

NEWCOMEN RAIL LIFTING BRIDGE (UBD233)

Obstructing the development of the Royal Canal



The Royal Canal was finally re-opened in 2010 amid much pomp, ceremony, hope and promise. Despite the potential of a route for boat tourists between the North Shannon and Dublin, and the prosperity that might bring to the towns and villages through which the canal winds it's way, little of the potential has yet been realized.

Closure had occurred in 1961 but by 1974 local enthusiasm to save the Royal Canal was spreading and resulted in the formation of the Royal Canal Amenity Group (RCAG). Administration of the canal was transferred to OPW from CIE in 1986. The OPW's Waterways Service was responsible for the canal through various departmental name changes up until the formation of Waterways Ireland in 2000. WI was established as a North/South Body with responsibility for the navigable inland waterways of Ireland (including the Royal Canal) following the Good Friday Agreement of 1999. Thirty six years had passed as the work continued, many of the original enthusiasts had sadly passed away by the time of the reopening in 2010.

Newcomen Rail Lifting Bridge



Existing rail lifting bridge with its electric winch motors on each corner

So much work had been done during those restoration years; dredging, rebuilding of replacement lock gates, removal of culverts and installing new bridges. All of the infrastructure reinvigorated save for one crucial item... the Newcomen Rail Lifting Bridge.

This small section of track on a concrete bed sits at water level, lying diagonally across the canal just below Lock No. 1 at the west end of Spencer Dock in Dublin. It completely blocks entry to, or exit from the Royal Canal unless lifted.

Powered by four electric motors, the bridge is jacked up briefly to allow boats pass beneath. The bridge in it's current form was installed, and is operated, by Iarnród Éireann. It is lifted only on seven or eight prearranged dates each year, first lift in April and last lift usually in September. There are none during the months of November-March. On these prearranged dates the bridge is lifted for approximately two hours only, most lifts take place mid week. The lifting requires a crew of up to ten people from Iarnród Éireann to be on site to operate and supervise the procedure. Waterways Ireland are charged a fee of between €1,000-€1,500 for the operation by Iarnród Éireann, depending on the day of the week. It could be argued that Waterways Ireland should be charging Iarnród Éireann for the other three hundred and fifty seven days annually when the rail bridge causes the Royal Canal to be closed to traffic at the Dublin end. The greater loss is to tourism revenue over the past decade.

