



Comhairle Cathrach
Bhailé Átha Cliath
Dublin City Council

DUBLIN DOCKLANDS AREA OPENING BRIDGES

BLOOD STONEY BRIDGE (FORMERLY FORBES STREET BRIDGE)



LOCATION REPORT

Draft Report

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RPS COWI Joint Venture



COWI

Working with:

Knight Architects



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Introduction

In September 2015, Dublin City Council (DCC) commissioned RPS Flint & Neill working with Knight Architects, Eadon Consulting, Healy Kelly Turner & Townsend and Paul Arnold Architects to design a new moveable pedestrian and cycle bridge across the Liffey River in central Dublin, near to Forbes Street.

In April 2016, DCC received a letter from the National Transport Authority (NTA) asking that the project be paused whilst a design review of the DART Underground was undertaken. The proposed alignment of the DART Underground and that of the new bridge were in close proximity, placing significant constraints and risk on the design of both structures. The design review of the DART Underground is ongoing.

There remains a strong demand for improved pedestrian connections between the north and south docklands. This has led DCC to propose an amendment to the North Lotts and Grand Canal SDZ Planning Scheme, altering the alignment of the footbridge and removing any conflict with the DART Underground project.

This reports summarises the rationale for locating a new pedestrian and cycle bridge at Blood Stoney Road and contains a site appraisal for the amended location.

This document supersedes the report DDA-FSB-REP-101-v01



Background

The Dublin Dockland Area has been designated a Strategic Development Zone (SDZ) and is going through a period of significant investment. This includes major improvements to the public transport system and the creation of new business and residential zones within the historically industrial docklands. There is clear requirement for new pedestrian and cyclist facilities to not only meet current needs but also provide for the future infrastructure requirements in the area as other strategic developments are completed.

The SDZ Planning Scheme 2014 contained two new pedestrian bridges across the River Liffey. Of these, the western bridge was located at Forbes Street linking City Blocks 7 & 13. The Planning Scheme clearly stipulated that any proposals within the SDZ should not “compromise the integrity of, or adversely impact on the DART Underground Line”. The original bridge alignment in the 2014 Planning Scheme was directly above the proposed alignment for the DART Underground, creating a complex technical interface.

In early 2016 the National Transport Authority (NTA) decided to undertake a redesign of the DART Underground Lines to evaluate cost savings. This included all aspects of the project including tunnel cross-section, scheme terminal points, alignments and station locations. This work is understood to be still ongoing in September 2017.

Clearly, the new pedestrian bridge should not restrict future development of the DART Underground. Similarly, the design and construction programme for the DART Underground remains uncertain and risks unnecessarily delaying development of the pedestrian bridge.

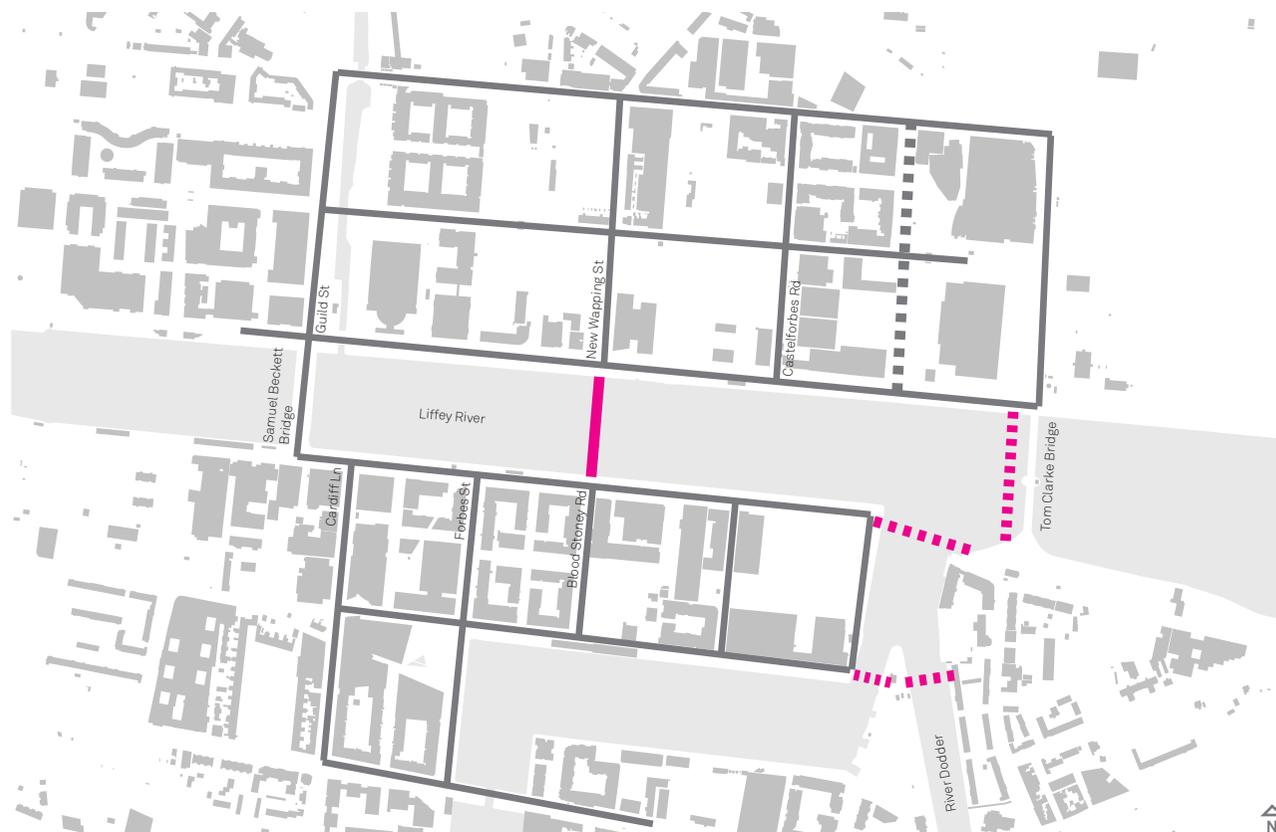
Consequently, DCC have decided to apply to An Bord Pleanála for an amendment to the 2014 Planning Scheme and relocate

