9 Putney Bridge Foreshore

9.1 Introduction

9.1.1 This section of the non-technical summary presents the preliminary environmental assessment for the Thames Tunnel project at Putney Bridge Foreshore (Figure 9.1).

9.1.2 At this site it is proposed that flows from the existing Putney Bridge combined sewer overflow would be diverted into the proposed Thames Tunnel through a shaft and an underground connection tunnel. Currently, the existing combined sewer overflow discharges approximately 33 times a year. The total volume of this discharge is approximately 68,100m³ each year.

9.1.3 In the following section a description of the existing site is given. This is followed by a description of the development proposed at this site.

9.1.4 The environmental topics which have been assessed for this site are listed in the ‘Assessment’ section (9.4). Preliminary assessment findings are then presented topic by topic.

9.2 Site context

9.2.1 The site is shown as site number 4 on Figure 28.1.

9.2.2 The site is located within the London Borough of Wandsworth (Figure 9.1).
9.2.3 The site is located within Putney Embankment Conservation Area immediately west of the Grade II listed Putney Bridge. It comprises an area of foreshore on the River Thames, a stretch of pavement along the embankment, an historic slipway and a linear green space at the foot of Putney Bridge known as Watermans Green.

9.2.4 Development at Putney Bridge Foreshore would take place at two locations. The main works would be at a foreshore site located adjacent to the southern end of the Grade II listed Putney Bridge. The River Thames forms the northern limit of the site, with the Embankment and Lower Richmond Road to the south. Included within this is an existing nineteenth century cobbled slipway which is parallel to the river. The main construction site extends over approximately one hectare.

9.2.5 The existing slipway would be protected during construction works. However, it would not be accessible for use over this time and therefore a temporary slipway located a short distance (300 metres) upstream would be provided. This forms the second site for this development and extends over approximately 0.7 hectares. The site of the temporary slipway is bounded by the Embankment to the south and by the River Thames on all other sides.

9.2.6 The area of land required for the permanent works would be substantially smaller than that required for construction.

9.2.7 Both sites are indicated by the red line shown on Figure 9.2.

*Figure 9.2 Aerial photograph of Putney Bridge Foreshore*

*Note: The red line boundary is approximate in this image*
9.3 Proposed development

9.3.1 The proposal is to intercept the existing combined sewer overflow which discharges from underneath the bridge arch (Figure 6). With the Thames Tunnel in place, instead of untreated sewage discharging at current volumes directly into the River Thames, flows would be diverted into the proposed Thames Tunnel. For a typical year, this would reduce flows from the combined sewer overflow at this site to an average of approximately 1,600 m\(^3\) once a year.

9.3.2 In order for this interception to be achieved, construction works at this site would take approximately three and a half years. A shaft with an internal diameter of approximately 6 metres and approximately 36 metres deep would be constructed. As the location of this shaft is within the foreshore, a temporary wall would be constructed to separate the river to form a new dry working area. Within this new area, construction activities would take place.

9.3.3 From the base of the shaft there would be an underground connection tunnel which would join up with the main tunnel. Through an interception chamber, flows from the existing Putney Bridge combined sewer overflow would be diverted into the shaft, connection tunnel and into the main tunnel, located deep underneath the River Thames.

9.3.4 Before works start on the main site, the temporary slipway would be constructed to enable access to the river whilst the permanent slipway is inaccessible. As the temporary slipway is on the foreshore, the construction works would require a temporary dry working area. This would be achieved by building out into the river a retaining wall which would be infilled with granular material. From here, the temporary slipway would be constructed.

9.3.5 During construction, vehicles would access the main site off the Embankment from the junction with Lower Richmond Road. Access to the temporary slipway location would utilise Lower Richmond Road and Thames Place. In addition, this site would include barging in order to move most of fill material to create the temporary dry working area.

9.3.6 In order to manage and mitigate effects on the environment during construction, a Code of Construction Practice has been drafted. This sets out measures to be adhered to during the construction works.