The Spectacular Green & Silver Route

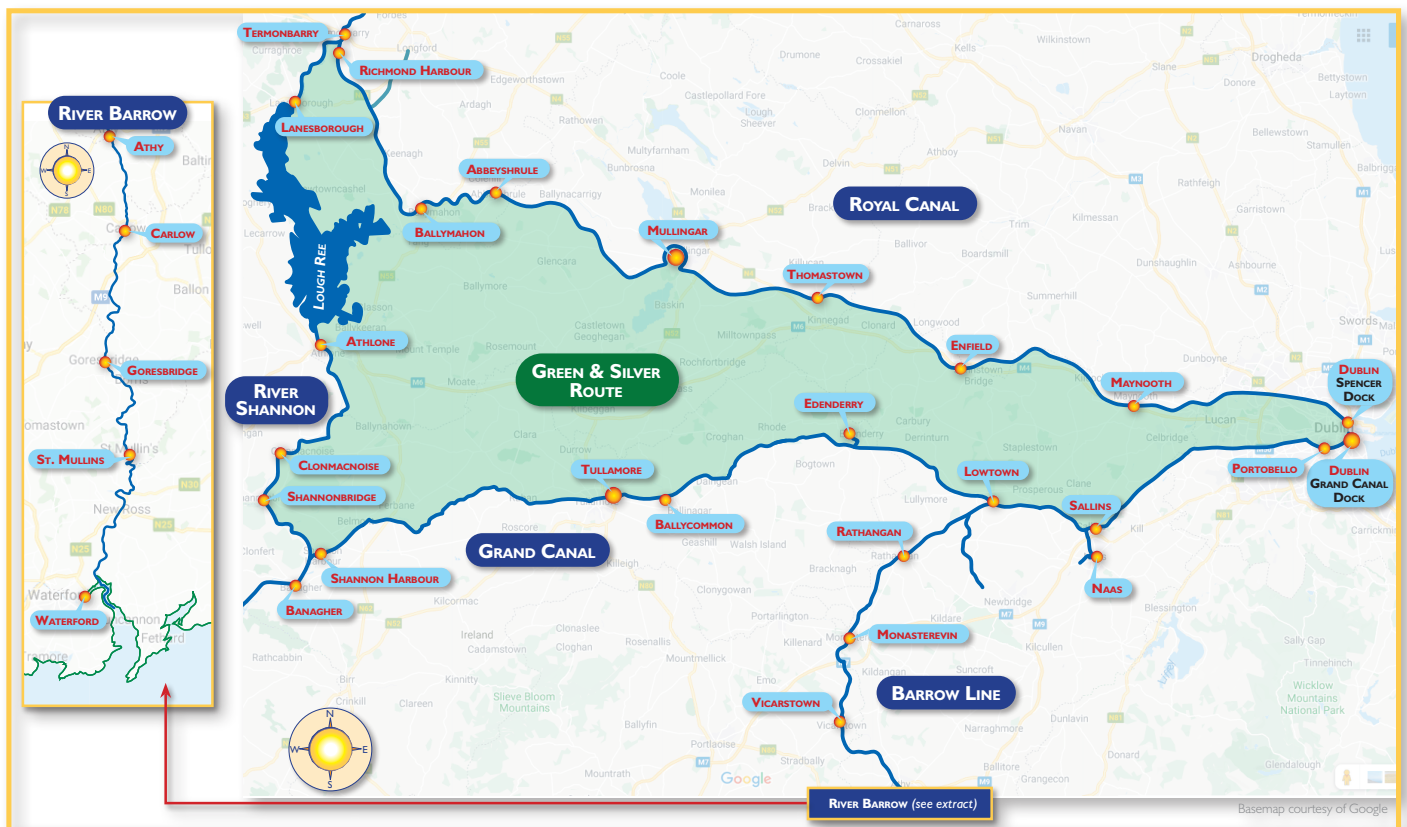
The Green & Silver is a unique and wonderfully scenic waterways route comprising the Grand Canal, Royal Canal and a section of the Shannon River from Tarmonbarry to Shannon Harbour. It follows the triangular route taken by L.T.C. Rolt in 1946. His subsequent book 'The Green & Silver' published in 1949, is now in its 7th edition, it is a boating 'classic' and has become a bible for canals navigation enthusiasts in Ireland and many visitors from overseas. Rolt was one of the founders of the Inland Waterways Association (UK) in 1946.

This Green & Silver route between Dublin and the Midlands is the only looped waterway route in Ireland. It has huge tourism potential as a cruising, walking and cycling route bringing social activity and economic benefit for the regions it passes through but remains undeveloped due to the blocked access to the Royal Canal in Dublin by a rail bridge in Spencer Dock. It has become a bucket-list goal for many Irish boaters and indeed has attracted visitors from the UK, Norway and Germany to name a few. With many inland boaters being based on the Shannon, there is always interest in venturing onto the canals. Naturally people want to travel to Dublin along the Royal or Grand, cross the Liffey and return to the Shannon along the other canal. Interest ebbs away when people learn that they may be blocked from entering or exiting the Royal in Dublin and would have to return the way they came. This looped route is essential for tourism development on Ireland's canals waterways.

Following the closure of the canal in 1961 the original lifting bridge was removed and replaced with a culvert. Circa 2000 the culvert was removed and replaced with the current lifting bridge. This was still some ten years prior to the reopening of the canal and was an adequate solution at the time. The canal was still closed to traffic and the rail line little used. Promises to better automate the bridge never transpired and it was left in the obstructively operational state we see today. Now, thirteen years after the reopening of the canal, it is a blight on the Royals' future. Indeed it is worth noting the loathing in which it is held among the boating community who know it and strive to use the canal despite it's presence. Most of them would genuinely not recognise it's correct name *Newcomen Rail Junction Lifting Bridge*, instead they know it by it's wonderfully dublinesque humoured nickname the '*Fing Bridge*!', pronounced Effin Bridge.



Existing Bridge sitting at water level



The Green & Silver Route

The Original Lifting Bridge

The original bridge was a much simpler affair. Manually operated, with counterbalanced weights, it could be winched up quickly to allow boats to pass. This allowed the rail and canal lines to co-exist and function efficiently for many years before the canal closure. When the canal closed in 1961, the change to a fixed culvert would favour the rail line but the status quo was not returned when the canal finally reopened in 2010 and equal access was denied.



