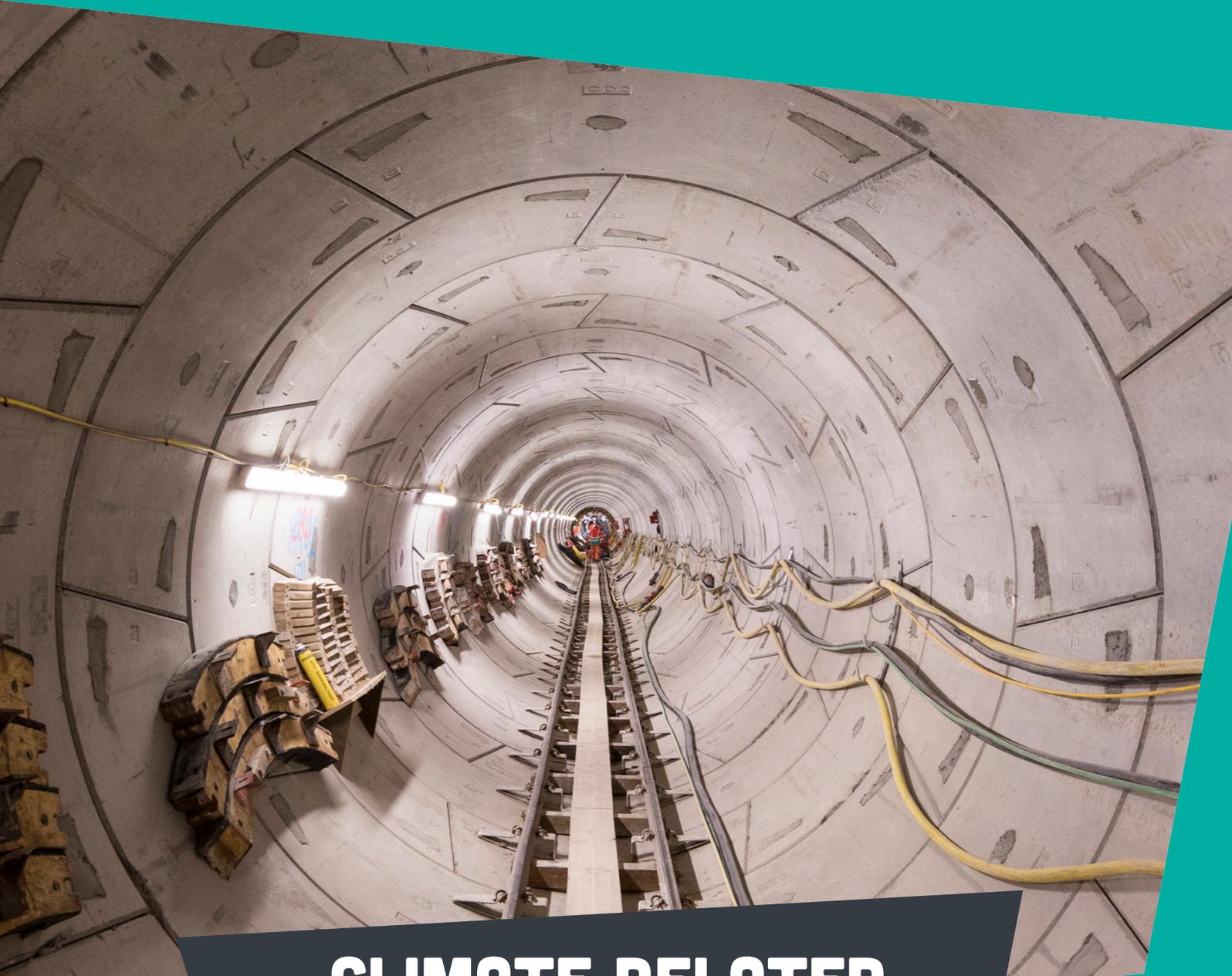




Tideway



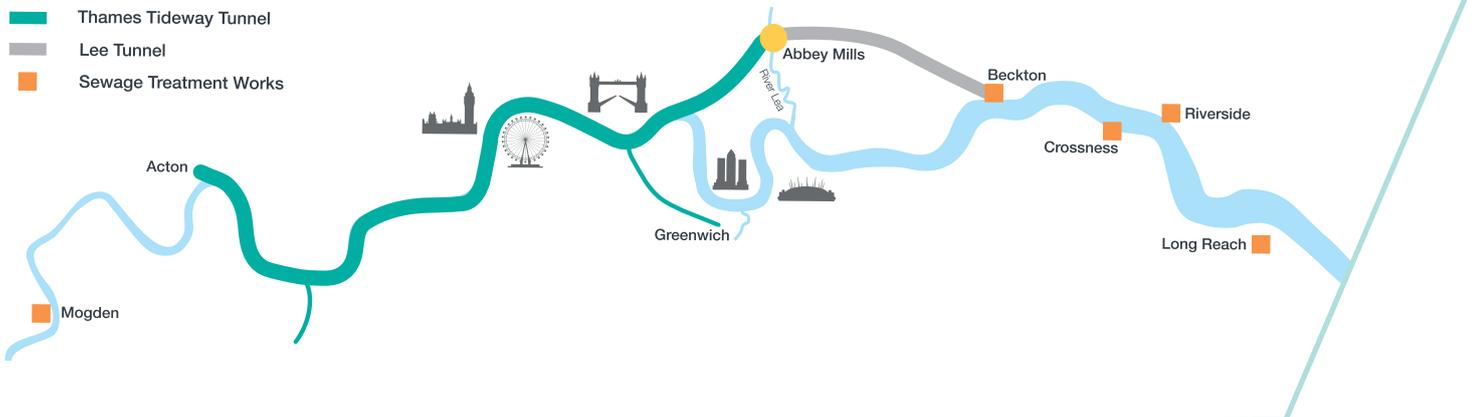
**CLIMATE RELATED
FINANCIAL DISCLOSURE
2020/2021**

INTRODUCTION

The Thames Tideway Tunnel project being delivered by Bazalgette Tunnel Limited (BTL or Company), trading as Tideway, is a Nationally Significant Infrastructure Project (NSIP) aiming to improve the condition of the water in the tidal Thames and ensuring it complies with relevant wastewater legislation by reducing the overflow of untreated sewage discharge. As well as the key benefit of increased water quality, the tunnel also provides protection of users of the tidal Thames and infrastructure which will help London's sewer network resilience to climate change and population growth.

The Thames Tideway Tunnel is part of the London Tideway Improvements (LTI), which also include improvements at five sewage treatment works and the Lee Tunnel, both now in operation. Without this whole system there would be an increased risk of more frequent sewage overflows, more