



Tideway

# SUSTAINABILITY REPORT

2023





Underground at Blackfriars Bridge Foreshore

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Cover image: Jason Yadao, Barn Elms sub-agent and Samantha Freelove, Legacy and Sustainability Manager at Barn Elms, Wandsworth.

# FOREWORD BY ANDY MITCHELL, CEO



Reflecting on a year of progress on the Tideway project and one of the most notable features has been the shift in the external context we are working within. The last 12 months have seen a dramatic rise in public concern for our waterways with the chorus of voices calling for action growing by the week. This context makes our work to protect the tidal River Thames more relevant and urgent than at any other time.

At the close of business year 2022/23 we had achieved nearly 90 per cent of our construction programme with the 25km sewer tunnel constructed deep below London. Much progress has been made above ground to provide cover structures for the infrastructure along the riverbank, many of which will serve as new areas of high-quality public realm, designed to last for hundreds of years. In 2024 we will start commissioning and testing the

new tunnel, which means we will start to protect the Thames from pollution, bringing us a step closer to the goal of a healthier river.

We are proud of this progress, but we have always been clear that how we deliver Tideway – in a way that is sustainable – is just as important as what we build. This report tells that story, outlining our performance against the 54 legacy commitments set out at the beginning of the project in 2015, including where we have achieved our targets, where we haven't, and what we have learned.

**“Our work to protect the tidal River Thames is more relevant and urgent than at any other time”**

It also summarises how we are contributing to the UN Sustainable Development Goals (SDGs) and includes our response to the Task Force on Climate-related Financial Disclosures.

Finally, we have included the findings of our first Social Impact Report which is a robust social cost benefit analysis of our legacy programme beyond the core environmental benefits that the tunnel will deliver and our legally binding obligations. This piece of work is already helping to inform other organisations and projects committed to delivering a genuine social legacy and measuring it in a way that is nuanced.

I hope you find the report interesting and informative. If you have any comments or questions, we would love to hear from you.

Andy Mitchell CBE

# THE TIDAL THAMES AND ITS ECOLOGY

The River Thames flows for 346km (215 mi), making it the UK's second longest river – and almost half of its length is tidal.

This 153km (95 mi) stretch is what we call the 'Tideway'. It starts at Teddington Lock, the first lock on the river, and flows downstream until it reaches the North Sea.

How much do you know about England's most famous river? Here are some sustainability facts that may surprise you.



## Changing waters

The water in the tidal Thames isn't the same all the way along: it goes from freshwater (upstream), through to saline, and finally sea water (downstream).



## Natural colour

Why does the Thames River water often look murky? The answer isn't pollution – it's natural silt that makes it cloudy and brown.



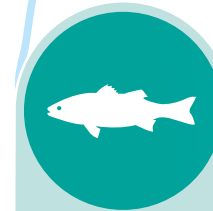
## River seals

There are two resident marine mammals in the tidal Thames – the grey seal and the harbour seal. There is a healthy population of ~4000.



## Endangered eels

The European eel is a critically endangered species, which uses the River Thames as a migration route.



## Swimmers and divers

The tidal River Thames supports 115 species of fish including sea bass, Dover sole and flounder along with 92 species of bird.



River wall at King Edward Memorial Park Foreshore.

### Vital ecosystem

The tidal Thames is an estuary. Estuaries are where rivers meet the sea, making them uniquely important natural features and some of the most productive ecosystems in the world.



Victoria Embankment Foreshore

### Priority habitat

The tidal Thames is home to 16 different types of habitat including 600ha of saltmarsh habitat. Saltmarsh is a dynamic, intertidal habitat and critical resource for many species. For this reason, it has been identified as a priority habitat by the UK Government.



### Shark tales

It's amazing to think that five species of shark can be found in the River Thames!

These include Tope and Starry Smoothhound, which are thought to use the Greater Thames Estuary as a nursery ground to birth and bring up their pups.



### Cetacean visitors

You will rarely find a whale in the Thames but you might be lucky to spot a harbour porpoise.



### London's seahorses

Only two kinds of seahorse are found in the UK – and one lives in the River Thames. The short-snouted seahorse, found at Greenwich in 2017, indicates that the tidal Thames is a recovering estuarine ecosystem.

## Health check

These tidal Thames facts could suggest all is well in the river. But unfortunately, like most of our habitats, the tidal Thames is suffering the effects of climate change, pollution and development. For a comprehensive review of the Thames, please read ZSL's [‘State of the Thames’ report](#).

# EMBEDDING SUSTAINABILITY: OUR APPROACH AND PERFORMANCE

## The Tideway project

Tideway is a privately-financed company responsible for building, commissioning, financing and maintaining the Thames Tideway Tunnel. However, our ambition for this engineering endeavour goes beyond building a 25km tunnel, ‘the super sewer’ to stop tens of millions of tonnes of sewage polluting the River Thames each year. We want to transform the Thames, leaving it cleaner and changing how Londoners use it. Delivering the project in a sustainable way has always been important to us. This report details the progress we have made this year in fulfilling our legacy and sustainability commitments.

## Delivering our legacy commitments

Our key metric for tracking performance on sustainability is the percentage of our legacy commitments on track. Throughout FY 22-23 we averaged 92 per cent of live legacy commitments on track. Nine legacy commitments were completed (‘closed out’) in the year, bringing the total closed to 25. We achieved or exceeded our targets in eight of the nine commitments. In relation to health and safety training, we achieved the commitment which saw 118 supervisors trained to ILM Level 3 Certificate in Leadership and Management.

On apprentices, 151 individuals completed apprenticeships with a ratio of 1 in 29 which was ahead of our 1 in 50 target.

On our commitment to employing people with convictions, we offered sustained employment to 37 individuals, which is a 1 in 149 Full Time Equivalents (FTE) however we did achieve positive outcomes and learned many lessons to inform other organisations who are seeking to support employment for people with convictions in the future. Further information on our wider work to support people with convictions into sustained employment can be found [here](#) and in our Annual Report.

We completed our community investment and volunteering and STEM programme, further details can be found on page 14 and in our Annual Report.

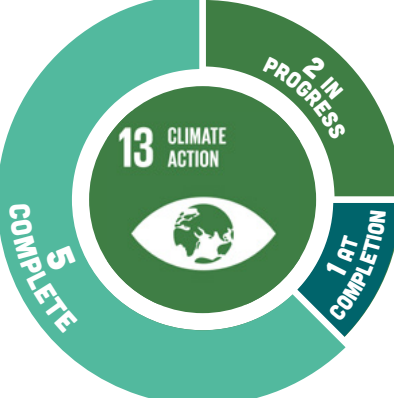
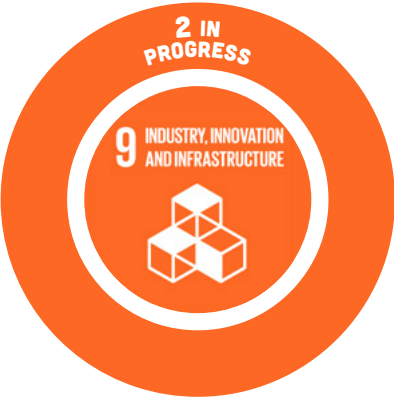
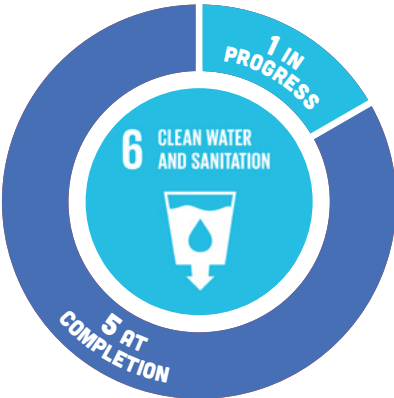
We continue to track our progress against the UN Sustainable Development Goals (SDGs) – refer to Figure 1. With the completion of the STEM programme we consider our contribution to UN SDG 4 Quality Education to be complete.

The year has not all been about closing our commitments. With more work above ground, we have started to install biodiversity enhancements within our above ground and in-river structures. By the time the project is completed our biodiverse roofs will cover an area equivalent to nearly three tennis courts. Further details on page 18 below and in our Annual Report. In addition, our first year of funding Groundwork London’s Our Space Fund resulted in 744 trees being planted, 11,211m<sup>2</sup> of land improved and 1,004m<sup>2</sup> of area de-paved. Further details on page 20.

We are a project with an anticipated carbon footprint of ~770,000tCO<sub>2</sub>e, mainly from the embedded emissions within the key building materials we are using to construct the tunnel (concrete, aggregates, steel). We appointed a 3rd party to undertake a critical review of our emissions against the Greenhouse Gas Protocol.

The verification process did not uncover any ‘material’ issues and has provided us with certainty in the robustness of our data. The findings from the process can be found on page 22.

# FIGURE 1: PROGRESS IN DELIVERING OUR LEGACY COMMITMENTS AND THEIR RELATIONSHIP TO THE UN SDGS.



## Materiality

Although we are a mature project, almost 90 per cent complete at the end of FY 22-23, we continue to ensure that our sustainability topics remain material to us and we do this through quarterly performance reviews with Tideway's Executive Committee and six-monthly reviews with the Tideway Board. We identified our material topics for our legacy and sustainability programmes in 2013, in consultation with local communities, local and national government, London business groups and river organisations. At the time, the project was the UK's largest public consultation on a construction project as it engaged 300,000 people through the planning process. Our stakeholder engagement also highlighted an opportunity to deliver a 'big picture' social benefit to be a long-term, positive influence on the Thames future role - which we captured in our company vision statement: 'Reconnecting London with the River Thames'.

Learning legacy is vital for major projects to improve on what went before them. The publication of our **Social Impact Report** and findings from the external assurance of our Scope 3 (embedded) carbon data is the start of our learning legacy journey, with more to come in the years ahead.

## S&P Global Ratings - ESG Evaluation

Tideway's environmental benefits and focus on sustainability have been highly rated by S&P Global Ratings for the third year running.

Tideway has been assigned an Environmental, Social and Governance (ESG) Evaluation of 77 out of 100 and reflects that "sustainability is well embedded in the company's strategic objectives and operations."

It also praised our 3rd party Social Impact assessment of our Legacy programme and the external assurance of our Scope 3 (embedded) carbon data.

Tideway was previously assigned an ESG Evaluation of 76.

The report says: "Tideway has been set up to deliver a tunnel, which we expect to have significant environmental benefits in terms of increasing sewage storage capacity and reducing the amount of combined sewer overflows discharged into the Thames. In addition to the sustainability benefits associated with the tunnel, our assessment incorporates the company's own sustainability credentials. These include Tideway's high governance and social standards partly due to its regulated nature."

S&P Global Ratings currently evaluates more than 185 entities across the globe; they have an average score of 65.

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**S&P Global**  
Ratings



# SECTION I: LEGACY – OUR PROGRESS THIS YEAR



*Kirtling Street site in Wandsworth is visible to the east of Battersea Power station*

# SOCIAL IMPACT

We completed a two-year journey to uncover the social impact of our legacy programme.

We appointed a third party to undertake a robust social cost benefit analysis of the benefits from the programme above and beyond our legally binding requirements and the core benefits of the tunnel's operation.

The report showcased Tideway's 'ripple effect', reflecting both the benefits of the Tideway legacy programme for London and beyond but also what we are leaving for industry in sharing our learnings on social value measurement.

You can read our Social Impact report [here](#).

“There is growing momentum in the area of social value assessment and its influence has grown from a few billion pounds a year to nearly £100 billion a year over the past decade.

“The challenge is how we can systemise social value in public and private organisations to take it to the next level and it's great that Tideway has invested so much time and effort in developing this report to share more data, evidence and knowledge.”

