SFRA - UPDATES AND CONSIDERATION OF ALTERATIONS

STRATEGIC FLOOD RISK ASSESSMENT

FOR THE

DRAFT
CORK CITY DEVELOPMENT PLAN
2022-2028

for: **Cork City Council**

City Hall

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Updates to SFRA report text, not involving Plan provisions

The table below identifies updates to be made to the Strategic Flood Risk Assessment (SFRA) report that was placed on public display alongside the Draft Plan. These updates have arisen from submissions that were made on the Draft Plan and associated documents while on public display. Updates to SFRA report text, not involving Plan provisions, are detailed on Table 1 below.

Table 1 Updates to SFRA report text, not involving Plan provisions

No.	Updates
1	Section 1.2 "Summary of Conclusion and Recommendations" - add the following text (subject to amendment depending on which Amendments are adopted as part of the Plan and whether or not they are subject to further modifications): **The findings of the SFRA process have been integrated into the Plan throughout the process of preparing the Plan, in order to comply with the Flood Risk Management Guidelines.** **Consistency between the Plan text and the requirements of the Guidelines was prioritised and achieved. Should any conflict arise between the written statement (encompassing the Material Alterations) and the zoning maps, the written statement shall take precedence.** **Most Proposed Material Alterations were found not to conflict with the Flood Risk Management Guidelines or to adversely affect efforts to appropriately manage flood risk. However, Amendment 2.28, Amendment 2.75 and Amendment 2.99 were found to potentially conflict with proper flood risk management and not comply with the Flood Risk Management Guidelines; there would be potential risk to environmental components including human health and material assets. As a result, these Amendments were advised against.** **Submissions made on the Draft Plan and associated documents, including an earlier version of this SFRA report, while on public display, were taken into account and resulted in various updates being made to both this SFRA report and the Draft Plan.**
2	Include the following description of historical groundwater flooding in Table 2: **"Historic groundwater flood map: The historic groundwater flood map is a national-scale flood map presenting the maximum historic observed extent of karst groundwater flooding. The map is primarily based on the winter 2015/2016 flood event, which in most areas represented the largest groundwater flood event on record. The map was produced based on the SAR imagery of the 2015/2016 event as well as any available supplementary evidence. The floods were classified by flood type differentiating between floods dominated by groundwater (GW) and floods with significant contribution of groundwater and surface water (GWSW).** **In addition to the historic groundwater flood map, the flood mapping methodology was also adapted to produce a surface water flood map of the 2015/2016 flood event. This flood map encompasses fluvial and pluvial flooding in non-urban areas and has been developed as a separate product."**
3	Include the following description of predictive groundwater flooding on Table 3 (new text in bold): **"Predictive groundwater flood map: The predictive groundwater flood map presents the probabilistic flood extents for locations of recurrent karst groundwater flooding. It consists of a series of stacked polygons at each site representing the flood extent for specific AEP's mapping floods that are expected to occur every 10, 100 and 1000 years (AEP of 0.1, 0.01, and 0.001 respectively). The map is focussed primarily (but not entirely) on flooding at seasonally inundated wetlands known as turloughs. Sites were chosen for inclusion in the predictive map based on existing turlough databases as well as manual interpretation of SAR imagery.** **The mapping process tied together the observed and SAR-derived hydrograph data, hydrological modelling, stochastic weather generation and extreme value analysis to generate predictive groundwater flood maps for over 400 qualifying sites. It should be noted that not all turloughs are included in the predictive map as some sites could not be successfully monitored with SAR and/or modelled."**
4	Provide finer granularity to the Justification Tests provided in Table 5 of the SFRA report making more specific reference to the specified locations.
5	Update the SFRA to include a subsection on SuDS including reference to these Plan provisions (Objective 9.2, 9.4, 5.23, 5.24, 1024 and 10.33, as well as Chapter 6).
6	Update the reference to ~~www.cfram.ie~~ in the SFRA to **www.floodinfo.ie.**
7	Include the future scenario mapping from the ICPSS at a wider-City level in the SFRA Appendix.