frequent fish kills, continued increased health risks to recreational users, worse litter blight, and adverse impacts on the attractiveness of the water frontage.

London Tideway Improvements



The project is in construction phase, currently 68% complete. Handover to Thames Water is planned for 2025. Thames Water will operate the tunnel as part of the sewage collection and treatment system. Tideway will remain responsible for maintenance of the tunnel and shafts. The tunnel is designed to be in operation for at least 120 years.

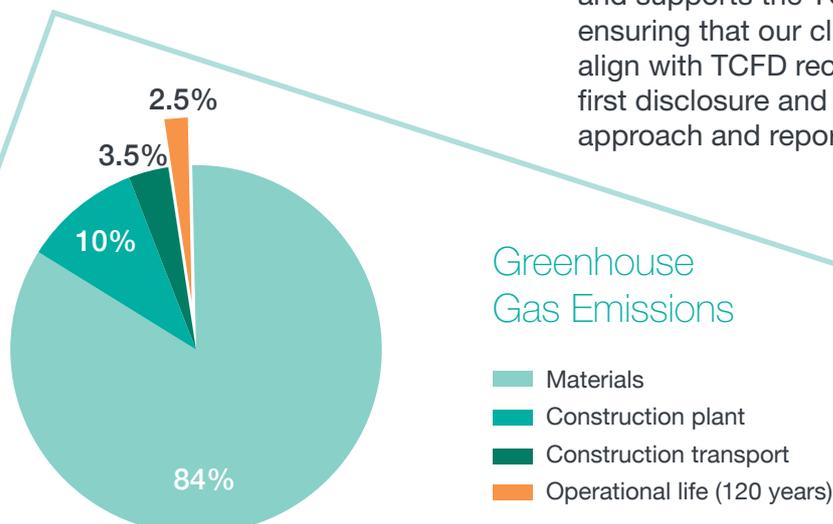
The Thames Tideway Tunnel has a significant carbon footprint due to the embedded carbon within the built asset. The Energy and Carbon Footprint Report that was produced for the Development Consent Order in 2013 estimated a total carbon footprint in the decarbonised scenario of approximately 838,000 tCO₂e 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 circa 2.5% of the total GHG emissions, which we refer to as operational carbon.