Andrew O'Brien of Social Enterprise UK



## ONE FIFTH

of the benefits attributed to Tideway's robust approach to Health and Safety



**£40.3 MILLION**  
net benefits created since 2015 to date,  
including expected future benefits to 2024



# CARBON



We appointed a third party to undertake a critical review of our Scope 3 (embedded) carbon data following the Greenhouse Gas Protocol. The verification process did not uncover any ‘material’ issues and has provided us with certainty in the robustness of our data.

Our Scope 3 (embedded) carbon emissions to date is 518,193 tCO<sub>2</sub>e. With construction almost 90% complete, we do not expect to exceed our anticipated carbon footprint of ~770,000 tCO<sub>2</sub>e.

## Delivering social value

The social impact study showed that reducing our carbon footprint from the original predicted footprint of 840,000tCO<sub>2</sub>e down to 770,000tCO<sub>2</sub>e, delivered £4.87 million of social value.

Detailed carbon data can be found on Page 23



Underground at Blackfriars Bridge Foreshore

## 70,000 tCO<sub>2</sub>e

expected reduction from our predicted carbon footprint



## ON TARGET

Tideway is on track to keep within our anticipated carbon footprint

## £4.87 MILLION

social value created by reducing our predicted carbon footprint



# RIVER TRANSPORT AND TRAINING



The total quantities to date transported by river on Tideway is 5,633,000 tonnes. This consists of 4,810,000 tonnes of specified materials that are required to be transported by river under the River Transport Strategy and 823,000 tonnes of additional materials that were transported as part of the More by River Strategy.

The benefits of these strategies was to remove around 336,000 HGVs or 672,000 HGV journeys from London's road network, saving over 17.1 million HGV miles and avoiding in the region of 24,000 tonnes of CO2. These carbon savings have been subject to 3rd party verification.

With the completion of tunnelling we have exceeded our legacy commitment to transport 90 per cent of material excavated to create the main tunnel by transporting 100 per cent of main tunnel arisings by river.


We have also closed our commitment to improve Health & Safety on the river for Tideway river transport workers. A total of 103 individuals successfully passed the innovative boat master competency validation at HR Wallingford ship simulation centre.

## Delivering social value

The social impact study showed that our approach to taking lorries off the road and instead use the river to transport materials and excavated waste, delivered £16 million of value to society.




**5,633 MILLION TONNES**  
moved by river to date

Saving   
**24,000 TONNES**  
CO2 emissions

**17.2 MILLION**   
HGV miles saved, which is equal to 36 return trips to the moon

 **103**  
individuals passed boat master training

**336,000**  
fewer HGVs on the road 

**£16 MILLION**   
social impact value of our river transport approach

# CREATING APPRENTICESHIPS



## Completing our commitment

We completed our legacy commitment on apprenticeships with a total of 151 individuals having a FTE sustained apprenticeship with Tideway. This was a ratio of 1 in 29, which was ahead of the 1 in 50 target we set ourselves to help tackle the construction and engineering industry's skills gap. As the project moves towards completion, we are not taking on new apprentices but are still supporting those going through their apprenticeships.

## Delivering an impact across London

Our programme included the first cohort of Tunnelling Operative apprentices in the industry - you can read a case study on this programme [here](#). We also offered apprenticeships in areas ranging from civil engineering to boatmasters, business administration and digital engineering. We are also a founding partner and funder of the [Thames Skills Academy](#), which is helping to train the next generation of river workers.

## Delivering social value

Apprenticeships can have a hugely positive effect on young people's lives – not just offering on-the-job training and improving career prospects, but also creating a greater sense of life satisfaction. Our social impact report measured the wellbeing benefit of apprenticeships over and above the 1 in 50 target - we did not count benefits that would have happened anyway through our legal commitments - and showed that exceeding our targets delivered £624,000 of wellbeing benefit.



**151** individuals completed a sustained apprenticeship with Tideway

**£624,000**

wellbeing benefit created by Tideway apprenticeships



**1 IN 29**

ratio of sustained apprenticeships with Tideway – ahead of our 1 in 50 target

**CAREER PROSPECTS**



apprenticeships ranged from civil engineering to boatmasters, business administration and digital engineering

# STEM (SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS) ENGAGEMENT



## Delivering an impact across London

Since the start of the project, our STEM programme has supported 98,646 young people, 442 schools and other educational organisations, and led to 15,870 hours of staff volunteering.

## Completing our commitments

We completed the engagement programme we have run with schools, colleges, universities and community STEM clubs since the start of the project - encouraging young people in careers related to STEM. Our commitment and the dedication of our teams helped us achieve 3.2 hours per 3 FTE, far exceeding our target of 1 hour per 3 FTE.

In 2022-23 we engaged more than 3,800 young people, including through a partnership with the Construction Youth Trust (CYT) on their Building Future Careers programme. CYT also brought 30 young girls from Marylebone School for Girls to the project to hear from women working on Tideway about their roles and careers. With the completion of our STEM programme we consider our contribution to SDG 4 Quality Education to be complete.

## Delivering social value

The social impact study showed the value to society of our programme is £8 million, based on the government's valuation of STEM-related careers and a conservative estimate of the numbers going onto a STEM-related career among the young people we engaged.



*Mikaela Weyer and Jo Kujovic, staff on the eastern contract*

# 98,646 YOUNG PEOPLE

encouraged into STEM-related careers since the start of our project

# 442

schools and other educational organisations took part



# 15,870

hours of Tideway staff volunteering



# £8 MILLION

social impact value of our STEM programme



# COMMUNITY INVESTMENT



## Delivering an impact across London

Since the start of the project, our community investment programme has helped 48,216 people, supported 512 organisations and led to 33,268 hours of volunteering by our staff.

## Completing our commitments

We ensured that the final year of community investment funding enhanced our legacy in key areas:

- **Our People legacy:** We supported charities helping people with convictions to get and keep jobs after leaving prison by launching a fund through the Corbett Network
- **Our Environment legacy:** For a second year, we helped communities across London to green their neighbourhoods by funding the 23-24 Our Space Award, run by Groundwork London
- **Our Community legacy:** We supported new programmes in Tower Hamlets, where we supported children with reading at a school through Tutormate, and in Lambeth where we launched a community fund for local charities to improve people's lives there.

## Delivering social value

The social impact study on Tideway's legacy programme found that our volunteering delivered a social value of £5.6 million – based on charities not having to do the work and the wellbeing boost to our volunteers.



Tideway staff with their Chapter One reading pupils

# 48,216

people supported through our community investment programme

# 33,268

hours of volunteering by our staff



# 500+

supporting 512 organisations



# £5.6 MILLION

social impact value of our volunteering



# RIVER RECONNECTION



## River reconnection

We also completed funding for our ‘river reconnection’ partnerships, which helped people to better understand, protect and use the river. The programmes delivering our reconnection strategy were:

- Active Row, with youth engagement charity London Youth Rowing
- Thames River Watch, with environmental charity Thames21
- Thames Discovery Programme, with Museum of London Archaeology
- A community and schools engagement programme with Creekside Discovery Centre, Deptford

You can read more about those programmes and their impact [here](#).

## Delivering social value

The social impact study showed that Active Row, had a social value of £15.8 million based on the improved wellbeing of the disadvantaged young people who took part - a £40 ‘return’ in social value for every £1 we invested.



Thames River Watch Big Wet Wipe count



Family day at Creekside Discovery Centre in Deptford







*Tideway staff hold a Thames River Watch foreshore clean-up and survey on World Environment Day*



## BIODIVERSITY

Through the design of our infrastructure we are seeking to enhance biodiversity. On the roofs of some of our above ground structures - kiosks and raised shafts - we have begun to install extensive biodiverse roofs (EB), extensive sedum (ES) green roofs and extensive native wildflower biodiverse green roofs (BG).

Once construction is complete, we will have installed 753m<sup>2</sup> of habitat on the roofs of these structures, which is equivalent to nearly three tennis courts. The type of roof and the species planted have been tailored to their location and maintenance requirements with plants that are attractive to pollinators.

The kiosk at our Barn Elms site is located in a wooded corner of the playing fields near the confluence of the Thames and the Beverly Brook in a Site of Importance for Nature Conservation (SINC). Our combined kiosk and vent structure is wrapped in gabions filled with five different types of materials to promote a diverse array of biodiversity. Materials used are terracotta extrusion, flat stone, slate laid in a herringbone pattern, limestone and drilled timber. Behind the wall are larger baskets filled with limestone and organic materials. The different types of gabion baskets have been developed with an ecologist and are arranged and configured in a way which promotes biodiversity and supports plant growth as well as providing habitats for insects, small invertebrates and small mammals, including two baskets at the base of the façade which feature hedgehog boxes. Also, within our Barn Elms site we have planted native trees, shrubs, hedges, herbaceous plants and bulbs, which have been selected for their year-round visual appeal.

Our site within King George's Park, Wandsworth has been planted with a range of trees and plants to enhance the park's biodiversity credentials. The planting of large trees (canopy layer), gardenesque trees and multi-stem shrubs (understorey layer), shrubs and herbaceous perennials (field layer), bulbs, ferns and groundcover planting (ground layer) will attract a variety of birds, bats and pollinating insects; particularly bees. The extent and range of soft planted areas (an infiltration basin, south-facing

embankments, open and shaded environments) encourage soil biodiversity (microscopic bacteria, earthworms and enchytraeids, mycorrhizal fungi, etc) flood management and carbon storage.

Only around two per cent of the edges to the Thames are natural, with most edges being brick, concrete and metal. Tideway is providing "softened edges" to several of our structures that will encourage wildlife into the urban estuary. Increasing the habitat along the edges will have a significant positive ecological impact on plants, invertebrates, fish and birds. Our sites at Chelsea Embankment, Albert Embankment, King Edward Memorial Park, Chambers Wharf and Dormay Street include intertidal terraces. The terraces have been planted to contribute to their incorporation into the wider landscape with species indigenous to the Thames that will encourage a range of other fauna to use it, for example for food, such as insects, and for shelter, such as birds and insects. To safeguard the environmental benefits of these terraces, Tideway has committed to a two-year trial period to confirm species choices and establishment. The data collected will be shared with the Environment Agency's Estuary Edges initiative that seeks to improve biodiversity along the River. Our river wall structures at King Edward Memorial Park and Chambers Wharf have been specially designed with a rough texture, horizontal ledges and deeply recessed niches to encourage colonisation by flora and microorganisms, and walls elsewhere use rough textures and timber fenders to enhance ecological value.

We remain committed to replanting two trees for every one removed. We expect to plant 550 trees in total and at the end of FY 22-23 we had planted 322, with the remaining being planted as construction completes.

During construction our sites have been providing temporary ecological niches to ruderal plants that have been colonising the crevices, gaps and unused areas of the cofferdam structures during construction. Some of our constructed river wall structures have been used by birds. We've seen groups of mallards and cormorants use the top of the river walls to sunbathe and wagtails are feeding along its length.



*Biodiverse roof on the kiosk at our Barn Elms site*



*Intertidal terrace planting at Chelsea Embankment Foreshore*



*Bug hotel that wraps around the kiosk at Barn Elms*



# THE OUR SPACE AWARD – GREENING LONDON’S COMMUNITY SPACES

Our support of Groundwork London’s Our Space Award helped 27 projects to ‘clean and green’ their local communities in 2022-23.

Tideway’s donation includes reinvested savings from our financing framework - our sustainable financing agreement links reduced interest on our debt to delivering legacy commitments. We exceeded our target to have at least 85 per cent of our live commitments on track and re-invested the interest saving into the Our Space Award.

The programme aims to help Londoners improve their communities and increase a sense of ownership over shared spaces. In 2022 grants ranging from £500 to £20,000 were given to 27 different community organisations, including many in the 14 boroughs along the tunnel’s route.

### Grantee feedback:

“This project has really helped us create an amazing resource for learning about nature and biodiversity as well as giving students an opportunity to learn about taking care of nature, gardening and food-growing.”