Updates to SFRA report text, involving Plan provisions

Similarly, on foot of submissions, a number of material alterations are proposed to be made to Draft Plan provisions that relate to flood risk management. Subject to whether or not they are adopted as part of the Plan and whether or not they are subject to further modifications, these updated/new provisions will be added to the Strategic Flood Risk Assessment (SFRA) report that was placed on public display alongside the Draft Plan. Updates to SFRA report text, involving Plan provisions, are detailed on Table 2 below.

Table 2 Updates to SFRA report text, involving Plan provisions

No.	Updates
1	*Insert a new section in Chapter 9 after paragraph 9.13 "Assessment of Development in Areas of Flood Risk":* **Coastal Change** **A National Coastal Change Management Strategy Steering Group was set up in 2020 to scope out an approach for the development of a national coordinated and integrated strategy to manage the projected impact of coastal change to our coastal communities, economies, heritage, culture and environment. Cork City Council supports the preparation of the strategy and will consider its findings when published and how it may impact its functional area. In the interim consideration will be given to areas that may be at risk or vulnerable to coastal erosion or coastal change, including change associated with climate change.**
2	*Amend paragraph 10.108 as follows:* 10.108 The Strategy provides the following **(see Map X: in Volume 2: Mapped Objectives: Summary of Proposed Infrastructure Measures in the South Docks Drainage and Levels Strategy)**: • **An infrastructure strategy to ensure that the South Docks is resilient to flood risk and climate change;** • Drainage catchments that ~~reflect~~ **provide for** the capacity of the network to deal with pluvial **(rainfall) runoff** ~~flooding;~~ • A surface water drainage network based upon SuDS / nature-based solutions, **storage and conveyance solutions**, ~~with limited~~ **including** conveyance by grey infrastructure (see Figure 10.10a); • A perimeter flood **protection** ~~defence~~ from tidal and fluvial (river) flood risks, **in accordance with the Drainage and Flood Strategy,** including a transition from the standard perimeter defence of 4.35m OD at the proposed Kent Station Bridge to the proposed Flood **protection levels** ~~defence levels of 3.6m OD~~ at Albert Quay. • Minimum ground **(public realm and streets)** level and **building** finished floor levels (FFLs) with **proposed** ground levels as close to existing **ground** levels as possible, while ~~to~~ mitigat**ing**~~e~~ against pluvial (cloudburst) flood risk. • ~~A requirement for surface water flood storage volume of 2,000 cubic metres to ameliorate surface water run-off in extreme flooding events in addition to that provided within the public realm at Kennedy Spine, Centre Park Road, Monahan Road and Marina Park / Atlantic Pond. This~~ **. Public strategic (regional)** flood storage will need to be provided across **a number of locations in the South Docks, as set out above.** • Site acquisition is likely to be required **to deliver elements of this green storage infrastructure, which are in private ownership. A key location for the preferred additional storage location will be** ~~for each of the three options:~~ • ~~The Marina Park – River Lee Spine in the area north of Centre Park Road. This would be integrated into public open space.~~ • ~~The Marina Park – River Lee spine west of Marquee Road; and~~ • **T**he proposed public open space to the south of the Atlantic Pond and **within the** ~~north of~~ Ardfoyle Convent **lands**, which w~~ill~~**ould** form part of the Marina Park. The Strategy indicates that there may be a requirement for a surface water pumping station **in the vicinity of the proposed extension to the Atlantic Pond area** ~~future~~ to meet the challenge presented by climate change, with a site of a total c.250sqm being required to accommodate this infrastructure. The Strategy identifies ~~a~~ possible location**s** for this facility on the proposed extension to the Atlantic Pond area ~~to be a public open space / flood volume storage location~~. The suitability **of these, or other,** ~~this and other~~ locations for the pumping station will need to be identified during the life of the Plan.

