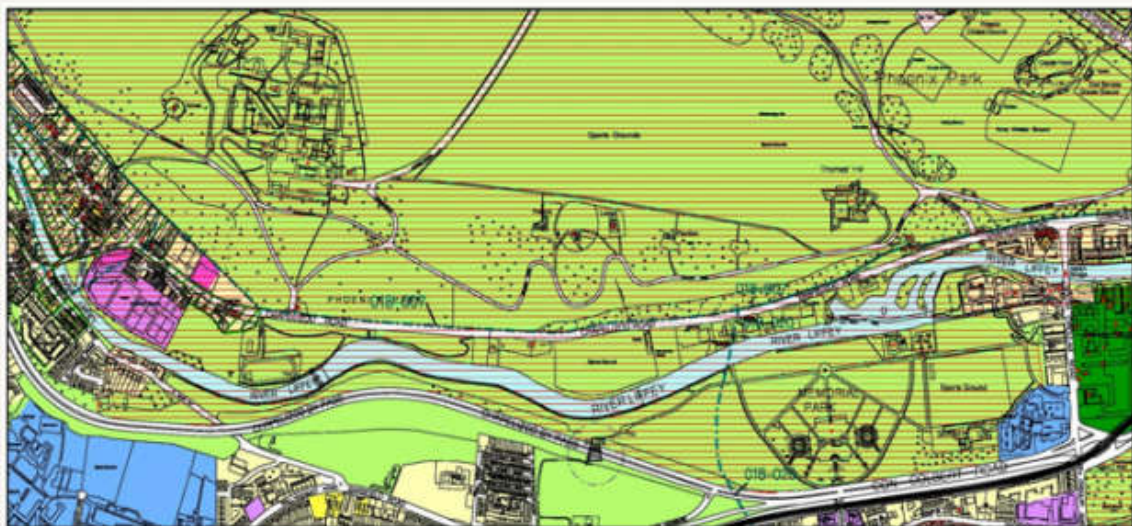
The proposed variation which will enable the development of a project to design and seek permission for a future pedestrian/cycle bridge crossing the River Liffey. Such a bridge is not considered a vulnerable use with respect to its future function as a bridge to allow visitors and tourists alike to move from one significant OPW managed parkland, the Irish War Memorial Gardens on the south-side of the River Liffey to another significant OPW managed parkland, Phoenix Park on the north-side of the River Liffey.

The proposed variation and any future planning application arising from same that adequately addresses through detailed design the flood risk requirement as part of the planning application process, is not likely to change flood risk in the area, upstream or downstream and as a use will not endanger the lives or livelihoods of persons.

Vera Blake
Executive Planner

Appendix A: Site 6. Liffey: Appendix 3, Volume 7, Dublin City Development Plan 2016-2022

Site: 6. Liffey: Sarah Bridge, South Circular Road - Anna Livia Br. Chapelizod



Dublin City Council Development Plan 2016–2022 (zoning map key at back of tables)

Site Description

The area on the south side includes Islandbridge, National War Memorial Park, Liffey Valley Park and the lower section of St. Laurence Road. On the north side it includes Chapelizod Road and developments between this and the river estuary. Development in this area is mainly Residential with some high density Residential at Islandbridge. Parkland and a number of boat clubs comprise water compatible development. There is an industrial estate on the north side of the river to the east of Anna Livia (Chapelizod Bridge). The Magazine Stream outlet from Phoenix Park is also in this area.

Benefitting from Defences (flood relief scheme works)

Some of this area has existing Quay Walls above ground level but their design standards and capacity for flood defence is unknown and is therefore not used when estimating flood risk. In addition, their capacity is limited to the channel dimensions.

Site: 6. Liffey: Sarah Bridge, South Circular Road - Anna Livia Br. Chapelizod

Sensitivity to Climate Change	Moderate to high. This area is tidal generally up to the Islandbridge weir. However an increase in sea level would extend this influence further up stream and put some more of this area underwater. There is some fluvial influence in this area at very high tide and the joint occurrence of a peak tide and peak flow presents a greater risk than either event occurring alone.
Residual Risk	Not applicable generally as existing defences are the channel walls and other walls are not considered as viable flood defences.
Historical Flooding	The flood maps attached are consistent with previous flooding of this section of the Liffey Estuary and River. The main flood risk zones are portions of the north and south quays adjacent to the Liffey Estuary and areas connected with the Magazine river junction.
Storm (surface) water	<p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high tides and high river flows. A one year high tide event should be assumed during a 100-year rainfall event. Should development be permitted, best practice with regard to storm (surface) water management should be implemented across the development area to limit storm (surface) water runoff to current values.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood Resilience City Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans</p>

Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the tidal and fluvial regions, some are through quay walls and underground chambers and pipelines near quay walls. At Islandbridge the mill race has tidal influence. The industrial estate east of Anna Livia Bridge embankment requires assessment for any further development in this area.

The flood maps were produced based on the OPW CFRAM Study and checked against historic flooding in the area.

Development Options:

The main flood cells are located just north and south of the River Estuary, which is currently zoned a mixture of some Z1 which is to protect, provide and improve residential amenities, and where it flows through the War Memorial Gardens, the land is zoned Z9 which is to preserve [provide and improve recreational amenity, open space and green networks] in the Development Plan. As the river flows into Chapelizod, part of the lands are zoned Z6 which is to provide for the creation and protection of enterprise and facilitate opportunities for employment creation. The river also flows through areas zoned for residential uses (Zone Z1 and Z2). No new development should be allowed in these green areas (Z9 zonings) except for water compatible ones such as boat clubs. All existing embankments should be evaluated for new developments behind them. New bridges and tunnels should be evaluated for critical sea level rises.

Commercial, Industrial, and Residential development (mainly infill) would be a natural extension of existing development downstream of Anna Livia bridge. However, any development could reasonably be accommodated within the extents of Flood Zone C and should not need to extend into Flood Zone A or B.