George Green’s School, Tower Hamlets

“Thanks again for your funding, it made a great difference to our charity. It was flexible and meant we could tailor it to design a project that really meets our needs and the participants that we work with.”

Bishop Creighton House, Hammersmith

### Our Space 2022-23 in numbers

**75**

Partners involved

**744**

Trees planted

**3,504**

Participants involved

**3,504**

Participants involved

**11,211**

Area of land improved (m2)

**2,940**

Total number of volunteers

**1,004**

Total area de-praved (m2)

**1,792**

Volunteers: Young people/children

**2,940**

Total number of volunteers

**16,773**

Total number of volunteer hours

Here are two examples of successful ‘community greening’ through the programme:

**Small project: Stillness Junior School, Lewisham  
– the Stillness Eco Garden**

- Total area of land improved: 460m<sup>2</sup>
- Number of volunteers engaged: 211 (140 adults, 71 children)
- De-paved area: 460m<sup>2</sup>

The project is creating a permanent, sustainable Eco Garden within the school grounds to be used for outdoor learning, play and to embed a culture of environmentalism at the school. The funds have had a direct impact on the whole school, bringing the Parent Teacher Association and remove PTA, children, teachers and parents together to volunteer their time into creating an impressive new space. Thanks to the grant, it activated further funding from Grow Back Greener, a GLA fund that is also managed by Groundwork London.

**Large project: Core Arts, Hackney -  
Roof-top RainGardening at Core**

- Total area of land improved: 31m<sup>2</sup>
- Number of volunteers engaged: 50
- Participants: 500

Core Arts promotes positive mental health and wellbeing through creative learning. They provide quality education, training, employment and social enterprise initiatives that enable people who experience mental health issues to overcome barriers, fulfil their potential and participate fully in their community. This project improved their rooftop garden and small pockets of public greening - capturing rainwater; installing solar panels to support a unique irrigation/pumping system; and upcycling new planters.





## CARBON

3rd party verification of our Scope 3 (embedded) carbon data commenced in the year. The verification Critical Review Statement can be found within the Assurance section of this report. The process did not uncover any 'material' issues and has provided us with certainty in the robustness of our data. Our Scope 3 (embedded) carbon emissions to date is 518,193 tCO<sub>2</sub>e. With construction almost 90% complete, we do not expect to exceed our anticipated carbon footprint of ~770,000 tCO<sub>2</sub>e.

This year we are only reporting our Project Total to Date (PTD) figures, not our financial year figures for our Scope 3 (embedded) emissions. This is because the verification process assured PTD data that was submitted by our Main Works Contractors (MWCs) and Logistics teams via their carbon models. From FY23-24 we will revert to providing annual carbon figures along with PTD, against an assured total of our carbon footprint.

Some key findings from the process are outlined below. We will build on these findings to capture the wider lessons learnt from design, procurement and construction of the tunnel as a source of information for the sector.

- Tideway's baseline carbon footprint was submitted as part of our Development Consent Order in 2013 and our MWCs signed their contracts in 2015. Within this timeframe the sector's understanding of developing carbon footprints and assessing performance against them has evolved. When construction projects have a long duration there needs to be flexibility within the contract to adapt to the evolution in reporting practices and the development of standards, like PAS2080, that allow for a more robust, systematic approach to carbon reporting.
- As the project progressed, we allowed some flexibility in the tools that our MWCs use. This had its downside as we were working with differing approaches, albeit they led to the same conclusion. The benefit of this flexibility was that it allowed the MWCs to adopt an approach that suited them and their working practices. It also allowed for the MWCs to reach back to their parent companies to use more sophisticated carbon management tools as they became available during the course of the construction programme. Some of the bespoke tools allowed for more robust data collection and analysis than Tideway tools could have offered.
- Our MWCs used a range of emissions factors, from verifiable data sets like Bath ICE V2.0 and UK Government emissions factors to emissions data from product or supplier specific data. Ideally, we should have requested the use of product or supplier specific emissions data alongside verifiable data from either Bath ICE V2.0 or UK Government emissions factors.
- We didn't set a change control process to track any changes to historic data and/or to changes to any systems boundaries. A robust change control process would have allowed us to clearly identify and track all changes.
- Our Scope 3 (embedded) carbon emissions has increased by 5 per cent on last year. This marginal increase can be attributed to historical overstatements in the construction material emissions and the plant and machinery emissions totaling 32,419 tCO<sub>2</sub>e and an omission of electricity emissions resulting in an understatement of 10,463 tCO<sub>2</sub>e. This was rectified early within the verification process but accounts for why there is only a marginal increase in the carbon footprint this year.

## Table 1 - GHG emissions

The data we receive allows us to assess our impacts in line with A1 - A5 system boundaries set out in EN15978, from product development stages (A1-A3), logistics data which is a combination of transport of materials to site and waste away from site by road and river (A4 – A5) and construction site impacts (A5).

Scope 1 emissions - Operational (OPEX)		FY 2022/23 tCO2e	PTD tCO2e
Operation of the tunnel			
<b>Total Scope 1 emissions</b>		<b>N/A until operation</b>	
Scope 2 emissions Indirect emissions – (electricity consumption used by Tideway (Bazalgette Tunnel Ltd) controlled offices at Camelford House and the Cottons Centre)			
Location based			
<b>Total Scope 2 emissions</b>		<b>40.4</b>	<b>485.93</b>
Scope 3 emissions – embedded cradle to build)			
Materials (A1 – A3)	Aggregates		3680
	Asphalt		9
	Concrete		328,717
	Timber		1856
	Steel		84,043
	Other		16,436
Utilities (A5)	Electricity		30,894
	Liquid Fuels		26,834
	HVO		50
	Waste		6439
	Water		248
Logistics (A4 – A5)	Road transport		11,761
	River transport		7227
<b>Total Scope 3 emissions</b>			<b>518,193</b>

Subtotals may not sum up due to rounding.



Connection tunnel at Hammersmith Pumping Station in Hammersmith and Fulham. Credit: Nick Remfry

In line with Ofwat’s expectations set out in ‘Consultation on regulatory reporting for 2022-23 – Responses document’ (April 2023), our reporting includes an updated SWOT analysis – *Strengths, Weaknesses, Opportunities, Threats*. Our SWOT analysis of our data and methodology focuses on our Scope 3 embedded emissions because

our predicted carbon footprint of ~770,000tCO<sub>2</sub>e is predominantly from the materials we are using to construct the tunnel. We have some Scope 2 emissions from grid electricity used within our offices. We will not have Scope 1 emissions until the tunnel is operational.

## SWOT analysis of our Scope 3 embedded emissions

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Clear carbon target set and embedded into contracts and reporting processes of our MWCs.</li> <li>• Quarterly data monitoring and reporting process in place.</li> <li>• Our MWCs use carbon emissions factors from Bath ICE V2.0, UK Government emissions factors and product-specific data from suppliers.</li> <li>• 3rd party verification of our Scope 3 (embedded) carbon data has completed. The Critical Review Statement can be found within the Assurance section of this report. The process did not uncover any ‘material’ issues and has given us certainty in the robustness of our data.</li> <li>• With construction almost 90% complete, we do not expect to exceed our anticipated carbon footprint of ~770,000tCO<sub>2</sub>e.</li> <li>• Tideway has been highly rated by S&amp;P Global Ratings for the third year running. We have been assigned an ESG Evaluation of 77 out of 100. One of the areas that was noted as best practice was 3rd party verification of our carbon data. We are achieving well above the average ESG evaluation within their portfolio, which is 65/100.</li> </ul>	<ul style="list-style-type: none"> <li>• The mature nature of Tideway means that we cannot set a Net Zero commitment or develop Science Based Targets.</li> <li>• The adoption of specific standards, like PAS2080 Carbon Management in Infrastructure, has come too late for Tideway and would not add value at this stage in the programme.</li> <li>• Tideway is anticipated to have a carbon footprint of 770,000tCO<sub>2</sub>e by the end of construction. Options to compensate for this impact have been explored but it is unlikely that we will offset our carbon as we do not believe it to be the right approach for us.</li> </ul>
<ul style="list-style-type: none"> <li>• Our <b>social impact assessment</b> showed that reducing our carbon footprint from the original predicted footprint of 840,000tCO<sub>2</sub>e down to 770,000tCO<sub>2</sub>e, delivered £4.87 million of social value.</li> <li>• Tideway and our MWCs have run a number of engagement sessions with staff. Tideway ran a programme of three mandatory carbon training workshops for Tideway Executives. We have incentivised our contractors to continually strive to improve their carbon impact through, for example, our Innovation programme where we ran a specific carbon innovation programme and awarded funding for the use of telematics on site to track driver behaviour to reduce idling. We also supported the trial of low carbon concrete on site. Each year through our RightWay Award ceremony, we have a Carbon Initiative Award where we call for submissions that demonstrate solutions to reducing carbon on site, either through design or construction.</li> <li>• Our carbon performance is shared with the Board every 6 months. We have also undertaken a number of workshops to reflect on how we have managed our GHG emissions and what we would do differently if we were starting to design and construct the Tideway tunnel today. The findings from this activity will be available towards the end of 2023.</li> <li>• Tideway’s Sustainability and Legacy Manager and Chief Technical Officer sit on the Infrastructure Client Group Carbon Task Group. It is here that we share our approach and contribute to thought leadership on decarbonising the infrastructure sector.</li> </ul>	<h3>Opportunities</h3> <ul style="list-style-type: none"> <li>• To work closer with our MWCs and supply chain to better understand how to measure and account for carbon on major infrastructure projects.</li> <li>• As a mature project we are in the position to provide lessons learnt to ongoing and future projects and influence the drive to more rapid decarbonisation of key building materials, like concrete. We are also keen to share our learning with industry through groups like the Infrastructure Client Group Carbon Task Group.</li> </ul>
<ul style="list-style-type: none"> <li>• The majority of our MWCs’ parent companies have set a Net Zero commitment and developed Science Based Targets, which results in a trickle-down benefit for Tideway.</li> <li>• Although options are limited, our MWCs continue to explore opportunities to reduce carbon emissions during construction. One area has been the use of <b>sustainably sourced HVO</b> as a fuel source on our sites and in our river barges, rather than diesel. Another has been the use of telematics to train vehicle operators to reduce idling thereby saving fuel.</li> </ul>	<h3>Threats</h3> <ul style="list-style-type: none"> <li>• Opportunities to influence materials specification in favour of lower carbon alternatives that could lead to significant carbon reductions are diminishing.</li> </ul>



# SECTION II: SUSTAINABLE FINANCING



*Tideway Finance team visiting Tideway's Loo Gardens installation*

# SECTION II: SUSTAINABLE FINANCING HIGHLIGHTS

## £1.9 BILLION GREEN ISSUANCE

18 green bonds totaling £1.8 billion and a £75 million green US Private Placement (USPP).



## £160 MILLION SUSTAINABILITY-LINKED REVOLVING CREDIT FACILITY

92 per cent achieved against the 85 per cent KPI target producing a margin reduction used to fund 27 organisations to green their local community.



Chelsea Embankment Foreshore

# SUSTAINABLE FINANCE FRAMEWORK

In November 2017 we published a framework for the issuance of Green Bonds. In 2020 this framework was updated to a Sustainable Finance Framework under which Tideway and Bazalgette Finance Plc (BFP) can raise debt to support the financing and/or refinancing of assets and expenditures of a sustainable nature across its activities. The Framework was subsequently updated in July 2023.

The Framework follows the International Capital Markets Association (ICMA) Green Bond Principles (GBP) and the Loan Market Association Green Loan Principles (GLP). The Framework is also aligned with the Loan Market Association (LMA) Sustainability Linked Loan Principles (SLLP).

