

LL LOWER LEE FLOOD RELIEF SCHEME FRS

PROTECTING -
PRESERVING -
PROGRESSING -



IT'S TIME TO PROTECT CORK

Cork has a history of serious and often devastating flooding over centuries. As recently as 2009 and 2014, a reported €140 million of damage was caused to homes and businesses by floods in Cork, aside altogether from the distress caused to those directly affected.

The Lower Lee Flood Relief Scheme (LL FRS) is designed to resolve Cork's flooding issues through the largest State investment in flood defence ever undertaken in the country. Benchmarked against best international practice, the Scheme's multifaceted approach takes account of the complexity of flooding in Cork which is both tidal and fluvial (river).

The Scheme will also facilitate a range of improvements to be delivered to Cork City, making it more attractive to live in and visit. These improvements which include walkways and cycle ways will encourage a switch from car usage to other more environmentally friendly transport modalities.

The community of Cork has engaged with the Scheme through numerous public consultation phases over the last 13 years. This has made it possible to take on board, to the greatest extent possible, the views of the public throughout the ongoing evolution of the Scheme's design.

There has been genuine misunderstanding about the Scheme but significant misrepresentation of it as well. The Office of Public Works (OPW) and Cork City Council invite you to read the facts about the Scheme.



PROPOSED NEW RIVERSIDE WALKWAY AT LEE FIELDS

November 2019

Social Media



LL FRS USES A COMBINATION OF SOLUTIONS INCLUDING:



REVISED DAM

procedures at Inniscarra at times of flood



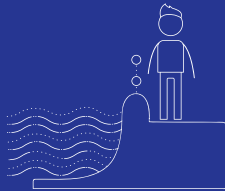
ADVANCE

flood forecasting



DESIGNATION OF UPSTREAM WASHLANDS

in the floodplain to facilitate advance discharges from the dam



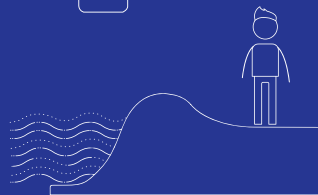
LOW-LEVEL QUAYSIDE DEFENCES

on parts of the North and South channels of the river



FLOW REGULATION

in the South Channel



DEFENCES

in parks and amenity areas integrated into landscape



SMALL NUMBER OF FLOOD GATES

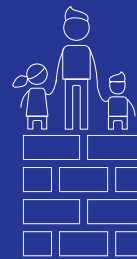
at some footbridges and boardwalk locations



LOCALISED PUMPS

to deal with 'back of wall drainage'

WHAT DOES LL FRS DO?



DEFENDS

Cork city from flooding



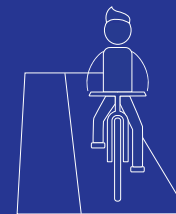
ANIMATES

an environmentally positive agenda



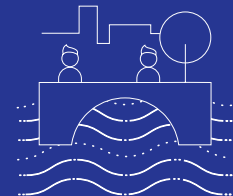
FACILITATES

transformational urban renewal in the city centre



CREATES

new walkways, cycleways and plazas all the way through from the Lee Fields to the city centre



