Please note:

Further details are provided in the Final Report on Site Selection Process (doc ref: 7.05) that can be found on the Thames Tideway Tunnel section of the Planning Inspectorate’s web site.
Site suitability report
S01EG

Acton Storm Tanks
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### List of abbreviations

- AOD: above Ordnance Datum
- BAP: biodiversity action plan
- BT: British Telecom
- CPO: compulsory purchase order
- CSO: combined sewer overflow
- DLR: Docklands Light Railway
- EA: Environment Agency
- GLA: Greater London Authority
- HGV: heavy goods vehicle
- LNR: local nature reserve
- LPA: local planning authority
- LU: London Underground
- m: metre/metres
- MOL: Metropolitan Open Land
- ONS: Office of National Statistics
- ORN: Olympic Route Network
- PLA: Port of London Authority
- POS: public open space
- PTAL: public transport accessibility level
- SAM: scheduled ancient monument
- SINC: site of importance for nature conservation
- SNCI: site(s) of nature conservation importance
- SSR: site suitability report
- SSSI: site(s) of special scientific interest
- SUDS: sustainable urban drainage systems
- TfL: Transport for London
- TD: tunnel datum
<table>
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<th>Description</th>
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<td>TLRN</td>
<td>Transport for London Road Network</td>
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<tr>
<td>TPA</td>
<td>Thames Policy Area</td>
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<tr>
<td>UDP</td>
<td>unitary development plan</td>
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<td>UXO</td>
<td>unexploded ordnance</td>
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1 Introduction

1.1 Purpose and structure of the report

1.1.1 The *Site selection methodology paper* (May 2009 and revised August 2011)\(^a\) outlines the process to be used to create the preferred list of main tunnel sites, and this process also applies to CSO sites. Paragraph 2.3.31 lists the type of general considerations that will be addressed in each site suitability report. Whether a consideration is relevant to the assessment of a site will depend on available information and professional judgement.

1.1.2 This report was prepared through the assessment of information from the perspective of a number of technical disciplines: engineering, planning, environment, property and community. The reports have been prepared on the basis of the information listed in Appendix 1 and this level of information is considered to be appropriate to this stage of assessment.

1.1.3 The *Site selection background technical paper* provides information on the requirements for different types of sites, their sizes and typical activities/facilities within the sites.

1.1.4 Each site suitability report considers a particular site on its own merits. In addition, an *Engineering options report* was produced, which relates to main tunnel and connection tunnel options. Information from both of these reports will feed into the technical assessment of how well the site may fit in with tunnel design options, ensuring combinations of sites spread across the length of the tunnel route provide a reasonable spatial distribution of sites (that will best assist with the construction of the tunnel, operation and maintenance). The outcomes are reported in the *Phase two scheme development report*.

1.2 Background

1.2.1 The process for selecting sites is set out in the *Site selection methodology paper*. All sites have previously passed through the following parts of Stage 1:

- Part 1A – Creation of the long list of potential main tunnel (and CSO) sites
- Part 1B – Creation of a short list of potential main tunnel (and CSO) sites
  - Table 2.2: Long list of main tunnel (and CSO) sites – an assessment against set considerations and values
  - Table 2.3: Draft short list of main tunnel (and CSO) sites – assessment against a list of more detailed considerations
  - Workshops to consider each site to arrive at a short list of sites.

\(^a\) The amendments made in August 2011 do not change the site selection methodology process. The amendments only related to the introduction of a second phase of consultation (paragraphs 2.3.13-2.4.15) and minor factual updates.
1.2.2 The final part of Stage 1 includes this report. The following is an overall summary of all elements that apply to all the sites on the final short list:

- Part 1C – Creation of the preferred list of main tunnel (and CSO) sites – site data, site visits, site suitability reports, engineering options report and optioneering workshops that are reported in the Phase two scheme development report.

1.2.3 The Site selection methodology paper also contains a provision for a back-check process in paragraph 2.5.6 that states:

"If any sites for any of the main tunnel sites or intermediate sites (or CSO site) are eliminated for any reason, if there are significant changes of circumstances in relation to existing sites or combinations of sites, if new or replacement sites are required or found or if the engineering design develops in unexpected ways then a targeted repeat of stages 1-3 will need to be undertaken in order to fill in any site gaps."

1.3 Consultation

1.3.1 Thames Water’s approach to engagement and consultation for the Thames Tunnel project is outlined in the Statement of Community Consultation and the accompanying Community Consultation Strategy. Thames Water has engaged regularly with all potentially affected London local authorities, other stakeholders and interested parties on sites and the project.

1.3.2 Phase one consultation has been completed for all the preferred and shortlisted sites along with the three main tunnel route options. The analysis of the consultation responses is set out in the Report on phase one consultation and Interim engagement report. Any relevant site comments were considered at the post phase one consultation optioneering workshops. The outcomes of these workshops are reported in the Phase two scheme development report. After the workshops, engagement on sites has continued with key stakeholders, and the engineering design for sites has also continued in parallel. In autumn 2011, phase two consultation will provide another opportunity for people to comment on sites.

2 Site information

2.1 Site and surroundings

2.1.1 This site is one of the shortlisted main tunnel sites. This section provides an overview of all the site information that will be used by one or more disciplines to assess the site in sections 3 to 9 of this report.

2.1.2 The proposed site is located on land forming the curtilage of a Thames Water pumping station which fronts Warple Way, Acton, in the London Borough of Ealing. The site is also formed of six uncovered storm tanks as well as open space at the northern and southernmost part of the site. A strip of third-party land is located along the southwest of the site. This land is currently used for vehicle parking. A site location plan is attached as Appendix 2.
2.1.3 The site is in close proximity to the boundaries of the London boroughs of Hammersmith and Fulham which run along Warple Way, and the London Borough of Hounslow further to the south. The site is bounded to the north by Canham Road and industrial units. The east and southeast of the site are bounded by Warple Way and residential properties. The site is bounded to the southwest and west by further dwellings along Greenend Road.

2.1.4 The surrounding area is predominantly residential in character and the nearest residents to the proposed shaft are situated on the east side of Warple Way. This area includes a newly constructed multi-storey residential development directly opposite the storm tanks, wrapping around the site from east to northeast. The facades of these residential units are located approximately 10m from the site boundary and approximately 20m from the proposed shaft.

2.1.5 The site is located on Thames Water operational land, and is within a wider residential area as designated in the **Ealing Unitary Development Plan** (2004). Nearby designations include a major employment location to the north of the site along Canham Road and Bedford Park Conservation Area to the south. Hammersmith and Fulham’s Ravenscourt and Starch Green Conservation Area is also situated to the east along Cobbold Road, which incorporates Wendell Park. No electronic mapped designations for Ealing are currently available to append to this report, however the **London Plan** and adjacent Hounslow mapped designations are shown on the planning and environment plans in Appendix 3.

