21 Chambers Wharf

21.1 Introduction

21.1.1 This section of the non-technical summary presents the preliminary environmental assessment for the Thames Tunnel project at Chambers Wharf (Figure 12.1).

21.1.2 At this site it is proposed that the main tunnel would be driven north east to Abbey Mills. It would also be a receptor site for the tunnel boring machine driven from Kirtling Street and for the tunnel boring machine driven from Greenwich Pumping Station.

21.1.3 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.

21.1.4 The environmental topics which have been assessed for this site are listed in the ‘Assessment’ section (21.4). Preliminary assessment findings are then presented topic by topic.

21.2 Site context

21.2.1 The site is shown as site number 16 on Figure 28.1.

21.2.2 The site is located within the London Borough of Southwark (Figure 12.1).

Figure 21.1 Chambers Wharf site location
21.2.3 The site is located on the southern bank of the River Thames to the north of Chambers Street on previously developed land which has recently been cleared. Approximately two and a half hectares is required for the proposed temporary construction works (including areas for barging and cofferdam construction), with a smaller area for the permanent works. This is indicated by the red line shown on Figure 21.2. The proposed construction site includes an area of foreshore.

21.2.4 Currently vehicular access to the site is from Jamaica Road via Chambers Street and Bevington Road.

**Figure 21.2 Aerial photograph of Chambers Wharf**

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

21.3 Proposed development

21.3.1 The proposal is to drive the tunnel boring machine from this site to Abbey Mills and remove the tunnel boring machines driven from Kirtling Street and Greenwich Pumping Station. There would be no combined sewer overflow interception at the site.

21.3.2 In order for the tunnel to be built, construction works at this site would take approximately six years. The existing piled jetty would be removed and a cofferdam (a temporary watertight enclosure) built into the foreshore.

21.3.3 A shaft with an internal diameter of approximately 25m and a depth of approximately 57m would be constructed. Once the shaft is constructed, the tunnel boring machine would be launched through the base of the shaft east to Abbey Mills. The tunnel boring machines from Kirtling and Greenwich would be removed from the shaft.
21.3.4 A new river wall would be constructed along the length of the site foreshore.

21.3.5 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.

21.3.6 Most of the construction would take place from 8am to 6pm, Monday to Friday although excavation for the tunnel would require 24 hour working.

21.3.7 In order to safeguard the environment during construction, a Code of Construction Practice has been drafted. This sets out measures to be adhered to during the process of construction works.

21.3.8 Figure 21.4 shows an indicative plan of the construction works.

Figure 21.3 Indicative plan of construction works for Chambers Wharf

![Indicative plan of construction works for Chambers Wharf](image)

21.3.9 Once the works at the site have been built, a number of permanent features would be visible (Figure 21.4).

21.3.10 There would be a kiosk to control equipment located in the below ground chambers. The control kiosk would be approximately a metre and a half high. There would also be a four metre high ventilation column and a metre high ventilation structure. The ventilation column and structure would be required to allow air to be released when flows in the tunnel rise into the shaft. Air would be treated through underground filters and released through the ventilation column. On rare occasions when the
tunnel is filling rapidly, the air would be released through the ventilation structure. There would be no new operational lighting at night on the site.

21.3.11 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. Once the Thames Tunnel works at the site are complete, it is assumed that the residential development, which is already consented for this site, would then commence.

**Figure 21.4 Chambers Wharf indicative plan of built development**

21.4 **Assessment**

21.4.1 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

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

21.4.3 As part of the assessment process, consideration has been given to known major developments that may change future environmental conditions. It is assumed that by 2015 housing to the south of Chambers Street would be built. The future environmental conditions are however not anticipated to change significantly from those which exist today as a result of other developments.

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

21.5 Air quality and odour

21.5.1 The site is located within the London Borough of Southwark Air Quality Management Area. The nearest people who may be sensitive to the development are at the nearby residential dwellings immediately to the east and west of the site, occupiers of the commercial/office premises to the west of the site (in Luna House) and pupils and staff at St Michael’s Catholic School to the south west.

21.5.2 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 Michael’s Catholic School, and negligible at the commercial/office premises. In terms of construction dust, this is likely to have a minor adverse effect at all these locations, taking account of the dust control measures in the Code of Construction Practice.

