

BRUNEL'S OTHER BRIDGE NEWS

NOVEMBER 2024



This is what **Western Harbour** looked like under construction 60 years ago, and could do so again soon. [Click here](#) to see the outline proposals. Alex Lifschutz, Head of LDS master-planning consultants, (and a former Bristol Uni student) gives an overview in a 4 minute embedded video.

PLEASE COMMENT ONLINE [Click Here](#) DO IT NOW as the consultation closes **15th November**.

(In case of difficulty use: <https://harbourhopes.co.uk/index.php?contentid=126>)

This area, and the Tongue to the west, offer exciting opportunities to show-case the unique Brunel Lock and Swivel Bridge, Replica Bridge, underground jiggers, Howard's lock and gates, the dock-office, toll-booth, tide-gauge and more. Please show your support for these heritage assets.

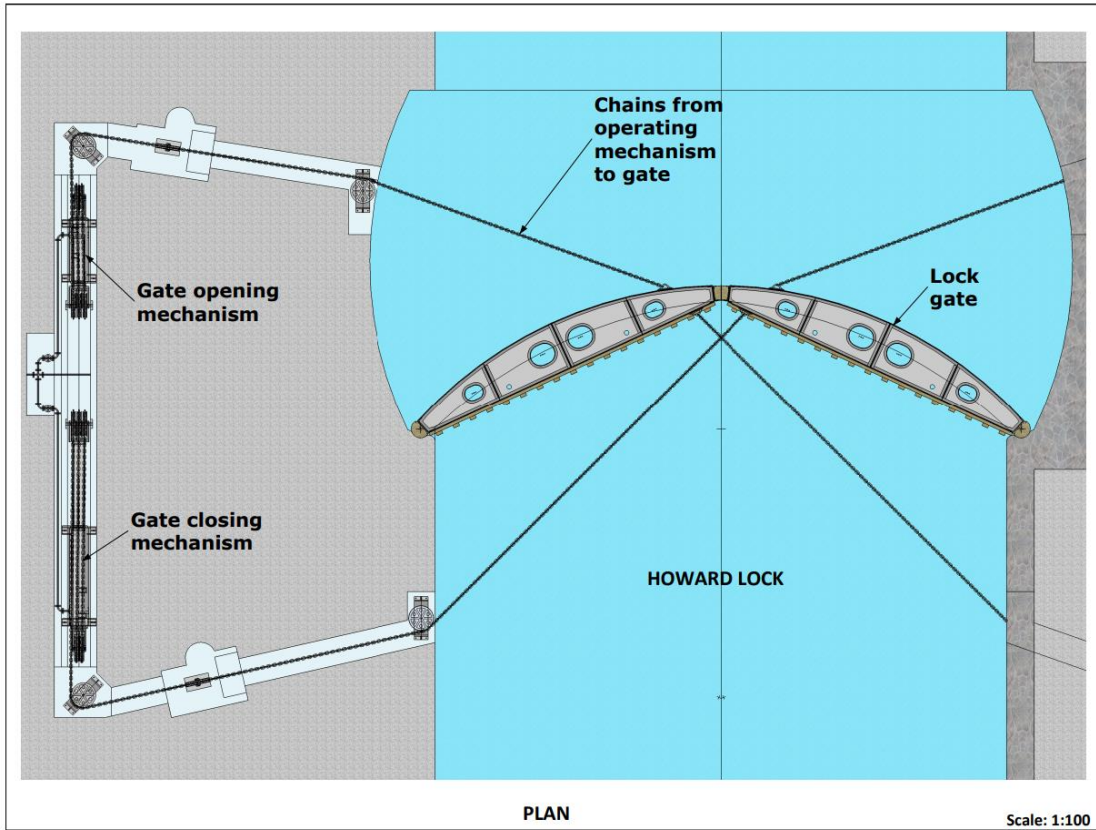
Exhibitions on outline aims are on display at:

- Museum Square, next to M Shed - an outdoor display available to view until 15 November
- Create Centre – 9am to 5pm, Monday to Friday, until 15 November
- Riverside Garden Centre – 9.30am- 5.30pm Mon-Sat & 10.30am- 4.30pm Sun to 9 Nov.