BRINGS

the river closer to the public



PROTECTS

1200 businesses and the livelihoods of owners and staff



PROTECTS

900 homes



ENCOURAGES

greater river usage through improved access points, pontoons and moorings

LOWER LEE FLOOD RELIEF SCHEME



FERRY WALK NOW



FERRY WALK AFTER LL FRS



GEORGE'S QUAY NOW



GEORGE'S QUAY AFTER LL FRS



ALBERT QUAY WEST NOW



ALBERT QUAY WEST AFTER LL FRS



NORTH MALL NOW



NORTH MALL AFTER LL FRS



LET'S TALK WALLS

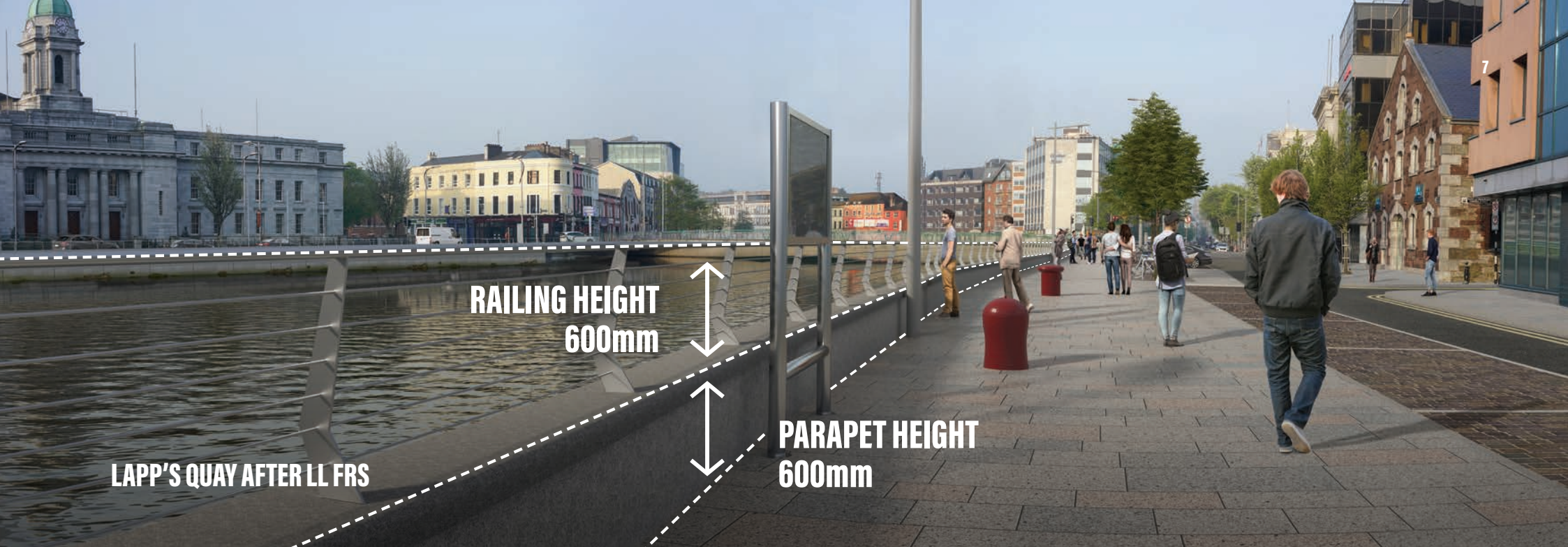
Some of the most misleading commentary about the Lower Lee Flood Relief Scheme revolves around the use of the description "Walls Scheme".

At various stages, it has been claimed that LL FRS involves 15 km of walls running from Ballincollig to the City Centre blocking the river from view and inhibiting its use. None of this is true.

Cork City Council has done more to promote the use of the River Lee than any organisation. It has worked with river users and tourism interests to see that the river is proactively used as a positive resource for Cork. Organisations like Meitheal Mara, the Lee Swim, Ocean to City, Seafest are all supported, marketed and funded by the City Council.

LL FRS will see previously blocked access points to the river being opened and new ones being created to allow better and easier use of the river.

- 1 Quay walls in Cork already play an important flood defence role
- 2 Quay walls act as flood defences in many other historic cities
- 3 Cork's quays vary in age, with many of the original quays having been replaced or built on over the years, meaning that very few of the quays are original
- 4 Without investment, many of Cork's quay walls will be at risk of collapse
- 5 The proposed works will stabilise, strengthen and respectfully repair these quay walls to meet the future flood defence needs of the city
- 6 Many of the existing quay walls only require repointing to perform a flood defence role
- 7 Only some of the quayside parapets will require a modest increase in height
- 8 There is no proposal to build high walls anywhere along the quays. None of the works proposed on the quay walls will block the river from view; in fact the opposite is the case
- 9 Some of the proposed quayside defences involve demountable barriers that are never seen except at a time of serious risk of flooding. These demountable barriers would never have been used or seen last year



DOES CORK NEED A TIDAL SURGE BARRIER ?

Climate Change is the critical challenge of our time and should exercise everyone.

But it is imperative that our response to climate change is not based on instinct or anecdote but rather on empirical data and the best available science.

Based on all current science from bodies such as the Intergovernmental Panel on Climate Change (IPCC) including its September 2019 Report, a tidal surge barrier is unlikely to be needed in Cork for 50 years or more.

If the various initiatives to combat climate change in the coming decades are unsuccessful and if a tidal surge barrier does become necessary in the future, the currently proposed LL FRS quayside defences will be an essential component of an integrated solution, as they are in all other cities where tidal surge barriers exist.