A common principle to the various standards is the requirement to provide an annual update to investors of the:

- Allocation of proceeds in the case of green bonds and green loans
- Compliance with the agreed KPI in the case of sustainability-linked loans
- Impact of the project

This Sustainability Report provides an update on these points. BFP issued its inaugural Green Bond, series 11, which was also its debut public bond, on 30 November 2017 and further seven Green Bonds between December 2017 and March 2022 for a total amount of £908 million. In October 2019 the London Stock Exchange (LSEG) moved bond series 1 to 10 for a total amount of £658 million (issued before our inaugural green bond in November 2017) to the LSEG Green segment, which is part of LSEG's Sustainable Bond Market. S&P Global Ratings updated their green evaluation, confirming that it applies to all bonds issued under the bond programme since June 2016.

<b>Current framework</b>	Tideway's Sustainable Finance Framework, July 2023
<b>Reporting period</b>	Fiscal year 2023 to 31 March 2023
<b>Date of publication</b>	September 2023
<b>Reporting frequency</b>	Annual
<b>Reporting approach</b>	ICMA Green Bond Impact Reporting - Handbook - Harmonized Framework for Impact Reporting, Sustainable Water and Wastewater Management, December 2020 APLMA, LMA and LSTA Sustainability Linked Loan Principles, February 2023



*Tideway hosting a visit into the Greenwich Connection tunnel*

## 1. Green Bond programme and Green US private placement

In addition to the 18 green bonds issued by BFP to date, Bazalgette Tunnel Ltd (BTL) has also issued a green USPP and the tables below provide details of each green bond series and the green USPP at the end of FY 22-23.

Please refer to the tables below with details of each bond series and green USPP.



**Table 2 - Settled green bonds and green USPP**

Transaction	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8
<b>Issuer</b>	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc
<b>Size £ million</b>	25	25	25	25	100	100	50	100
<b>Issue Date</b>	15/06/2016	15/06/2016	15/06/2016	15/06/2016	27/06/2016	27/06/2016	27/06/2016	05/12/2016
<b>Interest Rate</b>	RPI	RPI	RPI	RPI	RPI	RPI	RPI	RPI
<b>Final Maturity Date</b>	15/06/2048	15/06/2048	15/06/2054	15/06/2054	27/06/2050	27/06/2051	27/06/2052	05/12/2040
<b>ISIN</b>	XS1430587433	XS1430584091	XS1430590221	XS1430589728	XS1436288846	XS1436289141	XS1436289497	XS1525510027
<b>Listing</b>	LSE	LSE	LSE	LSE	LSE	LSE	LSE	LSE
<b>Deferred Purchase</b>	Yes, funded Jun 2020	Yes, funded Jun 2021	Yes, funded Jun 2020	Yes, funded Jun 2021	Yes, funded Jun 2018	Yes, funded Jun 2019	Yes, funded Jun 2020	Yes, funded Dec 2018
<b>Second Opinion</b>	S&P Global Ratings Green Transaction Evaluation							
<b>Allowable Project Spend (APS) Allocation £ million</b>	25	25	25	25	100	100	50	100

Transaction	Series 9	Series 10	Series 11	Series 12	Series 13	Series 14	Series 15
Issuer	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Finance Plc
Size £ million	133	75	250	200	150	75	58
Issue Date	17/07/2017	25/08/2017	29/11/2017	30/11/2017	13/04/2018	16/05/2018	16/05/2018
Interest Rate	RPI	CPI	Fixed	CPI with collar	RPI	CPI	RPI
Final Maturity Date	17/07/2049	25/08/2047	29/11/2027	30/11/2042	13/04/2032	16/05/2052	16/05/2049
ISIN	XS1643813667	XS1662621603	XS1726309286	XS1726310961	XS1802472891	XS1819532760	XS1821454912
Listing	LSE	LSE	LSE	LSE	LSE	LSE	LSE
Deferred Purchase	Yes, funded Jul 2019	No	No	No	Yes, funded Apr 2022	Yes, funded May 2022	Yes, funded May 2022
Second Opinion	S&P Global Ratings Green Transaction Evaluation						
APS Allocation £ million	133	75	250	200	150	75	58

**Table 3 - Deferred green bonds**

Transaction	Series 17	Series 18	USPP
Issuer	Bazalgette Finance Plc	Bazalgette Finance Plc	Bazalgette Tunnel Limited
Size £ million	75	300	75
Issue Date	09/08/2019	10/03/2022	06/09/2019
Interest Rate	RPI	Fixed	Fixed
Final Maturity Date	05/08/2036	10/03/2034	06/09/2041
ISIN	XS2034702824	XS2453741279	N/A
Listing	LSE	LSE	N/A
Deferred Purchase	Yes, funded Aug 2021	No	Yes, funded Sep 2021
Second Opinion	S&P Global Ratings Green Transaction Evaluation		
APS Allocation £ million	75	300	75

Series 16
Bazalgette Finance Plc
50
16/05/2018
RPI
16/05/2049
XS1821455216
LSE
Yes, funding May 2023
S&P Global Ratings Green Transaction Evaluation
N/A

## Second Party opinion

Our bond programme and the bond series issued under it continue to be covered by a Green Transaction Evaluation from S&P Global ratings which was last updated in February 2022 giving us an Environmental benefit score of 95/100 and a governance and reporting opinion rated as advanced. The second party opinion will be updated in summer 2023 and will follow the Shades of Green methodology.

## Use of Proceeds

The proceeds from the seventeen Green Bonds that had funded as at year end (see Table 2) were on-loaned by BFP to BTL and deposited in BTL's sole operating bank account. BTL has also received the funds from the deferred green USPP.

The funds were subsequently drawn to fund the design and construction of the tunnel. While in the operating account, the funds were managed by Tideway's Treasury team in accordance with the company's investment management policy that aims to preserve capital and liquidity. Funds were invested in deposits with Tideway's banks and in liquid money market funds.

Further to the Framework, funds were disbursed to pay for Allowable Project Spend, as defined in the Licence, which is the cumulative expenditure incurred for the Thames Tideway Tunnel, constituting the regulatory capital value.

The Allowable Project Spend is calculated by Tideway and verified on a monthly basis by Mott McDonald, the Independent Technical Assessor (ITA), appointed in connection with the Liaison Agreement, establishing a Liaison Committee with Tideway, Department for Environment, Food and Rural Affairs (Defra) and Thames Water Utilities Limited (Thames Water) as members and the Water Services Regulation Authority (Ofwat) and the Environment Agency (EA) as observers.

The ITA has certified £3,160 million of Allowable Project Spend (APS) during the period between August 2017 and March 2023, since the funding of our first green bond, as follows:

	£ million
Aug 2017 to Mar 2018	389
2018/19	583
2019/20	605
2020/21	542
2021/22	531
2022/23	510
<b>Total</b>	<b>3,160</b>

The £3,160 million of certified APS is in excess of the £1,841 million allocated to green issuance, which funded between 25 August 2017 and 31 March 2023, confirming that the use of proceeds of the drawn bonds is in line with the requirements of the Green Bond Principles. The last green bond issued on a deferred basis funded in May 2023 and, in time, will be matched against our APS. Please refer to the tables on the previous pages.

## Impact Reporting

The expected environmental and economic benefits of the project remain as per the original Development Consent Order, which provided the overall permissions to the project, until the TTT is built and starts operations:

- In a typical year, the tunnel will reduce polluting discharges to river by circa 16 million cubic metres (diverted and captured for treatment)
- The three components of the London Tideway Improvements work conjunctively to reduce discharges in a typical year by about 37 million cubic metres, as described in the Framework.

<b>Wastewater Management Project</b>	Project name	Thames Tideway Tunnel
<b>Signed Amount</b>	GBP	1,907m
<b>Share of Total Project Financing</b>	%	100
<b>Eligibility for green bonds/ loans</b>	% of signed amount	100
<b>Sustainable Wastewater Management Component</b>	% of signed amount	100
<b>Allocated Amount</b>	GBP	1,841m
<b>Project lifetime</b>	In years	120
<b>#2) Annual amount of raw/ untreated wastewater discharges avoided</b>		To start in 2025
<b>Other indicators</b>		To start in 2025

Victoria Embankment Foreshore



Once the tunnel is operational, we will report the impact in accordance with the Handbook on Harmonized Framework for Impact Reporting published by the Green Bond Principles, in particular ‘Core Indicator B. Wastewater Treatment Projects, #2) Annual amount of raw/untreated wastewater discharges avoided’.

We are almost 90 per cent complete and getting closer to the end of the construction phase with handover planned for 2025. The primary tunnelling concluded in April 2022. The completion of the secondary lining is nearing completion.

Tideway continues to make good progress towards its ambition to safely deliver the TTT at the right quality and to best value. We continue to develop our approach to health, safety and wellbeing and are pleased to report that no life-changing injuries have occurred to date.

## 2. Sustainability-linked Revolving Credit Facility

Our £160 million Revolving Credit Facility (RCF) is structured as a sustainability-linked loan, in accordance with SLLP with a KPI linked to our Legacy commitments.

This loan further aligns Tideway's financing, not only with the long-term target of cleaning the river, but also with the significant efforts during construction, which have been captured in Tideway's Legacy commitments.

### Key Performance Indicator

Tideway's RCF includes the agreed sustainable KPI which is the meeting of at least 85 per cent of the live Legacy commitments. The target acts as a strong stimulus for the company to continue to focus on the long-lasting benefits from the project and keep creating a healthier and more sustainable future for London. The credit margin on the facility is reduced if the performance target is met.

During FY 22-23 we closed out 9 of the 54 legacy commitments, bringing the total closed to 25. As at the end of the fiscal year 92 per cent of the 29 live legacy commitments were on track so the 85 per cent KPI was met. See ESG Data section for performance data against each commitment.

### Verification

The May 2021 update to the SLLP (further updated in February 2023) requires borrowers to obtain independent and external verification of the borrower's performance level against each KPI at least once a year. This update included an exception to transactions completed prior to June 3, 2021 following the revised SLLP, and instead should be reviewed in conjunction with the SLLP published in May 2020. This is the case of Tideway's RCF. Tideway has developed a robust internal process to validate the calculation of its performance against the KPI. Furthermore, and as discussed earlier in the report, the social impact study recently published provides a level of external scrutiny of our performance against the Legacy commitments and our Scope 3 (embedded) carbon data has been 3rd party verified.

Legacy information from across the three contract areas of the project is compiled into a standardised reporting workbook by assigned Legacy Managers within each MWCs Joint Venture (MWC JV) and submitted to Tideway on a quarterly basis for assurance in line with our Financial Reporting calendar. 191 data points are collated and submitted by the MWC JVs, covering all areas of our Legacy Programme. Tideway Subject Matter Experts (SMEs) formally review the data and raise any comments with the MWC JVs for them to respond to and address as required. Tideway SMEs include our Legacy & Sustainability Manager and Corporate Social Responsibility Manager. Once Tideway has reviewed and accepted the data as accurate, the data is collated into Tideway's Data Warehouse and automated reports are generated using predetermined calculations. The reports are subject to internal review and verification by Tideway's Regulation and Finance departments and are shared with Defra and Environment Agency quarterly and with Tideway's Board semi-annually.