21.5.3 Preliminary assessment findings indicate that the effects of odours released from the ventilation column is likely to be negligible.

21.5.4 Based on this assessment, it is considered that mitigation measures are not required.
21.6 Ecology – aquatic

21.6.1 The site is located within the brackish zone of the designated River Thames and Tidal Tributaries Site of Metropolitan Importance. The river habitat is primarily shingle. Surveys and data searches indicate low diversity of fish and invertebrates present (Figure 21.5).

21.6.2 Construction effects would be managed in accordance with the Code of Construction Practice. With the Code in place and based on assessment findings at this stage it is anticipated that the loss of habitat due to the presence of the temporary construction area in the river would have a moderate adverse effect on habitats and minor adverse effects on fish and invertebrates. The increase in suspended sediment is considered to have a minor adverse effect on fish, due to blanketing of feeding areas and reduced water visibility. All other effects on mammals, fish and invertebrates are considered negligible.

21.6.3 The presence of structures during construction within the river may have an effect on migrating fish through altered river flows. This will be assessed and reported in the Environmental Statement.

21.6.4 There is no combined sewer overflow outfall discharge at this site, and so there are no operational effects on aquatic ecology to consider for the purpose of this site assessment.

21.6.5 Measures are included within the Code of Construction practice to manage construction effects, and no further mitigation during construction is considered to be possible at this stage as the extent of the physical works in the river have been reduced as far as practicable.

Figure 21.5 Brown shrimp were found close to the Chambers Wharf survey site during the aquatic ecology surveys in autumn 2010
21.7 Ecology – terrestrial

21.7.1 The site mainly comprises buildings with an area of ephemeral short perennial vegetation, scattered scrub, rubble piles and foreshore. Japanese knotweed, an invasive plant, is also present on site and would be removed prior to construction where required. The site is likely to be of value to bats, black redstarts and wintering birds and this will be detailed in the Environmental Statement. The buildings and vegetation on site are of value to common nesting bird species and invertebrates.

21.7.2 No significant effects on designated sites are anticipated (aquatic ecology effects are considered in section 21.6). Based on preliminary assessment findings, during construction the loss of habitat on site is considered to have a minor adverse effect on habitats, breeding birds and invertebrates. The effects on black redstart, bats and wintering birds will be assessed and reported in the Environmental Statement.

21.7.3 It is anticipated that operational activity would be limited to occasional maintenance work, which is considered unlikely to have significant effects on terrestrial ecology.

21.7.4 In addition to measures in the Code of Construction Practice, measures to address adverse effects during construction are likely to include reinstatement and replacement of habitat. Any further measures, such as species specific habitat creation, will be formulated subject to survey results and reported in the Environmental Statement.

21.8 Historic environment

21.8.1 The site contains no nationally designated heritage assets. The nearest listed structure to the site is the Grade II listed East Lane Stairs approximately 30m to the west. The site is immediately adjacent to the locally designated St Saviours Dock Conservation Area.

21.8.2 The site comprises foreshore and an area of open ground with a single modern building in the south-western corner. A historical map of the site in the 18th century is shown in Figure 21.6. Based on data gathered to date, there is no above ground heritage interest within the site itself.

21.8.3 The site is within the locally designated Borough, Bermondsey and River Archaeological Priority Zone. Archaeological surveys of the foreshore in the past have revealed prehistoric and post-medieval remains. The main potential in terms of buried heritage is for palaeoenvironmental remains (e.g. organic remains such as pollens or plant fossils, of low or medium heritage asset significance), prehistoric artefacts (of low heritage asset significance), and remains of post-medieval buildings and riverfront industry (of low or medium heritage asset significance). Prehistoric structures, of high heritage asset significance, might also be present.

21.8.4 Construction works would entail deep excavations which would remove any assets within the footprint of each area of excavation. This would give rise to minor adverse effects for palaeoenvironmental and prehistoric artefacts, a minor or moderate adverse effect for post-medieval remains, and a major adverse effect for prehistoric structures (if present).
21.8.5 The desk-based study of the site suggests that no heritage assets of very high significance are anticipated that might merit a mitigation strategy of permanent preservation in situ. The 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.

