Tideway

INFORMATION FOR DEVELOPERS

This information is provided to assist developers who may be considering developing land in the vicinity of the Thames Tideway Tunnel. This document replaces the previously published 'Guidelines for Developers and Local Planning Authorities'

This document is not a legal document and is not intended to replace or supersede the DCO or any property specific agreement. Any developer should seek advice separately if unsure about the impact of the tunnel on its developments/proposed developments.

Document produced April 2020

CONTENTS

INTRODUCTION AND BACKGROUND

Bazalgette Tunnel Limited (trading as “Tideway”) is the organisation delivering the Thames Tideway Tunnel together with Thames Water Utilities Limited (“Thames Water”).

In September 2014 Development Consent for the project was approved when the Thames Water Utilities Limited (Thames Tideway Tunnel) Order 2014 (“the DCO”) was made. The DCO granted consent for the Thames Tideway Tunnel, a nationally significant infrastructure project between operational Thames Water sites at Acton Storm Tanks and Abbey Mills Pumping Station.

The project comprises of one main tunnel which will capture and store combined sewage from combined sewer overflows (CSOs) along its route and transfer the sewage for treatment at Beckton Sewage Treatment Works. Twelve connection tunnels will link flows from CSO drop shafts to the main tunnel.

This document provides information for developers about the infrastructure to assist them when preparing to build in the vicinity of the Thames Tideway Tunnel.

Further background on the Thames Tideway Tunnel and contact details are available on the project website www.tideway.london

PROJECT SAFEGUARDING

The Thames Tideway Tunnel is a nationally significant infrastructure project. Due to the national importance of the Thames Tideway Tunnel infrastructure, the alignment of the Tunnel and the land required to construct the infrastructure is safeguarded.

This means that Tideway (and Thames Water) will be notified by the local planning authority of any application for planning permission which falls within the safeguarded area. The purpose of the safeguarding is to ensure that as asset owner, Tideway are made aware of development proposals that could affect their asset and provided with an opportunity to make representations regarding that development before a decision to grant planning permission is made. In determining the application, the local planning authority must take into account any representation received by Tideway (or Thames Water) regarding the proposed development.

During the construction phase of the project, the safeguarded area includes all the land included within the DCO Order Limits (i.e. all land required both temporarily and permanently for the construction of the project). The DCO Order Limits include limits of deviation within which the tunnel alignment can be constructed. These provide flexibility to allow the tunnel alignment to be adjusted both horizontally and vertically to avoid potential obstructions or other constraints, and to minimise third party impacts identified during the detailed design and construction of the tunnels.

Prior to the completion of the Thames Tideway Tunnel, Tideway will seek to ensure that the foundations for permanent and temporary works associated with any proposed developments do not intrude into the area (the 'limits of deviation') within which the tunnel alignment can be constructed. This is necessary to ensure that the ability to adjust the alignment of the tunnel is not compromised by a third party development.

On completion of the works, the safeguarded area will be revised to reflect the as built asset. For tunnels, the safeguarded area will extend for a distance of 6 metres measured from the inside face of any tunnel. For any shafts or other underground structures, the safeguarded area will extend for a distance of 10 metres measured horizontally from the outside structural surface.

In order to protect the integrity of the tunnels, Thames Water (on behalf of Tideway) intends to purchase the subsoil around the as-built tunnels that

will form the post construction safeguarded area. Developer's foundations for permanent or temporary works shall not be permitted to intrude into this land.

Figure 1 below illustrates the tunnel limits of deviation which form the safeguarded area during construction (in orange) and the post construction safeguarded area (in green) of the tunnel. After completion of construction the subsoil that forms the post construction safeguarded area around the tunnel will be owned by Thames Water.

Developers are advised to contact Tideway as early as possible if their development falls within, or close to the safeguarded area to ensure that the design of the development makes provision for the Thames Tideway Tunnel.