9.3.7 Most of the construction would take place from 8am to 6pm, Monday to Friday. Limited works may be required beyond these hours.

9.3.8 Figure 9.3 and Figure 9.4 show the indicative plans of construction works at each of the sites.
Figure 9.3 Indicative plan of construction works for Putney Bridge Foreshore – main site

Figure 9.4 Indicative plan of construction works for Putney Bridge Foreshore - temporary slipway
9.3.9 Once the works at this site have been built, a number of permanent features would remain (Figure 9.5). At the main site, there would be a permanent area of new land created within the foreshore. This would be publicly accessible, except during times of maintenance when it would be temporarily fenced off. This area contains the shaft, chambers, access points and hardstanding. At the point where the existing combined sewer overflow is to be intercepted underneath the bridge arch, there would be a chamber. This would be visible at certain times, depending on the tides. The connection pipework between this chamber and shaft would be underground. The temporary slipway would be removed once construction has finished and the existing slipway becomes accessible again.

9.3.10 There would be a kiosk located within Watermans Green housing equipment to control the below ground equipment. There would also be a ventilation structure approximately four meters high located on the new foreshore structure. Most of the time, air would be drawn into the tunnel via this structure to ensure that the air within the main tunnel is continuously circulated. From time to time when the main tunnel is filling up, air may be expelled via filters and out through the ventilation structure. A separate 5 metre ventilation column is also proposed at Putney Bridge.

9.3.11 Once the project is built and operational, access to the site would be required for maintenance purposes. Access for routine maintenance would be required every three to six months. More substantial maintenance work would be required every ten years.

**Figure 9.5 Putney Bridge Foreshore indicative plan of built development**
9.4 Assessment

9.4.1 Based on the existing site and the works proposed, the following environmental topics have been included in the scope of this preliminary environmental assessment:

a. Air quality and odour
b. Ecology – aquatic and terrestrial
c. Historic environment
d. Land quality
e. Noise and vibration
f. Socio-economics
g. Townscape and visual
h. Transport
  i. Water resources (ground and surface)
j. Flood risk

9.4.2 In the following sections, information about the preliminary assessment of each of these topics is presented.

9.4.3 As part of the assessment process, consideration has been given to known relevant developments that may change future environmental conditions. In this case, it is assumed that development of the vaults at 2 Putney High Street for café use including access onto Watermans Green will be complete.

9.4.4 Further information on the topic specific methodology for conducting the assessment is given in section 4 of this non-technical summary.

9.5 Air quality and odour

9.5.1 The Putney Bridge Foreshore site is located within the London Borough of Wandsworth Air Quality Management Area. Local monitoring data indicates that there are currently exceedences of the air quality standards in the vicinity of the site. The nearest people who may be sensitive to the development are occupiers of nearby residential dwellings and commercial/office premises (on Lower Richmond Road and Embankment) as well as users of St Mary’s Church.

9.5.2 Based on this preliminary assessment, it is considered that the overall effect on local air quality from construction road traffic, river barges and construction plant is likely to be minor adverse at the residential properties and St Mary’s Church, and negligible at the commercial/office premises. In term of construction dust, this is likely to have a minor adverse effect at the residential and commercial/office properties within 10 metres of the site boundary and a negligible effect elsewhere, taking account of the dust control measures in the Code of Construction Practice.

9.5.3 Preliminary assessment findings indicate that the effects of odours released from the ventilation column is likely to be negligible.
9.5.4 Based on this preliminary assessment, it is considered that further measures are not required.

9.6 Ecology – aquatic

9.6.1 The site is located within the River Thames and Tidal Tributaries Site of Metropolitan Importance. The in-river habitat at the site comprises gravel foreshore that is exposed at low tide, dominated by pebbles, shingle and sand (Figure 9.6). The river in this location is confined by a man-made vertical river wall, which is vegetated in some areas, and by bridge abutments, above exposed banks. Surveys and data searches indicate low diversity of fish and invertebrates at this site.

