

Annie

'Annie' is the affectionate name for the giant tunnelling machine creating the 4.5km connection tunnel between Greenwich Pumping Station and the main super sewer at Chambers Wharf.

Annie is smaller than the main tunnel boring machines but still a whopping 6.4m wide. The tunnel Annie creates will continue past sites in Deptford, taking in the Earl Pumping Station, before ending in Bermondsey.

It's named after Annie Scott Dill Russell, the first female scientist to work at the Greenwich Observatory. She was one of the leading astronomers of her time, but because of her gender, her contribution was underplayed. In 1915 she became the first woman elected to the Royal Astronomical Society, 20 years after being refused membership because of her gender.

With thanks to Mick Delap and the CreekLink Heritage Trail project.

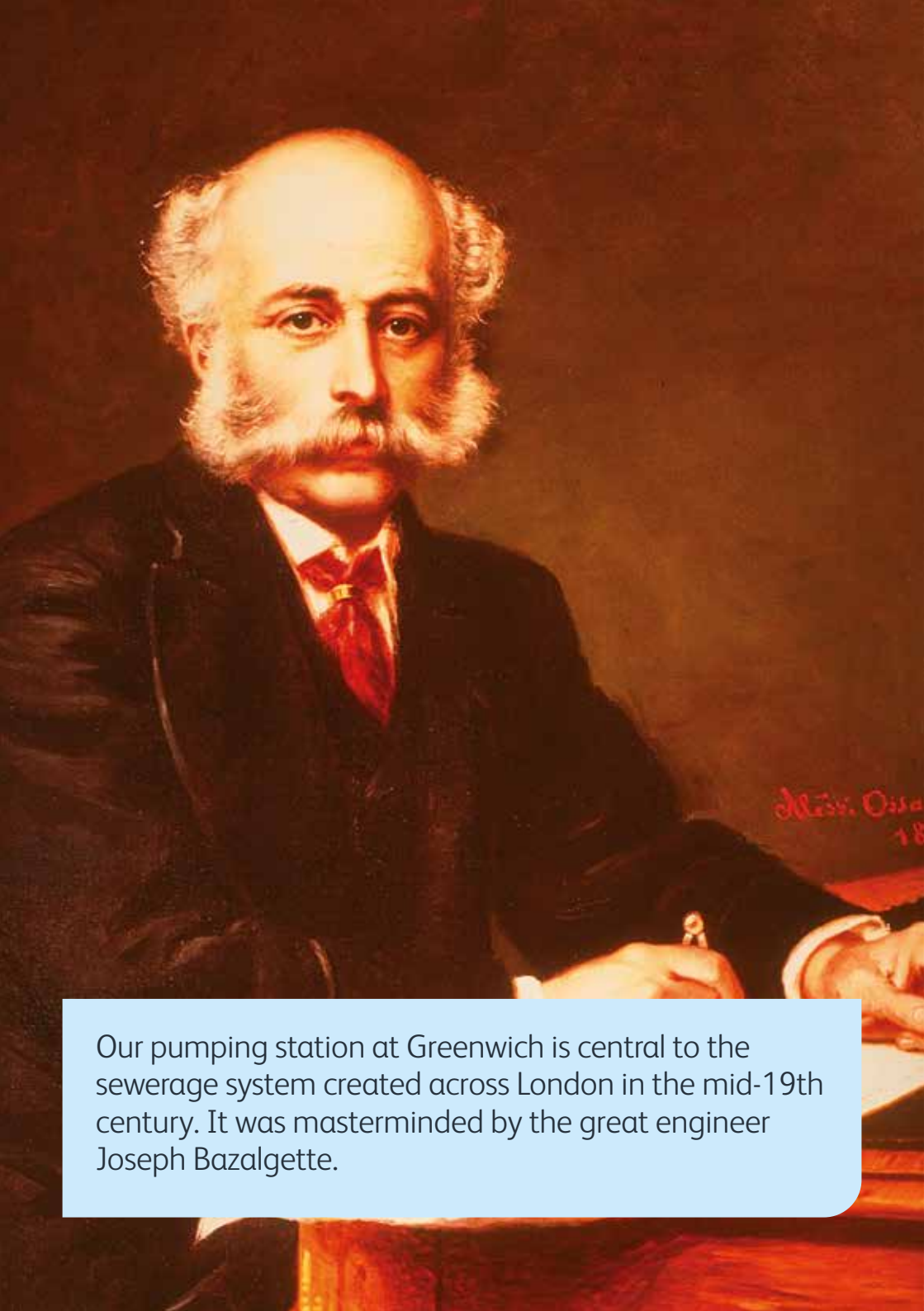
This is just one of Thames Water's historic sites. To find out more about the others, visit thameswater.co.uk/livewild



Greenwich Pumping Station

A historic pumping station





Our pumping station at Greenwich is central to the sewerage system created across London in the mid-19th century. It was masterminded by the great engineer Joseph Bazalgette.

Creating London's sewerage system

London was originally drained by above-ground watercourses such as the Tyburn, Fleet and Houndsditch. However, 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 the filthy water and died from waterborne diseases such as cholera, typhoid and dysentery.