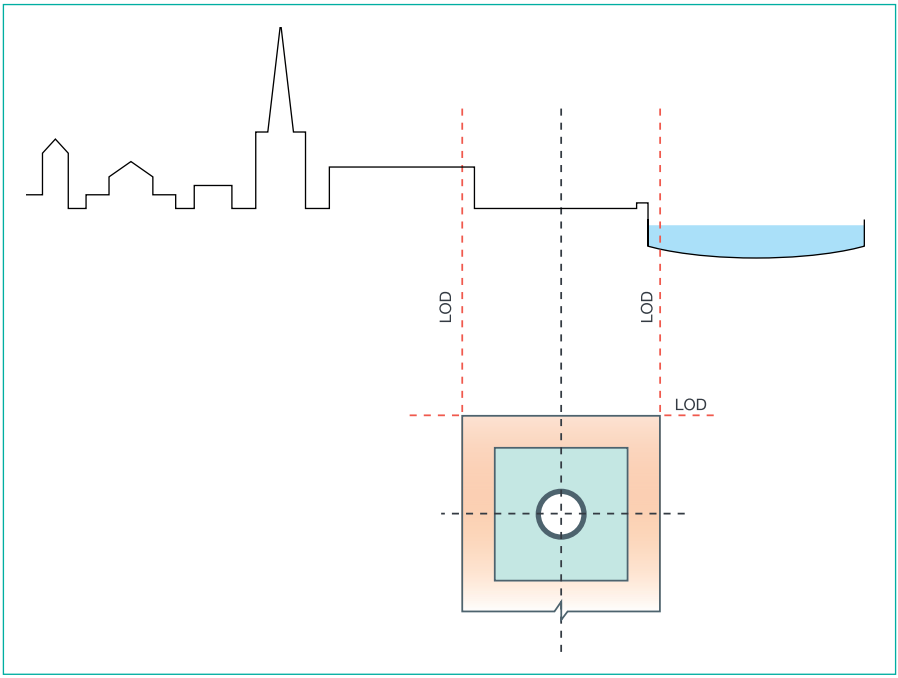


Figure 1
Safeguarded Area for a tunnel during construction and operation

THAMES TIDEWAY TUNNEL INFRASTRUCTURE

This section provides further details of the Thames Tideway Tunnel Infrastructure. The route of the tunnel and site locations are shown in Appendix A.

Tunnel sizes and depths

The external diameters of the tunnels will vary and developers should consult with Tideway to obtain the dimensions and location of the infrastructure relative to their development. The approximate dimensions of the tunnels are as follows:

- The main tunnel between Acton Storm Tanks and Carnwath Road Riverside will have an excavated diameter of approximately 8.1m [and an internal diameter of 6.5m].
- The main tunnel between Carnwath Road Riverside and Abbey Mills Pumping Station will have an excavated diameter of approximately 8.8m [and an internal diameter of 7.2m].
- The Greenwich connection tunnel between Greenwich Pumping Station and Chambers Wharf will have an excavated diameter of approximately 6.2m [and an internal diameter of 5m].
- The Frogmore connection tunnel between King George's Park and Carnwath Road Riverside will have an excavated diameter of approximately 3.6m [and an internal diameter of 2.6m].

The invert level of the main tunnel falls from Acton Storm Tanks to Abbey Mills Pumping Station. The invert the tunnel will be approximately 31m below ground level at Acton Storm Tanks, increasing to approximately 66m at Abbey Mills Pumping Station.

In addition to the above, there are connection tunnels between the main tunnel and drop shafts along the route which will have dimensions dependent on the flows from the combined sewer outfalls (CSOs) being intercepted.

Shafts and other underground structures

On completion of construction there will be other underground permanent works at the worksites along the route to intercept flows from the CSOs. These will include shafts, interception structures, chambers and connection culverts.

As part of the construction process, other underground and above ground structures may also be built though they may not form part of the permanent works. Some of these underground structures will remain in the ground after completion of the works.

Above ground structures

There will also be above ground permanent works at the worksites. These include buildings, ventilation columns, mechanical and electrical kiosks, river walls, architectural structures and landscaping works.

GUIDANCE ON DEVELOPMENT LOADING

The temporary and permanent works for the foundations of a proposed development in the vicinity of the Thames Tideway Tunnel infrastructure must be designed to prevent any unacceptable impact on the tunnels and other structures. Developer's foundations might include all forms of near surface foundations, piles, ground treatments, excavations and dewatering. In general the loads from a development imposed on the tunnels, shafts and other underground structures will be acceptable if they do not exceed the limits described below.

Tunnels

The tunnels will be designed for the following future development loads:

- the existing ground overburden plus an imposed loading of 75kN/m^2 at the level of the top of the Safeguarded Zone
- Loadings and effects resulting from excavations at ground level not exceeding 10% of the overburden pressure as at the time of construction.

Shafts and other underground structures

The shafts and other underground structures will generally be designed for future development vertical loading of 20kN/m^2. In addition the shafts will generally be designed for future development radial loading of 75kN/m^2 acting horizontally on the shaft.