9.6.2 Construction effects would be managed in accordance with the Code of Construction Practice. With the Code in place it is anticipated that loss of habitat due to the presence of in-river structures would have a moderate adverse effect. Disturbance and compaction of in-river habitat would have a minor adverse effect. The loss of habitat for fish and invertebrates would have a minor adverse effect, as would disturbance and compaction of sediment for invertebrates. All other effects on fish, invertebrates and mammals would be negligible.

9.6.3 The loss of habitat due to the presence of permanent in-river structures would have a minor adverse effect. During operation, reduction in nutrient levels entering the river would have a moderate beneficial effect for fish. There would also be a minor beneficial effect on invertebrate diversity and abundance. In the longer term of operation there would be a minor beneficial effect on the distribution of pollution sensitive fish and invertebrate species. All other effects on mammals, fish and invertebrates would be negligible.

9.6.4 Measures are included within the Code of Construction Practice to manage construction effects. No further mitigation during construction is considered possible as the extent of the physical works in the river have been reduced as far as practicable at this stage of the assessment. Studies on the effects of structures within the channel on fish migration, both temporary and permanent, will inform whether further mitigation is required.
9.7 **Ecology – terrestrial**

9.7.1 The majority of the site lies within the River Thames and Tidal Tributaries Site of Importance. There are mature trees on and adjacent to the site. The foreshore and adjacent trees are of value to commuting and foraging bats. The trees provide nesting habitat for common bird species. The foreshore is likely to be of value to wintering birds and this will be reported in the Environmental Statement following the completion of surveys.

9.7.2 No significant effects on designated sites are anticipated during construction (aquatic ecology effects are considered in section 6.6).

9.7.3 The effect on habitats from the pruning of adjacent trees would not give rise to significant effects. Displacement of breeding birds from trees on site is likely to have a site level adverse effect. Displacement from trees adjacent to the site would give rise to negligible effects. Site clearance and construction activities would result in site level adverse effects for foraging and commuting bats due to disturbance and habitat loss. Disturbance to bats from lighting would be negligible. Effects on wintering birds will be assessed and reported in the Environmental Statement.

9.7.4 Operational activity would be limited to occasional maintenance work, which is considered unlikely to have significant effects on terrestrial ecology.

9.7.5 In addition to measures included within the Code of Construction Practice, further mitigation, such as habitat creation will be developed as necessary.
9.8 Historic environment

9.8.1 The site comprises part of the south bank of the Thames foreshore and Putney Embankment river wall, and includes a late 19th-century draw dock and cobbled slipway. The site lies within the Putney Embankment Conservation Area and the eastern edge of the site runs beneath the Grade II listed Putney Bridge where two late 19th-century Bazalgette screens to the sewer outfall are located (Figure 9.7). The site also includes a group of Grade II listed bollards. These designated heritage assets are all of high asset significance. Listed buildings in the vicinity include the Grade II listed White Lion Hotel 40m to the south and the Grade II* Church of St Mary the Virgin 20m to the southeast.

9.8.2 The site lies within a locally designated Archaeological Priority Area and the main potential is for post-medieval remains of barge beds, flood defences and construction debris associated with Putney Bridge, which would be of medium asset significance. Post-medieval foreshore silts, isolated pottery and building materials might also be present. The remains of medieval revetments or other riverfront structures would be of low or medium heritage asset significance. Medieval or post-medieval construction debris and isolated artefacts would be of low heritage asset significance. The potential for palaeoenvironmental remains (e.g. organic remains such as pollens or plant fossils) and buried assets of earlier periods is considered to be low due to probable past scouring from riverflows.