the bridge original shown at Forbes Street to Blood Stoney Road. This removes all interaction between the tunnel alignment and the bridge foundations and enables the two projects to be progressed independently.

Blood Stoney Bridge remains well located for serving a future DART station in City Block 2. Moving the bridge to Blood Stoney Road also eliminates the need to relocate the MV Cill Airne vessel docked on North Wall Quay.

Bridge Location

Existing major streets identified in the SDZ 'Development Code for City Blocks' plan show that Blood Stoney Road and New Wapping Street are key routes within the city and a bridge at this location will become an important North/South link.

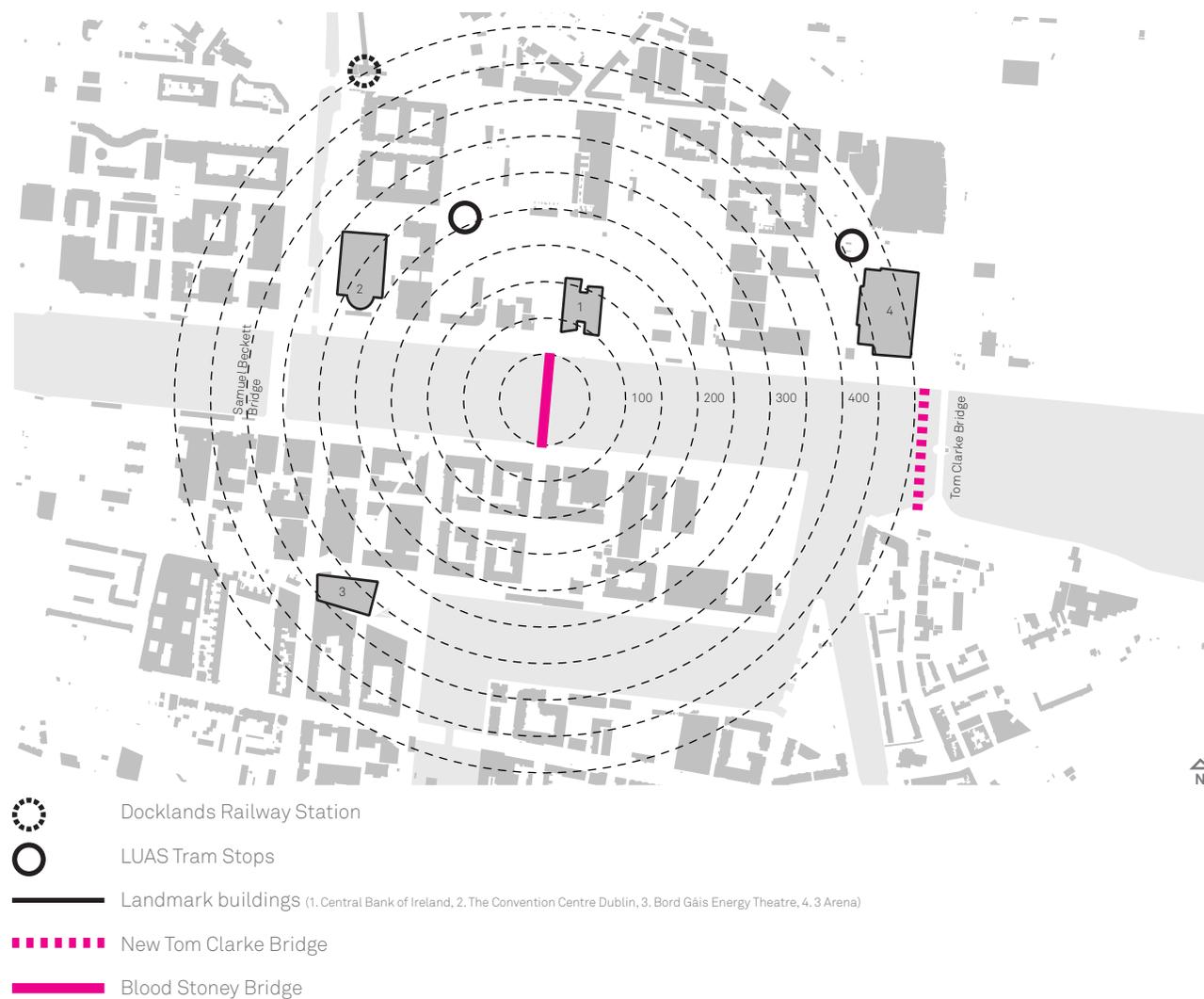


- Existing Major Streets
- - - - Proposed Major Streets
- █ Proposed Blood Stoney Bridge
- █ Proposed New Pedestrian Bridge

Distances

A study into improving pedestrian facilities at the Tom Clarke Bridge was undertaken during 2017 (Tom Clarke Bridge Upgrade feasibility study by Aecom) . This concluded it was impractical to upgrade the existing structure and recommended that a new dedicated pedestrian and cyclist bridge was constructed adjacent to the Tom Clarke Bridge. This new bridge would be close to Castleforbes Road. This has led DCC to reassess the need for crossings at both Forbes Street and Castleforbes Road.