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

Joseph Bazalgette, Chief Engineer of the newly created Metropolitan Board of Works, was given the job of solving the problem. Prime Minister Benjamin Disraeli rushed through the legislation for Bazalgette's plans, 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 London, parallel to the Thames. Any sewage would then be disposed of via the pumping station at Crossness, then flow out to the tidal Thames.

Our Crossness Sewage Treatment Works is Europe's second biggest waste treatment plant and serves approximately two million people in east London.



This Punch cartoon (1858) shows scientist Michael Faraday presenting his card to Father Thames. It followed Faraday's letter to The Times describing the horrors of a boat journey along the stinking river.

History of Greenwich Pumping Station

Greenwich is the jewel in the crown of our pumping stations. The site has a total of four Grade II listed heritage assets:

- Pumping station, with east and west beam engine houses
- Four coal sheds
- Network Rail viaduct

The pumping station was designed by Sir Joseph Bazalgette, chief engineer at the Metropolitan Board of Works, and completed in 1864. Greenwich Pumping Station formed part of Bazalgette's scheme to improve London's sewers and prevent raw waste reaching the Thames.

Greenwich Pumping Station was the meeting point for a number of sewers that were part of the Southern Outfall Sewer network, intercepting waste from south of the river before flowing to Crossness Sewage Treatment works.

The scheme relied on gravity to send the sewage from the higher levels in London to Crossness, which is lower. But the gradient wasn't sufficient to send sewage the whole way without intervention. A pump was needed to raise the sewage enough to reach the treatment works – that's where Greenwich came in.

It was originally known as Deptford Pumping Station, a rather confusing name, as it sat on the Greenwich side of Deptford Creek. The location, covering an area of three acres, was chosen as it provided a good source of coal (transported by sea and barge) which was needed in large quantities to power the steam pumping engines. In addition, the land around the creek was undeveloped and therefore relatively cheap to acquire and build upon. The pumping station was built at a cost of £109,455

The name changed around the time the Greater London Council was abolished and Thames Water took on the responsibility for sewage management, as it already had a Deptford Water Pumping Station in Brookmills Lane.



Credit: PAYE Stonework & Restoration

Engine houses

The engine houses, built in London stock brick in the Italianate style, were in operation by 1865. The main building had both an east and west beam engine house, which were linked by a central boiler room. There were four beam-engines in total, each capable of pumping about 123 million gallons a day.

As beam engine technology became redundant, the beam engines were removed to make way for more modern technology. The West engine house was extended and converted in 1905 to make way for the new pumps. Thames Water now uses the west engine house as the operational pumping station.

Coal sheds

To the south of the engine houses there are four 19th century coal sheds. These were constructed out of cast iron and wrought iron, with slate roofs and wrought iron roof trusses. The Roof trusses are hollow and designed to drain water. You can still see the original cobbles and wrought iron structure today.

Coal was unloaded from Deptford Creek at Greenwich Road Wharf, where it was loaded onto trolleys, probably manually, and delivered to the pumping station to feed coal into the boiler house.

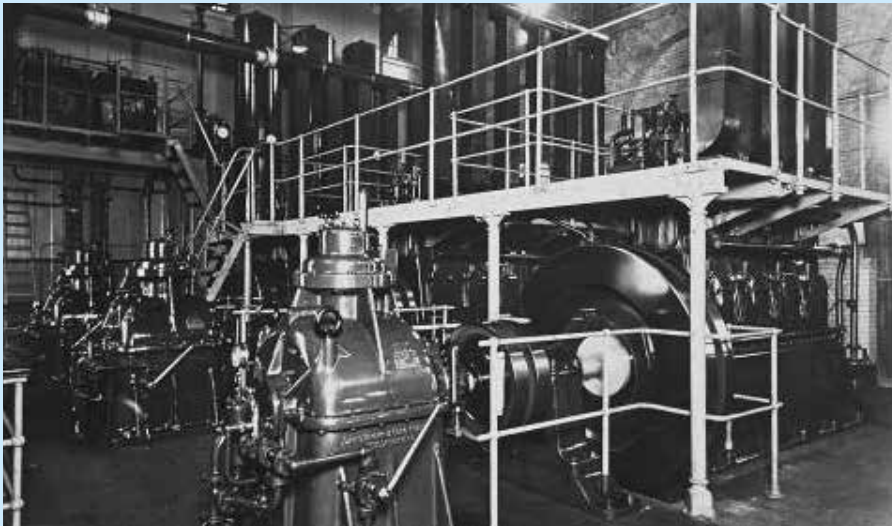


Tideway Tunnel

London currently relies on the 150 year-old sewer system built for a population less than half its current size.

The Tideway Tunnel is being built to modernise the system and intercept the raw sewage that spills untreated into the Thames every year. This super sewer is 25 kilometres long, wider than Big Ben's clock face and deeper (in places) than Nelson's Column is tall.

Greenwich Pumping Station is the site of one of the shafts for the tunnel connecting Greenwich with Chambers Wharf. This connection tunnel will provide additional sewer capacity in South East London and allow wastewater to be transferred to the main Tideway Tunnel to avoid discharging to the river.



Greenwich Pumping Station interior