Dewatering

Developers should consider the impact that any dewatering carried out as part of their proposals will have on the tunnels, shafts and other structures. They should consult with Tideway where dewatering is likely to reduce water levels in any ground strata through which the tunnels or other structures are located.

POTENTIAL IMPACTS ON A DEVELOPMENT DURING TUNNELLING

Loads from the Thames Tideway Tunnel

Developers should consider that the tunnels will be constructed using tunnelling machines that will exert a pressure on the ground to maintain stability. This pressure may be up to several bar above in-situ hydrostatic pressure. Developers should make allowance for this additional loading and contact Tideway as necessary.

Developers should take into account that the Thames Tideway Tunnel infrastructure will be subject to internal water pressures when in use and make allowance for these pressures in their stability assessment.

The required loading attributable to the water pressure within the Thames Tideway Tunnel infrastructure varies depending upon location and developers should obtain specific loading data from Tideway.

Ground movement

Construction of the tunnels and other excavations will cause ground movement and settlement of the ground above and adjacent to the tunnels and structures.

The foundations and the structures for a new development should be designed to ensure impacts on the development from any ground movement and settlement caused by the Thames Tideway Tunnel are acceptable to the developer.

For the purpose of this provision, developers should allow for a ground volume loss (sometimes called face loss) from tunnelling at a rate of 1.7 percent for main tunnels and the Greenwich connection tunnel, and 2.0 percent for all other connection tunnels.

Noise and vibration

The impact of ground borne noise and vibration from construction of the Thames Tideway Tunnel has been evaluated and presented in the Environmental Statement (available at www.tideway.london).

Developers shall determine whether their developments can accept the predicted vibration levels or incorporate mitigation into their proposal as they consider necessary.

GUIDANCE FOR DEVELOPERS

Developers proposing to build in the vicinity of the Thames Tideway Tunnel are advised to contact Tideway for information regarding the location of the tunnels and other structures to be constructed as part of the project.

Developers should ensure that the design of their developments is not unduly affected by the construction and operation of the Thames Tideway Tunnel. Considerations should include potential ground movements during construction of the Thames Tideway Tunnel, likely loadings from the tunnel during construction and operation and access requirements for maintenance during operation.

Developers should make an assessment of how and where their development may affect or be affected by the Thames Tideway Tunnel infrastructure after consideration of the issues noted above.

Developers should take into account the construction tolerances for their proposed development foundations or excavations in determining an acceptable location for their development relative to the Thames Tideway Tunnel. The construction tolerance is the difference between the theoretical position of the proposed works and the realistic deviation from that position taking into account the achievable construction accuracy.

Development proposals should also be designed to ensure that Tideway do not incur any additional costs when building or operating the Thames Tideway Tunnel infrastructure

Developers are advised to engage with Tideway as early as possible to discuss the proposed foundations, construction method and likely loading that will result from their development. This will enable possible impacts on the Thames Tideway Tunnel infrastructure to be identified early and appropriate mitigation measures to be included in the design to ensure that the design of the development makes provision for the Thames Tideway Tunnel.

Developers will be required to demonstrate to Tideway as asset owner, that the impact of their development, including during construction, will not adversely affect the infrastructure. Developers will be required to provide documentation to Tideway in the form of a structural assessment report to demonstrate how any change in loading in the ground or any reduction in overburden due to excavation of existing ground does not adversely affect the tunnels and other structures.

The content of the structural assessment report is likely to include:

a) an overview of the development outlining the nature and extent and its proximity to the Thames Tideway Tunnel infrastructure

b) assumptions made regarding the Thames Tideway Tunnel infrastructure including tunnel/shaft/structure dimensions, clearances and exclusion zones, volume loss, noise and vibration criteria, impact on operations

c) a summary of the existing site conditions, including compiled assumptions on ground conditions, groundwater, ground contamination (if appropriate). Details substantiated by desktop assessment or intrusive surveys as appropriate, supplied by the developer

d) outline drawings, calculations and design analyses including a summary of predicted ground movements and damage assessment due to excavations, dewatering or construction on the Thames Tideway Tunnel works. Similarly for effects on the development if the latter is constructed prior to the Thames Tideway Tunnel