Through the procurement process, the forecast carbon footprint was reduced to 768,756 tCO₂e, 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.

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 are discussed in this report. Once the tunnel is constructed and commissioned, the operational carbon will be minimal as the tunnel is a passive asset. Therefore, certain parts of the Taskforce 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.

As stated in our Sustainable Finance Report 2019/20, Tideway recognises the importance and supports the TCFD. We are committed to ensuring that our climate-related disclosures align with TCFD recommendations. This is our first disclosure and we will continue to evolve our approach and reporting in future years.

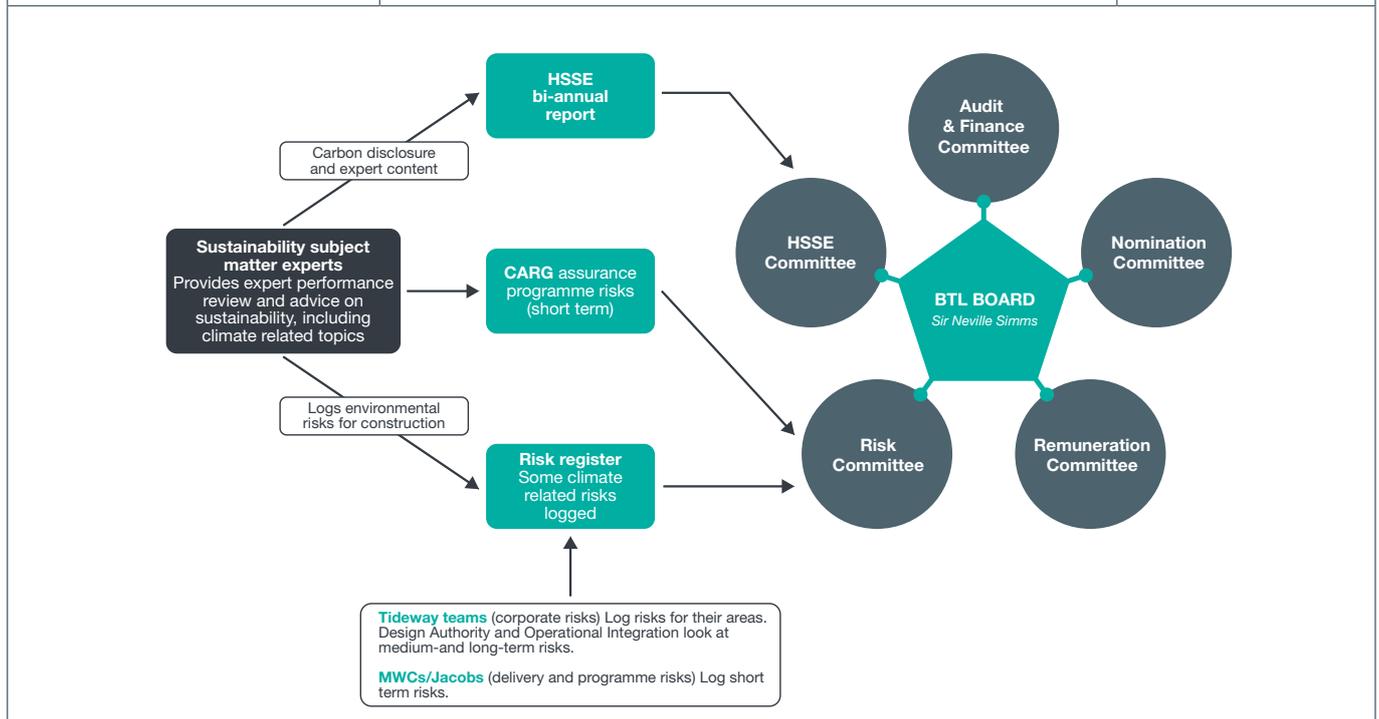


1. GOVERNANCE

The governance around climate related risks and opportunities

Documents available at www.Tideway.London

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 has received 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>Our CEO, Andy Mitchell, is leading the Construction Leadership Council’s net-zero workstream, CO2nstruct Zero.</p>	<p>Annual Report HSSE and Risk Committees terms of reference ESG Evaluation by S&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 and opportunities. Performance against our sustainability Key Performance Indicators (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, environmental report and the six-monthly HSSE report. The latter include our progression along the Carbon Maturity Matrix developed as part of the Government Infrastructure Carbon Review.</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 the Infrastructure Carbon Review, technical input to the HSSE Committee and CARG, and registers corporate risks in their area. They work closely with Treasury on the Sustainable Finance Strategy, which has raised £1.7bn of green financing.</p> <p>The Legacy & Environment Committee is chaired by Tideway Executive and attended by Tideway, Project Manager, Main Work Contractors Programme Directors, Environment and Legacy leads.</p> <p>To ensure that any lessons are being shared with the wider industry, Tideway were one of the founding members of the knowledge sharing platform i3P and members of our Executive Team and subject matter experts are also active members in industry working groups on carbon such as the Construction Leadership Council, the Infrastructure Client Group, the Major Projects Association and the Corporate Forum on Sustainable Finance.</p> <p>In February and March 2021, members of the Executive team attended training carbon briefings delivered by members of Tideway, Project Manager and central contractor (FLO) sustainability teams.</p>	<p>Annual Report Sustainable Finance Report</p>