# SECTION III: TIDEWAY CLIMATE – RELATED FINANCIAL DISCLOSURE

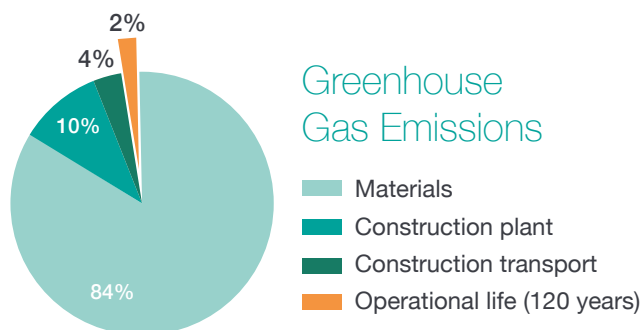


*Tideway staff taking part in charity cycle ride in the tunnel*

# 1. INTRODUCTION

The Thames Tideway Tunnel has a significant carbon footprint due to the embedded carbon within the built asset. [The Energy and Carbon Footprint Report](#) that was produced for the Development Consent Order in 2013 estimated a total carbon footprint in the decarbonised scenario of approximately 840,000 tCO<sub>2</sub>e with the principal impact being the greenhouse gas (GHG) emissions arising from the construction of the infrastructure, in particular embodied carbon in manufacturing of materials.

This carbon in materials equates to approximately 84% of the total emissions, with emissions from construction plant and machinery (construction worksite activities e.g. tunnel boring and emissions from plant and machinery) being around 10% of the total emissions. The transport of excavated material and construction materials represents approximately 3.5%. Emissions during the 120-year operational life of the tunnel represent approximately 2.5% of the total GHG emissions, which we refer to as operational carbon. The assumption made for the baseline, is that the UK electricity emission factor would reduce as the grid is decarbonised until the zero carbon target in 2035. This is consistent with Government plans [unveiled](#) in October 2021 confirming the UK commitment to decarbonise the electricity system by 2035. Operation of the tunnel, expected to start in 2025, will be the responsibility of Thames Water with most emissions representing Tideway's Scope 3.



Through the procurement process, the forecast carbon footprint was reduced to ~770,000 tCO<sub>2</sub>e, an expected reduction of 8%. Our Main Works Contractors are required to minimise the carbon footprint of the project under the Works Information 1000 Environmental Management. This objective was also captured by Tideway in the Legacy Plan developed in 2014 and updated in 2017 which sets out targets for delivering a sustainable legacy. The Main Works Contractors are required to report their actual carbon on a quarterly basis and are held to a baseline figure.

Tideway's carbon consultants have undertaken a critical review of our Scope 3 (embedded) carbon data and have produced a Critical Review Statement following the Greenhouse Gas Protocol guidance on assurance and verification. Findings from the review can be found in the Assurance section of this report.

The ability to change the carbon footprint of an infrastructure project of this nature in a significant manner is during the conceptual and design stages with reduced scope to effect further reductions during the construction period, such opportunities being discussed in this report. Once the tunnel is constructed and commissioned, the operational carbon will be minimal as the tunnel is a passive asset, although see above with regard to operational Scope 3. Therefore, certain parts of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations cannot be applied easily to a single infrastructure project. In particular, it has not been possible to set carbon reduction targets that meet the criteria of the Science Based Targets Initiative for example as the carbon footprint is concentrated during the construction and commissioning period, with a natural tailing off towards the end of construction.

## Compliance statement

Tideway recognises the importance and supports the TCFD. We are committed to ensuring that our climate change disclosures align with TCFD recommendations.

Tideway undertook climate scenario testing based on the UK Climate Projections 2009 (UKCP09), the best available climate projections for the UK at the time of the original route selection and design decisions. UKCP09 is based upon the Met Office Hadley Centre climate models and provide probabilistic projections of future climate for each decade up to 2100 in overlapping 30 year time periods, along with high, medium and low emissions scenarios. Tideway have used the 10, 50 and 90 percentiles to explore the implications of these uncertainties for the 2050s (2040 to 2069) and 2080s (2070 to 2099) time horizons. Climate change coupled with population growth tested the resilience of this major infrastructure project to the wide variability of projected climate conditions.

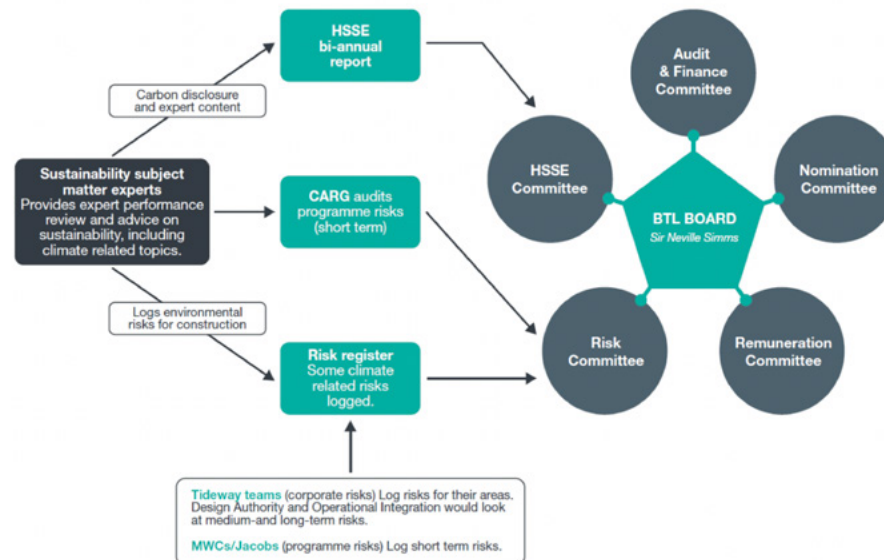
There is an opportunity to update these projections with the UK Climate Projections 2018 (UKCP18) published in 2018 and updated in 2021. UKCP18 includes for the first time Representative Concentration Pathways (RCPs), a method for capturing assumptions about the economic, social and physical changes to our environment that will influence climate change within a set of scenarios. The conditions of each scenario are used in the process of modelling possible future climate evolution. It provides datasets that represent UK climate in scenarios of 2 °C and 4 °C of global warming and includes the new **UKCP Local (2.2km)** providing for the first time national climate change information on a similar resolution to that of current operational weather forecast models. Such an update is likely to be undertaken once the tunnel has been operating for a few years.



# 1. GOVERNANCE

The governance around climate related risks and opportunities

Recommended Disclosure	Response	References
<p>a) Describe the Board’s oversight of climate-related risks and opportunities</p>	<p>The Board is responsible for setting the strategy and risk appetite for the Company and its approach to risk management. Important aspects of Tideway’s business are subject to scrutiny by the Board’s committees, which report their findings to the Board.</p> <p>The Health, Safety, Security and Environment (HSSE) Committee of the Board meets twice a year. The Committee has a key role in reviewing, developing and overseeing consistent policy, standards and procedures for managing HSSE risk, and helping to ensure that Board members are sufficiently informed to discharge their individual and collective responsibilities for HSSE. Among other things, the Committee reviews environmental and sustainability matters on the corporate risk register, including risks relating to the carbon footprint of the project.</p>	<p>The Board Risk Committee is required to meet at least three times a year. The Committee reviews our principal, corporate and delivery risks and risk management processes. All risks, including identified climate-related risks are included within this top-tier risk register. There is good overlap in attendance between the HSSE Committee and the Risk Committee which helps ensure consistency in approach.</p> <p>The chair of the HSSE and Risk Committees have experience in managing environmental risk, including climate related.</p> <p>The Audit and Finance Committee of the Board receives updates on developments of ESG and climate-related reporting and regulation as part of its discussion of the Company’s Sustainable Financing Strategy.</p> <p>Annual Report HSSE and Risk Committees terms of reference ESG Evaluation by S&amp;P Global Ratings</p>



Recommended Disclosure	Response	References
<p>b) Describe the management’s role in assessing and managing climate-related risks and opportunities</p>	<p>Our business planning process provides the framework to assessing and managing risks. Performance against our sustainability KPIs is tracked and discussed by the Vision, Legacy and Reputation (VLR) committee, which manages the strategic approach to sustainability and identifies issues for discussion at the monthly management review chaired by the CEO.</p> <p>Carbon performance is reported quarterly to the Executive and to the Board and other stakeholders, including investors and regulators, through our quarterly management reports and the six-monthly HSSE Sustainability report.</p> <p>The Client Sustainability lead provides technical advice on the implementation and compliance of the various environmental commitments such as the code of construction practice and technical input to the HSSE Committee , and they register corporate risks in their area. They work closely with Treasury on the Sustainable Finance Strategy, which has raised £2bn of sustainable financing.</p>	<p>Annual Report Sustainability Report</p>



Rainham Marshes in Essex where Tideway has taken tunnel excavated spoil to help habitat creation

## 2. STRATEGY

The actual and potential impacts of climate-related risks and opportunities on our businesses, strategy, and financial planning

Recommended Disclosure	Response	References
<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long-term</p>	<p><b>Conceptual stage</b></p> <p>During the conceptual stage of the project, climate change was considered as having two principal impacts on the tideway:</p> <ul style="list-style-type: none"> <li>On the operation of the sewer system with drier summers potentially causing an increase in pollutant build up which could increase the adverse impacts of the ‘first flush’ in any overflow from the tunnel and wetter winters that could lead to more overflows.</li> <li>On water quality processes in the tideway with increases in river water temperatures leading to dissolved oxygen depletion to lower dissolved oxygen saturation and faster reaction rates, particularly if residual discharges occur when the tunnel is full.</li> </ul> <p><b>Construction phase</b></p> <p>The most significant climate-related risks during the construction period are:</p> <ul style="list-style-type: none"> <li>changes in design or the construction methodology to reduce a particular risk which results in increases in carbon</li> <li>compliance with the Development Consent Order, in particular maintenance of flood defences of London during the construction work on 11 of our river-based construction sites. This protection requires consenting from the Environment Agency (EA) and monitoring of weather data that is used to alert sites of potential adverse weather conditions or unusually high tides, that have the potential to breach any temporary protection measures.</li> </ul> <p>Throughout the duration of the project there have been several noteworthy interventions which have resulted in reductions in construction carbon. Some were made during the conceptual and design phases before BTL was awarded the licence to build the tunnel. These included changes to the route of the tunnel,</p> <p>use of low carbon cement in non-critical assets, thinner secondary lining, and a reduction in the transport emissions due to the increased use of the river to transport materials.</p> <p><b>Operational phase</b></p> <p>During the operational phase, the main risk will be how well the tunnel design withstands changes in climate, with the risk of drier summers, wetter winters and an increase in the population of London resulting in exceeding the capacity of the tunnel or the treatment centre. This tunnel is designed to accommodate climate and population scenarios until at least 2080 as per the DCO Energy and Carbon Footprint report (please refer to 1.c).</p> <p>Opportunities to reduce carbon footprint during the operational phase are limited. In any case, Tideway is only responsible for maintenance of the tunnel while Thames Water will be the operator, which further reduces the opportunity to reduce scope 3 carbon as it may be reliant on decarbonisation of the grid.</p> <p>The tunnel will be a high-quality asset built to achieve 120 years design life expected to require minimal maintenance of deep level assets contributing to the low carbon footprint during the long operational stage.</p> <p>Once the tunnel is operational, the EA and Thames Water will discuss phasing out current mitigation measures that include the use of two vessels for oxygenation and two skimmers, with consequent reduction in carbon consumed in operating and maintaining these diesel-fuelled vessels.</p>	<p>Annual Report  <a href="#">Energy and Carbon Footprint Report – DCO document</a>            S&amp;P Global Ratings ESG Evaluation            Sustainability Report            Operating Techniques</p>