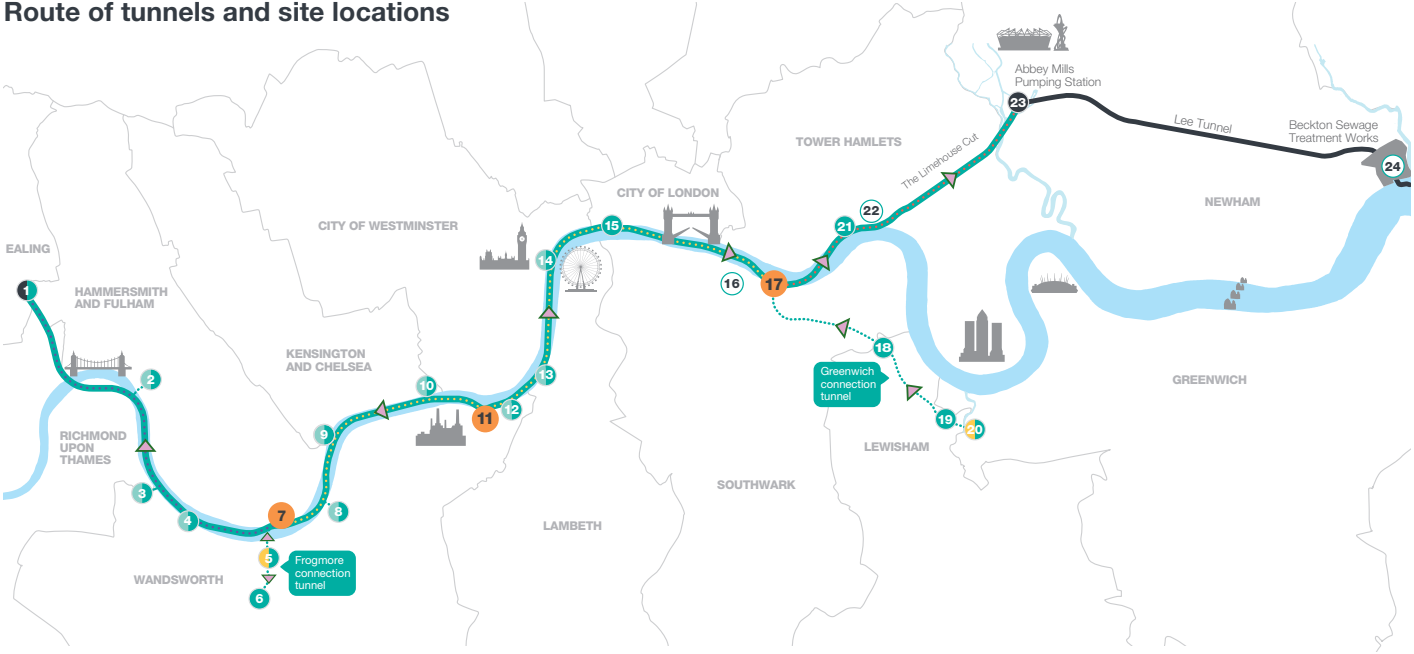
e) List of standards and references

f) The structural assessment report should be subject to an independent engineering check, details of which should be submitted to Tideway alongside the assessment report.

Tideway reserves the right to charge developers for time and resource utilised in assessing their proposals, particularly where specialist engineering resources have to be commissioned to provide appropriate advice.

APPENDIX A

Route of tunnels and site locations



Map key

- Main tunnel drive tunnel site
- Main tunnel reception site
- CSO site
- Short connection tunnel drive site
- Long connection tunnel drive site
- System modifications

- Main tunnel
- Connection Tunnels
- Lee Tunnel
- Proposed drive direction
- West works site
- Central works sites
- East works site

1. Acton Storm Tanks
2. Hammersmith Pumping Station
3. Barn Elms
4. Putney Embankment Foreshore
5. Dormay Street
6. King George's Park
7. Carnwath Road Riverside
8. Falconbrook Pumping Station
9. Cremorne Wharf Depot
10. Chelsea Embankment Foreshore
11. Kirtling Street
12. Heathwall Pumping Station
13. Albert Embankment Foreshore
14. Victoria Embankment Foreshore
15. Blackfriars Bridge Foreshore
16. Shad Thames Pumping Station
17. Chambers Wharf
18. Earl Pumping Station
19. Deptford Church Street
20. Greenwich Pumping Station
21. King Edward Memorial Park Foreshore
22. Bekesbourne Street
23. Abbey Mills Pumping Station
24. Beckton Sewage Treatment Works

For more information about Tideway

08000 30 80 80 | **www.tideway.london** | **helpdesk@tideway.london**

For our language interpretation service call: **08000 30 80 80**

For information in Braille or large print call: **08000 30 80 80**