21.8.6 Effects on the historic setting of above ground heritage assets will be assessed and presented in the Environmental Statement.

21.8.7 Effects on buried heritage assets in the foreshore could include the effects from scouring due to changes in river flows due to new infrastructure in the channel. Any mitigation requirements for operational effects will also be presented in the Environmental Statement.

21.9 Land quality

21.9.1 A search of historical and environmental data indicates one potentially contaminative on site use to be the previous wharf usage. Historically industrial activities have been undertaken in close proximity to the site and other surrounding areas. This includes a dock immediately east of the site boundary, a medicine factory to the south and a flour mill to the west. A former vehicle repair garage is also understood to have recently operated on the south side of Chambers Road.

21.9.2 Based on preliminary assessment findings, it is considered unlikely that the activities in the surrounding area have significantly affected the soils in the location of the site. However, contamination from the docks located adjacent to the site may have impacted the soils beneath the site. Ground investigations show the presence of some soil and groundwater contamination. Part of the ongoing ground investigations includes further
assessment of foreshore sediment contamination. Desk based studies have identified a low/medium risk from unexploded ordnance on the cleared site and high risk on the foreshore.

21.9.3 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.

21.9.4 During operation there would be negligible effect on future users and the built environment. The assessment identified no need for mitigation during the operational phase.

21.10 Noise and vibration

21.10.1 Noise conditions are dominated by road traffic noise. The nearest locations to the site which are sensitive to noise and vibration are residential dwellings located to the east and west of the site.

21.10.2 Based on this preliminary assessment, significant noise effects arising from construction activities are predicted at residential properties at Luna House, Axis Court, Chambers Street, Chambers Wharf South (proposed development), Bevington Street, Bermondsey Wall East and Fountain Green Square. No significant effects from vibration (during construction) or during the operation of the site are predicted.

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

21.10.4 Beyond best practice measures it is anticipated that additional mitigation would be required to address significant noise effects. This could include the increased hoarding heights, use of localised screens and enclosures to reduce noise from particularly noisy, static operations.

21.10.5 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.
21.11 **Socio-economics**

21.11.1 The site comprises a vacant plot of land which has a consent for residential redevelopment as well as the area of foreshore. Residential dwellings (Figure 21.7) and community uses, including three schools, and a semi-private open space are located in the vicinity of the site. The Thames Path and a national cycle route run to the south of the site and are moderately well used in this location.

21.11.2 During construction, there are likely to be major adverse effects on the amenity of nearby residents, and minor adverse effects on the amenity of pupils and teachers at local schools and users of the small area of open space. Amenity impacts on users of the Thames Path and national cycle route are considered to have negligible effects. There are no socio-economic effects anticipated as a result of the operation of the Chambers Wharf site.

21.11.3 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.

  **Figure 21.7 Residential flats along Chambers Street**

21.12 **Townscape and visual**

21.12.1 The site is located on the south bank of the river Thames to the north of Jamaica Road and sits partially within the river corridor and a post-industrial plot in a poor condition including a piled deck over the river (Figure 21.8). The site is partially located within a protected London Panorama from Greenwich Park.
21.12.2 Based on preliminary assessment findings, during the construction phase, the use of a construction site in the river and the intensity of site activity would have a moderate adverse effect on townscape character areas including the site, Hermitage Wall Residential and Tower Bridge Conservation Area. There would be minor adverse or negligible effects elsewhere in the assessment area. Once operational, due to the clearance of derelict structures, there would be minor beneficial townscape effects including the site, Hermitage Wall Residential and St. Saviour’s Dock Conservation Area.

21.12.3 In terms of visual amenity, during the construction phase the preliminary assessment indicates that there would be a major adverse effect on viewpoints including from Fountain Green Square, Chambers Street and Flockton Street due to the visibility of hoardings, construction activity and cranes. The assessment also indicates there would be a moderate adverse effect on viewpoints including from St. Katherine’s Way, Wapping High Street and Llewellyn Street due to the visibility of hoardings and heavy goods vehicles. Once operational, preliminary assessment findings indicate that, due to the removal of derelict structures, there would be minor beneficial visual effects on viewpoints including from St. Katherine’s Way, Wapping High Street and Fountain Green Square. There would be negligible effects on the London Panorama from Greenwich Park during both construction and operation.