LDS Team Drop-in Events will take place on:

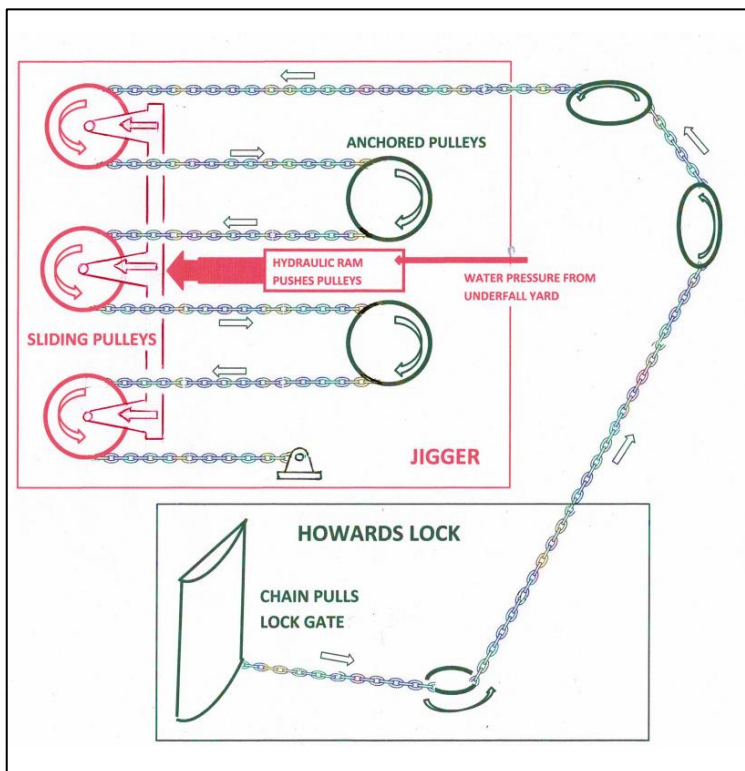
- Saturday 9 November 10am-4pm at Underfall Yard, Cumberland Road BS1 6XG
- Wednesday 13 November 12pm-3pm Create Centre, B Bond, Smeaton Road BS1 6XN

HOW WERE THE LOCK GATES OPERATED 100 YEARS AGO?



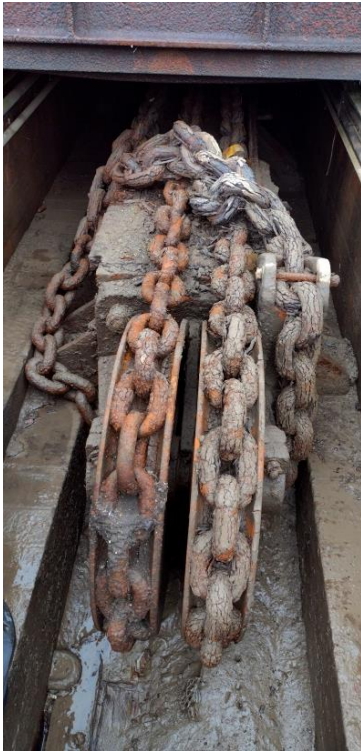
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LOCK GATE OPENING/CLOSING MECHANISM	
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When the lock gates were installed in the 1870's they may have been operated by some form of winch or early hydraulic system. Then around 1903 hydraulic gate opening and closing mechanisms were fitted, as illustrated on our volunteer Bob Watkins's excellent drawing above. Heavy chains passed down into the lock and pulled the lock gate open, whilst another similar system pulled the gate closed. Thus eight sets were installed to operate two pairs of gates, **AND MOST STILL SURVIVE!**



The mechanisms are called 'jiggers'. They comprise giant hydraulic rams were supplied with water compressed to 750 psi (5.1 MPa) via cast iron pipes from Underfall Yard where the contemporary pumps are still working. The water operated a piston ('ram') which pushed three pulleys with chains round them as illustrated left.

Each ram is 15 inches diameter so theoretically can develop 60 Tons force, but is of limited length, so its pull is increased sixfold by a chain passing back and forth over three pairs of pulleys. This hauled in sufficient chain to open one lock-gate, but the force exerted was reduced to about 10 T.



The pressurised water supplied from Underfall Yard was piped to valves beside each jigger. Each valve was operated by a lever slid through a slot in the cast iron cover-plate to lift weighted levers illustrated above. These weights would also have released the pressure if anything went wrong.

prevented incorrect operation.