Secondary lining shutterwork in the Frogmore connection tunnel



2. STRATEGY

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

Documents available at www.Tideway.London

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>Conceptual stage</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"> • 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. • 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. <p>Construction phase</p> <p>The most significant climate-related risks during the construction period are:</p> <ul style="list-style-type: none"> • changes in design or the construction methodology to reduce a particular risk which results in increases in carbon. • compliance with the Development Consent Order (DCO), 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. <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 are detailed in Appendix A and include changes to the route of the tunnel, 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>Operational phase</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 scope to reduce carbon.</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>Thames Water and EA are to discuss the likely timing of phasing out current mitigation measures once the tunnel is operational. These 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 Energy and Carbon Footprint Report – DCO document S&P Global Ratings ESG Evaluation Sustainable Finance Report London Tideway Tunnel Operating Techniques</p>

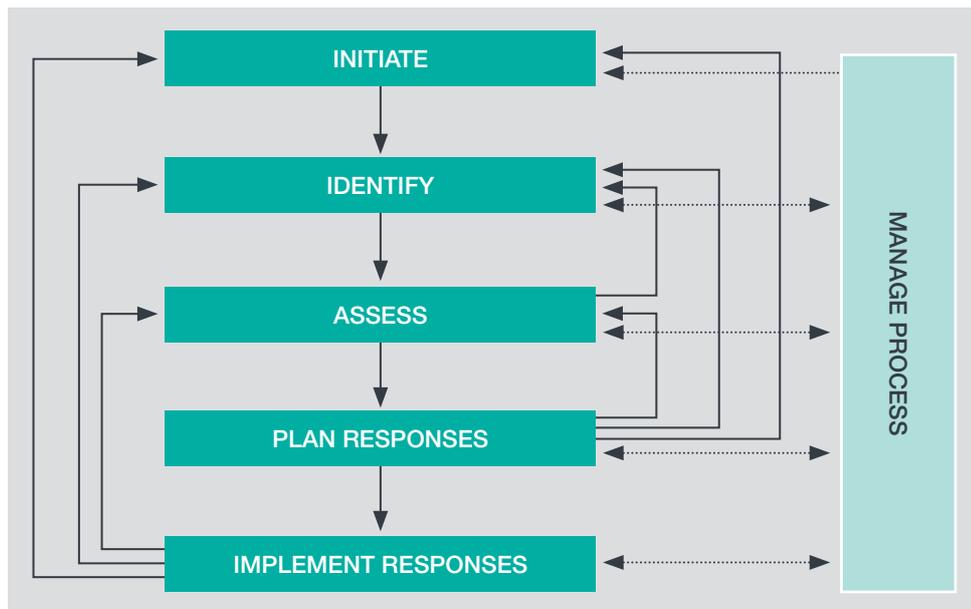
Recommended Disclosure	Response	References
<p>b) Describe the impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning</p>	<p>Construction phase</p> <p>Impact is limited given scope and advanced stage of construction. There are however reputational and regulatory risks.</p> <p>Notwithstanding the advance stage of construction, the business remains alert, and possible changes in law could pose minor near term financial impact, e.g. red diesel taxation from April 2022.</p> <p>Operational phase</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 EA.</p>	<p>Prospectus Licence London Tideway Tunnels operating techniques</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>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>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>	<p>Resilience to Change - DCO document Major Infrastructure Resilience to Projected Changes to Population and Climate, D. Crawford, A. Hon, A.P. Hagger, paper presented in 2016 at WefTec2016 conference</p>

