



Returning to its former glory

Originally, the interior cast iron work of the pumping station was decorated with bronzed and gilded elements, striking columns, and colourful flowers and leaves on the upper levels. The placement of the colours had been carefully thought through by the original painters to highlight the form and structure of the ironwork. However, over the years and various redecorations, this vibrant paint scheme became hidden. So in 2015, the decision was made to begin restoring the ironwork to its original splendour.

Paint analysis was carried out by Helen Hughes of Historic Interiors Research and Conservation. The original paint layers were looked at under high magnification, and with this information the colours were established for each section of the ironwork. Additional colour information was determined by uncovering the original paint from beneath the many modern top coats.

Finally, in 2018, Saskia Huning and her team at Huning Decorations used modern water-based materials to lovingly recreate the beauty of the original paint scheme.

This is just one of our historic sites. To find out more visit [thameswater.co.uk/livewild](https://www.thameswater.co.uk/livewild)

Abbey Mills Pumping station

A historic pumping station





Our pumping station at Abbey Mills in Newham is at the heart of the sewerage system created across London in the mid-19th century. It was masterminded by the great engineer Joseph Bazalgette.

Built to lift sewage from the low-lying sewers the station collects a huge amount of the capital's wastewater, transferring it to our northern outfall sewer and then on to our Beckton Sewage Treatment Works near Barking.

Creating London's sewerage system

London was originally drained by rivers such as the Tyburn, Fleet and Houndsditch. But the growth and development of the capital drove them underground, where they became sewers.

In the early 19th century, London's sewage flowed untreated into the River Thames, and, as much of it was buoyant, it floated to the surface. Many Londoners drank this filthy water and died from waterborne diseases such as cholera, typhoid and dysentery.

In 1858, the smell of the River Thames was so bad that MPs found it impossible to continue working at the Palace of Westminster. The overwhelming odour became known as the Great Stink.

The job of solving the problem was given to Joseph Bazalgette, Chief Engineer of the Metropolitan Board of Works. Bazalgette's plans were rushed through by Prime Minister Benjamin Disraeli, and by early 1859, several contracts were under way.

Bazalgette's new system was made up of several very large west-to-east intercepting sewers, running through south and north London, parallel to the Thames. The plan was that any sewage would then be disposed of near the village of Beckton, and flow out to the tidal Thames.

Since then our sewage treatment works at Beckton has grown and grown. It is now one of Europe's largest, treating wastewater from 3.5 million Londoners.



A Punch cartoon from 1858 showing scientist Michael Faraday presenting his card to Father Thames. It followed Faraday's letter to The Times describing the horrors of a journey by boat along the foul smelling river.

The pumping operation

Abbey Mills originally lifted most of the sewage from lower-lying areas of North London, raising it to a height of more than 13 metres to enter the northern outfall sewer.

In an interview with the Saturday Journal, Bazalgette explained that the fall in the River Thames was too low to carry sewage. The new station had to be cleverly designed to remove the need for continual repumping and avoid the plans having to keep being redrawn to avoid railways and canals. It also had to make sure the sewers would be self-cleaning.

In 1997, Abbey Mills was relegated to 'standby' status, and we now only use it to help pump sewage when it rains very heavily and the level of water in the sewer rises significantly.

The following year we opened a new pumping station (F station) nearby, which is now responsible for pumping waste to Beckton.

Buildings and structures

The engine house

This has the layout of a Greek cross, and its style is similar to that of the Orthodox Church. However, the lavish use of costly materials and ornamentation, particularly in the internal ironwork, makes the building exceptional.

The boiler houses

These can be found within two of the quarters of the engine house cross. Half of them were demolished as a result of damage from bombing in 1941.

The site chimneys

These originally towered above the engine house to a height of about 200 feet and looked like minarets, giving Abbey Mills its nickname of 'the mosque in the marsh'. But these beautiful structures had to be demolished in 1941 as an air raid precaution. If a bomb had hit one of them, they could have toppled onto the pumping station itself.