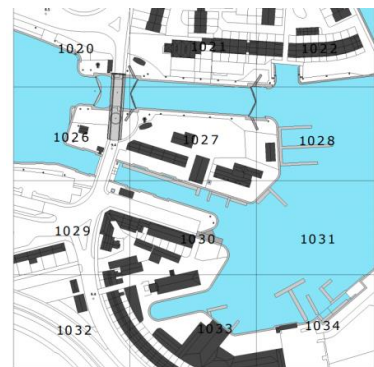
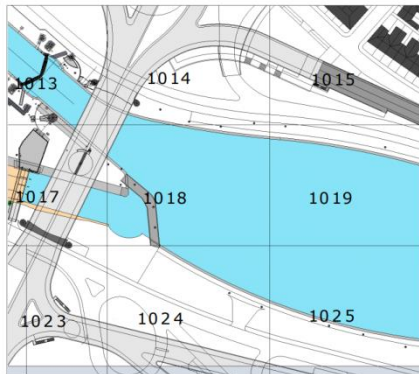
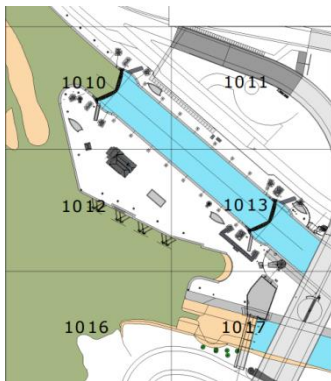
Our specially-designed lifter enables us to slide each plate sideways effortlessly and safely. Charlie Kay then takes numerous still images around the machinery for photogrammetry, whilst Bob Watkins notes principal component dimensions for his detailed scale drawings.



Half way through the recording Charlie had taken about 800 images, so his computer took over six hours to generate the point cloud! 2.5 million points were generated for just one wheel, so accuracy and resolution are both extremely high.

EXCITINGLY, MOST OF THE VICTORIAN JIGGERS SURVIVE TODAY in shallow pits under cast iron plates alongside Howard's Lock.

BOB WATKIN'S DRAWINGS OF CUMBERLAND BASIN



Our volunteer Bob Watkins drawings of the whole Cumberland Basin Area are probably the most detailed in existence, and will eventually show all the main heritage features in even greater detail as investigations progress. The drawings are available to the Western Harbour planners.

HARBOURSIDE PLACE-MAKING STRATEGY: Consultation



Although the *Bristol Harbourside* planning area is to the east of our area of interest, it adjoins and is integrally linked to it. [Click here](#) to see drafts of Place Plans for Baltic Wharf, Spike Island, Whapping Wharf, City & Backs, Canon's Marsh, and Hotwells Road.

A link takes you to multiple-choice questions for you to give your opinion BUT you must hurry as the consultation closes on 4th November

DOCKS HERITAGE WEEKEND

Fortunately the late summer weather was dry for Docks Heritage Weekend 28-9 September. John Willis and his team of BOB volunteers welcomed over 100 visitors. including one visitor from Istanbul ! 25 supporters signed up for our newsletters, and 15 signed our Heritage Conservation Policy Statement. We offer a big welcome to all our new supporters.

WHAT HAVE WE ACHIEVED in 2024?

It has been a busy and eventful year, and we have achieved much, including the following:

- Continued to raise the profile of the heritage assets, including with owners Bristol City.
- Run a successful petition to stop the Swivel Bridge being relocated to Albion Dockyard.
- Assisted in Historic England's re-listing of the heritage assets around Cumberland Basin.
- Helped achieve 'group listing' for Brunel's Lock and Swivel Bridge, with the Replica Bridge.
- Welcomed Phil Loveridge as the new Docks Engineer and introduced him to our project.
- Prepared a structural engineering consultancy brief and helped supervise the consultant.
- Surveyed the entire Tongue, prepared accurate photogrammetric records & CAD drawings.
- Investigated one of the Victorian lock-gate operating hydraulic jiggers
- Re-felted the temporary roof which protects the most vulnerable rusted structure on BOB.
- Carried out weed-control and mowing every month, removed vegetation from masonry.
- Repeatedly painted out graffiti around the Tongue.
- Investigated, recorded, and painted Brunel Lock capstan, and prepared new oak strakes.
- Created a plate-lifter, started investigating & recording the historic machinery in the pits.

A BIG THANK YOU TO OUR VOLUNTEERS FOR YOUR ONGOING SUPPORT

WE WISH EACH OF YOU A HAPPY CHRISTMAS AND LOOK FORWARD TO SEEING YOU IN 2025

PLEASE NOTE: There is a report of each workday on www.brunelsotherbridge.org.uk and on Facebook. Do check it out, share and comment.

www.brunelsotherbridge.org.uk
www.facebook.com/brunelsotherbridge
<https://bwhha.wordpress.com/>