Blood Stoney Road is almost equidistant between the Samuel Beckett Bridge and the proposed new bridge that is to run alongside the Tom Clarke Bridge. It is in close proximity to a number of existing and proposed key buildings and rail stations offering convenient connections both nationally and locally.

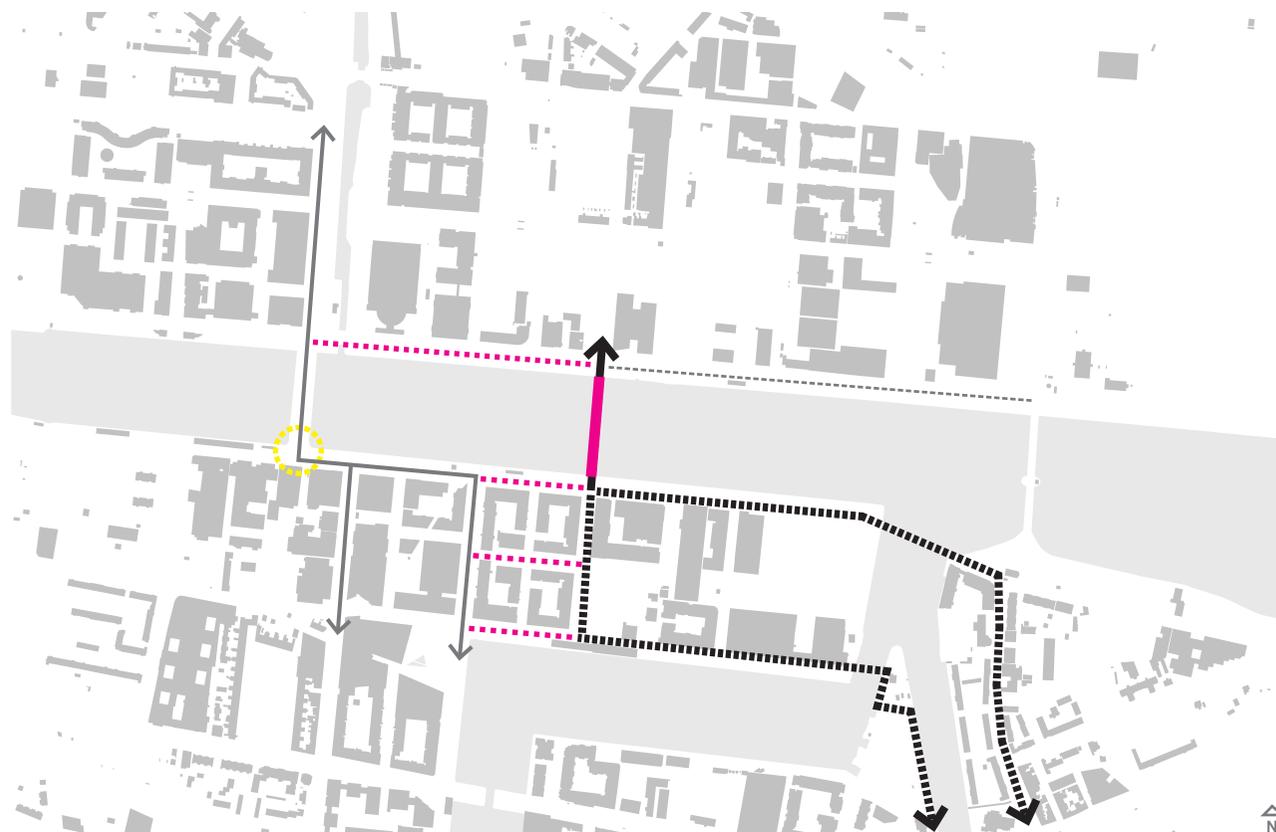


Cycle Traffic Alleviation

The South East corner of the Samuel Beckett Bridge is currently difficult to navigate for cyclists due to the combination of a tight radius and steep slope onto the bridge. Consequently, pedestrian and cycle traffic often clash here. The junction is also busy at peak times with large vehicle volumes both across the bridge and along the Campshires. In order to alleviate the pressures on the Samuel Beckett bridge, particularly at this busy corner, the Blood Stoney Bridge will offer an alternative route for cyclists across the Liffey.

Whilst the Grand Canal impedes cycle movements South of the Liffey River to some extent, Blood Stoney Road is a good location for the cycle bridge. The proposed Dodder Greenway will either cross the Grand Canal Docks or the Dodder River and will allow for clear cyclist movements. Cyclists are more likely to choose a clear route that is easy to navigate than a confined route where they might have to stop or dismount. Placing the new bridge away from the vehicle routes along Cardiff Lane and Forbes Street allows soft and hard traffic to be separated and creates space to optimise the bridge approaches and junction layouts for cyclists and pedestrians.

The dotted lines show where cyclists might choose to re-route in order to achieve a clear crossing. Commuters will quickly establish their preferred route. Improved signage can direct users towards the bridge from the Grand Canal Greenway and the Dodder Greenway in time.



