

Case study

## Optimising our resources on Tideway



The Tideway project has an important problem to solve: London has been reliant on a 150-year-old sewer system built for a population less than half its current size. The Tideway project is modernising London's iconic waterway by building a 25km Super Sewer under the River Thames to ensure it meets the needs of the city's c. 9 million residents, to clean up the river and create a better environment for the many species that rely on the Thames.

The Tideway project is split into three sections: West, Central and East. As part of the FLO joint venture, Laing O'Rourke is responsible for delivering the Central section, along with partners Ferrovial Construction UK.

**Improving our natural environment – in this case in and around the River Thames – is the raison d'être of this project.** As such, there has been a keen focus on minimising environmental impact and identifying opportunities to 'do better' throughout. In particular, Tideway focused on:

- **More By River**
- **Best practice waste management**
- **Carbon footprinting and reporting**

### More By River

A More By River philosophy has been applied through the project, challenging the team to substitute road for river transport. This has

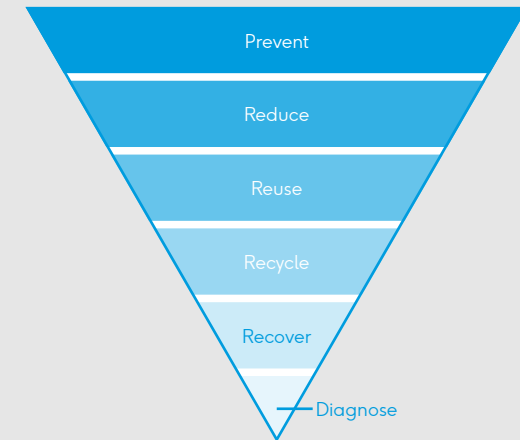
three important benefits: much lower transport emissions; mitigating safety risk associated with having additional HGVs on London's roads; and a reduction in local disruption – an important factor in such a busy part of central London. In fact, for specified materials such as cofferdam fill material and excavated material from tunnels and shafts, **90% were moved by river.**

One of the ways in which the team embraced the idea was by **establishing floating stores**, which not only helped to maximise space along the riverside, it also made delivery of materials by river much more straightforward. The on-site concrete batching plant was **served by river-transported materials**, and this approach was also a great way to distribute excavated material to new 'homes' along the river.

### Creative thinking to minimise waste

The waste hierarchy was used to help optimise resources across the project, as well as a basis to drive cultural change that permeated all site personnel. This **culture was central to the waste programme's success**, requiring all team members to work together to identify opportunities for material savings, to maintain and store any material and equipment identified for reuse and to support the collective drive to **optimise resources and embrace circular economy principles**. Two notable targets were established at project outset:

to divert at least 90% of waste from landfill, and to **beneficially reuse at least 95% of the clean excavated material from the worksite**. In fact, the project is on track to **divert 96% from landfill** and the target was also achieved for excavated material.



### Prevent

The design of the batching plant was carefully configured so that gravity drops could be used in place of pumps. Not only did this eliminate the unnecessary use of material associated with pumps, it also eliminated the need for energy and diesel to run them.

Case study continued



By reducing the thickness of the tunnel by just 50mm  
**20,000 tCO<sub>2</sub>e was saved.**

**24,400 tCO<sub>2</sub>e in road emissions were avoided**  
by using river transport

The More By River strategy saw **5,759,000 tonnes of material transported by river**, replacing an impressive 17.5 million HGV miles, and resulting in a total saving of **24,400 tCO<sub>2</sub>e emissions from transport**.

Reduce

The main tunnel running through the Central section is 12km long. Following detailed analysis, our team identified that the tunnel thickness could be reduced by just 50mm without impacting the technical robustness of the tunnel. This **tiny reduction in diameter resulted in a huge saving in materials and in carbon** – around 20,000 tCO<sub>2</sub>e, in fact.

Reuse

A drive to implement circular economy principles was driven by project leadership and upheld across the entire project. Collaborative efforts between teams – including FLO and supply chain partners - identified equipment and materials that were no longer needed and the team collectively worked to allocate them to new homes. This varied substantially, covering water meters, aggregate, sheet piles and pumps through to the tunnel's secondary lining gantry, barges and cranes. Effective communication was key to success, and the Tideway Central team worked beyond the project itself to **identify opportunities for reuse at Tideway East and Tideway West, as well as other tunnelling projects**, such as HS2 and Silvertown, and construction operations at our off-site manufacturing facility in Nottinghamshire. **Social enterprises also benefitted from donated equipment**, with welfare accommodation units given to a local community centre. This programme was formally

recognised within **Tideway's 2023 RightWay Awards, winning the Environmental Initiative category**.

**Thousands of tonnes of equipment and materials were saved from waste disposal**, with many items such as piles, aggregates and cabins transported by river.

As well as substantial environmental and carbon benefits, this initiative delivered a financial saving to the Tideway project of more than £10m.

**Eamonn Dolan, Project Director for Tideway, said:**

**“Thames Tideway is ultimately a large-scale environmental project, cleaning up the river for the long-term. It was therefore vital that excellent environmental practices were achieved throughout, and the team have certainly risen to the challenge. I am exceptionally proud of the ingenuity and team spirit that have been applied to waste management, which I consider an exemplar standard. Throughout, there has been a dedication to innovative thinking and trying new approaches, and this attitude has reaped tangible results.”**

Image:  
Decorative air vents  
at the newly-created  
pedestrian area,  
Tideway, London, UK