No.	Updates
3	*Amend paragraph 10.110 as follows:* Minimum Ground Levels and Finished Floor Levels 10.110 ~~To minimise storage and future-proof the proposed drainage system, I~~**It is necessary to marginally increase localised ground (public realm and roads) levels at low points to between 0.85m OD and 1.0m OD to facilitate an effective gravity system and achievable storage volumes for scenarios up to Medium Risk Future Scenario (MRFS) .** ~~it is necessary to marginally increase **localised** ground levels at low points to between 0.7m **Ordnance Datum** (OD) and 1.0m OD to facilitate an effective gravity system and reasonable storage volumes for scenarios up to Medium Risk Future Scenarion (MRFS) by circa 500mm with localised maximum increases of up to 1m. This ground raising will be required over a small area of the South Docks and will ensure minimum ground levels of between 0.7m and 1m above Ordnance Datum (OD).~~
4	*Amend paragraph 10.111 as follows:* 10.111 To ensure that proposed buildings are at **acceptably low levels of** ~~low~~ risk of surface water flooding, it is proposed to set minimum finished floor levels (FFL) at least 300mmabove the predicted 1 in 100 year **(=+40% climate change)** pluvial flood level **and the residual inundation risk,** which varies across the docks, **as shown above**.
5	*Amend paragraph 10.112 as follows:* 10.112 It is recommended that this minimum level apply only to Water Compatible Development and Less Vulnerable Development as defined by the Flood Risk Planning Guidelines[3], and subject to site specific flood risk assessment demonstrating appropriate flood mitigation strategy. **Within the polder, finished floor levels for less vulnerable uses do not strictly need to be above the residual risk level but will need defences up to that level through building flood resilience measures. Planning applications for development will demonstrate compliance with the provisions of the Guidelines by means of Site Specific Flood Risk Assessment.**
6	10.113 **Within the defended polder, a general minimum FFL for <u>Highly Vulnerable Development</u> shall be +1.9mOD to mitigate the residual risk of breach of the polder defence based on** ~~Highly Vulnerable Development shall be positioned above the~~ 1 in 200 year tidal flood level, including appropriate allowances for climate change, residual risk (breach and overtopping) and freeboard. It is envisaged that minimum FFL along the quayside would be set at or above the proposed polder defence level of +3.8m **to-** +4.35m OD, except for the western transition from Albert Quay where a minimum FFL of +3.8m OD can be accommodated due to constraints imposed by existing streetscapes.
7	*Updated Table 10.6: Lower Glanmire Road Quarter (see Proposed Material Alteration document)*
8	*Include new objective relating to Hop Island:* **Objective 10.x Hop Island** **The provision of uses permissible on this site under the relevant land-use zoning objective shall be considered along with a limited amount of community uses including specialised housing for the elderly which are of a scale compatible with the carrying capacity of the Island and having regard to other proper planning and environmental issues as follows:** 1. **The provision of a detailed Flood Risk Assessment addressing potential flooding of the site and site access having regard to recent flood events and available flood mapping data prepared by a suitably qualified individual. These shall comply with the requirements of The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009).** 2. **A Habitats Directive Screening Report shall be required to consider the potential impacts of development on the Cork Harbour SPA and any ither Natura 200 site identified to be relevant.** 3. **The island contains Hop Island House, a heritage building listed on the National Inventory of Architectural Heritage. Any proposed development must have regard to the character of the existing house and its associated Demense Landscape.**
9	*Amend Draft Plan Paragraph 11.257 as follows:* "Land use zoning objectives provided by this Plan are subject to the following conditions: (1) Undeveloped land in Flood Zone A that is the subject of any zoning objective are only zoned for and shall only be developed for water compatible uses as identified in the Guidelines. (2) Undeveloped land in Flood Zone B that is the subject of any zoning objective are only zoned for and shall only be developed for water compatible or less vulnerable uses as identified in the Guidelines. (3) With respect to lands that have already been developed in Flood Zone A or B the potential conflict (between zoning and highly or less vulnerable development in Flood Zone A and between zoning and highly vulnerable development in Flood Zone B) will be avoided by applying the following zoning approach,