- Pinch Point
- Cyclist Re-route Options
- Proposed Primary Cycle Route - 2 Options for Dodder Greenway
- Proposed Blood Stoney Bridge
- Existing Cycle Route
- Proposed Liffey Cycle Route

Pedestrian Demand and Desire Lines

A 2015 study investigated the impact of proposed bridges across the River Liffey on pedestrian movement patterns around the Docklands area. This study, commissioned by the Spencer Dock Development Company (in receivership) in consultation with Hines Ireland and National Asset Management Agency found that both the Samuel Beckett and Tom Clarke Bridge would experience capacity issues as the Docklands are developed without any new bridge(s).

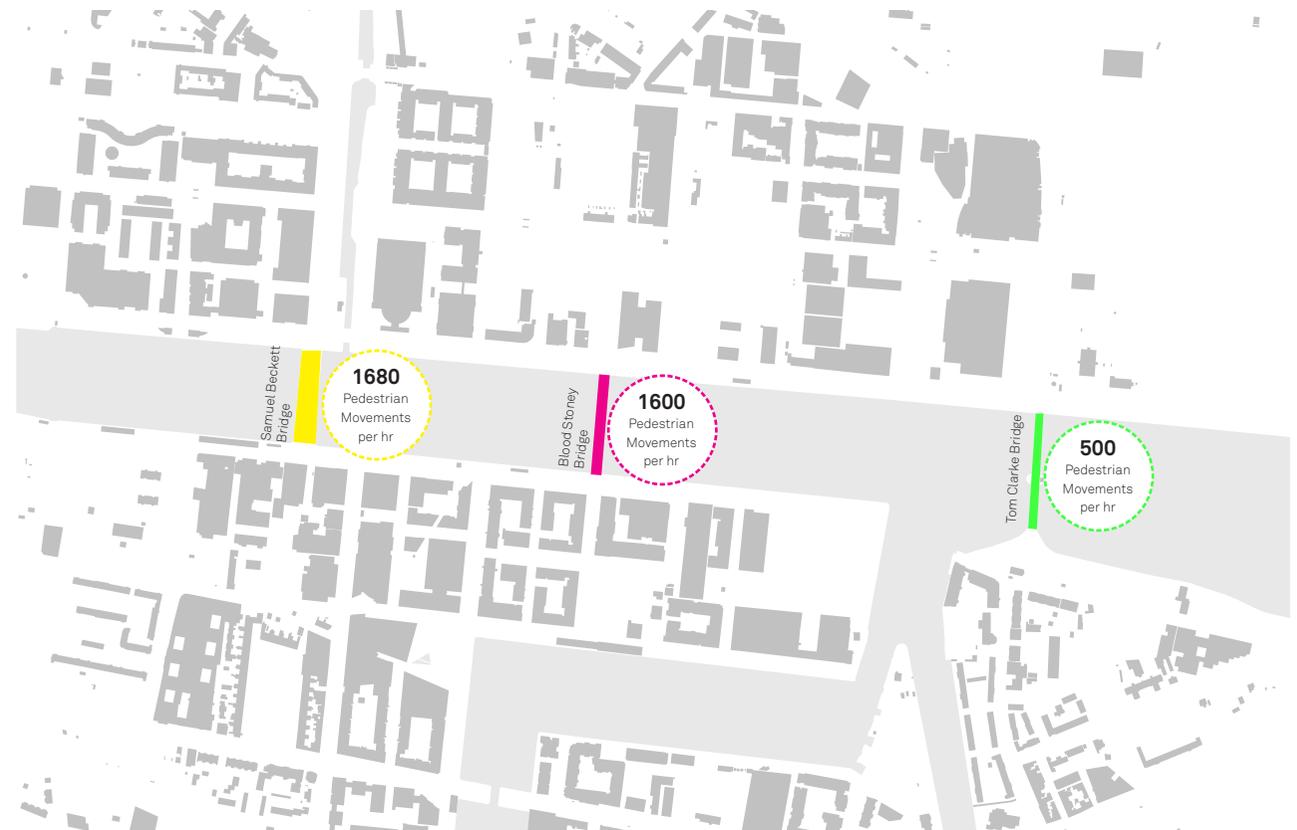
The analysis considered several proposed scenarios including:

- Two new Liffey Pedestrian Crossings, one on the alignment of Forbes Street; and another further to the east on the alignment of Castleforbes Street.
- A single new bridge located at Forbes Street.
- A single new bridge located at New Wapping Street/Blood Stoney Road.

The proposed bridge across the River Dodder was also considered on selected scenarios.

The study found that all three scenarios successfully reduced pressure on Samuel Beckett and Tom Clarke Bridge and provided a good level of service at peak times across all bridges. The bridge at Forbes Street was found slightly more effective than Blood Stoney Road at reducing pedestrian numbers across Samuel Beckett attracting approximately 200 more movements per hour during the AM peak; 1,760 pedestrians per hour vs 1,600 movements. Nevertheless both locations perform well and achieve the studies aims.

The technical and procedural issues associated with constructing a bridge in close proximity to the DART Underground were not considered in this Pedestrian Study. These challenges have led to Forbes Street being excluded as a viable bridge location. Consequently, Blood Stoney Bridge is considered the optimum bridge location for the updated site constraints.



Forecast Footfall for the 2025 'Do Something 1'

Greenway (Cycleways) Integration

The bridge will naturally integrate with the Dodder Greenway and the Royal Canal Greenway, reducing congestion at the Samuel Beckett bridge, offering an easier transition for cyclists and pedestrians. With the Blood Stoney crossing in place, cyclists may want to divert from their route on the Grand Canal or Royal Canal Greenway to use the bridge as an alternative crossing.

Overall, the Blood Stoney location sits ideally within the cyclist and pedestrian desire lines of the Docklands area that will offer an equidistant alternative to the Samuel Beckett Bridge and Tom Clarke Bridge.