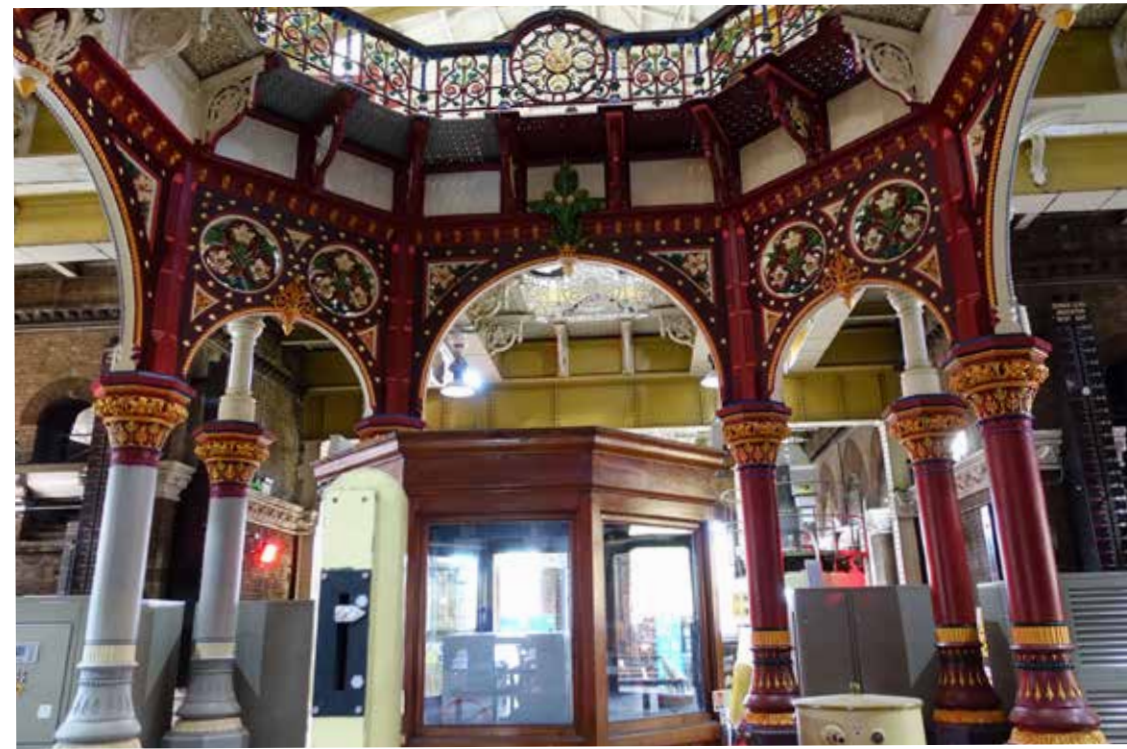
Other buildings

These include buildings for stores, a screening chamber, the superintendent's house and several semi-detached workers' houses.



Earliest buildings/structures

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|---|----------------------------------|---|------------------------|
| A | Engine house | F | Screening chamber |
| B | Former west boiler house | G | Chimneys (ruins) |
| C | Site of former east boiler house | H | Economisers |
| D | Former coal bunkers | I | Superintendent's house |
| E | Store | J | Former workers' houses |