3. RISK MANAGEMENT

How we identify, assesses and manage climate-related risks

Documents available at www.Tideway.London

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 Contractors (MWC)), 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>Supply Chain and stakeholders</p> <p>Our Main Works Contractors are required to report their actual carbon on a quarterly basis – our scope 3 – and are held to a baseline figure.</p> <p>Ofwat, the water regulator, has published in April 2021 guidelines on reporting greenhouse gas emissions, with a view to making disclosures mandatory from next year after a period of consultation.</p> <p>The EA, 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 four 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 & 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 Project Manager and Main Works Contractors. 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

Documents available at www.Tideway.London

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 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 44 commitments live across the programme (out of the overall 54 to be active by the end of the construction phase). Of the 44 live legacy commitments, 41 are on track equating to 93 per cent against a target of 85 per cent at the end of FY 2020-21, and this year, on average, 90 per cent were on track. Of these, four are climate related.</p> <p>Our Legacy dashboard published in our Sustainable Finance Report details the Measure, Target and our Performance against these commitments.</p> <p>Appendix B 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>Sustainability Statement Legacy Plan Sustainable Finance Framework Sustainable Finance Report</p>



An aerial view of Deptford Church Street

Recommended Disclosure	Response	References																																													
<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></th> <th>2020/21 tCO₂e</th> <th>Project to date tCO₂e</th> </tr> </thead> <tbody> <tr> <td colspan="3">Scope 1 emissions</td> </tr> <tr> <td>Total scope 1 emissions</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="3">Scope 2 emissions</td> </tr> <tr> <td>Grid electricity used by Tideway (Bazalgette Tunnel Ltd) controlled offices at Camelford House and the Cottons Centre</td> <td>40.58</td> <td>355,67</td> </tr> <tr> <td>Total scope 2 emissions</td> <td>40.58</td> <td>355,67</td> </tr> <tr> <td colspan="3">Scope 3 emissions</td> </tr> <tr> <td>Construction materials</td> <td>84,075</td> <td>291,125</td> </tr> <tr> <td>Site accommodation and welfare</td> <td>1123</td> <td>9,076</td> </tr> <tr> <td>Material transport</td> <td>1366</td> <td>13,417</td> </tr> <tr> <td>Waste disposal</td> <td>659</td> <td>2891</td> </tr> <tr> <td>Plant and Machinery</td> <td>7090</td> <td>31,516</td> </tr> <tr> <td>Personnel transport</td> <td>116</td> <td>3127</td> </tr> <tr> <td>Total scope 3 emissions</td> <td>94,429</td> <td>351,152</td> </tr> <tr> <td colspan="3"> <p><i>At the end 2020-21, we had consumed 46% of the construction carbon budget for scope 3 emissions.</i></p> <p><i>Scope 2 and 3 carbon disclosure is reported quarterly to our investors and regulators.</i></p> </td> </tr> </tbody> </table>		2020/21 tCO ₂ e	Project to date tCO ₂ e	Scope 1 emissions			Total scope 1 emissions	0	0	Scope 2 emissions			Grid electricity used by Tideway (Bazalgette Tunnel Ltd) controlled offices at Camelford House and the Cottons Centre	40.58	355,67	Total scope 2 emissions	40.58	355,67	Scope 3 emissions			Construction materials	84,075	291,125	Site accommodation and welfare	1123	9,076	Material transport	1366	13,417	Waste disposal	659	2891	Plant and Machinery	7090	31,516	Personnel transport	116	3127	Total scope 3 emissions	94,429	351,152	<p><i>At the end 2020-21, we had consumed 46% of the construction carbon budget for scope 3 emissions.</i></p> <p><i>Scope 2 and 3 carbon disclosure is reported quarterly to our investors and regulators.</i></p>			<p>Annual Report Sustainable Finance 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 $\leq 768,756$ tCO₂e of which 97.5% is construction carbon as explained in the introduction.</p> <p>Construction phase targets</p> <p>The carbon related KPIs are included in the Works Information that are part of the contracts between Tideway and the Main Works Contractors. Appendix B details the KPIs that our MWCs provide and our carbon related legacy commitments targets.</p> <p>Operation phase targets</p> <p>When the LTI are fully completed the typical year overflow volume that currently enters the tidal Thames is simulated to reduce from circa 39 million m³ per year firstly to 23 million m³ via the sewage treatment works improvements (completed in 2014 by Thames Water), then to 18 million m³ through the Lee Tunnel (in operation since 2016) and finally to approximately 2.4 million m³ once the TTT is operational. The TTT will reduce the number of discharge events to the tidal Thames from any of the controlled CSOs from over 50 in the typical year to four or less.</p>	<p>Resilience to Change - DCO document Sustainable Finance Framework Sustainable Finance Report Works Information</p>																																													