2.1.6 Photographs of the site and surroundings, together with an aerial photograph of the site, are attached as Appendix 4.

2.1.7 Access to the site is currently achieved via a private track from the junction between Warple Way and Canham Road. The track is located directly adjacent to a number of residential properties. This site is approximately 400m from the A4020. There is no rail network local to the site. Acton Central railway and tube station is approximately 1km away from the site. There are no existing wharfage/jetty facilities at the site as it is more than 1.5km from the river. A number of preliminary transport plans for the site are attached as Appendix 5.

2.1.8 Third-party assets and significant utilities are listed below and are shown on the services and geology plan in Appendix 6:

- The site is a current operational Thames Water site. The site is occupied by six uncovered storm tanks, a pumping station and associated infrastructure.

- 1.8m diameter Acton Storm Relief sewer (CSO connection is to this sewer).

- A number of additional sewers are located within the Storm Tanks site.

2.1.9 The locations of other third-party assets, such as BT and fibre optic communication cables, are to be confirmed by further studies and utility searches and may not be shown on the services and geology plan.
2.1.10 Information on the geology specific to this site can be found within the services and geology plan, which is in Appendix 6. This plan shows that the shaft would be founded in London Clay.

2.2 Type of site
2.2.1 The site S01EG is being considered as:
• a main tunnel reception site with a CSO interception of the Acton Storm Relief sewer (CS01X).

3 Proposed use of site – construction phase
3.1.1 The proposed construction phase layouts for the main tunnel site options are located in Appendix 7 – Construction phase layout, and are based on a preliminary assessment.
3.1.2 The construction phase layout drawings are illustrative and show:
• a main tunnel reception site with CSO interception
• potential access points.
3.1.3 These drawings provide initial preliminary schematic layouts that have not been optimised. If the site proceeds to the next stage as a preferred site, construction phase layouts would be optimised to minimise impacts.
3.1.4 Drawings of typical activities associated with the shaft construction phase are provided in Appendix 7. Potential above-ground construction features (dependent on shaft type) include:
• approximately 3m high hoarding around the site boundary
• welfare facilities, temporary structures, approximately 3m high
• grout plant, approximately 3m to 5m high, including silos
• mobile crane, approximately 30m high (maximum and not for full construction duration)
• temporary decking structures over storm tanks, approximately 3m to 5m high. For the reception site, one storm tank would be covered and there is a possibility that one storm tank would be decommissioned and filled to provide a suitable construction area.
3.1.5 Preliminary data associated with the construction phase are provided in Table 3.1.
Table 3.1 Construction phase data

<table>
<thead>
<tr>
<th>Activity</th>
<th>Main tunnel reception site with CSO interception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of construction period</td>
<td>4 – 5 years</td>
</tr>
<tr>
<td>Likely working hours, ie, (night/day/weekend)</td>
<td>12 hrs from 7am to 7pm</td>
</tr>
<tr>
<td>Working days</td>
<td>Mon to Sat</td>
</tr>
<tr>
<td>Primary means of transporting excavated material away from site</td>
<td>Road</td>
</tr>
<tr>
<td>Primary means of transporting materials to site</td>
<td>Road</td>
</tr>
</tbody>
</table>

4 Proposed use of site – operational phase

4.1 Introduction

4.1.1 The indicative operational phase layout for the main tunnel site options are located in Appendix 8 – *Operational phase layout*, and are based on a preliminary assessment.

4.1.2 The generic elevations of structures shown on the operational phase layout are located in Appendix 8 and provide an illustration of typical examples of the permanent structures which are applicable to main tunnel sites.

4.1.3 The underground infrastructure at this site would likely comprise a shaft, double flap valve chamber, penstock chamber, interception chamber and associated culverts.

4.1.4 The above-ground infrastructure at this site would likely comprise a ventilation column and a ventilation building.

4.1.5 The top structures to the shaft and flap valve chamber would be finished at a level of approximately 106mATD (6mAOD), approximately equal to the existing ground level. The top structure is to provide access and egress into the shaft. For further information on the generic layout of this top structure, refer to Appendix 8.

4.1.6 A hardstanding would be provided to the top structures. The site would be wholly within the existing Thames Water fenced compound.

4.1.7 Preliminary data associated with the operational phase are provided in Table 4.1.
Table 4.1 Operational phase data

<table>
<thead>
<tr>
<th>Level of inspections and maintenance and likely working hours, ie, (night/day/weekend) – frequency of visits</th>
<th>One daytime visit every six months for electrical/instrument inspection. An additional one-week maintenance period for tunnel/shaft inspection required per ten years that could be night/day/weekend working.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of traffic movements</td>
<td>One van visit every six months. An additional one-week period of two to ten movements per day (estimated several vans and two cranes) every ten years.</td>
</tr>
</tbody>
</table>

4.2 Restoration and after-use
4.2.1 The portion of the site not occupied by the permanent works would be restored to its original condition on completion of the construction works. If any buildings were demolished, these would not be reinstated unless required.

5 Engineering assessment

5.1 Access
5.1.1 This section should be read in conjunction with Section 7.2.

Road
5.1.2 Existing road access to the site would be via Warple Way, a 7.5m-wide one-way road which comes off the A4020, approximately 400m away from the site access. Traffic exiting the site would use Canham Road and Stanley Gardens to return to the A4020. The roads would be of restricted width and would have high levels of on-street parking on both sides. They would be fronted primarily by business and light industrial premises.
5.1.3 A section of Warple Way and Stanley Gardens are currently one-way roads, with Warple Way allowing vehicles in a southbound direction and Stanley Gardens allowing traffic flow in a northbound direction.
5.1.4 Alternative access (in both directions) would be available via the residential and traffic-calmed Cobbold Road and Larden Road, which also connect with the A4020.
5.1.5 For the operational phase, only one access point would be used from Warple Way. There would also be the option of utilising the existing entrance to the site, the final choice depending on the final use of the overall site.

Rail
5.1.6 There would be no rail network local to this site. Acton Central railway and tube station would be approximately 1km away from the site.
5.1.7 The site would be more than 1.5km from the river, so there would be no river access and jetty/wharfage facilities.

5.2 Construction works considerations

5.2.1 Acton Storm Tanks is an operational site and construction activities would need to interface with Thames Water (TW) Operations. Works within the site would need to be conducted around a number of existing TW assets, thereby increasing the complexity of the construction.

5.2.2 The construction layout would need to include one storm tank to provide a suitable working area. The tank would need to be either filled or covered over during construction.