9.8.3 Construction works would involve removal of the existing sewer outfalls that form part of Putney Bridge, resulting in a major adverse effect. There would be no other direct effects on the bridge itself. The cobbled slipway would temporarily be taken out of use, with some localised removal of cobbles, resulting in a minor adverse effect. Construction works would entail deep excavations which would entirely remove archaeological assets within the construction footprint. If such assets were present, this would comprise a high magnitude of impact and would give rise to a minor or moderate effect on the remains of medieval or post-medieval revetments or riverside structures, and a minor adverse effect on isolated artefacts.

9.8.4 The effects on the sewer outfalls and slipway would be mitigated through standing structure recording and photographic survey in line with accepted practice, and reuse of the slipway cobbles where possible, or use of other sympathetic materials. The desk-based study of the site suggests that no buried heritage assets of very high significance are anticipated that might merit a mitigation strategy of permanent preservation in situ. Any adverse effects could be successfully mitigated by a suitable programme of archaeological investigation before and/or during construction, drawing on a range of techniques. This would include subsequent dissemination of the results and so achieve preservation by record.

9.8.5 Effects on the historic environment such as setting of heritage assets arising from the operation of the Thames Tunnel will be assessed and presented in the Environmental Statement. Changes in river flows due to new infrastructure in the channel could lead to effects on buried heritage
assets in the foreshore from scouring. Any mitigation requirements for operational effects will also be presented.

Figure 9.7 Historic environment - Late 19th century sewer outlets under Putney Bridge

9.9 Land quality

9.9.1 A search of historical and environmental data indicates that the site has no former uses which are likely to have caused contamination in the area. No potential contaminative sources were identified at or in the immediate vicinity of the site during a walkover survey and previous ground investigations close to the site have recorded no significant soil contamination. Part of the ongoing ground investigations includes the assessment of foreshore sediment contamination. Desk based surveys have identified a low to medium risk from unexploded ordnance.

9.9.2 There may be a slight adverse effect on construction workers due to the potential for exposure to contaminated soils or other materials if they are present, although any exposure risk would be short-term. There would be a negligible effect on the built environment as it is considered unlikely that contaminants contained in subsurface materials would affect buried structures. This preliminary assessment therefore identified no need for mitigation during the construction phase although this will be clarified subject to further investigations and reported in the Environmental Statement.

9.9.3 During operation there would be negligible effect on future users and the built environment. Based on this preliminary assessment, it is anticipated that mitigation would not be required during the operational phase.
9.10 **Noise and vibration**

9.10.1 A noise survey has been carried out to understand existing noise levels (Figure 9.8). The site is dominated by road traffic noise. The nearest locations to the site which are sensitive to noise and vibration are residential dwellings at Kenilworth Court and Richmond Mansions, located to the south of the site; the Star and Garter Mansions and residential moorings to the west; and the new Putney Wharf Tower development to the south east of the site. St. Mary’s Church has also been identified as sensitive to noise.

9.10.2 Based on this preliminary assessment, significant noise and vibration effects arising from construction activities are predicted at residential properties at Kenilworth Court and Richmond Mansions. No significant effects as a result of the operation of the site are predicted.

9.10.3 During construction, the contractor would be required to follow best practice (as described in the Code of Construction Practice) at all times to reduce noise and vibration effects on the local community for example through suitable siting of equipment on site.

9.10.4 Further measures to address significant noise and vibration effects during construction may include localised screens and enclosures to reduce noise from particularly noisy, static operations.

9.10.5 The next stage of the assessment will profile the variation in construction noise levels across the programme of work with the aim of refining mitigation design and seeking to reduce the significant effects of construction noise and vibration. Further details of mitigation measures will be provided in the Environmental Statement including the significance of residual effects once mitigation has been taken into account.