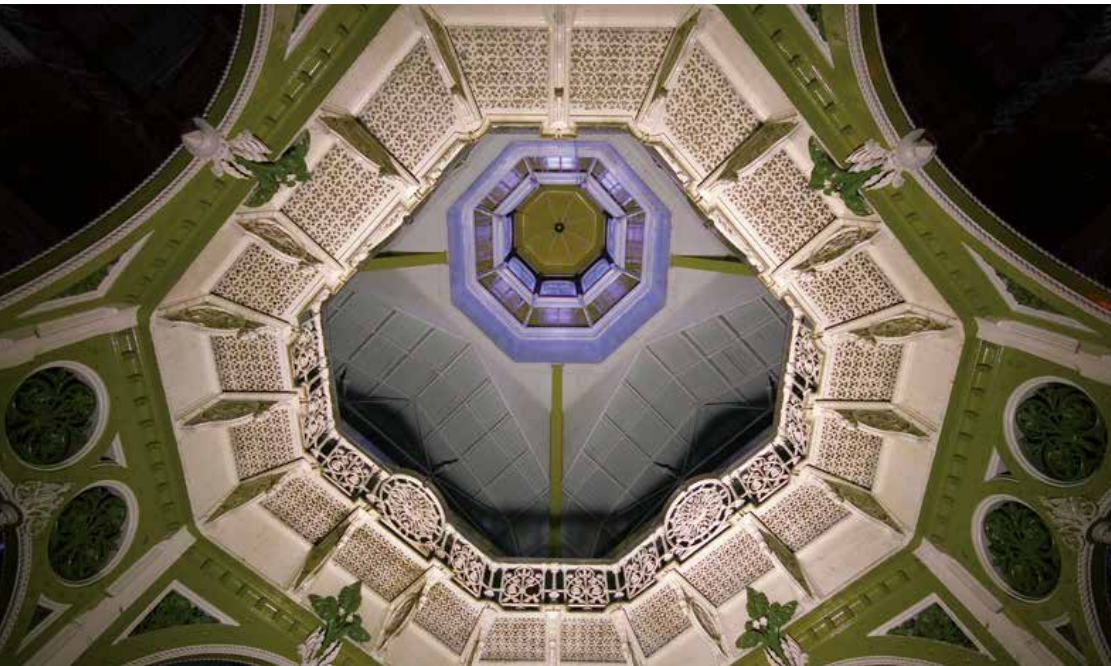
Abbey Mills architecture

Abbey Mills is an early example of the work of Charles Driver, who specialised in engineering-related work, particularly railways. His designs include stations on the South London line, at Box Hill and Tunbridge Wells West. He established a considerable practice and even obtained overseas commissions such as the Central Market in Santiago, Chile.

Six styles of architecture

No other Victorian building of this era is thought to include so many styles of architecture. At Abbey Mills you can see signs of six styles:

- Italian Venetian** Visible in the style of arched-over windows and the Venetian corkscrew twist incorporated into the rainwater downpipes.
- French Gothic** Reflected in the internal iron pillars and the tops of the access towers to the beam engines.
- Flemish** Seen in the steeply pitched mansard roofs.
- Byzantine/Moorish** Shown in the venting chimneys, which looked similar to minarets.
- Russian Orthodox** Evident in the octagonal cupola or lantern.
- Celtic** Seen in the brass and copper florets on the east wing doorway.



The site's engineering

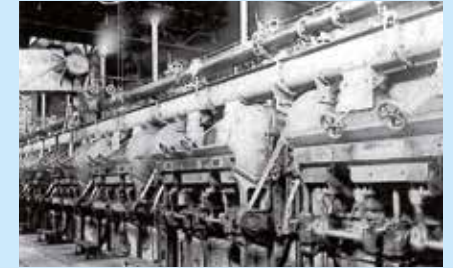


The steam era

1868 to the early 1930s was the era of steam. Our site's machinery originally consisted of eight 142-horsepower condensing rotary beam engines.

The picture above is taken at ground level. On the right-hand-side of the photo is a short cylinder and just above it, an intermediate gallery giving access to the cylinder head.

Above and just under the main arch, you can see a higher gallery which gave access to the beam engines.



The large cylinder just below is a condenser. To the left of this, we can glimpse a flywheel quarter.

The steam was provided by boilers, which were replaced in the early 1890s by 11 new ones. They gave higher steam pressure and needed less coal.

We can see five of these at the furnace ends in the picture above. The smokeless fuel elevator and conveyor are in front of and above the furnaces.

The electricity era

In 1933 our plant was installed consisting of eight electrically driven pumps with an overall capacity of 224,000 gallons a minute. These are affectionately called the 'Daleks' due to their uncanny resemblance to the Doctor Who villains.

The plant can pump almost all the dry weather flow from the lower parts of North London.