5.2.3 Any decking would require substantial bridging structures and associated enabling works. It is anticipated working platforms over the tanks would be 1.5m above adjacent ground level and result in a split-level site. This would require double handling of materials and cranage to transfer materials between the elevated decking and construction vehicles.

5.2.4 No specific demolition would be required within Acton Storm Tanks, although modification to the tanks would be required.

5.2.5 Data available on third-party assets and significant utilities show that the only items of concern in this area would be the multi-storey residential development outside the site, the storm tanks including Acton Storm Tanks, Acton Pumping Station (property of Thames Water) and the 1.8m-diameter Acton Storm Relief sewer (CSO interception is on this sewer). Construction methods would be adopted, as appropriate, to mitigate potential settlement of these assets.

5.2.6 The interception chamber and connection culvert to the drop shaft are both within the site and therefore require no additional consideration.

5.2.7 It is likely that the proposed works can be constructed within the overall construction programme.

5.3 Permanent works considerations

5.3.1 The top structures would be finished flush with existing ground level.

5.4 Health and safety

5.4.1 Care would be required when working near or over the open storm tanks.

5.4.2 There are no other unusual health and safety issues with this site.

6 Planning assessment

6.1 Introduction

6.1.1 The planning assessment builds on the advantages and disadvantages reported in Table 2.3 and covers the following areas:

- Planning applications and permissions
• Planning context
• Planning comments.

6.2 Planning applications and permissions

6.2.1 An initial desktop search of the London Borough of Ealing online planning applications database did not identify any planning applications submitted within the last five years applicable to this site. However, a single planning permission applicable to this site was granted in January 2005 to increase the height of an existing telecommunications mast.

6.3 Planning context

6.3.1 The following is a summary of the relevant local planning policies and designations affecting the site taken from the current statutory development plans for the London Borough of Ealing as well as the neighbouring London Borough of Hammersmith and Fulham. The local plans comprise the policies from the *Ealing Unitary Development Plan*, adopted in October 2004, and the *Hammersmith and Fulham Unitary Development Plan*, adopted in 2003.

6.3.2 The London Borough of Ealing submitted its development (or core) strategy to the Secretary of State on 21 July 2011. Following review of the submitted documents, we consider the relevant policies to be of material weight.

6.3.3 The *London Borough of Hammersmith and Fulham Core Strategy* is subject to a binding *Inspector’s report* and anticipated for formal adoption by the council in October 2011. Following review of the submitted documents, we consider the relevant policies to be of material weight.

6.3.4 The site is also in reasonable proximity to the boundary of the London Borough of Hounslow. However, it was not considered to be in sufficient proximity for the local plan to be applicable.

London Borough of Ealing

6.3.5 The site is within a wider strategic residential area designation. UDP *Policy 1.1* encourages housing and other uses serving local residents in these residential areas. Planning should also have regard to other such uses essential for sustainable residential communities, such as open space, retail and employment-giving uses. Ealing’s emerging *Development Strategy* identifies the site within the wider Uxbridge Road/Crossrail corridor. *Policy 2.1, Realising the potential of the Uxbridge Road/Crossrail Corridor*, supports the sensitive development management of this area.

6.3.6 The site boundary is approximately 10m from the nearest residential properties at Edison Court on Warple Way. The eastern edge of the proposed shaft is set approximately 20m away from the facades of these properties. UDP policies 4.11 and 4.12 seek to protect the amenity of residential areas from the effects of noise, vibration and light pollution. Within the emerging *Development (or Core) Strategy Policy 1.1, Spatial Vision for Ealing 2026*, environmental impacts of activities within the
borough should be reduced, with air quality and ambient noise levels protected and improved to create a clean and healthy environment for all.

6.3.7 The site is adjacent to an area to the north designated as a major employment location. Within major employment locations, UDP Policy 6.1, Supply of Land and Property for Business Use, and UDP Policy 6.4, Industry and Warehousing in Major Employment Locations, supports industry as the preferred use. UDP Policy 6.5, Ancillary Development in Major Employment Locations, seeks to maximise or retain employment potential and enhance the attractiveness of major employment locations.

6.3.8 Ealing’s Acton Park Conservation Area is located approximately 350m to the north of the site and the Bedford Park Conservation Area located approximately 100m from the most southerly boundary of the Acton Storm Tanks site. According to UDP Policy 4.8, Conservation Areas, the council will preserve or enhance the character and appearance of conservation areas and their settings.

**London Borough of Hammersmith and Fulham**

6.3.9 In the Hammersmith and Fulham Unitary Development Plan, Policy EN21, Environmental Nuisance, seeks to ensure that no undue detriment occurs to general amenities.

6.3.10 The boundary of the Hammersmith and Fulham’s Ravenscourt and Starch Green Conservation Area is situated adjacent to the most southerly point of the Acton Storm Tanks site and also approximately 250m to the east of Acton Storm Tanks, along Cobbold Road. Hammersmith and Fulham’s UDP Policy EN2B, Effect of Development on the Setting of Conservation Areas and Views into and out of them, only permits development, including development outside conservation areas, which will preserve or enhance the character or appearance of the conservation area. The emerging Hammersmith and Fulham Core Strategy also supports the need to protect the quality and character of the borough’s conservation areas within Policy BE1, Built Environment.

6.4 **Planning comments**

6.4.1 There are few planning designations that are applicable both on and adjacent to the site. These designations have been identified and described in Section 6.3.

6.4.2 The site is located in close proximity to residential properties, and protecting the amenity of the local residents is a significant consideration. The nearest residents are located at a distance of approximately 10m from the site boundary, in the newly constructed, multi-storey Edison Court development on Warple Way. There is an approximate distance of 20m from both the proposed main tunnel reception shaft to this residential facade.

6.4.3 It is considered that, due to the very close proximity of the nearby residential properties to the site, noise, dust and traffic movements are likely to impact on residential amenity in the surrounding area. Appropriate mitigation measures would be required to reduce potential
impacts and to protect amenity. Such measures may include localised noise attenuation, an appropriate lighting strategy and a traffic management plan. The proposal site is enclosed within the site of a large sewerage pumping station by 2m-high concrete panel fencing, which may provide additional separation from the surrounding residents, and some visual screening at street level. Further consideration should be given to the construction works layout, since it may be possible to relocate the noisier construction activities elsewhere on the site in order to increase the separation distance with residential properties.

6.4.4 It will also need to be demonstrated that the possible access route via Warple Way, Canham Road and Stanley Gardens has the capacity and width to cope with the HGV movements required. A number of on-street parking spaces may be temporarily affected and alternative spaces may need to be provided elsewhere in the locality.

