24 Deptford Church Street

24.1 Introduction

24.1.1 This section of the non-technical summary presents the preliminary environmental assessment for the Thames Tunnel project at Deptford Church Street (Figure 24.1).

24.1.2 At this site it is proposed that the Deptford Storm Relief Sewer would be linked to the proposed Thames Tunnel through a shaft and long connection tunnel from Greenwich Pumping Station. Currently, the existing combined sewer overflow discharges approximately 36 times each year. The total volume of this discharge is 1,471,500m³ each year. The combined sewer overflow discharges into the River Thames at Borthwick Wharf, near the mouth of the Deptford Creek.

24.1.3 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.

24.1.4 The environmental topics which have been assessed for this site are listed in the ‘Assessment’ section (0). Preliminary assessment findings are then presented topic by topic.

24.2 Site context

24.2.1 The site is shown as site number 20 on Figure 28.1.

24.2.2 The site is located within the London Borough of Lewisham (Figure 24.1). It is also close to the London Borough of Greenwich.

Figure 24.1 Deptford Church Street site location
24.2.3 The triangle of land which forms the site is located on an area of open space adjacent to St Joseph’s Roman Catholic Primary School and south of St Paul’s Church. Approximately just over half a hectare is required for both the temporary construction works as well as the permanent works. This is indicated by the red line shown on Figure 24.2. The site is located entirely inland and so requires no works within the foreshore at the combined sewer overflow outfall.

24.2.4 Access to the site is from Coffey Street and Crossfield Street.

Figure 24.2 Aerial photograph of Deptford Church Street*

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

24.3 Proposed development

24.3.1 The proposal is to intercept the existing combined sewer overflow. 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 Tunnel. For a typical year, this would reduce flows from the combined sewer overflow at this site to an average of four spills a year at total volume of 161,300m³ a year.

24.3.2 In order for this interception to be achieved, construction works at this site would take approximately four and a half years. Interception of the existing combined sewer overflow would be undertaken in Deptford Church Street.
24.3.3 A shaft with an internal diameter of approximately 17m and approximately 46m deep would be constructed. Once constructed, the base of this shaft would join up with the long connection tunnel from Greenwich Pumping Station. This long connection tunnel would run through the base of the Deptford Church Street shaft. Flows from the existing Deptford Storm Relief Sewer would be diverted into the Greenwich connection tunnel through an interception chamber into the main tunnel.

24.3.4 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.

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

24.3.6 Figure 24.3 shows an indicative plan of the construction works.

**Figure 24.3 Indicative plan of construction works for Deptford Church Street**
24.3.7 Once the works at this site have been built, a number of permanent features would be visible (Figure 24.4). There would be a kiosk housing equipment to control equipment located in the below ground chambers. This would be two and a half metres high.

24.3.8 There would also be three ventilation columns; two four metres high and the other six metres high. The four metre ventilation column 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. The six metre column would be used to release air from the interception chamber. There would be no operational lighting required.

24.3.9 Once the project is built and operational, there would be an area of hardstanding provided to enable access into the shaft and the tunnel for inspection and maintenance purposes. Access for maintenance purposes would be required every three to six months. Once every ten years more substantial maintenance work would be required.

Figure 24.4 Deptford Church Street indicative plan of built development
24.4 Assessment

24.4.1 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

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

24.4.3 As part of the assessment process, consideration has been given to known major developments that may change future environmental conditions. There are no known developments in the vicinity of this site. Future environmental conditions are therefore not anticipated to change significantly from those which exist today as a result of other developments.

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

24.5 Air quality and odour

24.5.1 The Deptford Church Street site is located within one of the London Borough of Lewisham Air Quality Management Areas. Local monitoring data indicates that there are currently exceedences of the air quality standards in the vicinity of the site. The nearest people who might be sensitive to the development are occupiers of nearby residential dwellings to the east of the site (between Deptford Church Street and Bronze Street) and nearby office and commercial properties to the south and west of the site. Additionally there are the pupils and staff at St Joseph’s Catholic Primary School and users of the nearby playground, leisure centre, library and St Paul’s Church.