*Figure 9.8 Recording background noise outside residences along Lower Richmond Road*
9.11 Socio-economics

9.11.1 During construction, there are considered to be moderate adverse effects on the amenity of restaurant and retail business customers and, in turn on the operators of these businesses (Figure 9.9). Residents could experience similar moderate adverse amenity effects. The temporary relocation of the slipway and disruption to the river foreshore are considered to also have minor adverse effects. The loss of use of a small area of open space, disruption to a section of the Thames Path and amenity effects on users of the Thames Path and national cycle route are considered to be negligible. Once operational, there would be minor beneficial effects resulting from the gain in publicly accessible space associated with the Thames Path.

Figure 9.9 Businesses that front the river at Putney Bridge Foreshore

9.11.2 For the operational phase, there are not expected to be any socio-economic effects at Putney Bridge Foreshore which require mitigation.

9.11.3 In completing the assessment, there is scope for further construction phase mitigation measures to be incorporated in the design with the aim of seeking to reduce significant adverse amenity effects which have been identified in this preliminary assessment.

9.12 Townscape and visual

9.12.1 The site is located within a nationally valued historical and cultural stretch of the River Thames, experienced by large numbers of people and is generally in a good condition.

9.12.2 During construction, the use of a temporary retaining wall in the river to create a dry working area and hoardings, and the intensity of construction activity would have major adverse effects including the site and Bishops Park. There would be moderate adverse effects on the River Thames – Fulham and Barn Elms Reach and Putney Bridge Conservation Area due to the presence of cranes and the intensity of construction activity. There would also be minor or negligible effects in the remaining areas included in the assessment. Once operational there would be minor to moderate adverse townscape effects due to the permanent foreshore structure.
(dependent on the final design) on the site, River Thames – Putney and Fulham Palace Reach, Bishops Park and Putney Bridge Conservation Area character areas. Two reaches of the River Thames at a distance from the site, to the east and the west would have negligible to minor adverse townscape effects due to the introduction of new public realm and above ground structures in an area previously within the river channel.

9.12.3 In terms of visual amenity, during construction there would be major adverse visual effects on four viewpoints including views from Kenilworth Court, Putney Bridge, the Embankment and Prior Gardens Bank due to the visibility of the construction site. A view from the Embankment is shown in Figure 9.10. There would be moderate adverse visual effects on viewpoints including Carrara Wharf, Putney High Street and Lower Richmond Road due to visibility of the same elements. Once operational, due to the visibility of the ventilation column, public realm and interception chamber, there would be minor to moderate adverse visual effects on viewpoints including Kenilworth Court, Leaders Gardens and Beverley Brook. Due to the partially obscured view of above ground structures there would be negligible to minor adverse effects on six viewpoints including Carrara Wharf, Lower Richmond Road and Leaders Gardens.

9.12.4 Mitigation measures to be employed during the construction phase are being incorporated into the proposals, for example, through protection of trees. In terms of operation, a process of iterative design and assessment is being employed to reduce adverse effects for example through landscape design. Any remaining operational effects will depend on the final architectural and landscape design.

Figure 9.10 Panorama view south east from Embankment

9.13 Transport

9.13.1 The Putney Bridge Foreshore site has excellent public transport accessibility. It is located close to extensive bus services, Putney Pier which is served by the Transport for London River Bus and Putney Rail Station. The site is located on the Embankment just west of Putney Bridge and construction vehicle access is proposed via the A3 and Putney Bridge Road before routing along Lower Richmond Road and accessing the site from the Lower Richmond Road/Embankment junction.

9.13.2 During construction, the number of heavy goods vehicle movements would be comparatively low. However, the nature of the construction site layout at this location would require minor highway layout changes and a minor change to traffic operation on Embankment, resulting in a moderate adverse effect on road network operation and delay.
9.13.3 There are a small number of river services that operate from Putney Pier during peak hours and access to the pier is likely to remain unchanged during the construction period although a minor adverse effect on services may be expected as a result of the proposed works.

9.13.4 Effects on pedestrian amenity and safety are expected to be moderate adverse and minor adverse for cyclist amenity and safety.