APPENDIX A

Opportunities to reduce construction carbon

Our approach to reducing the carbon impact of construction has come through realising the opportunities and innovations to make intelligent design decisions based on the principles of lean design along with the use of low carbon materials and efficient processes and technology. Some decisions, such as route selection, were made during the conceptual and design phases before BTL was awarded the licence to build the tunnel.

Key decisions made to reduce our construction phase carbon footprint include:

Initiative	Carbon reduction tCO2e to date
The initial route selection led to 19% reduction in material use through the selection of a shorter route	199,000
The implementation of the ‘More By River’ initiative to increase the amount of material being transported by river in addition to those agreed under the Development Consent Order continues to deliver the intended results, with over 23 million HGV kms avoided to date. To date, over 4.5 million tonnes of material has been moved by river, avoiding 275,000 HGV loads (550,000 two-way HGV movements).	14,500 And also an estimated 240 tonnes of NOx (Nitrogen Oxides)
The reduction of the thickness in the secondary lining within the central area which resulted in 16,000m less concrete, saved 7,300 tCO2e and had significant cost savings.	7,300
The introduction of biodiesel into the marine fleet operating in the central area which saved over 400 tCO2e through the use of over 140,000 litres by the end of March 2021	400
The reduction in the embodied carbon of the concrete in both the tunnel segments and the baseplugs of the shafts. Within the Environmental Statement it was originally predicted that the concrete mix would contain a maximum of 25% cement replacement – such as Pulverised Fuel Ash (PFA) or Ground Granulated Blast furnace Slag (GGBS), however through consultation with the designers it has been possible to achieve up to 75% PFA in the baseplugs and between 25% and 45% GGBS in the tunnel segments whilst still meeting the performance specification. The design of the baseplugs was also amended to adopt a concave design which further reduced the amount of concrete and steel required.	The carbon savings of this design change is currently being calculated with the Main Works Contractors

Other initiatives focused on resource efficiency by monitoring water consumption and office consumables and recycling; energy sources with the use of Renewable Energy Guarantee of Origin (REGO) tariff for Tideway’s main office and also our West and East contractors, BMB and CVB; use of electric plant and introduction of telematics; and raising over 60% of our long term financing as green and sustainable debt, tied to the long term benefits of the tunnel.

As part of the process of mapping our Legacy commitments against the UN SDGs, we have mapped our commitment to reduce our carbon footprint against three targets that fall under SDG 8 Decent Work and Economic Growth, SDG 9 Industry, Innovation and Infrastructure and SDG 13 Climate Care.

Increases in carbon

Due to the nature of large construction projects, there are occasions when either the design or the construction methodology has to be amended to reduce a particular risk. On Tideway we experienced at least two situations where we needed to use more materials than expected, which led to an increase in carbon consumption. These include:

- Additional stabilisation or grouting being required due to unforeseen ground conditions. This was experienced at both King Edwards Memorial Park Foreshore where additional grout was required and at Blackfriars Foreshore; and
- The increased use of concrete for hardstanding at drive sites such as Kirtling Street which was used to reduce the amount of dust and/or silt being produced by plant operating on an unmade surface. In this instance, it was determined that additional concrete should be used to reduce a more localised environmental impact affecting the neighbouring properties and personnel working on site.