6.4.5 Both the Ealing and Hammersmith and Fulham conservation areas are set at a distance away from the site, between 100m and 250m away. Use of the site as a main tunnel reception site is not considered to have an unacceptable impact on the setting or appearance of this conservation area, given the existing context, potential for mitigation and distance from the site.

6.4.6 A designated major employment location is adjacent to the site, to the north. Use of the site as a main tunnel reception site is not considered to have a detrimental impact on the existing or future employment uses within the area, on the basis of the site location, the context within the grounds of the existing pumping station and potential for mitigation against construction impacts.

7 Environmental appraisal

7.1 Introduction

7.1.1 The following sections summarise specialist assessments which are provided in Appendix 9 – Environmental appraisal tables.

7.2 Transport

7.2.1 The site is considered suitable as a main tunnel reception site (see a number of preliminary transport plans for the site attached as Appendix 5).

7.2.2 Despite the access route being constrained, the site is only likely to generate a small amount of HGV movements. The use of rail may not be feasible due to the small quantities of excavated material produced by a reception site. Should the quantities be sufficient for rail transport, the potential for construction of rail sidings at Barnes Bridge would require further investigation. In order to enable road access for construction vehicles, some on-street parking will need to be removed. There is limited potential for the workforce to access the site by public transport, although some onsite parking would potentially be available.
7.3 **Archaeology**

7.3.1 On the basis of the information currently available, the site is suitable as a main tunnel reception site as the archaeological risk is likely to be low to medium. No records of archaeological receptors within the site have been identified at this stage, and the site has been subjected to extensive disturbance by modern development. Available geotechnical information suggests that deeply stratified deposits and waterlogged deposits are unlikely to be present. Further desk-based assessment would be required to confirm the above, should this site be progressed.

7.4 **Built heritage and townscape**

7.4.1 This site is considered suitable as a main tunnel reception site as the impact on built heritage receptors is likely to be minimal, and the industrial nature of the site means that it is judged to be of relatively low sensitivity. There are only two receptors of medium importance (Bedford Park Conservation Area and Ravenscourt and Starch Green Conservation Area) that may potentially be indirectly impacted on. Mitigation in the form of high-quality scheme design, landscape design and screening would reduce any adverse impacts arising from the scheme.

7.4.2 In terms of townscape impacts, the site is considered to be suitable as a main tunnel reception site as its existing character is industrial in nature and, although during construction the presence and operation of machinery, materials stores and buildings onsite would impact the character of the site and local views, permanent elements are likely to have only a minimal impact.

7.5 **Water resources – hydrogeology and surface water**

7.5.1 In terms of hydrogeology, this site is considered suitable as a main tunnel reception site because the shaft is to be constructed in London Clay (unproductive strata). No impact on the Chalk aquifer is expected. The superficial deposits at the site are Langley Silt, which is classified as unproductive strata at the site. Therefore, no impact is expected at shallow depth.

7.5.2 In terms of surface water resources, this site is considered suitable as a main tunnel reception site because there is no direct pathway for pollution to the River Thames. However, standard mitigation would be required.

7.6 **Ecology**

7.6.1 This site is suitable as a main tunnel reception site and may require only basic ecological surveys if selected. Should notable or protected species be present, it is likely that some limited habitat mitigation or compensation would be required.

7.7 **Flood risk**

7.7.1 This site is suitable as a main tunnel reception site because although there may be constraints on SUDS due to space and suitability for infiltration, the site is protected to the one in 1,000-year flood level.
7.8 **Air quality**

7.8.1 The site is less suitable for use as a main tunnel reception site due to the potential for fugitive emissions of dust during construction to have a perceptible impact at residential properties in close proximity to the site. These impacts could be minimised with standard dust control measures. There is potential for HGV movements on the local road network to cause localised air quality impacts in areas of already poor air quality. This could, to some extent, be mitigated by minimising the movement of HGVs during peak hours.

7.8.2 Access Option 3 would be the preferred option of the three in air quality terms as it predominantly passes through a commercial/industrial estate.

7.9 **Noise**

7.9.1 This site is considered less suitable as a main tunnel reception site due to the relatively short distances to the closest sensitive receptors. Any shielding afforded by the site perimeter barriers will be largely ineffectual for properties along Warple Way due to the height of these receptors. The number of vehicles associated with the construction phase and their access routes (close to residential areas) also has the potential to cause disturbance to properties lining those access routes. Of the three access options, Option 3 is likely to result in the least disturbances as it predominantly passes through a commercial/industrial estate. The routes along Warple Way have the potential for residents to be considerably affected by HGV traffic noise.

7.10 **Land quality**

7.10.1 The site is considered less suitable as a main tunnel reception site based on the high potential for contamination to have occurred from the onsite sewage works/pumping station (ie, from the impact of waste material on soils and shallow groundwater) and from offsite activities to have impacted shallow groundwater, which may have migrated beneath the site. The identified sources of contamination may impact on site workers and adjacent human receptors through direct contact/vapour inhalation exposure pathways.

8 **Socio-economic and community assessment**

8.1 **Introduction**

8.1.1 The socio-economic and community assessment builds on the advantages and disadvantages reported in Table 2.3 and covers the following areas:

- Socio-economic profile
- Socio-economic and community issues and impacts.

8.2 **Socio-economic profile**

8.2.1 The site is in the Southfield ward of the London Borough of Ealing. Statistics from the Office of National Statistics (ONS) 2001 Census data
show the following relevant indicators for the ward, in comparison to the rest of Ealing, London and England as a whole:

- The ward has a mixed population, with a lower percentage of white British people than the average for England.
- The ward has an unemployment rate just lower than the national average, and a high percentage of high-level qualifications.

8.3 Issues and impacts

8.3.1 Due to the proposed location of the works for the main tunnel reception site with CSO interception, it is likely that the greatest impact on the local community would be the effect on the residents of properties opposite the site to the east.

8.3.2 Edison Court and Tesla Court appear most likely to be directly impacted due to their close proximity to the shaft and works area, however a number of properties in Emlyn Gardens and those on Greenend Road which back onto the site also appear likely to be affected.

8.3.3 The proposed shaft site is directly opposite Edison, Tesla and Longford courts, so residents of properties within these developments appear most likely to be the most directly affected. Residents of Emlyn Gardens are also likely be impacted as above but to a lesser extent, as it appears likely their windows and balconies would face the area designated for offices and services on the construction site.

8.3.4 Residents in the upper floors of the developments opposite the site appear likely to be particularly affected as they would have a direct view of the works area over the site hoarding. All residents would be likely to experience a level of noise and dust disruption from the works, but this would particularly affect those with windows, balconies or shared open spaces along Warple Way.

8.3.5 Residential properties to the southwest of the site may also be affected by construction activities. However, given the properties’ separation from the shaft workings, it may be possible to more effectively mitigate these impacts.