9.13.5 The existing slipway is pictured in Figure 9.11. During the operational phase there would be very occasional vehicle trips to and from the site for maintenance activities but these would have a negligible effect on the surrounding transport networks.

9.13.6 The project is being designed to limit the effects on the transport networks as far as possible. At this location, mitigation measures during the construction phase are likely to be required and would take the form of a safety audit of the site access and the provision of a traffic marshal to manage potential conflicts between construction vehicles and pedestrians. It is also proposed to provide a traffic marshal during the operational phase to manage access when large maintenance vehicles are required to access the site through the Lower Richmond Road / Embankment junction.

Figure 9.11 Existing slipway at Putney Bridge

9.14 Water resources - ground water

9.14.1 The proposed shaft would pass through the upper aquifer and into the underlying non aquifer (London Clay). The shaft does not penetrate the principal aquifer beneath (Chalk). Associated interception infrastructure would sit in the upper aquifer founded into the London Clay. The main receptor is the upper aquifer and is defined as being of medium value.

9.14.2 Construction and operational effects on the upper aquifer would be limited to physical obstruction to groundwater flow and this is anticipated to be negligible due to the inclusion of design measures to reduce groundwater effects.
9.14.3 No soil or groundwater contamination has been identified on site to date but should any be encountered, this would be dealt with using a risk based approach and appropriate remediation ahead of construction. The effect on groundwater quality is considered to be negligible at this stage.

9.14.4 Groundwater monitoring of water levels and water quality carried out for the baseline would continue during construction.

9.15 Water resources – surface water

9.15.1 The site is located in the River Thames foreshore within the Thames Upper waterbody, as classified under the Thames River Basin Management Plan. There is also the possibility for effects on the downstream Thames Middle waterbody, which has also been considered in the assessment. The Thames Upper and Middle waterbodies are currently classified under the Water Framework Directive as being at moderate potential status, with a status objective of ‘good potential’ by 2027. There are a number of nationally and locally designated water-dependent conservation sites within 2 kilometres of the proposed site.

9.15.2 There is the potential for effects on surface water resources from the proposed construction works through surface water runoff and exposure of the drainage system to contaminants. After taking into account the measures incorporated into the design and Code of Construction Practice, such effects are expected to be manageable and not significant. No mitigation would therefore be required.

9.15.3 There is also potential for the loss in river bed from the construction to change the river flows, which could lead to scour at the flood defences. The effects would be largely temporary during construction as some natural foreshore restoration would occur after temporary construction structures are removed. Some additional mitigation may be required for the effects of the permanent works within the foreshore. Any mitigation required will be identified in the Environmental Statement.

9.15.4 Once operational, the scheme would reduce the number of discharges from the Putney Bridge combined sewer overflow (Figure 9.12) to a predicted level of one spill per year once the tunnel is in place.

9.15.5 This reduction would be a beneficial effect on water quality. The number of risk days for river users being exposed to pathogens would be reduced by up to 104 days of risk of exposure. In addition, the tonnage of sewage derived litter can be expected to be reduced by approximately 17 tonnes to less than half a tonne per year.
9.16  Flood risk

9.16.1 The site may be at risk of surface water flooding due to runoff generated from the land to the south. The presence of structures within the foreshore could impact flow within the River Thames and the works required to construct the tunnel could affect the local flood defences; further studies are being completed to assess potential impacts.

9.16.2 Flood defences would be constructed during the construction and operational phases to provide the equivalent level of flood protection as that provided by the current flood defences, while maintaining the existing defences to the south of the Embankment. The finished ground level of the site would also be above the design flood level; therefore the risk of the operational site flooding from tidal events is negligible.

9.16.3 The effects of changes in scour and deposition would be reduced through good practice design of the temporary and permanent structures.

9.17  Further information

9.17.1 Further information regarding preliminary assessment findings for Putney Bridge Foreshore can be found in Volume 10 of the Preliminary Environmental Information Report.