21.12.4 Measures to be employed during the construction phase are being incorporated into the proposals, for example, through use of capped and directional lighting when required. In terms of operation, a process of iterative design and assessment has been employed to reduce adverse effects and maximise beneficial effects. It is considered unlikely that there would be any significant adverse effects during operation and therefore no further mitigation is proposed.

Figure 21.8 View of Chambers Wharf – looking west
21.13 Transport

21.13.1 The Chambers Wharf site has good public transport accessibility being located within close proximity of Greenwich Docklands Light Rail station and Bermondsey Underground station. The site is located on Chambers Street (Figure 21.9) which is accessed from Bevington Street which connects to Jamaica Road (A200). During construction, vehicles would enter and egress onto Chambers Street in a right in, left out arrangement.

21.13.2 During construction, barges would be used to remove 90% of the excavated material. The preliminary assessment indicates that the number of heavy goods vehicle movements would be moderate. The nature of the construction site layout at this location is considered likely to result in a minor adverse effect on road network operation and delay. The preliminary assessment indicates that the effects on pedestrian facilities are expected to be minor adverse (due to the loss of footway and local diversions resulting in delays to journey time) and cyclist amenity and safety are expected to be minor adverse. A negligible effect is expected on public transport and river passenger services. 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.

21.13.3 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 involving signal optimisation to improve pedestrian crossing time and junction capacity. Mitigation is not required for the operational phase.

Figure 21.9 On-street parking along Chambers Street
21.14 Water resources - ground water

21.14.1 The proposed tunnel drive and reception shaft would pass through both the upper and lower aquifers. The main receptors are the upper aquifer which is defined as being of medium value, the lower aquifer, which is defined as being of high value and abstractions from the lower aquifer, defined as being of very high value.

21.14.2 Construction effects on the upper aquifer would include physical obstruction to groundwater flow and potential opening of a pathway for pollution; these effects are anticipated to be negligible. Construction effects on the lower aquifer relate to dewatering and contamination. Dewatering would impact groundwater resources and could induce groundwater movement. Due to the sensitivity of the lower aquifer dewatering effects have been assessed as minor adverse on groundwater resources but major adverse on groundwater quality; however, these effects will be subject to further assessment. As no groundwater or soil contamination has been identified effects on the lower aquifer are considered to be minor adverse.

21.14.3 Once operational, potential effects include obstruction to groundwater flow and the risk from seepage into and out of the shaft. These effects are considered to be negligible in terms of the upper aquifer and minor adverse for the lower aquifer.

21.14.4 Monitoring of groundwater levels and water quality would continue during construction.

21.15 Water resources – surface water

21.15.1 The site is located in the River Thames foreshore within the Thames Middle waterbody, as classified under the Thames River Basin Management Plan. The Thames Middle waterbody is currently classified as being at moderate potential status, with a status objective of good potential by 2027. There are no internationally designated water conservation sites within 2 kilometres of the site.

21.15.2 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.

21.15.3 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.
21.16 **Flood risk**

21.16.1 The main source of flood risk to the site is the tidal River Thames and the site is located within the ‘high probability’ flood zone, although it is protected by flood defences which run along the northern extent of the site, landward of the existing piled decking jetty.

21.16.2 The work required to construct the tunnel through the site and directly beneath the current flood defences has the potential to affect the local flood defences; further studies are being completed to assess potential impacts.

21.16.3 In order to protect the site from flooding, defences would be constructed during both the construction and operational phases. These defences would provide a level of protection equal to that provided by the current defences and would tie into the existing defence structures. The effects of changes in scour and rate that sediments are deposited as a result of the temporary works in the foreshore would be reduced through good practice design. No changes are proposed to the percentage of hard standing on the site and this area would continue to be served by the local drainage system.

21.17 **Further information**

21.17.1 Further information regarding preliminary assessment findings for Chambers Wharf can be found in Volume 22 of the Preliminary Environmental Information Report.