8.3.6 There are also a number of community facilities in the vicinity of the site, including a scout hut which is used by a mother and toddler group, a music teaching facility and a centre for prayer and meditation. These facilities may be affected by construction impacts, particularly the routes of construction vehicles, and mitigation would be required to reduce potential impacts.

8.3.7 A school is also located to the southwest of the site, but this should be shielded from construction works by surrounding housing. The proposed access to the site is on Warple Way, opposite the properties to the east of the site. This is likely to increase the level of disruption for these residents.

8.3.8 It does not appear likely that there will be any long-term impacts on the local community due to the operation of the site.
Property assessment

Introduction

This report builds on the advantages and disadvantages in Table 2.3 and the assessment provides more up-to-date information.

The majority of the land is owned by Thames Water and forms part of the Acton Storm Tanks site. The strip of land forming the southern part of the site, which is a car parking facility, is under third-party ownership. The car park is subject to a large number of property interests, often on a ‘space-by-space’ basis. Land assembly of such a large number of interests in one location will be challenging.

Crown land and special land comments

The majority of the site forms part of an existing Thames Water operational site and although it may be classified as special land under Section 17 of the Acquisition of Land Act 1981, this should not be an issue.

Land to be acquired

The compensation assessment assumes that the worksite and access to it would be acquired temporarily, via the acquisition of new rights for the period of the works stated in the engineering section above. At the end of the works, a smaller area would need to be acquired permanently.

Thames Water needs to make an internal decision as to whether this proposed use would be acceptable to the existing operations on site.

The car park is currently in use, although it is not noted as full during site visits. Ownership to part of the car park has links with the new residential development on the opposite side of Warple Way. It is likely that occupation of the car park will increase as the occupancy in the new residential units rises.

Property valuation comments

For the land owned by Thames Water, there is no external valuation sum to be assessed.

There may be alternative use values associated with the site. However, this should be an internal matter for Thames Water when considering the operational use of the site.

Currently, there are no planning applications that would affect the value of the car park.

A number of the parking spaces are associated with nearby residential properties. There is a risk that acquisition of the spaces may result in a claim for diminution in value of the residential property.

No rights of way or easements have been included in the assessment of this site acquisition cost.
9.5 **Disturbance compensation comments**

9.5.1 The large number of property interests in the car park is likely to give rise to disturbance claims. It seems unlikely that all current occupiers will be able to find alternative parking within the vicinity.

9.6 **Discretionary purchase costs comments**

9.6.1 The site is close to a residential area. However, the fact that work would be within normal working hours should significantly limit the potential for discretionary purchases.

9.7 **Offsite statutory compensation comments**

9.7.1 The Thames Water owned part of the site is currently operational land under water authority use, and therefore it would be difficult to perceive a case where the long-term value of an adjoining property is affected further by the proposed works.

9.7.2 There should be limited potential for offsite statutory compensation under S.10 of the *Compulsory Purchase Act 1965*, as there is unlikely to be any physical interference with public or private property rights.

9.7.3 There should also be limited potential for claims under the *Land Compensation Act 1973 Part 1*, as the completed works are unlikely to result in diminution in value to property.

9.8 **Site acquisition cost assessment**

9.8.1 The site acquisition costs are considered to be acceptable.

10 **Site conclusions by discipline**

10.1 **Introduction**

10.1.1 The conclusions presented in this section are drawn from each discipline’s assessment, and are designed to inform the workshop where a final conclusion is reached on whether the site can be taken forward as a potential preferred site, subject to its fit with possible drive strategies in the case of main tunnel sites.

10.2 **Engineering**

10.2.1 This site is considered **suitable** as a main tunnel reception site with CSO interception. The site is of sufficient size to fit all the site facilities, has suitable access and is owned by Thames Water. One of the storm tanks would need to be temporarily filled or covered over to create a sufficient working area.

10.3 **Planning**

10.3.1 This site is considered **suitable** as a main tunnel reception site with CSO interception due to the existing use within the site (Thames Water Pumping Station) and the scope for mitigation measures to reduce potential construction impacts on residential amenity.
10.3.2 The proposed reception shaft location is very close to residential properties to the east and it is considered that, due to the size of the site, there is scope to reconfigure the construction layout to locate the noisier construction works further away from residential properties, thus reducing potential impacts alongside other mitigation measures.

10.4 Environment

10.4.1 Overall, the site is considered to be **suitable** as a main tunnel reception site with CSO interception, although mitigation would be required.

10.4.2 Based on current information, the site is considered **suitable** from the perspective of transport, archaeology, built heritage, townscape, water resources, flood risk and ecology.

10.4.3 The site is considered **less suitable** from the perspective of air quality, noise and land quality.

10.4.4 Overall, the site is considered **suitable**, subject to further investigation of whether air quality, noise and land quality impacts can be adequately mitigated. Likely mitigation considerations would include the following:

- **Noise** – standard noise barriers are unlikely to be entirely effective and other techniques may be required to reduce construction noise to acceptable levels.

- **Air quality** – measures to ensure dust is adequately mitigated for the closest receptors.

- **Land quality** – any required remediation of contamination (at this high risk site) and/or measures to ensure no mobilisation of contaminants retained in situ.

10.5 Socio-economic and community

10.5.1 The site appears **less suitable** from a community impacts perspective for use as a main tunnel reception site with a CSO interception. The use of the site appears likely to have an adverse impact on a small number of residents, given the proximity of the housing development opposite the site as well as further down Warple Way. Given the size of the site, there does, however, appear to be potential opportunities to relocate the shaft towards the north of the site, away from the concentrated areas of residential development.

10.5.2 Appropriate mitigation may be required for noise and visual disruption during construction, and odour and visual disruption during operation.

10.6 Property

10.6.1 This site is considered **suitable** as a main tunnel reception site with CSO interception within a pumping station that is owned by Thames Water.

