

Barrier Garden Pier Brow Assessment



Frankham were appointed to survey and to undertake a structural assessment of Barrier Garden Pier brow in Woolwich.

Overview

Barrier Garden Pier brow is just downstream of the iconic Thames Barrier. The objective of the project was to provide the Port of London Authority (PLA) with the brow's maximum capacity to allow for refurbishment works. The brow is a 29m steel truss structure comprising main hollow sections and "I" beams. A system of horizontal and vertical bracings provides the restraint system of the structure. Glass, steel plates, and timber boards form the cladding system of the structure.

Some of the services provided by Frankham on this project included:

- A desktop review.
- Tactile and visual inspection of the structure using the PLA's flagship London Titan vessel and man rider.
- Structural survey to obtain the geometry of the brow and provide as built records.
- Ultrasonic Thickness Measurements (UTMs) to obtain thickness of elements composing the structure (in particular circular hollow sections).
- Structure modelling.
- A global structural capacity check ("I" sections, tubular chords, tubular bracing, etc.) with Eurocodes.
- Preparation of record drawings.

Frankham maintained open, clear and professional communication with PLA engineers throughout the works from survey to issue of deliverables using emails.

Client

Port of London Authority

Services

Civil Engineering
Maritime Engineering

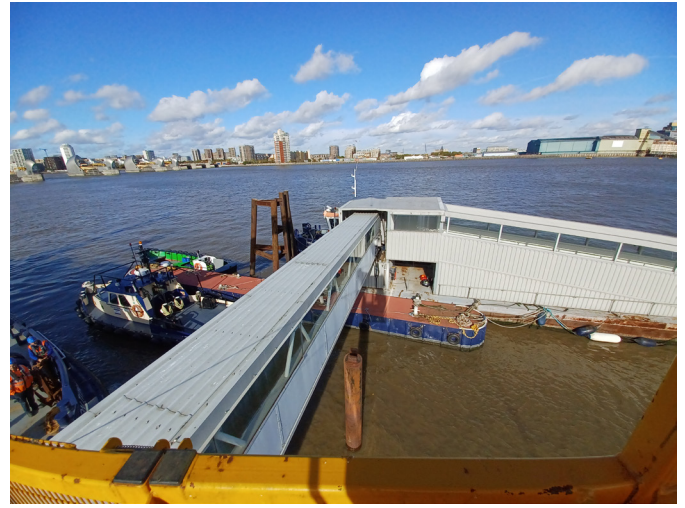
Duration

Oct - Dec 2022

Challenges

Frankham faced challenges both during the survey and during the assessment of the structure. Inspection times were targeted to optimise the use of the London Titan which had to be moored adjacent to the brow. This could only be achieved at high tide due to the required minimum draft for the vessel. The time spent on the man rider was optimised to survey the critical elements of the brow which could not be surveyed otherwise (such as the external cladding and roof).

Another challenge Frankham engineers had to face was the lack of any record information. The assessment was undertaken assuming some parameters such as the steel grade.



Continuous Improvement

Frankham Maritime team's learning process continuously improves from one inspection to another. Works are planned and managed with constant efficacy utilising suitable equipment and PPE.

This survey was carried out by a team including a graduate engineer 'fresh' from university and with no experience in carrying out inspection and collecting data or record imagery. Our close mentoring and management of the works ensured that the project was successful and outputs were delivered with the information required and on time.

Innovation

Frankham carried out the inspection using fully harness trained engineers. Our engineers tactile inspected the Barrier Garden Brow through a man rider moved by the Port of London Authority's flagship salvage vessel London Titan.

This project fits into the Port of London Authority's aspirations to carry on a refurbishment of the structure to maintain and extend its structural and operational integrity.

The PLA were provided with the spare structural capacity to facilitate refurbishment loads combined with an operational live load to maintain its use throughout the works.

Vision for the Tidal Thames

The River Thames is the UK's busiest inland waterway and the Port of London Authority has a fleet of over 30 vessels which serve a range of river users from commuters to cargo handling and recreational users. These vessels and investments in infrastructure projects demonstrate the PLA's commitment to their "Vision for the Tidal Thames" framework which sets the following key goals:

- **Port of London** – *More trade and more jobs*
- **Inland freight** – *Moving goods off the road and onto the river*
- **Passenger transport** – *More journeys*
- **Sport and recreation** – *More participants*
- **Environment and heritage** – *Improved tidal Thames environment*
- **Community and culture** – *More people enjoying the Thames*



Bringing ideas
to life.