The bridge will increase freedom of movement between the northern and southern Docklands, which are seeing a major increase in footfall.

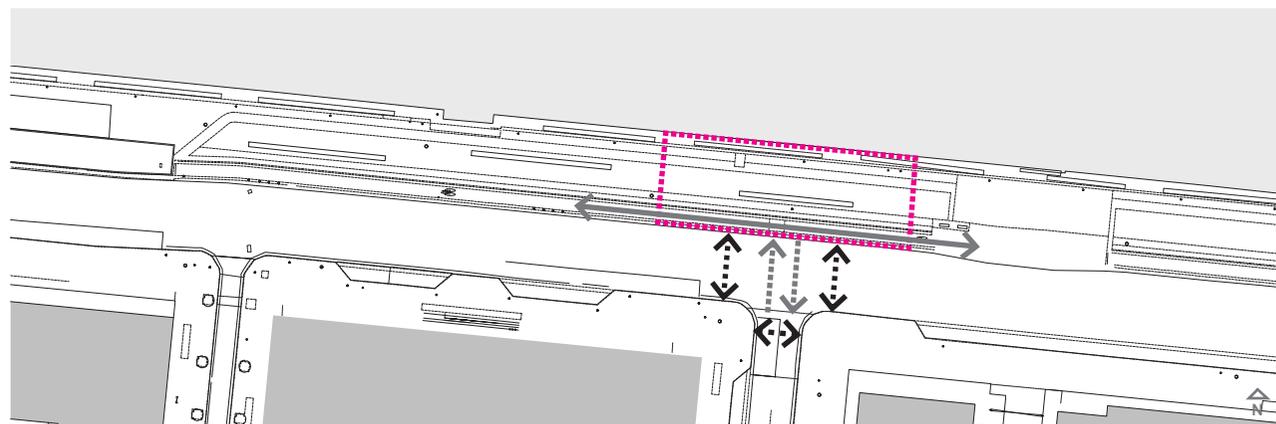
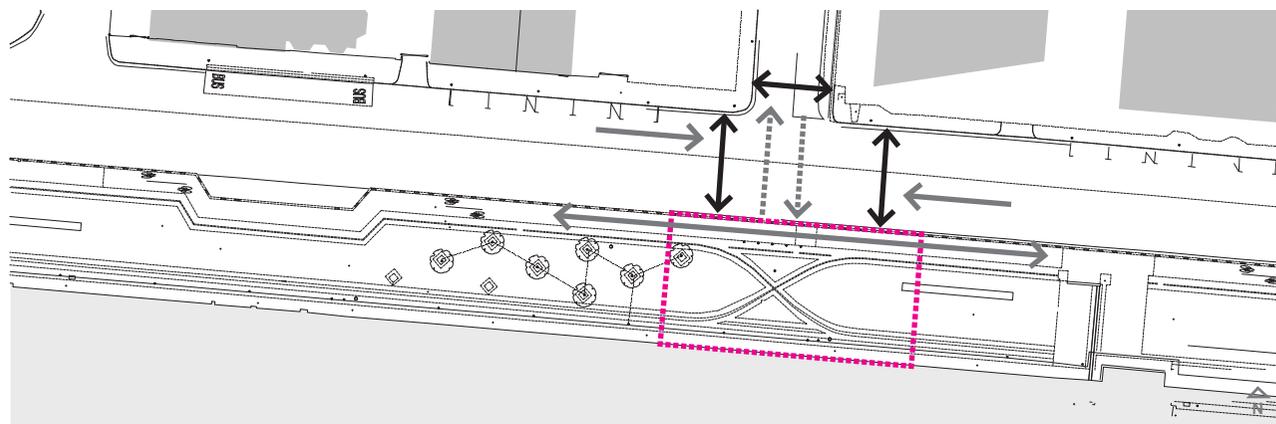


Pedestrian and Cyclist Movement

Current road junction configurations at the ends of the bridge facilitate pedestrian and cycle traffic flows, however this will need to be developed as the design of the bridge develops.

Possible watchpoints:

- There is no designated pedestrian crossing at Blood Stoney Road or Sir John Rogerson's Quay.
- Traffic light timings at the New Wapping Street will need to change to allow cyclists to move independently/clear of vehicles.
- Stopping zones for cyclists will need to be incorporated at Blood Stoney Road and New Wapping Street.



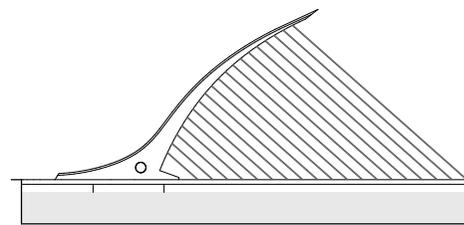
- | | | | |
|-------|---|-------|-----------------------------|
| | Approximate location of bridge ends | | New cyclist crossing points |
| ———— | Existing pedestrian crossing points | ———— | Existing cyclist flows |
| | New possible pedestrian crossing points | | |

Architectural Prominence

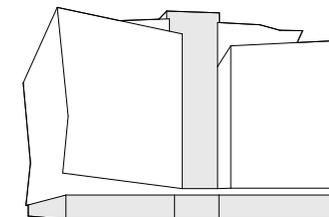
Due to the prominence of the Samuel Beckett Bridge, any adjacent structure should be carefully considered against both the height and structural typology. The further the proposed bridge is away from the Samuel Beckett Bridge, the more freedom there is for expression without competing with the Samuel Beckett Bridge design.