10.7 Next steps in the site selection process

10.7.1 It should be noted at this point the above conclusions do not represent an overall recommendation on the suitability of a site. The disciplines discuss
their site suitability report conclusions at optioneering workshops, along with main tunnel drive strategy options. Main tunnel sites need to link together to form possible drive options for construction of the main tunnel. Therefore, a preferred site can only be identified through a series of main tunnel drive option comparisons. The outcome of this two-step process (sites and then drive option comparisons) is set out in the *Phase two scheme development report.*
Appendices
Appendix 1 – Sources of information

Engineering

- Traffic Management and Access Roads/Rail – URS Scott Wilson
- Services (Utilities) and Third Party Assets – Thames Tunnel and utility companies
- Geology – British Geological Society and Thames Tunnel
- Construction and Operational Layout Template – Thames Tunnel
- Site selection background technical paper – Thames Tunnel

Planning

- London Borough of Ealing online planning applications database
- Saved policies in the Ealing Unitary Development Plan, adopted in 2004
- Saved policies in the Hammersmith and Fulham Unitary Development Plan, adopted in 2003
- Ealing Development (or Core) Strategy, Submission Document, July 2011
- Hammersmith and Fulham Core Strategy, Post Submission Amendments arising during Examination, published May 2011

Environment

Transport

- Map of Transport for London Road Network (TLRN) – www.tfl.gov.uk
- Bus Route Maps: North-east, north-west, south-west, south-east – www.tfl.gov.uk
- Crossrail Plans – www.crossrail.co.uk/crossrail-bill-documents
- PTAL scores – Obtained from Table 2.3 information
- Thames Path map – www.walklondon.org.uk
- Capital Ring – www.walklondon.org.uk
- Cycle Routes – www.sustrans.org.uk and Local Cycling Guides 1-14
- Design Manual for Roads and Bridge TD 42/95, Highways Agency

Archaeology

- Historic Environment data from Greater London Archaeology Advisory Service (GLAAS)
- National Monuments Record – for some additional information regarding registered historic parks and gardens
• London Archaeological Archive and Research Centre (LAARC)
• Local authority websites
• Bing maps

**Built heritage and townscape**
• Local authority lists of Locally Listed Buildings
• National Monuments Record – for some additional information regarding registered historic parks and gardens
• Unitary development plan and DPDs
• Local authority websites
• Bing maps

**Water resources – hydrogeology and surface water**
• Local authority details of unlicensed abstractors
• Environment Agency abstraction licence details
• Environment Agency groundwater levels and contour maps (2009-11)
• Environment Agency water quality (surface water and groundwater)
• Environment Agency Groundwater Source Protection Zones
• Environment Agency Flood Map – www.environment-agency.gov.uk
• Envirocheck
• British Geological Survey (BGS) logs
• BGS 1:50,000 Geological Sheets – Solid and Drift Editions (England and Wales)
• BGS Geology of London – Special Memoir for 1:50,000 Geological sheets 256 (North London), 257 (Romford), 270 (South London) and 271 (Dartford) (England and Wales)
• Crossrail (2005) – Assessment of Water Impacts Technical Report: Appendix C – Baseline Data. Figure C.4: Extent of Saline Intrusion based on 177 mg/l *(5mmol/l) Isochlor

**Ecology**
• Thames Estuary Partnership (2002) Tidal Thames Habitat Action Plan
• London Biodiversity Action Plan – www.lbp.org.uk
• Multi-Agency Geographic Information for the Countryside (MAGIC) – www.magic.gov.uk - statutory designated sites
• London Wildweb – wildweb.london.gov.uk - non-statutory site of importance for nature conservation
• National Biodiversity Network – http://searchnbn.net - distribution of protected species
• Google Maps – aerial views of habitat features
• BAP habitats – www.natureonthemap.org.uk
• Priority habitats and species on national and local scales – www.ukbap.org.uk

**Flood risk**
• Environment Agency Flood Map – www.environment-agency.gov.uk
• Environment Agency National Flood and Coastal Defence Database
• Envirocheck

**Air quality**
• Local authority websites
• London Air Quality Network – www.londonair.org.uk
• Defra UK-AIR, air quality information resource – www.airquality.co.uk
• Defra Air Quality Management Areas – http://aqma.defra.gov.uk
• Defra Local Air Quality Management – http://laqm.defra.gov.uk

**Noise**
• Envirocheck – Identification of receptors
• Promap – Calculation of distances between site and receptors
• Multimap – Aerial photography – www.multimap.co.uk
• Defra noise maps – Identification of existing noise levels

**Land quality**
• Google Maps/Earth
• Site walkover information
• Envirocheck Data Sheets provided as a GIS Database
• British Geological Survey (BGS) logs

**Socio-economic and community**
• Statistics from the Office of National Statistics 2001 Census data
• Ealing Community Network www.ealingnetwork.org.uk/index.php?nuc=eweb&id=34
Property

- Promap, Ordnance Survey and A-Z mapping
- Multimap/Google Earth aerial/satellite photographs
- Mouchel referencing
Appendix 2 – Site location plan
This is an indicative working draft plan which has been produced for the purpose of confidential discussions only. Accordingly, the draft plan must not be copied, distributed or shown to any third party without the express written permission of Thames Water Utilities Limited. It provides an indication of sites that, following discussions with local authorities and other stakeholders, may be confirmed as being on the shortlist of construction sites for the proposed Thames Tunnel. Inclusion of a site on this draft plan should not be taken to mean that such site will be selected as a construction site to form part of the Thames Tunnel scheme.
Appendix 3 – Planning and environment plans
This is an indicative working draft plan which has been produced for the purpose of confidential discussions only. Accordingly, the draft plan must not be copied, distributed or shown to any third party without the express written permission of Thames Water Utilities Limited. It provides an indication of sites that, following discussions with local authorities and other stakeholders, may be confirmed as being on the shortlist of construction sites for the proposed Thames Tunnel. Inclusion of a site on this draft plan should not be taken to mean that such site will be selected as a construction site to form part of the Thames Tunnel scheme.
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Appendix 4 – Photographs of the site and surroundings
This is an indicative working draft plan which has been produced for the purpose of confidential discussions only. Accordingly, the draft plan must not be copied, distributed or shown to any third party without the express written permission of Thames Water Utilities Limited. It provides an indication of sites that, following discussions with local authorities and other stakeholders, may be confirmed as being on the shortlist of construction sites for the proposed Thames Tunnel. Inclusion of a site on this draft plan should not be taken to mean that such site will be selected as a construction site to form part of the Thames Tunnel scheme.

Title:
APPENDIX 4
AERIAL PLAN
S01EG SITE
Aerial view of the site looking north.

View of site S01EG looking west from Cobbold Road.
View of existing access to S01EG looking south from Canham Road.

View of site S01EG looking south-westwards towards the storm tanks.
View of site S01EG looking south-eastwards over the storm tanks.