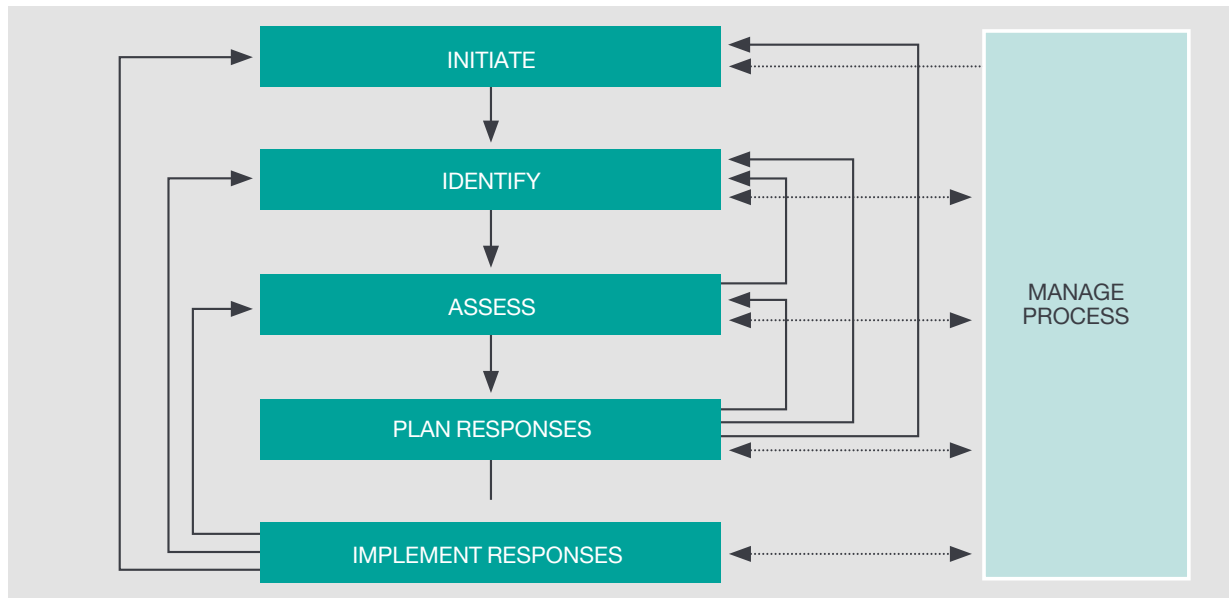
Recommended Disclosure	Response	References
<p>b) Describe the impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning</p>	<p><b>Construction phase</b></p> <p>Impact is limited given scope, advanced stage of construction and because breaching DCO requirements is subject to reasonable endeavours. There are however reputational and regulatory risks. Notwithstanding the advance stage of construction, the business remains alert, and possible changes in law could pose minor near term financial impact.</p>	<p><b>Operational phase</b></p> <p>Should the parameters used in the DCO scenarios be exceeded, there would be potentially more frequent discharges in the Thames with limited implications on water quality, biodiversity and public health as annual CSO discharges would see a modest increase (see 2.c) below). Thames Water is responsible for the operation of the tunnel under the London Tideway Tunnels operating techniques agreed with the Environment Agency.</p>
<p>c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario</p>	<p><b>Construction phase</b></p> <p>At the time of the original route selection and design decisions, the best available climate projections for the UK were the UKCP09 projections, based upon the Met Office Hadley Centre climate models. UKCP09 provides an estimate of the range of model-related uncertainties in the future projections, along with high, medium and low emissions scenarios. Tideway have used the 10, 50 and 90 percentiles to explore the implications of these uncertainties for the 2050s (2040 to 2069) and 2080s (2070 to 2099) time horizons.</p> <p>Modelling of the future scenario suggests that in a typical year climate change and population growth will mean that by the 2080s the number of CSO discharge events into the tidal Thames will increase from the four that are predicted for present day conditions to five for the median projection, with a range from four (10 percentile) to eight (90 percentile) events for the medium emissions scenario.</p>	<p><b>Operational phase</b></p> <p>The main tunnel would therefore continue to provide a good level of service (compared to the current frequency of more than 50 events in a typical year) in a plausible range of future conditions.</p> <p>If the projected small increase in frequency of CSO discharge events does begin to occur over the coming decades, then there are feasible adaptations to the London Tideway Improvements that could be implemented in a timely and incremental way. These include further incremental Sewerage Treatment Works improvements which could be undertaken to treat projected additional sewage flow; integration with possible flood alleviation tunnels; and catchment scale implementation of Sustainable Drainage Systems (SuDS) or green infrastructure.</p> <p>SuDS is not a feasible response to deal with current or future CSO discharges. SuDS could, however, augment the CSO control achieved by the project and partially mitigate against climate change.</p>

\*Authors: D. Crawford, A. Hon, A.P. Hagger, paper presented in 2016 at WefTec2016 conference

# 3. RISK MANAGEMENT

How we identify, assesses and manage climate-related risks

Recommended Disclosure	Response	References	
<p>a) Describe the organisation's processes for identifying and assessing climate-related risks</p>	<p>The Tideway Risk Management process aligns with the process the Association of Project Management (APM) has stipulated as to be considered good practice. See flow chart below.</p> <p>The Tideway Risk Management process identifies and assesses risks, including climate-related risks pertaining to the delivery phase, within an ongoing monthly and quarterly review and reporting cycle. Our works planning and sequencing takes into consideration potential higher frequency of tidal surges and closures of the Thames barrier.</p>	<p>On a monthly basis risk reviews are held, and risks identified and assessed at (1.) site level with project delivery teams (Project Manager and Main Works Contractor), Asset Management/Design Authority and Engineering, (2.) Area wide and Programme wide level (3.) Corporate and Executive risk reviews (Operations, Regulatory, Legal, Finance, External Affairs, IS).</p> <p>Risks are assessed quantitatively against project and corporate scoring schemes for probability and impact (Health and Safety, Direct Cost, Time, Reputation, Environment, Non-Project/Whole Life Costs etc.) Assessments are made by suitably skilled/experienced professionals, consulting subject matter experts (Project Managers, Quantity Surveyors, Engineering Leads etc.) as required.</p>	<p>Annual Report</p>



The risk management process  
 (Source: APM (2004)  
 Project Risk Analysis and  
 Management Guide, 2nd edition)



Recommended Disclosure	Response	References
<p>b) Describe the organisation's processes for managing climate-related risks</p>	<p>Within Tideway, Risk Management is an active and iterative process that involves identifying and implementing response strategies for either threats or opportunities. The intent is to reduce or eliminate threats or enhance opportunities.</p> <p>Each risk has an overarching management strategy and detailed response actions including the assigned response owners and timescales for review/closeout. These response actions are specific, 'time bound', appropriately allocated and monitored.</p> <p>In order to enable consistent programme and business wide risk management, all identified risks are held on an enterprise risk management platform (ARM).</p> <p>With Tideway reaching the end of tunnelling in April 2022 approximately half of the high impact low probability (HILP) risks associated with the construction of the project have now been retired.</p>	<p><b>Supply Chain and stakeholders</b></p> <p>Our Main Works Contractors are required to report their Scope 3 (embedded) carbon on a quarterly basis and are held to a baseline figure.</p> <p>We comply with greenhouse gas (GHG) reporting requirements outlined by Ofwat, the water regulator. We have updated our SWOT analysis - <i>Strengths, Weaknesses, Opportunities, Threats</i>. Our SWOT analysis of our data and methodology focuses on our scope 3 embedded emissions and can be found in the Carbon section of this report.</p> <p>The Environment Agency, another of our regulators, has placed climate risk at the centre of its operation and regulation.</p> <p>Our equity and debt investors have an increased focus on integrating ESG factors into the investment processes and expect reporting on climate and other matters following recognisable international standards. Our three shareholders are members of the Principles for Responsible Investment with two having committed to Net Zero by 2050.</p>
<p>c) Describe how the processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management</p>	<p>Within the Tideway Risk Management process all risks, including climate-related risks, are managed and reviewed in a hierarchy with risks escalated for management review and response as required.</p> <p>The Board Risk committee is supported by a Corporate Risk Committee and an Executive Risk Committee that considers on a rolling basis the programme risks across the West, Central and East areas.</p> <p>The Executive Risk Committee holds monthly reviews with the Delivery Areas (West, Central, East, System Integration, Operational Integration, System Commissioning and Land &amp; Property) with risks of concern escalated to Corporate Risk Committee and Board Risk Committee.</p>	<p>The Compliance and Assurance Review Group (CARG) is a CEO-led group focused on reviewing the Company's activities, both as the client or through the PM and MWCs. It applies the three lines of defence model, to review the appropriateness and compliance with our controls and assurance activities.</p>

# 4. METRICS AND TARGETS

The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Recommended Disclosure	Response			References																		
<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management processes</p>	<p>The origins of our legacy were set out in the Sustainability Statement, which was submitted as part of our Development Consent Order (DCO) application. The Statement contains 15 objectives under 11 thematic areas used to appraise the sustainability performance of the project. Some of these objectives have been addressed through the planning stage, such as land use, while others will be realised as outcomes of the project during operation, e.g. enhanced river water quality.</p> <p>Our commitments have evolved into 54 metrics within our Legacy Plan under five themes that capture the range of opportunities created by the project—Environment; Health, Safety and Wellbeing; Economy; People; and Place. We are maintaining a high standard of overall performance against the Legacy commitments, with 29 commitments live across the programme. Of the 29 live legacy commitments, 27 are on track equating to 93 per cent against a target of 85 per cent at the end of FY 22-23, and this year, on average, 92 per cent were on track. Out of the legacy commitments, four are climate related.</p> <p>Our Legacy performance dashboard in ESG Data section, details the Measure, Target and our Performance against these commitments.</p> <p>Appendix A includes the metrics and performance against our environmental and climate commitments, including emissions, water, construction waste and beneficial reuse of excavated material. It also discusses our assurance process.</p> <p>We have aligned ourselves to the World Resources Institute and the World Business Council for Sustainable Development definitions of Scope 2 and 3 emissions.</p> <p>We appointed a third party to undertake a critical review of our Scope 3 (embedded) carbon following the Greenhouse Gas Protocol. The outcome from this process can be found in the Carbon and Assurance sections of this report.</p>			<p>Sustainability Statement Legacy Plan Sustainable Finance Framework Sustainability Report</p>																		
<p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 Greenhouse Gas emissions and related risks</p>	<table border="1"> <thead> <tr> <th>Scope 1 emissions - Operational (OPEX)</th> <th>FY 2022/23 tCO<sub>2</sub>e</th> <th>PTD tCO<sub>2</sub>e</th> </tr> </thead> <tbody> <tr> <td>Operation of the tunnel</td> <td></td> <td></td> </tr> <tr> <td><b>Total Scope 1 emissions</b></td> <td colspan="2"><b>N/A until operation</b></td> </tr> <tr> <td colspan="3"><b>Scope 2 emissions Indirect emissions – (electricity consumption used by Tideway (Bazalgette Tunnel Ltd) controlled offices at Camelford House and the Cottons Centre)</b></td> </tr> <tr> <td>Location based</td> <td></td> <td></td> </tr> <tr> <td><b>Total Scope 2 emissions</b></td> <td><b>40.4</b></td> <td><b>485.93</b></td> </tr> </tbody> </table>			Scope 1 emissions - Operational (OPEX)	FY 2022/23 tCO <sub>2</sub> e	PTD tCO <sub>2</sub> e	Operation of the tunnel			<b>Total Scope 1 emissions</b>	<b>N/A until operation</b>		<b>Scope 2 emissions Indirect emissions – (electricity consumption used by Tideway (Bazalgette Tunnel Ltd) controlled offices at Camelford House and the Cottons Centre)</b>			Location based			<b>Total Scope 2 emissions</b>	<b>40.4</b>	<b>485.93</b>	<p>Annual Report Sustainability Report</p>
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<p>c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets</p>	<p>The forecast carbon footprint of the project is ~770,000 tCO2e of which 97.5% is construction carbon as explained in the introduction.</p> <p><b>Construction phase targets</b></p> <p>The carbon related Key Performance Indicators (KPIs) are included in the Works Information that are part of the contracts between Tideway and the Main Works Contractors. Appendix A details the KPIs that our MWCs provide.</p> <p><b>Operation phase targets</b></p> <p>In a typical year, for mid-2020s conditions, the Thames Tideway tunnel will further reduce polluting discharges by circa 16 million cubic metres (avoided and captured for treatment). The tunnel is expected to capture approximately 96 per cent of the overflow volume that currently enters the river in a typical year and reduces the number of individual overflow events at any controlled CSO from over 50 down to four or less. The residual CSO discharge would be approximately 2.4 million m3 per year.</p>	<p>Resilience to Change - DCO document Sustainable Finance Framework Sustainability Report Works Information</p>																																																		