The bridge location between Blood Stoney Road and New Wapping Street is far enough away from the Samuel Beckett Bridge to create its own architectural identity. This said, any proposal should still consider the scale of the Samuel Beckett Bridge so as not to conflict with this Liffey icon.

In addition to the Samuel Beckett Bridge, the newly constructed Central Bank of Ireland forms part of the immediate context for the bridge and is of a significant scale and architectural substance. Both key features will inform the architecture of the bridge, relative to their scale.



Samuel Beckett Bridge



Central Bank of Ireland



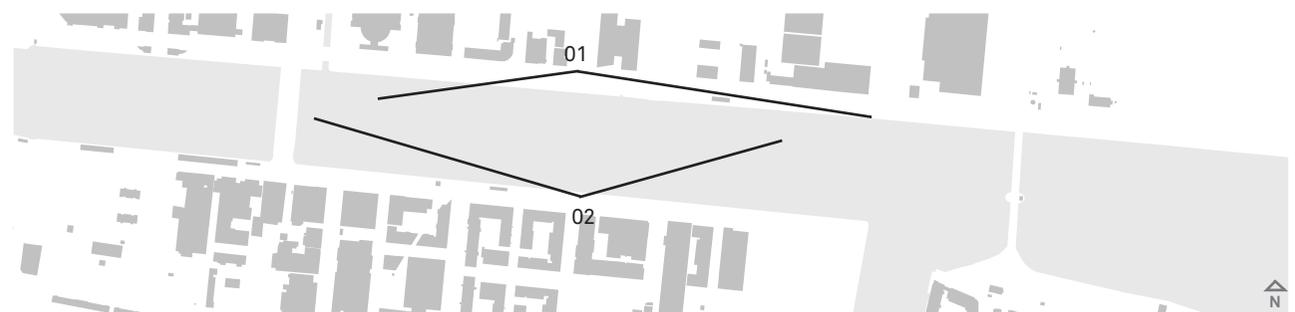
Large scale context

Views

Buildings on both sides of the river are of a large scale, which is emphasised by the fact the building line abruptly stops short of the river front. The new Central Bank in particular dominates the skyline and is the immediate context for the bridge on the northern Campshire.

The height and visibility of the bridge within this context will need careful consideration during the options design phase.

Future development that from part of the bridge context is the Spencer Dock Block 7 Redevelopment (Planning reference no: DSDZ3368/15).



Site Observations

- Width of Campshires and lack of existing obstacles above ground allows for flexibility of landscaping solution at bridge ends
- Consider cyclist and pedestrian integration and flows between bridge, Campshires and roads
- Street furniture could be incorporated into landscaping at bridge ends
- Street and Campshire lighting should be considered in relation to bridge lighting
- Parked cars are set back from Blood Stoney Road and so have less impact on cyclists
- Blood Stoney Road is not main thoroughfare offering a safer route for cyclists away from moving cars
- Consider integration of new landscaping with existing surfacing