View of site S01EG looking north from southernmost tip of the site.
Appendix 5 – Transport plan
This is an indicative working draft plan which has been produced for the purpose of confidential discussions only. Accordingly, the draft plan must not be copied, distributed or shown to any third party without the express written permission of Thames Water Utilities Limited. It provides an indication of sites that, following discussions with local authorities and other stakeholders, may be confirmed as being on the shortlist of construction sites for the proposed Thames Tunnel. Inclusion of a site on this draft plan should not be taken to mean that such site will be selected as a construction site to form part of the Thames Tunnel scheme.
Appendix 6 – Services and geology plan
SITE SUITABILITY REPORT

Project Name: LONDON TIDEWAY TUNNELS

LEGEND

- FOIL WATER
- SURFACE WATER
- SEWAGE
- FIRE HOSES
- TELECOMMUNICATIONS
- LOW VOLTAGE CABLES
- HIGH VOLTAGE CABLES

OTHER UNDERGROUND UTILITIES ARE DEFINED AS:

WATER
- FOIL WATER
- SEWAGE
- FIRE HOSES

OTHER SIGNIFICANT UTILITIES ARE DEFINED AS:

TELECOMS
- DUAL BORE OPTIC CABLES
- HIGH VOLTAGE CABLES
- LOW VOLTAGE CABLES

ON THE DRAWING, THE FOLLOWING UTILITY IDENTIFICATION IS SHOWN:

- ON THE DRAWING, THE FOLLOWING UTILITY IDENTIFICATION IS SHOWN:

SYMBOLS AND CONVENTIONS SHOWN ARE FOR USE IN THE CONTEXTS WHERE APPLICABLE. MARKED AREAS AND/or WIDTHS SHOWN ON THIS DRAWING ARE SHOWN FOR INFORMATION.

APLICABLE MAPPING IMPROVEMENTS BY PROTECTOR OF ORDNANCE SURVEY "ARMS, TUNNELS, SUBMARINE CABLES AND PIPELINES ETC". ALL RIGHTS RESERVED ORDNANCE SURVEY LICENCE NUMBER: 100-DL-JPC-S01EG-140061

SCALE 1 : 1000

RIGHTS RESERVED. ALL RIGHTS RESERVED ORDNANCE SURVEY LICENCE NUMBER: 100-DL-JPC-S01EG-140061

FOR INFORMATION
Appendix 7 – Construction phase layout
Appendix 8 – Operational phase layout
VENTILATION BUILDING (SHAFTS)

VENTILATION TOWER (SHAFTS)

1. Structure to be protected by removable handrails in the temporary case.
2. Position of covers are variable within 10m from the edge of the structure, and the location is based on site specific requirement.
3. Cladding of ventilation building to suit location and aesthetics.
4. All top structures to have:
   - Access stairs/ladder
   - Temporary or permanent hand railing
5. All dimensions in millimetres unless otherwise stated.
### Appendix 9 – Environmental appraisal tables

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to road network</td>
<td>Access route will be taken via Warple Way with egress route via Stanley Gardens. A new access and egress will need to be constructed on Warple Way. The carriageway of Warple Way is narrow (4m) and would require any junction to be inset into the site to provide a suitable swept path for HGVs. Parking will require removal on Warple Way to enable access and the existing one-way northbound section of Warple Way adjacent to the flats will require removal. The access and egress route from/to the TLRN (A40) would use Old Oak Road and The Vale (A4020). The access route would then use Warple Way to access the site via the new site access. Warple Way between The Vale and Canham Road is one-way southbound, is approximately 7.5 metres wide and features parking on both sides, reducing the effective width to 3.5m. To enable one-way access by HGVs, some on-street parking will require removal. The egress (return) route back to The Vale would then use Warple Way northbound, Canham Road and Stanley Gardens. A tight bend is located at the junction of Canham Road and Stanley Gardens. Large HGVs such as articulated vehicles may be unable to manoeuvre around this bend. Therefore, some widening works may be required in the north-western corner of the Storm Tanks site to</td>
<td>Construction site access via Warple Way with egress via Stanley Gardens. Access route constrained and will require temporary traffic management.</td>
</tr>
<tr>
<td>Site considerations</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>---------------------</td>
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<td>-----------------------------------</td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>enable large HGVs to egress the site. Both Canham Road and Stanley Gardens feature on-street parking. Canham Road features parking on one side while Stanley Gardens features parking on both sides. On both roads, this reduces the effective carriageway width to 3.5 metres. Some on-street parking would therefore require removal to enable one-way access by HGVs. Access route via Warple Way/Stanley Gardens 2.2km. A preliminary transport access plan is attached as Appendix 5.</td>
<td></td>
</tr>
<tr>
<td>Access to river</td>
<td>River access is not essential as excavated material will be transported to a main site by road.</td>
<td>River access is not essential as excavated material will be transported to a main site by road.</td>
</tr>
<tr>
<td>Access to rail</td>
<td>Use of rail is unlikely to be feasible due to the small quantities of excavated material produced. Route to rail access point at Barnes Bridge uses the route to The Vale, then continues west along The Vale to Gunnersby Lane (A4000) before joining the North Circular (A406). The route then uses the A4 and the A316. The route then follows a narrow, traffic-calmed (speed humps) road, requiring the removal of the speed humps for construction vehicle use. Creation of a siding by Barnes Bridge would require further investigation. Distance 9.7km to rail access point from the site.</td>
<td>Access from site to TLRN restricted, as discussed above. No restrictions on TLRN. Creation of a rail siding at Barnes Bridge is possible, however further investigation required.</td>
</tr>
<tr>
<td>Parking</td>
<td>Parking is potentially available on site. No parking available on Warple Way as the spaces are currently marked for resident permit holders only.</td>
<td>Parking is potentially available on site.</td>
</tr>
<tr>
<td>Site considerations</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Public transport accessibility</td>
<td>PTAL 1-2 (low), as identified within Table 2.3.</td>
<td>PTAL least suitable. Public transport access issues for workforce. Workforce transport could be provided.</td>
</tr>
<tr>
<td>Traffic management</td>
<td>Site accesses will require construction and the one-way system on Warple Way between Canham Road and Cobbold Road will require removal. Parking will require removal on Warple Way, Canham Road and Stanley Gardens. Some works may be required at the Canham Road junction, with Stanley Gardens to enable access. A preliminary transport management plan is attached as Appendix 5.</td>
<td>Traffic management required and likely to result in a large amount of disruption to the local highway network.</td>
</tr>
</tbody>
</table>

**Summary:** The site is considered suitable as a main tunnel reception site, subject to suitable mitigation. Access route constrained but the site is only likely to generate a small amount of HGV movements. The use of rail may not be feasible due to the small quantities of excavated material produced by a reception site, and should the quantities be sufficient for rail transport, the potential for the construction of rail sidings at Barnes Bridge would require further investigation. In order to enable road access for construction vehicles, large amounts of on-street parking will need to be removed and one-way restrictions removed. In addition, amendments to the road layout at the Canham Road junction with Stanley Gardens would be required to enable access for HGVs. There is limited potential for the workforce to access the site by public transport, although some onsite parking would potentially be available.
# Archaeology