Some of Tideway's Environment Team on a site inspection. Credit: Bruno Guillaume

# APPENDIX A

## Metrics and targets - Waste and materials

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>WASTE</b>									
<b>Construction waste diverted from landfill</b>									
Waste Arising (tonnes)	<b>80%</b>	<b>90%</b>	66,096.22	192,267.92	356,053.62	102,120.64	72,597.41	77,541	<b>859,663</b>
Waste Diverted (tonnes)			59,347.05	184,337.14	343,375.27	95,363.89	71,392.55	77,464	<b>821,472</b>
% diverted			<b>90%</b>	<b>96%</b>	<b>96%</b>	<b>93%</b>	<b>98%</b>	<b>100%</b>	<b>95%</b>
<b>Beneficial use of excavated material</b>									
Material arising (tonnes)	<b>85%</b>	<b>95%</b>	130,889.27	318,708.52	2,127,478.37	1,209,598.5	805,212	158,105	<b>4,461,806</b>
Material reused (tonnes)			128,822.48	287,844.96	2,070,435.07	1,204,946.5	798,729	155,717	<b>4,370,470</b>
% beneficially reused			<b>98.42%</b>	<b>90.32%</b>	<b>97.32%</b>	<b>99.62%</b>	<b>99.2%</b>	<b>98.5%</b>	<b>98%</b>
<b>Hazardous waste</b>									
Hazardous waste arising (tonnes)			0	26,440	2661	0	0	0	<b>29,061 tonnes</b>

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>Responsible sourcing of 'applicable materials'</b> *									
Applicable materials (tonnes)			43,415	199,108	465,697	299,099	3,025,652	209,116	<b>4,242,088</b>
Applicable materials from responsible sources (tonnes)			43,415	191,920	461,815	298,575	3,034,780	207,515	<b>4,238,022</b>
% responsibly sourced			<b>100%</b>	<b>96%</b>	<b>99%</b>	<b>100%</b>	<b>100%</b>	<b>99%</b>	<b>100%</b>

\*'applicable materials' are defined as timber, which has to be FSC certified; cement, aggregate, steel, which all need to be certified to BES6001 Very Good or above or equivalent standard.

# APPENDIX A

## Metrics and targets – logistics

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>REDUCING LORRY MOVEMENTS</b>									
Number of two-way lorry movements	<478,240*		79,418 (includes 2016/17)	83,354	73,676	57,980	80,934	51,104	426,466
Tonnes of main tunnel excavated material transported by river (foreshore sites)*	90%	90%	N/A	196,423	1,730,742	794,174	688,345**	65,850	100% (3.48 million tonnes)

\* The DCO commitment on HGV movements is 239,120 vehicles equating to 478,240 two lorry movements

\*\*Internal assurance process found change in FY 21-22 data from 573,703 to 688,345tonne

# APPENDIX A

## Metrics and targets – environmental incidents

Metric	DCO Target	WI Target	2016-17	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>Environmental Incidents by year</b>										
Level 4			34	33	56	37	27	31	13	231
Level 3			26	37	47	28	9	25	10	182
Level 2			5	2	3	3	1	1	0	15
Level 1			0	0	0	0	0	0	0	0
<b>Total</b>			<b>65</b>	<b>72</b>	<b>106</b>	<b>68</b>	<b>37</b>	<b>57</b>	<b>23</b>	<b>428</b>

Incident levels are broadly defined below:

**Level 4 – Near Miss:** Near misses with significant potential of harm or damage or that may attract some level of regulatory action. Environmental incident that has been contained and has not harmed / damaged an environmental receptor

**Level 3 Minor incident:** Environmental incidents that have caused minor harm or damage to an environmental receptor

**Level 2 Significant incident:** Environmental incidents that have, or may, cause significant harm or damage to an environmental receptor and/or attract a high likelihood of regulatory action

**Level 1 Major incident:** Environmental incidents which are not under control and/ or have caused catastrophic harm or damage to the environment

# APPENDIX A

## Metrics and targets – ecological enhancement

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>ECOLOGY</b>									
Number trees planted		2 for 1*			102		11	55	550 to plant; 322 planted to date; 156 removed
Biodiverse roofs installed (m2)								148m2**	
Nest boxes installed***		40							

\*BMB committed to 3 for 1 within their tender documents, which was subsequently included in their contract. Total planted to date includes 102 planted by Tideway through Trees for Cities.

\*\*relates to biodiverse roofs being installed on kiosks in our West section.

\*\*\*Nest boxes will be installed as we near construction completion.

## Metrics and targets – water consumption

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	2021-22	2021-23	Project Total To Date (PTD)
<b>POTABLE WATER CONSUMPTION</b>									
Total metered water consumption on site (m3)			45,164.67	101,708.02	393,601.03	293,185*	474,965*	214,707	1,523,332m3

\*Internal assurance process found change in 2020-21 data from 345,519 to 293,185m3 and 2021-22 data from 456,912 to 474,965m3



# ASSURANCE

Tideway has developed a robust internal process to validate the calculation of its performance against the KPIs as discussed on page 32. In 2020, we appointed a social value consultant to undertake a robust and comprehensive, evaluation of the social impact of the changes brought about by our legacy programme. The outcomes from this evaluation were released during FY 22-23 and can be found [here](#), with high level details also contained in this report. Our findings and lessons learnt have been shared with stakeholders and industry, with the hope that future infrastructure projects develop robust frameworks that are designed with evaluation and measurement of social impact in mind. We have already written a technical paper for an Institution of Civil Engineers journal on how we developed our legacy programme and how we are assessing its social value. The paper outlines best practice methodology in creating a framework to achieve social value and the specific approach and lessons learnt from Tideway.

We appointed a carbon consultant to provide third party verification of our Scope 3 (embedded) carbon data. The assurance process commenced in Q1 FY 22-23 and the findings of the process have been detailed within the carbon section of this report along with the Critical Review Statement.



Blackfriars Bridge Foreshore

# Interactive critical review statement



## Relating to the project to date Scope 3 emissions in the Tideway Sustainability Report 2023

Bazalgette Tunnel Limited t/a Tideway ("Tideway") engaged xtonnes Ltd ("xtonnes") to undertake an interactive critical review ("the review") of the Thames Tideway Tunnel project ("the project") carbon footprint to date reported as Scope 3 emissions in the Tideway Sustainability Report 2023 ("the footprint"). The review evaluated the footprint according to the terms, scope and method summarised in this statement. xtonnes conducted the review in line with the Greenhouse Gas Protocol guidance on verification and interactive critical reviews.

The Thames Tideway Tunnel is predominantly constructed under the River Thames from the Acton Storm Tanks in West London to the Lee Tunnel at Abbey Mills in East London. Construction works comprise a 25km long main tunnel with an internal diameter between 6.5m and 7.2m and two connection tunnels. One connection tunnel is 4.6km with a 5m internal diameter and the other is 1.1km with a 2.6m internal diameter. The project has 24 construction sites. The project mobilised in 2015 with handover scheduled for 2025.

Seven assessing parties produced the footprint. Three consortia known as the main works contractors ("MWCs") assessed activities associated with their sections and sites. These MWCs are BMB (BAM Nuttall, Morgan Sindall and Balfour Beatty Group) FLO (Ferrovia Agroman UK and Laing O'Rourke Construction) and CVB (Costain, Vinci Construction Grands Projets and Bachy Soletanche). Tideway, Tideway's Programme Manager (Jacobs), Stantec and Emissions Analytics all had roles assessing material and waste transport by road and by river.

### Terms

xtonnes have produced these findings for the readers of the report but according to terms agreed with Tideway. The review focussed on the principles of completeness and accuracy and the conclusion is based on whether the footprint adhered to the following scope and method. The approach considers the footprint as the data for different activities ("the activity data") multiplied by different emission factors ("the emissions factors").

The level of assurance sought from the conclusion at the end of the review was 'limited'. A limited level of assurance is consistent with no planned site visits or inspections and the assumption that all activity data are assumed to be complete and accurate with assessing parties self-assuring these data. All emission factors created from product-specific assessments, 'tailpipe' emissions or supplier-specific assessments are assumed to be suitably complete, accurate and self-assured by their providers.

The scope ("the scope") is based on Tideway's **Environmental Sustainability KPI Performance Indicators Procedure** document but clarified during the review to be the carbon dioxide equivalent (CO<sub>2</sub>e) associated with the following:

- Construction materials
- Waste disposal
- Plant and machinery (electricity or fuel for machines and optionally water)
- Site accommodation and welfare (electricity or fuel for offices and optionally water)
- Material and waste transport (HGVs and vans by road and barges by river)

The project is incomplete, but the footprint includes an estimated 90% of all contracted work. All tunnels are complete including secondary lining apart from the Eastern section of the main tunnel and one connection tunnel. All electricity used in Tideway's office is not Scope 3 and outside the remit of the review.

The method ("the method") established during the review can be summarised as follows:

- Construction material emissions are the product of masses from purchase orders and Bath ICE V2.0 factors or product-specific assessments
- Waste disposal emissions are the product of quantities from environmental management software and UK factors
- Plant and machinery emissions are the product of quantities from purchase orders or energy meters and UK factors or supplier-specific assessments
- Site accommodation emissions are the product of quantities from purchase orders or energy meters and UK factors
- Material and waste transport emissions are the product of distances from proof of delivery software or a bespoke distance matrix and UK factors or vehicle 'tailpipe' measurements

All references to UK factors refer to the **Government conversion factors for company reporting of greenhouse gas emissions** published by HM Government. These should be the closest match to the activity data updated to match the financial or calendar year of the activity data.

xtonnes estimated the significance 'i.e. materiality' of identified inconsistencies with the described scope or method and calculated the resulting misstatements as a percentage of the footprint. If the inconsistencies represented less than 5% of the footprint, this was deemed an appropriate threshold for materiality.

### Conclusion

Based on the activities described, xtonnes are not aware that the footprint departs from the described scope, method and 518,193 tCO<sub>2</sub>e total in any significant 'i.e. material' way either through omissions or errors.

Assessing parties have resolved historical overstatements in the construction material emissions and the plant and machinery emissions totalling 32,419 tCO<sub>2</sub>e and an omission of electricity emissions resulting in an understatement of 10,463 tCO<sub>2</sub>e. Unresolved misstatements identified in the reporting of waste disposal, plant and machinery, site accommodation and material and waste transport fall below the 5% threshold for materiality. xtonnes recommends all assessing parties should address these unresolved misstatements and the following observations as part of the continuous improvement of the footprint and related processes.

### Observations

Other observations and findings from the engagement:

- The scope of the project should be described with reference to relevant standards and frameworks for life cycle modules (PAS 2080 and BS EN 15978) and construction elements (New Rules of Measurement or similar). Tideway as an organisation should use the Greenhouse Gas Protocol Scope 3 categories. There will still be instances when using these standards and framework where the scope would benefit from additional detail to avoid any ambiguity about which activities are included, excluded or optional. There should be a continual review of scope to ensure all significant activities are included and to consider whether any insignificant activities are absorbing disproportionate effort and could be excluded or optional. Change management practices should be applied to all adjustments to the scope and any recalculations made project-wide and historically as appropriate.
- The method uncertainties should be reported and reduced as far as is practicable. There are instances such as the calculation of emissions for off-the-shelf products without bills of materials and the aggregation of activity data to match emissions factors where the method would benefit from additional detail to ensure and maintain consistency. Quality assessment and quality management should be applied to all data and in particular rules should be agreed for when market-based and product- or supplier-specific data replace Bath ICE V2.0 or UK factors. Assessing parties could report two emissions totals. The first would be based on Bath ICE V2.0 and UK factors. The second would be based on market-based and product- or supplier-specific factors to facilitate comparison and monitoring. Change management practices should be applied to all adjustments to the method and any recalculations made project-wide and historically as appropriate.