View along North Campshire looking East



View along South Campshire looking West



View looking North along New Wapping Street



View looking South along Blood Stoney Road



View along North Campshire looking West

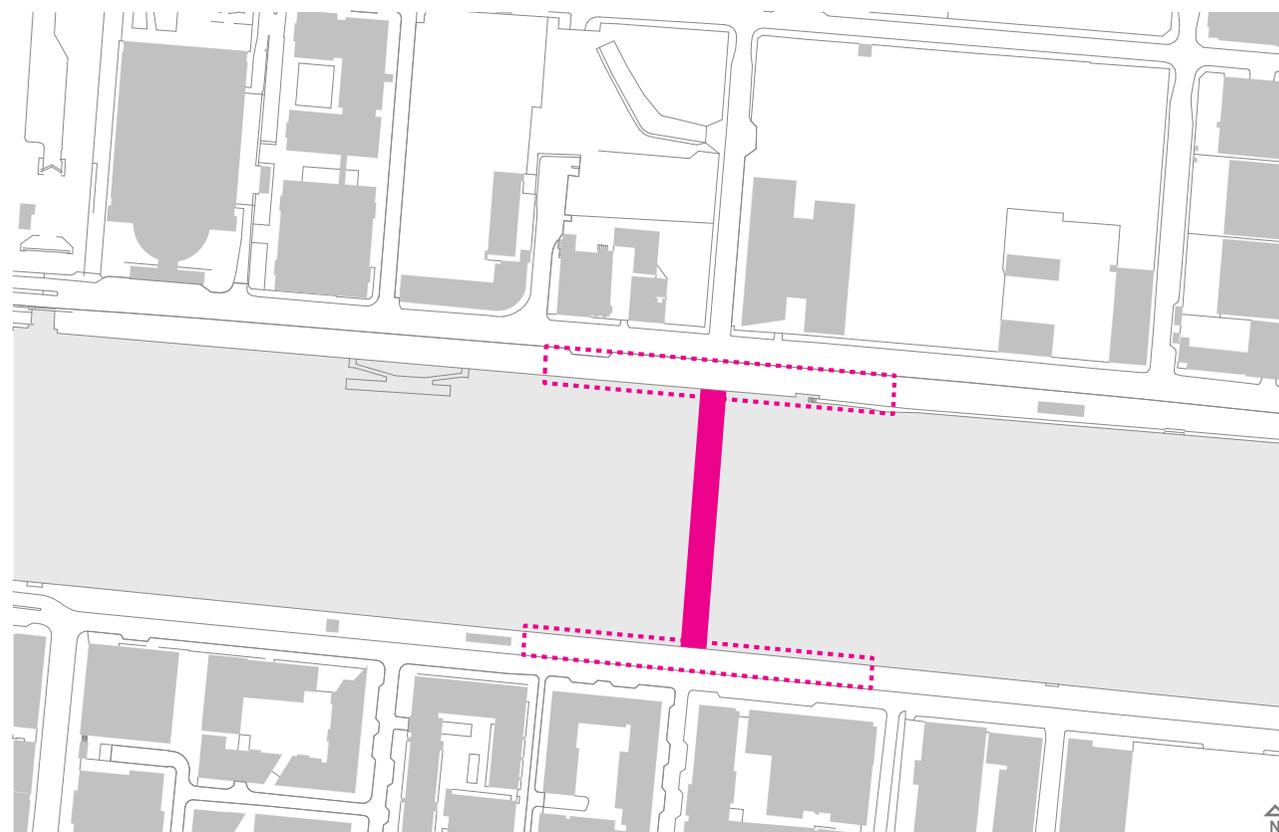


View along South Campshire looking East

Landscape Zone

It is important to consider the bridge as a piece of public realm that integrates into the design of the Campshires both North and South. This will help to accommodate pedestrian and cyclist desire lines with more comfortable transitions on and off the bridge. Any ramps or steps will be read as part of both the Campshire and the bridge and so high quality holistic design is essential to embed the new crossing into the site so it does not appear alien and disconnected from its context.

Careful landscaping can draw inspiration from the proposed bridge and the existing condition to ensure a harmonious relationship between both.



- Proposed New Pedestrian Bridge
- Landscape Area - not contained to bridge, creating opportunity for integration with Campshires

Services and Utilities

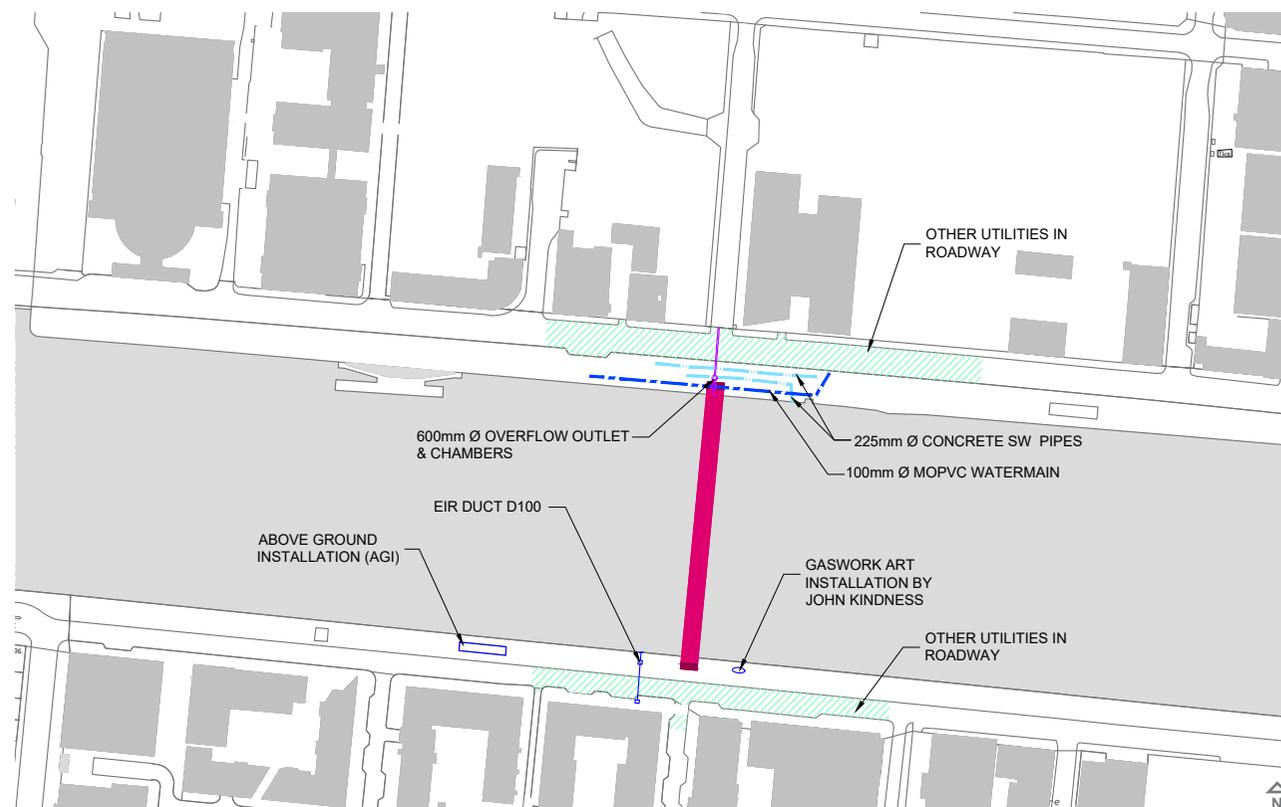
The site of the bridge, due to its urban environment, is constrained by number of existing services located either directly within the footprint of the proposed bridge or in its close vicinity. The main constraint to be addressed by the bridge design is the Spencer Dock Pump Station overflow pipe and chambers located in North Wall Quay campshire. The 600mm diameter pipe runs along the centreline of New Wapping Street up to the quay wall and discharges to the River Liffey. Chambers, each of them 2800mm in external diameter are in the line of the pipe and positioned 4m and 8m from the quay wall face. Additionally, two surface water drainage pipes (225mm) and a 100mm diameter watermain are located in the area of the bridge North end.