The increase carbon impact has been captured in our overall carbon footprint.



In 2021, the team at Blackfriars Bridge Foreshore buried a small time capsule containing a number of relics, including a Tideway hardhat, a Covid-19 mask and a sample of Thames water

APPENDIX B

Metrics and targets

Metric	DCO Target	WI Target	2017-18 (Q2 - Q4)	2018-19	2019-20	2020-21	Project Total To Date (Ptd)
Tonnes of actual CO ₂ e (LC 5)							351,507.67 tCO ₂ e*
Scope 3 carbon emissions*		Minimize carbon footprint	47,887.79 tCO ₂ e	97,798.85 tCO ₂ e	114,139.63 tCO ₂ e	94,429.16 tCO ₂ e	351,152 tCO ₂ e
Scope 2 carbon emissions			64.71 tCO ₂ e	133.05 tCO ₂ e	123.42 tCO ₂ e	40.58 tCO ₂ e	355.67 tCO ₂ e
Scope 1 carbon emissions			0	0	0	0	0
Construction waste diverted from landfill (% and tonnes)	80%	90%	90% (Arising: 66,096.22t Diverted: 59,347.05t)	96% (Arising: 192,267.92t Diverted: 184,337.14t)	96% (Arising: 356,053.62t Diverted: 343,375.27t)	93% (Arising: 102,120.64t Diverted: 95,363.89t)	95% (Arising: 716,538.39t Diverted: 682,423.35t)
Beneficial use of excavated material (% and tonnes)	85%	95%	98.42% (Arising: 130,889.27t Reused: 128,822.48t)	90.32% (Arising: 318,708.52t Reused: 287,844.96t)	97.32% (Arising: 2,127,478.37t Reused: 2,070,435.07t)	99.62% (Arising: 1,209,598.5 Reused: 1,204,946.5)	97.5% (Arising: 3,786,674.66 Reused: 3,692,049.01)
Total metered water consumption on site			45,164.67 m ³	101,708.02 m ³	393,601.03 m ³	345,519 m ³	885,992.72 m ³
Number of two-way lorry movements (LC 6)	<478,240**		79,418 (includes 2016/17)	83,354	73,676	57,980	294,428 two-way lorry movements
Tonnes of tunnel excavated material transported by river (foreshore sites) (LC 19)	90%	90%	N/A	179, 581t	1,213,452t	568,021t	94% (1.9m tonnes by river; 121,823t by road)
Number of trees planted (LC 46)		2 for 1***					550 trees to plant; 256 planted to date; 156 removed***

*At the end of Q4 2020-21, we had consumed 46% of the construction carbon budget for scope 3 emissions.

** The DCO commitment on HGV movements is 239,120 vehicles equating to 478,240 two lorry movements. Our Legacy commitment is to endeavor to perform under the DCO target.

*** 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. The MWCs are expected to plant a further 294 trees.

Assurance

Tideway has developed a robust internal process to validate the calculation of its performance against the KPI.

Legacy information from across the three contract areas of the project is compiled into a standardised reporting workbook by assigned Environment and Legacy Managers within each Main Works Contractors 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's 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. Up to end of 2020-21, Tideway SMEs included our Legacy Manager, Skills and Employment Manager, Education Programme Manager, Corporate Social Responsibility Manager and Sustainability Advisor.

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. The results from the review are included in Tideway's Annual Report and Sustainable Finance Report.

An independent assessment of the social value of our Legacy commitments conducted in 2017 has shown that the anticipated social return on investment for every Tideway pound spent was approximately £3.39. Tideway has appointed a third party to extend this assessment. The new evaluation will assess our performance against the Legacy commitments and determine the social value of the programme up to substantial completion of construction. This process will provide another layer of verification of the robustness and accuracy of the reporting process. It is estimated that it will be completed in 2022 and will deliver a comprehensive Social Value assessment report.