24.5.2 Based on this preliminary assessment, it is considered that the overall effect on local air quality from construction road traffic and construction plant is likely to be minor adverse at the residential properties, school and church, and negligible at the commercial/office premises, playground and leisure centre. In terms of construction dust, this is likely to have a minor adverse effect at the school, and a negligible effect elsewhere, taking account of the dust control measures in the Code of Construction Practice.
24.5.3 Preliminary assessment findings indicate that the effects of odours released from the ventilation structure is likely to be negligible.

24.5.4 Based on this assessment, it is considered that mitigation measures are not required.

24.6 **Ecology – aquatic**

24.6.1 The sewage outfall that would be intercepted currently discharges into the River Thames and Tidal Tributaries Site of Metropolitan Importance. The river habitat at the discharge point west of Borthwick Wharf is an area of gravel foreshore, underlain by cobbles and pebbles with some boulders and sand (Figure 24.5). Data indicates a reasonably high diversity of fish species, but invertebrate diversity is limited.

24.6.2 There would be no ‘in river’ works associated with this site. No further consideration of the impacts associated with construction has therefore been undertaken for aquatic ecology.

24.6.3 During operation, the reduction in fish mortality that would result from improved oxygenation of the water in the vicinity of the site is considered a moderate beneficial effect. There is also considered to be a moderate beneficial effect through increased distribution of rare and/or pollution sensitive fish species in the longer term of operation. Increased invertebrate diversity, abundance and presence of rare and pollution sensitive species is considered to have minor beneficial effects in the longer term of operation. Effects on mammals would be negligible.

24.6.4 No mitigation is required at this site because only beneficial effects are anticipated.

*Figure 24.5 Deptford Church Street aquatic ecology survey site on the River Thames near the combined sewer overflow outfall.*
24.7 **Ecology – terrestrial**

24.7.1 The site lies within the St Paul’s Churchyard and Crossfield Street Open Space Site of Importance for Nature Conservation. Amenity grassland, scattered trees and scrub are present on site. There is limited potential for bats to forage on site. The vegetation on site is likely to support common breeding bird species.

24.7.2 Based on preliminary assessment findings, site clearance would result in the loss of a small area of habitat and would have a minor adverse effect on the habitats bats and breeding birds. Disturbance from construction activities on bats is considered to be a minor adverse effect. All other effects on breeding birds and invertebrates and Site of Importance for Nature Conservation are considered to be negligible.

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

24.7.4 In addition to measures included within the Code of Construction Practice, further mitigation, such as habitat creation will be developed as necessary and reported in the Environmental Statement.

24.8 **Historic environment**

24.8.1 The site consists of a plot of open space which is currently unoccupied apart from an early–mid 19th century boundary wall (of low heritage asset significance), which runs through the eastern part of the site. The site contains no nationally designated heritage assets. The Grade I listed Church of St. Paul (of very high heritage asset significance) lies to the north of the site. The churchyard walls are Grade II listed (of high heritage asset significance). There is no evidence to suggest that the burial ground ever extended into the site. A Grade II Railway Viaduct is located approximately 15m to the south. The site is located within the locally designated St. Paul’s Conservation Area (of high heritage asset significance).

24.8.2 The site lies within the Upper Deptford Archaeological Priority Area and the main potential in terms of buried heritage is for post-medieval 18th, 19th and early 20th century house footings, of low heritage asset significance. The site has generally low potential for prehistoric, Roman and medieval remains, as it lay outside the main areas of settlement in these periods.

24.8.3 The 19th century brick wall within the site would be removed during construction, resulting in a minor adverse effect. Construction works would entail deep excavations which would entirely remove the assets within the footprint of each area of construction. If any such assets were found to be present then this would comprise a high magnitude of impact and would lead to a minor adverse effect on post-medieval remains.

24.8.4 To mitigate the effect on the wall, the structure would be recorded in line with accepted standards to form preservation by record. 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. This mitigation would reduce the residual effect to negligible.

24.8.5 Effects on the historic environment arising from the operation of the Thames Tunnel infrastructure at Deptford Church Street, on assets including the St. Paul's Conservation Area and the historic setting of the Church of St. Paul’s and nearby listed structures, will be assessed and presented in the Environmental Statement. Any mitigation requirements will also be presented.