Bord Gais infrastructure is located on both quays. Gas pipelines are present in the roadways and, for the most part, run parallel to the quay walls. The closest pipelines are 12m from the quay wall face on Sir John Rogerson's Quay and 18m from the quay wall face on North Wall Quay. The gas services on Sir John Rogerson's Quay include also an Above Ground Installation (AGI), which is located within the campshire area, 85m West of Blood Stoney Road. Considering the average width of the quay wall as 3m and the estimated width for the bridge support of 3m, leaves approximately 6m clearance to the closest gas pipe.

On the same quay, 20m East of the proposed bridge location 'Gaswork' Art Installation by Belfast artist John Kindness is exhibited. The elliptical structure illustrates the history of gas in Dublin.

Eir services are present within roadways apart from a single 100mm diameter duct positioned transversely to Sir John Rogerson's Quay in the campshire area 23m West of Blood Stoney Road. As such, Eir ducting does not impose any difficulty on the construction of the bridge.

Based on our review of available information the remaining utilities are located within Sir John Rogerson's Quay roadway, North Wall Quay roadway and in the roads perpendicular to them. As such, these utilities should not have any significant influence on the proposed location of the bridge.



Stakeholders

The key stakeholders, identified in 2015 at the initial stage of the project, included Dublin Port Company, Office of Public Works (OPW) / Dublin City Council Coastal Protection Division and Drainage and Surface Water Division, Iarnród Éireann, Bord Gáis and the Cill Arnie. Consultation with all stakeholders was carried out with consideration of three different locations for the bridge, one of which was the location at Blood Stoney Road / New Wapping Street.

The comments and requirements communicated during the consultation process remain largely valid for the proposed, current location of Blood Stoney Bridge.

The navigation requirements, the possible future dredging works and the availability of berthage along both quays are key aspects of the liaison with Dublin Port Company.

Coastal protection works are currently under construction on Sir John Rogerson's Quay with future sections to follow in 2018 and works on the North Quay to follow after completion of the works on the south side of the Liffey. The interface of the bridge and the flood protection works will be subject of further consultation with the OPW and the coastal protection division of Dublin City Council.

The presence of the 600mm diameter overflow pipe and two flap valve chambers in the North Wall Quay campshire area makes drainage and surface water division of Dublin City Council and Irish Water the two main stakeholders for the project. Extensive consultation will be required to investigate feasible options for diversion of the aforementioned services, if required.

The Above Ground Installation (AGI) located between Forbes Street and Asgard Road is beyond envisaged extent of the bridge works but Bord Gáis remains an important stakeholder due to transmission and distribution services located in the roadways of both quays.

Iarnród Éireann and the MV Cill Arnie, stakeholders identified in 2015, due to a remote distance of their current / future assets from the proposed bridge location are not considered to be the key stakeholders for the project in its current location.

The consultation process has now resumed with ongoing notification to stakeholders about the proposed location of the bridge. The process will continue throughout the design phase of the project.

Planning and Environmental

The following planning and environmental consents will be required in relation to the Blood Stoney Bridge project:

- Planning application to An Bord Pleanála
- Environmental Impact Statement
- Foreshore Lease under the Foreshore Act 1933
- Section 50 License under the Arterial Drainage Act 1945
- Ministerial Consent under Section 15A (b) of the Roads Acts 1993-2015
- Waste Licence/Certificate of Registration
- Dumping at Sea Permit
- Archaeological Licenses/Consents

Conclusion

Blood Stoney Road to New Wapping Street is well located for a new pedestrian and cyclist bridge. The proposed location is approximately equidistant between the Samuel Beckett Bridge and the proposed new crossing adjacent to the Tom Clarke Bridge.

The new bridge will reduce journey times for many travelling North South and relieve pressure from the Samuel Beckett Bridge which is over capacity at peak times. The proposed alignment avoids primary vehicle routes, offering a more pleasant experience for pedestrian and cyclists than current routes. It integrates well with current and future cycle and pedestrian routes. The open spaces on the Campshires will lead to comfortable transitions on and off the bridge and allow the approaches to be integrated into the public realm design.

Scale and proportion will be important considerations for the proposed bridge, however by moving the location further away from the Samuel Beckett Bridge, there is less likely to be a conflict of scale between the existing and the new bridge.

DCC's overriding purpose for the project is to:

Provide an architecturally sensitive opening pedestrian and cyclist bridge linking the north and south Docklands

With the following objectives:

- Provide an architecturally sensitive pedestrian/cyclist bridge, in an optimum location, which complements its adjacent surroundings including the Samuel Beckett Bridge, National Convention Centre and Quay Walls.
- Provide an opening bridge that will allow the passage of river traffic while minimising the duration that the bridge is not open to pedestrians and cyclists and whose ongoing operation and maintenance requirements can be satisfactorily incorporated into an Operation and Maintenance contract with other adjacent bridges such as

the Sean O'Casey, Samuel Beckett and Tom Clarke Bridges.

- Provide high quality linkages to adjacent cycling and pedestrian facilities, particularly safe and convenient road crossings at the North and South Quays.
- Meet the layout, structural and environmental requirements of the project.
- Provide a structure that meets Dublin City Council's prescribed fluvial and tidal flooding requirements.
- Take account of all relevant proposals for development and infrastructure in the vicinity of the project.
- Minimise disruption and loss of berthage to the quay walls and identify any required remedial measures.

The proposed alignment between Blood Stoney Road to New Wapping Street gives the opportunity to meet all these objectives.