The cofferdam, Putney Embankment Foreshore

ABBREVIATIONS AND GLOSSARY

BMB	BAM Nuttall, Balfour Beatty and Morgan Sindall Joint Venture (Tideway West)
Carbon Footprint	is a measure of the impact activities of a particular individual, organization, or community have on the amount of carbon dioxide (CO ₂) produced through the burning of fossil fuels and is expressed as a weight of CO ₂ emissions produced in tonnes.
Construction carbon	is the total carbon from the construction phase, including embodied carbon of the materials and those associated with the operation of the plant and equipment.
CVB	Costain, Vinci, Bachy Soletanche Joint Venture (Tideway East)
CSO	combined sewer overflow
Decarbonisation	the process by which countries, individuals or other entities aim to achieve zero fossil carbon existence. Typically refers to a reduction of the carbon emissions associated with electricity, industry and transport.
EA	Environment Agency
Embodied carbon	greenhouse gas emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. Put simply, embodied carbon is the carbon footprint of a building or infrastructure project before it becomes operational.
Emissions	the release of GHGs into the atmosphere
ESG	Environmental, Social, and Governance. Investors are increasingly applying these non-financial factors as part of their analysis process to identify material risks and growth opportunities.
FLO	Ferrovial Laing O'Rourke Joint Venture (Tideway Central)
Greenhouse Gas (GHG)	naturally occurring and manmade gases that trap infrared radiation as it is reflected from the earth's surface, trapping heat and keeping the earth warm. The Kyoto Protocol covers a basket of six greenhouse gases produced by human activities: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, all measured as carbon dioxide equivalents on the basis of the gases' global warming potential.
i3P	Established in 2016, the Infrastructure Industry Innovation Partnership (i3P) is a community of client and supply chain organisations that have made a commitment to delivering collaborative innovation through projects supported by a large network of experts and innovators and world leading industry knowledge that will drive the future transformation of the infrastructure and construction industry.

LTI	<p>London Tideway Improvement</p> <p>The Thames Tideway Strategic Study was set up in 2000 to investigate the environmental impact of combined sewer discharges into the tidal River Thames and to propose potential solutions to dealing with the pollution and ensure compliance with European Union directive on Urban Waste Water Treatment. The main report published in 2005 led to the tripartite London Tideway Improvements Scheme:</p> <ul style="list-style-type: none"> • Improvements to five sewage treatment works (Beckton, Crossness, Long Reach, Riverside and Mogden), which were completed by Thames Water in 2014. These improvements increased the treatment works capacity and enabled the generation of renewable energy from the sludge that results from the treatment process; • The Lee Tunnel, which became operational in January 2016, collects excess storm flows to prevent discharges at Abbey Mills CSO and stores the captured flow until it can be treated at the upgraded Beckton STW; and • The Thames Tideway Tunnel. The study considered a number of alternatives, including rebuilding and separating the combined sewerage system and sustainable drainage systems. These are discussed in a report published by the Department for Environment Food & Rural Affairs (Defra) in October 2015: 'Creating a River Thames fit for our future: an updated strategic and economic case for the Thames Tideway Tunnel', which also describes the economic benefits of the project.
Net Zero	a target of completely negating the amount of greenhouse gases produced by human activity, to be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere.
Ofwat	The Water Services Regulation Authority, or Ofwat, is the body responsible for economic regulation of the privatised water and sewerage industry in England and Wales.
Operational carbon	is the total operational carbon of the asset.
Scope	defines the operational boundaries in relation to direct (scope 1) and indirect (scope 2 and 3) GHG emissions.
Scope 1 emissions	the reporting company's direct emissions. Direct (scope 1) emissions are emissions within a company's organizational boundary from sources that the company owns or controls, like business travel in a company car or the combustion of fuel in the company's boilers and furnaces.
Scope 2 and 3 emissions	indirect emissions result from a company's activities but from sources owned or controlled by another company. Scope 2 emissions is the reporting company's indirect emissions from purchased electricity, heat, and steam. Scope 3 emissions is the reporting company's indirect emissions other than those covered in scope 2.
SuDS	Sustainable drainage systems are drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.
tCO₂e	tonnes (t) of carbon dioxide (CO ₂) equivalent
UKCP09	UK climate projections 2009 produced by the Met Office Hadley Centre. Provides an estimate of the range of model-related uncertainties in the future projections, along with high, medium and low emissions scenarios. The UKCP09 scenarios include probabilistic projections of future climate for each decade up to 2100 in overlapping 30-year time periods. The climate change at the 50% probability level is that which is as likely as not to be exceeded. The 90% probability indicates that there is a 90% chance that the change will be less than this figure.

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