There is huge uncertainty about the extent to which climate change might happen, the effects that might arise, and whether we as a society will change our behaviour to mitigate the change and impacts.

Understanding and managing this uncertainty and adapting accordingly, is key to ensuring Cork's future wellbeing.

It will be possible to adapt the proposed quayside defences to 1m above the current 1 in 200 year event. Therefore, for sea level rise of up to 1m, quayside defences will continue to represent the optimum solution for Cork.

After this, a tidal barrier may be a viable option for Cork, but only for sea level rise between 1m and about 3m. Beyond the 3m sea level rise and in the absence of quayside defences, a tidal barrier is unlikely to remain technically viable due to regular low tides being too high for the barrier to open without causing flooding. At that stage, the options would be to either install huge pumps to permanently pump all rivers draining into Cork harbour or to retreat.

Cork may need a Tidal Barrier, or some other such solution at some point in the future but it is clear that it does not need such a solution at this time, nor for a considerable period. It would be premature and foolhardy to decide on a barrier now in the face of the current uncertainty, especially when it is clear that the proposed quayside defences will provide the necessary protection for the next 50 years or more.

TIDAL SURGE BARRIERS (TSBS) AT A GLANCE

- TSB's are extremely rare with only about 20 operating around the globe
- They are gated systems that stop tidal surges travelling upstream
- TSB's predominantly protect against tidal flooding rather than river flooding
- In Cork, while tidal flooding occurs more frequently, river flooding is by far the most destructive
- A tidal surge barrier would not have protected Cork during the major flood in 2009
- If a TSB ever becomes appropriate for Cork, quayside defences would still be necessary
- A TSB is not likely to be required in Cork for in excess of 50 years
- A TSB for Cork is not currently economically viable

ABOUT THE SAVE CORK CITY TIDAL SURGE BARRIER CONCEPT FOR LITTLE ISLAND

- The Port of Cork is an economic hub for the region
- The TSB concept proposed by Save Cork City would result in hazardous navigation and would significantly impact shipping
- It would also negatively impact the habitat in two designated environmental sites in the harbour - the Special Area of Conservation and the Special Protection Area
- Being positioned too far upstream, it has limited climate adaptability
- Built of concrete and steel and with high operational energy demands, it will have a carbon footprint many times greater than the LL FRS
- To summarise, it is not technically, environmentally or economically viable

For more information on TSBs visit www.lowerleefrs.ie/news

DRAINAGE AND PUMPING STATIONS EXPLAINED

- Cork already has an extensive network of gullies and pipes that drain surface water during intense rainfall
- During a flood event, when river levels are higher, the discharge of surface water can't happen and that's when the pumps activate to pump the excess surface water into the river
- Pumping stations are common place in many cities
- Cork city already has over 42 pumping stations in operation, none of which are visible in the city centre, like the pumping station sited below ground at Grand Parade
- Like all flood relief schemes, LL FRS proposes the introduction of a number of such pumping stations to ensure our streets remain free of surface water even during a flood in the river
- These pumping stations will be automated with manual override, backup power supplies, standby pumps and other redundancies, and will be regularly maintained, so that they are ready when called upon
- The LL FRS pumping stations will only operate at times of extreme flooding. Most of the time, the existing drainage system will operate as it does currently
- These pumping stations will not alter the groundwater regime in Cork
- As far as possible, pumping stations are being sited to minimise disruption
- These pumping stations are an essential part of an integrated Flood Relief Scheme for Cork



LL FRS PUMPING STATIONS WILL BE BELOW GROUND AND WON'T BE VISIBLE, LIKE THE ONE SITED HERE ON GRAND PARADE

BUSINESS ORGANISATIONS HAVE THEIR SAY

"The updated design, further to the consultation process, brings the scheme forward significantly and has taken on board key recommendations including those of Cork Chamber. Having spent countless hours and multiple meetings engaging and advocating with various Ministers,

OPW, local authorities and other officials and experts responsible for flood defence investment over many years, Cork now has a scheme of significant merit and government commitment to the necessary funding. It is time to move this essential project forward to delivery."