24.9 Land quality

24.9.1 A search of historical and environmental data indicated that there were no contaminative on site uses. The site was previously occupied by housing which was cleared during the 1970s. Historically the surrounding area has been developed for a number of industrial/commercial properties, notably towards the east and south of the site. There is also a borough depot and railway line located less than 15m south of the site. Desk based studies have identified a low/medium risk from unexploded ordnance.

24.9.2 Based on preliminary assessment findings, 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. The preliminary assessment therefore identified no need for mitigation during the construction phase. The Environmental Statement will consider information from ground investigations and the potential for foreshore sediment contamination. 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.

24.10 Noise and vibration

24.10.1 The site is characterised by road traffic and rail noise. The nearest locations to the site which are sensitive to noise and vibration are residential dwellings at Congers House and Farrer House, St Joseph’s Primary School to the south and St Paul’s Church to the north.

24.10.2 Based on this preliminary assessment significant noise effects arising from construction activities are predicted at residential properties on Deptford High Street, Deptford Church Street, at Congers House and at St Joseph’s Primary School. However, no significant vibration effects are predicted at any of the areas considered in the construction assessment. No significant effects as a result of the operation of the site are predicted.

24.10.3 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.

24.10.4 It is anticipated that mitigation would be required to address significant noise effects. This could include the use of localised screens and enclosures to reduce noise from particularly noisy, static operations.

24.10.5 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.

24.11 Socio-economics

24.11.1 The site comprises the entire Crossfield Street open space. Residential dwellings, commercial properties, other open spaces and community facilities, including St Paul’s Church (Figure 24.6) and St Joseph’s Primary School surround the site. The Crossfield Street open space is lightly used for walking and passive recreation. The adjacent open spaces are moderately used.

24.11.2 During construction, there are considered to be moderate adverse effects on nearby residents, pupils at St Joseph’s Primary School and users of St Paul’s Church and Sue Godfrey Nature Park. The loss of Crossfield Street open space and amenity impacts on its users are considered to result in negligible effects. There are not anticipated to be any operational socio-economic effects resulting from the use of the site.

24.11.3 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 24.6 The churchyard of St Paul's Church to the north of the site
24.12 **Townscape and visual**

24.12.1 The site is located within the St. Paul’s Conservation Area and comprises a triangle of open space adjacent to the Grade I listed Church of St. Paul, surrounded by roads. The open space is characterised by amenity grassland and scattered mature trees in a fair condition. The surrounding townscape is dominated by a mix of industrial, residential and small scale commercial premises.

24.12.2 Based on preliminary assessment findings during the construction phase and due to the clearance of trees, presence of cranes and the intensity of construction activity there would be a major adverse townscape effect on townscape character areas at the site and St. Paul’s Conservation Area. There would be a moderate adverse effect on Creek Road Residential and Laban Centre and Bronze Street Open Space, and a minor adverse effect on Creekside Residential and Deptford Residential due to a slight change in their setting. Once operational, preliminary assessment findings indicate there would be minor to moderate beneficial townscape effects on the site and St. Paul’s Conservation Area due to the introduction of high quality public realm and negligible to minor beneficial effects on Creek Road Residential, Creekside Residential, and Laban Centre and Bronze Street Open Space. The level of significance is dependent on the final landscape and architectural design and will be refined for the Environmental Statement.

24.12.3 In terms of visual amenity, during the construction phase, preliminary assessment findings indicate there are likely to be major adverse effects on viewpoints including views from Deptford Church Street, Deptford High Street and St. Paul’s Church due to the visibility of hoardings, cranes and construction activity. There would be moderate adverse effects on viewpoints including from Creek Road, Bronze Street and Deptford Church Street. There would be minor adverse visual effects on the view from Ferranti Park due to the background visibility of cranes. Once operational, preliminary assessment findings indicate that there would be minor to moderate beneficial effects on viewpoints including from the junction at Deptford Church Street, Deptford High Street and St. Paul’s Church due to views of new public realm. There would be negligible to minor beneficial effects on at the views from Bronze Street and Deptford Church Street due to the partial visibility of new public realm. The level of significance is dependent on the final design and will be refined for the Environmental Statement.