No.	Updates
	subject to the exception areas set out in (iii) below: (i) Cork City Council will facilitate the appropriate management and sustainable use of these areas. This will mean generally limiting new development, but facilitating existing development uses that may require small scale development such as small extensions. Development proposals within these areas shall be accompanied by a detailed Flood Risk Assessment, carried out in accordance with The Planning System and Flood Risk Assessment Guidelines and Circular PL 2/2014 (or as updated), which shall assess the risks of flooding associated with the proposed development. **Where development proposals submitted to the Planning Authority relate to existing buildings or developed areas, the sequential approach cannot be used to locate them in lower-risk areas and the Justification Test will not therefore apply. Proposals seeking to change the use of existing buildings from a less vulnerable use to a use that would be more vulnerable to the effects of flooding may not be permissible in areas of elevated flood risk, whilst some change of use proposals not increasing the vulnerability to the effects of flooding or small scale extensions to such buildings will be considered on their individual merits but are acceptable in principle. An existing dwelling or building that is not located within an area at risk of flooding but has a large rear garden / curtilage that is located within Flood Zone A or B would not be suitable for a more in-depth residential development proposal which would propose a residential use within Flood Zone A or B.** (ii) Proposals shall only be considered favourably where it is demonstrated to the satisfaction of the Planning Authority that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities, or increase the risk of flooding to other locations and be in accordance with the proper planning and sustainable development of the area. The nature and design of structural and non-structural flood risk management measures required for development in such areas (see relevant Flood Risk Assessments - section below) will also be required to be demonstrated, to ensure that flood hazard and risk will not be increased. Measures proposed shall follow best practice in the management of health and safety for users and residents of the development. (iii) Exceptional areas are the already developed City Centre and Docklands areas, which have undergone Justification Tests and have been zoned for development, and established built-up areas of Cork City including suburban areas such as Model Farm Road / Carrigrohane Road area and Douglas. Future development in these areas will: • be subject to site-specific flood risk assessments; • comply with the flood risk management provisions of this Plan, including the structural and non-structural risk management measures outlined under Flood Risk Assessments below, and relevant measures contained in the Council's 2020 South Docks Drainage Strategy; and • will benefit from Flood Relief Schemes being progressed by the OPW. **Flood hazard and flood risk information is an emerging dataset of information. The flood risk mapping used by the Council may be altered in light of future data and analysis. Therefore, all landowners and developers are advised that Cork City Council accept no responsibility for losses or damages arising due to assessments of vulnerability to flooding of lands, uses and developments. Owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding in a particular area, prior to submitting a planning application."**
10	*Insert the following text into the Plan:* **Climate Change and Flooding** **The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009' recommends that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. In contributing towards compliance with the Guidelines, climate change**
11	*New Text after paragraph 12.6:* **Further to Plan provisions relating to flood risk management under other parts of this Plan (including Paragraph No's. 11.256 to 11.263 and Paragraph No's. 12.20 to 12.22 (* subject to final numeration in final Plan), Permissible Uses within Flood Zones A or B in areas that have not passed the Justification Test (i.e. those areas outside of Cork City Centre and the North and South Docklands shall be constrained to those "water compatible" and "less vulnerable" uses as appropriate to the particular Flood Zone (please refer to the accompanying Strategic Flood Risk Assessment document).**

Updates to SFRA Mapping

Table 3 identifies updates to be made with regard to the mapping contained within the SFRA report.

Table 3 Updates to SFRA Mapping

No.	Updates
1	Include the ICPSS mapping separately in the list of flood zone data
2	Scenarios Mapping will be updated to show the increase in the 1% AEP flood event
3	Flood Zone A and B will be overlain on a version of the land use zoning map, linked to relevant provisions in the Plan