Original bridge, detail



Original manually operated bridge

Dart + West Rail Upgrade

The Dart + West plan is an enormous project which will have many bearings on the Royal Canal. With new bridges over and a tunnel under, the canal will have serious restrictions during those construction years until the completion of the project. The DART rail upgrade is a necessary and forward-thinking plan which will benefit people for many years into the future. It is a great shame that this forward-thinking has not extended to resolving the canal obstruction by Iarnród Éireann. **Surely this is an opportunity to finally complete the reopening of the Royal Canal.**

Under the Dart + West plans there is no electrification of the rail line crossing the Newcomen Rail Lifting Bridge but a necessary infrastructural upgrade is planned for the existing bridge which would see the bed of the bridge lowered by 385mm. The underside of the bridge is at or below water level depending on the water level in Spencer Dock. **The bridge, which is left lowered other than on the arranged, specified few dates each year, obstructs all boat traffic from entering or leaving the Royal Canal in Dublin.** Even a kayak cannot pass this obstruction.

A solution therefore must be found which enables both the rail line and the canal to function capably, neither one encumbered by the other. So what are the options and what is done elsewhere in countries where rail lines crossing canals are an everyday occurrence. The Dutch are very familiar with this situation and the suggested options following are accompanied by similar examples in the Netherlands. There would appear to be two viable options available, both would allow each transport route to function fully.

1. Swing Bridge

Looking at the site of the existing bridge there is ample space to install a swing bridge. The green space to the left is owned by CIE, this site was originally occupied in part by the original manual lifting bridge.



Existing Lifting Bridge and adjacent yard

There is ample space in this yard adjacent to the rail line for a swing bridge (see previous pic). A swing bridge pivoting from this yard would barely encroach on the yard's space. The pic below features a swing bridge (*electrified*) commonplace in the Netherlands.



1. Electric Tram Swing Bridge, Leyden, Netherlands

2. Lifting Bridge

As the existing bridge slab is such a short span it would be possible to create a lifting bridge, hinged from one side as opposed to the current elevating slab. Lifting to near vertical, it would not require further adjacent space when open and could be hinged from either side. The Erasmus Rail Bridge in Rotterdam is an example of an electrified lifting bridge. Though it is a much larger bridge which takes road, rail and pedestrian traffic, it illustrates clearly what is possible. (see pic 2. Erasmus Rail/Road Bridge, Rotterdam).



2. Erasmus Rail/Road Bridge, Rotterdam

Either bridge type would see the two agencies of IE and WI cooperating in their future smooth operation of the bridge, allowing equal and free access to both transport routes.

There was a third option which we initially considered, that of a drop-lock. A drop-lock allows the canal to run under a fixed obstacle, in this case it is a rail line. A deep lock chamber would be built, this needs to be more than twice as long as a normal canal lock. It allows a vessel to be lowered so it can sail under the rail line and have space to exit on the other side when the water level is raised again. It seemed like a perfect solution which would separate the canal and rail line totally without further interruption to each other's schedule. There is such a drop-lock structure at Dalmuir in Scotland which we discussed with an ex-regional chairman of the IWA North-East Region in England. He highlighted the time it would take to move one boat through, which could exceed an hour, making it unsuitable as several boats often need to pass in succession when boat rallies are travelling the waterway. It would also use a prohibitively large amount of water in its operation which the canal could not support.

The Next Ten Years are Critical

The Royal Canal, like the Grand, is seeing a great resurgence in use as the explosion of liveaboard communities fills harbours and their adjacent canal banks in Dublin and Kildare, the expansion is spreading westward along both canals. This has been driven by rising property prices and the inability of people who are in employment, to afford accommodation close to their work in the capital.

IWAI have written an extensive Liveaboard Policy which has been shared with Waterways Ireland who in turn are developing their own plan for Liveaboard development in the future. Indeed the potential for a vibrant canal quarter in the centre of Dublin linking the two canals is heavily dependant on the ability for boat traffic to move freely between the canals. Thus replacement of the Newcomen Rail Lifting Bridge with an efficient, easily operated alternative opening bridge is paramount to the future of the canal and any development of facilities connected with the canals in Dublin.

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References

- Royal Canal bridge pics: Courtesy of Denis M-Baker.
- Original manually operated bridge: Courtesy of Norman Foster.
- Original bridge, detail: Courtesy of *Ireland's Royal Canal 1789-2009*, Delaney/Bath.
- Royal Canal Re-opening pic: Courtesy of The Heritage Boat Association.
- Erasmus Rail Bridge, courtesy of 'Ziko'. https://commons.wikimedia.org/wiki/File:2008-07_erasmusbr%C3%BCcke_hoch.JPG.