24.12.4 Mitigation 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 likely that there would be no significant adverse effects during operation and therefore no further mitigation is proposed.
24.13 Transport

24.13.1 The Deptford Church Street site has moderate public transport accessibility and is within close proximity to Deptford National Rail station and Deptford Bridge DLR station. Vehicle access is proposed from Crossfield Street, with egress onto Coffey Street (Figure 24.7).

24.13.2 During construction, the number of heavy goods vehicle movements would be moderate. Due to the location and nature of the construction site it is considered likely to result in a moderate adverse effect on road network operation and delay due to the necessary diversion routes, highway layout changes and delays to journey time. Effects on pedestrian facilities and cyclist amenity and safety are expected to be moderate adverse as a result of the loss of footways, modifications to traffic lanes and local diversions. A moderate adverse effect is also expected on the bus network within the area as a consequence of the effects on the highway network. A negligible effect is expected on rail and river 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.

24.13.3 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 and would take the form of safe crossing points for pedestrians and cyclists on the diversion routes, junction signal optimisation and measures to ensure the frequency of bus services. Mitigation is not required for the operational phase.

Figure 24.7 Coffey Street junction with Deptford Church Street
24.14 Water resources - ground water

24.14.1 The shaft would pass through the upper aquifer and into the lower aquifer. Associated interception infrastructure would penetrate the upper aquifer. Both the upper and lower aquifers are sensitive environmental receptors. The lower aquifer is of high value and the nearby Thames Water Utilities public water abstractions from it of very high value, while the upper aquifer is considered to be of medium value.

24.14.2 Construction effects on the upper aquifer would be the physical obstruction of groundwater, which is anticipated to be negligible. Construction effects on the lower aquifer include dewatering which could affect groundwater resources and induce groundwater movement. The effect of dewatering in the lower aquifer is considered to be minor adverse on water resources but has the potential to have a major adverse effect on quality and requires further assessment.

24.14.3 At the operational phase, the main potential effects are the obstruction to groundwater flow and the risk from seepage into and out of the shaft. These effects are considered to be negligible for the upper aquifer and minor adverse for the lower aquifer at this stage.

24.14.4 Monitoring of groundwater levels and water quality will continue during construction and operation.

24.15 Water resources – surface water

24.15.1 The site is located a kilometre south of the River Thames and 300 metres west of Deptford Creek. The section of the River Thames closest to the site lies within a zone of the river defined by the Environment Agency as Thames Middle waterbody, which is current classified under the Water Framework Directive as being at moderate potential status, with a status objective of good potential by 2027. Deptford Creek is not assessed under the Water Framework Directive however, as it forms part of the Thames Middle, which has a target status of Good by 2027, the Deptford Creek should also be assumed to have a target status of Good. There are no nationally or locally designated water-dependent conservation sites within 2 kilometres of the site.

24.15.2 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 not significant. No mitigation would therefore be required.

24.15.3 Once operational, the scheme would reduce the number of discharges from the Deptford Storm Relief combined sewer overflow to a predicted level of four spills per year.

24.15.4 This reduction would have a beneficial effect on water quality. The number of risk days for river users being exposed to pathogens would be reduced by up to 128 days per year. In addition, the tonnage of sewage derived litter can be expected to be reduced from approximately 370 tonnes to 30 tonnes per year.
24.16  **Flood risk**

24.16.1 The main source of flood risk to the site is the tidal River Thames. The site lies within the ‘low probability’ and ‘medium probability’ flood zones, although it is protected by flood defences which run along the river banks.

24.16.2 The site may also be at risk of localised surface water flooding due to runoff generated by land surrounding the site. Further studies are being completed to assess the potential impacts.

24.16.3 The site is currently has no formal surface water drainage system. The potential increase in surface water runoff due to the proposed addition of hard standing areas on site would be mitigated in accordance with current planning policy requirements.

24.17  **Further information**

24.17.1 Further information regarding preliminary assessment findings for Deptford Church Street can be found in Volume 25 of the Preliminary Environmental Information Report.