Conor Healy, CEO, Cork Chamber



FLOODING NEAR TRINITY BRIDGE 2014

"LET'S GET THE FLOOD DEFENCES DONE"

A statement from Cork Business Association

Members of the CBA have first-hand experience of the damage that flooding can do. No business will want to endure again the financial loss and heartache that the flooding of 2009 and 2014 caused. The CBA is supportive of the intention on the part of the Office of Public Works and Cork City Council to address flooding in the city and surrounding area and welcomes the fact that large scale funding is now available for the first time to do that.

CBA also welcomes the proactive approach being adopted by the Lower Lee Flood Relief Scheme and acknowledges the significant improvements which have been made to the design of the Scheme. The amended scheme takes a much more sensitive approach to flood defences and the CBA welcomes the introduction of demountables so that the existing fabric of the high-quality quays, like Sullivan's Quay and North Mall, can be retained.

There is an urgent need for flood defences in the city now, not in five, ten or twenty years time. If efforts to combat climate change in the coming

decades fall short and if there is a future requirement for a tidal barrier or a tidal barrage then these ramifications must be addressed. But that does not obviate the need for quayside defences now to address the risk of flooding, particularly of river flooding, and to protect the livelihoods and properties of businesses that have suffered too much already.

"Flooding of your property is a devastating experience for anyone, be they the owner of a business property or private residence. I have personally seen the impact this destructive event can have on a property and on the individual, an aspect which is sometimes overlooked. We now have a Flood Defence scheme which not alone effectively delivers the basic requirement of flood protection but also encompasses a massive public realm upgrade which includes the much-needed work to our crumbling quay walls. If I had to use a popular catchphrase I would say, **Let's get the Flood Defences done.**"

**Lawrence Owens
CEO, Cork Business Association**

PROTECTING - PROGRESSING - PRESERVING

The Lower Lee Flood Relief Scheme is a unique opportunity to plan and deliver appropriate, high quality waterfront regeneration across the city centre and out into the rural areas to the west. Proposals have been developed which recognise the importance of the built and natural heritage of the area, safeguarding specific elements of interest and improving their setting. Creative forms of interpretation will help people to understand their significance as well as raising awareness of things that are no longer visible.

ENHANCING AMENITY

Riverside walking and cycling are central to the proposals which, along with improved use of the water itself, will add to the vibrancy of the City. This in turn will stimulate economic and wider community activity. This is a wonderful opportunity for Cork to celebrate and protect its qualities and deliver improvements that will benefit local people and those who visit.

Investment in the LL FRS provides an outstanding opportunity to deliver integrated benefits for the City. Comprehensive proposals have been developed which have been informed by extensive analysis and engagement with various groups and individuals.

The LL FRS proposals support the existing uses of the river and its banks and seek to facilitate new opportunities. Throughout, the proposals seek to support existing businesses and stimulate new opportunities.

SAFE GUARDING HERITAGE

LL FRS will safeguard historic elements which contribute to the identity of Cork and will invest in key elements such as historic railings, the limestone of the quaysides and the public realm settings around buildings such as the Custom House.

A significant benefit of the scheme is that approximately 400 protected structures and 20 structures on the Record of Monuments and Places which currently lie within the flood risk area will be protected from flooding.

High quality materials and detailing will be used in keeping with the character of particular areas. Interpretative elements will be sensitively created and integrated into various settings around the riverside. These will make the most of this natural asset and will help people - local and visitor alike - to have a greater appreciation of the area, its history, culture and characters.

IMPROVING BIODIVERSITY

Cork City Council is responsible for the management and maintenance of public parks, public open spaces, including roadsides and quaysides, play areas and amenity walks throughout the city. This amounts to over 1,500 acres of parks, walkways and open spaces including Fitzgerald Park and the Lee Fields. Planting for greater biodiversity will also be a feature of LL FRS with extensive areas of native riverside planting,

including hedgerows and wildflower grassland proposed to the west of the City. Complex engineering has been developed to avoid, as far as possible, damage to or the removal of healthy specimen trees.

The LL FRS planting programme will result in a net gain for the city, with an overall increase in the number of trees and an improvement in the quality and variety of native specimens.



A VIEW OF THE LEE FIELDS AFTER LL FRS



Tionseadal Éireann
Project Ireland
2040



OPW

Oifig na
nObBreacha Poiblí
Office of Public Works



Comhairle Cathrach Chorcaí
Cork City Council



ARUP

the
paulhogarth
company



RYAN HANLEY