- Scope and method should evolve during the long durations of construction projects to adopt new, established carbon footprinting practices. The project has demonstrated how allowing differences in process and software can be beneficial to this adoption of new practices if there are suitable controls in place to avoid any significant divergence in scope or method. If assessing parties are using different processes and software, they should still be ready to export data in a common format to facilitate comparison of emissions, activity data and emissions factors with any accompanying notes on calculations, assumptions, sources, and quality assessment or change management.
- The project should capture and publish the challenges and lessons related to using the footprint to support decisions and claims of emissions reductions. The footprint data could be informative for future tunnelling projects if published with the right amount of detail.

### Activities

The following planned activities provide the basis for the conclusion:

- Understanding the roles and responsibilities of all the assessing parties
- Understanding the data sets, procedures, and software
- Interviewing those responsible for reviewing all submissions to Tideway
- Interviewing those responsible for producing submissions to Tideway
- Reviewing emissions totals and subtotals previously submitted by assessing parties to Tideway
- Reviewing emissions calculations or summaries of data used in calculations not previously submitted to Tideway
- Checking for significant 'material' omissions, errors, or misstatements

The following planned activities were not possible:

- Interviewing members of the Tideway team involved in early conversation about scope and method

The following calculations increased confidence in the conclusion:

- Comparing data submitted by assessing parties with data not previously submitted
- Normalising and comparing data submitted by the three delivery MWCs
- Comparing the footprint with Tideway's 'predicted' Development Consent Order footprint

### xtonnes

xtonnes acknowledges its responsibility to Tideway. The statement represents our independent opinion. The review work is the only work undertaken by xtonnes for Tideway and as such xtonnes remains independent and impartial.



Bengt Cousins-Jenvey

xtonnes lead reviewer and verifier

On behalf of xtonnes Ltd

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# ESG DATA Legacy performance data FY 22-23

	Legacy Commitment	Current Measure	Target	In Period On Track	Project Total				
					Year to date		Project to date		
					Actual	RAG	Actual	RAG	
ENVIRONMENT	1	Improve water quality and reduce biochemical oxygen demands in the tidal Thames by dramatically reducing CSO discharges into the river	Water quality measured Number of CSO discharges	2.4 million m3 3 or 4	2025 2026				
	2	Reduce adverse litter conditions	Reduction in sewage related litter in surveys	reduction	2025				
	3	Provide infrastructure that supports more resilient biodiversity	No. of bird & bat boxes No. of new in-river structures with ecological features	40 TBC	Y 2024				
	4	Undertake and support research to aid understanding of habitats and aquatic ecology of the River Thames	No. of papers published and relevant studies supported	5	Complete - Achieved	Complete		Complete	
	5	Minimise carbon footprint	Tonnes of actual CO2 (with % consumption against baseline)	~770,000	Y			518,193	67% of our carbon footprint has been consumed.
	6	Reduction in lorry movements on the project further than the reductions agreed in the DCO	Number of lorry movements avoided	<478,240 two way HGV movements	Y			426,466	
HEALTH, SAFETY AND WELLBEING	7	Aspire to have no major incidents on the project	Zero major incidents HSPI - Health & Safety Performance Index	0 2	Y	0 2.82		0	
	8	Raise the standard of health, safety and wellbeing inductions	No. of individuals inducted via EPIC Receive external recognition	100% Received	Y	On track Complete		On track Complete	
	9	All supervisors to be trained in health and safety to a level above industry norms	Number of identified supervisors trained to ILM level 3	100% (MWC)	Y			Complete (118t trained)	
	10	Promote new industry occupational health standards and working practices	Occupational health standard communicated	1 Standard	Complete - Achieved	Complete		Complete	
	11	Introduce industry leading lorry and vulnerable road users initiatives	4 Initiatives published	4	Complete - Achieved	Complete		Complete (4)	
	12	Introduce a health & safety communication standard across the Project	Communication standard implemented	1 Standard	Complete - Achieved	Complete		Complete	
ECONOMY	13	Improve Health & Safety on the river for Tideway River Transport Workers	% boat Masters who have passed the simulator validation	100%	Y	100%		Complete (103 trained)	
	14	Provide London's essential Infrastructure through an enhanced sewerage system that supports growth	Increased capacity to control CSO discharges	95%	2025 - 2028				
	15	Remove the immediate risk of EU imposed infraction fines	Scheme in operation to control CSO discharges	Achieve	2025 - 2028				
	16	Create more than 4,000 direct, sustainable jobs (at peak construction)	Number of sustainable jobs (26 weeks)	>4000	Complete - Achieved	Complete		Complete (4467)	
	17	Create a visible, informed and engaged supply chain that can compete for contract opportunities	All agreed procurement packages posted on CompeteFor	100%	Y	100%		Complete (100%)	
	18	Demonstrate Tideway is supporting the London and UK economy	Track the project spend through the supply chain	100%	Y	100%		100%	
	19	Use river transport to remove the majority (90 per cent) of material excavated to create the main tunnel (main tunnel arisings from drive sites)	Tonnes of material transported by river (main tunnel arisings)	90%	Y			Complete (100%)	
	20	Support the development of river transport related skills through Thames Skills Academy	TSA established	Sign up	Complete - Achieved	Complete		Complete	
	21	Encourage modernisation of marine equipment through our procurement process	New standard developed	1 standard	Complete - Achieved	Complete		Complete	
	22	Seek opportunities to support the continued use of river infrastructure such as enhanced river walls	Number of supported assets	2 assets	2023				
	23	The promotion of procurement packages and support SMEs with their procurement process	Number of local market engagement activities	1 quarterly	Complete - Achieved	Complete		Complete	
	24	Offer sustainable employment either through retention and progression on Tideway or through transition from and to other major projects	% Employees from other MP % Staff received accredited Training	no target	Y	12% 96% (1480hrs)		19% 92% (66938hrs)	
	25	Continue to support the Tunnelling and Underground Construction Academy (TUCA)	Level of engagement from Tideway to TUCA No. of individuals completed TUCA courses	Support no target	Complete - Achieved	Complete		Complete 2388	
	26	Share our innovations with the industry so they can benefit future projects	Establishment of I3P Platform / champions MWCs provide Quarterly progress updates	Established no target	Complete - Achieved	Complete		Complete Complete	
	27	Design a procurement approach that will encourage innovation	The bid process for the MWCs include innovation aspect	100%	Complete - Achieved	Complete		Complete	
	28	Create commercial arrangements that encourage innovation and shared risk	Number of opportunities implemented through the OCI	no target	Complete - Achieved	Complete			
	29	A procurement process that supports payment to SMEs within 30 days of invoice - Fair payment charter	Fair payment charter signed throughout supply chain Compliance ensured through audits	100% 100%	Y	100% 100%		100% 100%	
	30	Support ethical sourcing practices in the supply chain	Publish a procurement handbook Maintain Verification to Ethical Labour Standard	Complete Complete	Complete - Achieved	Complete		Complete Complete	

	Legacy Commitment	Current Measure	Target	In Period On Track	Project Total				
					Year to date		Project to date		
					Actual	RAG	Actual	RAG	
PEOPLE	31	MWC employees will live in the local Borough at each drive site	% of FTE who live in the drive site borough	20%	N	13%		13%	
	32	MWC employees will live in the local Boroughs within each contract area	No. of FTE within each contract live in local boroughs	20%	Not achieved - retired				
	33	Employees to live in 14 Boroughs which are directly affected by the works (Headcount)	No. FTE live in 14 Boroughs affected by the Works	25%	Y			25%	
	34	Employees to live in Greater London, Kent or Essex for river workers	No. FTE live in Greater London, Essex or Kent	30%	Y	74%		67%	
	35	Project to support the London Living Wage	Employees on site full time paid LLW or above	98% (seek 100%)	Y	100%		100%	
	36	Appoint skills & employment managers to work with local jobs brokerages	S&E Manager employed at main drive sites	1 manager each	N	Complete		Complete	
			All new job advertisements posted with Boroughs 48hrs	95% (seek 100%)		N/A		75%	
	37	Promote job security through direct employment in our supply chain	Percentage of directly employed staff	75% (seek 100%)	Y	81% (MWC)		85% (MWC)	
	38	Create employment opportunities for the workless	No. of individuals previously unemployed	10%	Y	26%		34%	
	39	Create an inclusive environment that will enhance diversity across Tideway and aim to set new standards for the industry	Establish ENCOMPASS forum	Established	Y	Complete		Complete	
			Flexible working charter developed and communicated	Signed		Complete		Complete	
			Report and monitor demographics	> industry average		On track		On track	
			Inclusivity Plans	Signed		Complete		Complete	
	40	Create apprenticeship opportunities	Number of apprenticeships created (new and existing from Q1 2021-22)	1 in 50 FTE	Y	1 in 42 (35)		1 in 29 (151) Complete	
	41	Support the STEM programme	Number of hours volunteered	1 (hr/3FTE/annum)	Y	1 (112hrs)		3.2 (15569hrs) Complete	
42	Provide teaching & learning resources.	Tunnelwork website developed and periodic updates with resources	On Track	Complete - Achieved	Complete		Complete		
43	Work with charity partners to employ one person with convictions per 100 staff on the project	No. of people with convictions per FTE	1 in 100 FTE	Complete - not achieved	1 in 336		1 in 195 (37) Complete		
44	A significant reduction in health risks from water borne pathogens	Reduction in volume of CSO discharges.	95%	2026					
45	Inspire people to engage in river activities and support events that will help people reconnect with the River Thames	Reconnection Strategy	On Track	Y	55		On track		
PLACE	46	Design principles to increase number of trees	Number of trees planted	2 for 1	Y	0		322 / 550	
	47	Additional and enhanced public space available to the public	Case studies to demonstrate creation of 3 acres of new foreshore, enhancing the Thames Path and Accessibility. Case studies include 1.Blackfriars; 2.Heathwall; 3.Victoria; 4.Albert Embankment; 5.Chelsea; 6.Carnwarth Road; 7.Putney; 8.King Edward Memorial Park. *Greenwich could also be used as a case study.	8 Case Studies	Y	On track		On track	
	48	Enhance the Thames path			Y	On track		On track	
	49	Give people of reduced mobility the opportunity to connect with the River Thames			Y	On track		On track	
	50	Use a Heritage Interpretation Strategy and Public Art Strategy	Strategy integrated to all sites	24 sites	Y	100%		100%	
	51	Collaborate with other developers to enhance local space, where our activities overlap with other local developments	Number of areas	12 areas	2023				
	52	Develop sustainable strategies for the long term maintenance of new public realm.	All public realm sites	10 sites	2023				
	53	Deliver and fund local community investment activities and where possible encourage members of that community to come together	*No. of volunteer hours towards local communities (KPI 1) CVB & FLO =72hrs; BMB = 57hrs; Tideway = 250hrs (total hrs = 379hrs)*	Various (hrs)	Y	621hrs		28253.5 hrs Complete	
	54	Deliver and fund pan-London community investment activities which bring communities together from across the capital	No. of volunteer hours toward Tideway's CI programme (KPI 2)	1 (hr/3FTE/annum)	Complete - Achieved	Complete		5.1 (17481hrs)	

	Commitment not yet live		Performance below target, mitigation agreed
	At or above target		Exemplary performance (>20% over target)



*Completed shaft at Greenwich Pumping Station*

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