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designations, including archaeological priority areas</td>
<td>No designations within the site boundary.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Summary of historical uses</td>
<td>The site was undeveloped until the 1890s, when sewage works and a pumping station were constructed. In the 20th century, the sewage works were enlarged to cover the whole of the site.</td>
<td>A detailed desk-based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Potential receptors of very high or high value with the potential to be directly affected</td>
<td>No archaeological receptors are recorded within the area of the site. This does not preclude the possibility of unrecorded archaeological receptors of high value being present.</td>
<td>A detailed desk-based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Potential receptors of medium value with the potential to be directly affected</td>
<td>No archaeological receptors are recorded within the area of the site. This does not preclude the possibility of unrecorded archaeological receptors of medium value being present within the site.</td>
<td>A detailed desk-based assessment is required to assess development impacts.</td>
</tr>
<tr>
<td>Other receptors with the potential to be directly affected</td>
<td>The dewatering of adjacent waterlogged deposits is unlikely to be an issue, given the location of the site some distance from the Thames.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Extent of existing disturbance (if known)</td>
<td>The construction of the existing sewage works and services is likely to have adversely impacted any in situ archaeological deposits.</td>
<td>A detailed desk-based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
</tbody>
</table>
| Potential issues | Detailed design proposals and an outline method statement will be required to enable initial assessment of development impacts, and to inform mitigation proposals. The currently available information indicates that due to previous disturbance within the site. | Mitigation methods could include:  
- Desk based assessment  
- Production of deposits model  
- Archaeological monitoring of geotechnical investigations |
### Archaeology

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
|                     | site, the archaeological risk is low. However, further desk-based assessment is required to determine this. | • Archaeological evaluation  
• Archaeological watching brief  
• Archaeological excavation. |

**Summary:** On the basis of the information currently available, the site is suitable as a main tunnel reception site as the archaeological risk is likely to be low to medium. No records of archaeological receptors within the site have been identified at this stage, and the site has been subjected to extensive disturbance by modern development. Available geotechnical information suggests that deeply stratified deposits and waterlogged deposits are unlikely to be present. Further desk-based assessment would be required to confirm the above should this site be progressed.
<table>
<thead>
<tr>
<th>Site considerations</th>
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<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Listed buildings</strong></td>
<td>19-25 Blenheim Road: 250m</td>
<td>In the case of listed buildings and conservation areas, a high-quality scheme design and/or adequate screening for the development will be required, as discussed below. A detailed desk-based assessment in conjunction with archaeology work may be required to inform likely development impact and to determine more detailed mitigation proposals.</td>
</tr>
<tr>
<td><strong>Locally listed buildings</strong></td>
<td>Although the boroughs of Hammersmith and Fulham and Hounslow maintain a list of locally listed buildings, this data was not available at the time of this assessment. There are no locally listed buildings within 250m of the site and within the borough of Ealing.</td>
<td></td>
</tr>
<tr>
<td><strong>Conservation areas</strong></td>
<td>Bedford Park Conservation Area, 40m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ravenscourt and Starch Green Conservation Area, 35m</td>
<td></td>
</tr>
<tr>
<td><strong>Registered historic parks and gardens</strong></td>
<td>There are no registered historic parks and gardens within 250m of the development site.</td>
<td></td>
</tr>
<tr>
<td><strong>Locally listed parks and gardens</strong></td>
<td>There are no locally listed parks and gardens within 250m of the development site.</td>
<td></td>
</tr>
<tr>
<td><strong>Protected views</strong></td>
<td>Information on protected views is not currently available for the boroughs of Hammersmith and Fulham, Hounslow or Ealing.</td>
<td></td>
</tr>
<tr>
<td><strong>Potential receptors of medium to very high importance with the potential to be directly affected</strong></td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Site considerations</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Other receptors of lesser importance with the potential to be <strong>directly</strong> affected</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential receptors of medium to very high importance with the potential to be <strong>indirectly</strong> affected</td>
<td>There is potential for one Grade II listed building to be indirectly affected through changes to its setting. In addition, two conservation areas may also experience an impact on their setting as a result of the development.</td>
<td>There is no visual relationship between the development site and the listed structure and, as such, no mitigation will be required. Some form of screening and/or high-quality scheme design will be required to mitigate any negative visual impact the scheme may have on adjacent conservation areas.</td>
</tr>
<tr>
<td>Other receptors of lesser importance with the potential to be <strong>indirectly</strong> affected</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sensitive landscape character areas likely to be affected, including trees and TPOs</td>
<td>Site on southeast corner of a sewage pumping station site. The site fronts a junction of a dead end road and Warple Way to the east, residential areas to the south and east, industrial estates beyond Canham Road to the north of the site, some residential properties to the north. The site is open with grass cover, a few mature trees to the north, mature vegetation and trees in the north corner. The presence and operation of machinery, materials stores and buildings would result in temporary, adverse direct impacts on the character of the site and temporary, adverse indirect impacts on neighbouring areas.</td>
<td>Retention of trees where possible and protection in accordance with BS 5837. Introduction of landscape scheme to include appropriate surface treatments and planting to relate to adjacent houses/gardens and street frontage. This site is suitable since its character is industrial in nature and, although during construction the presence and operation of machinery, materials stores and buildings onsite would impact the character of the site, permanent elements would likely have only a minimal impact.</td>
</tr>
</tbody>
</table>
## Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential views likely to be affected</td>
<td>Open views into and across the sewage pumping station from surrounding roads and residential properties.</td>
<td>During construction, use of hoardings and appropriate lighting. Design of top structure, vent column and electrical kiosk to be given careful consideration. Adequate new planting to screen permanent plant would be important to protect visual amenity. This site is suitable with appropriate mitigation.</td>
</tr>
<tr>
<td>Particular considerations on sites where new permanent structures are required</td>
<td>The direct impact of permanent structures on the Bedford Park Conservation Area and the Ravenscourt and Starch Green Conservation Area will need to be carefully considered.</td>
<td>The structures should be of a high-quality design to ensure they do not detract from the character or appearance of the adjacent conservation areas, their setting or views to and from them.</td>
</tr>
<tr>
<td>Potential issues</td>
<td>There are very few built heritage receptors within 250 metres of the development site. Of these, only Bedford Park Conservation Area and Ravenscourt and Starch Green Conservation Area may experience an indirect impact from the scheme. There is the potential to mitigate any adverse impacts through screening and/or a high-quality scheme design.</td>
<td>Due to the proximity of the site to two conservation areas, some form of screening and/or a high-quality scheme design will be required to mitigate any negative visual impact the scheme may have on adjacent areas.</td>
</tr>
</tbody>
</table>

**Summary:** This site is considered suitable as a main tunnel reception site as the impact on built heritage receptors is likely to be minimal, and the industrial nature of the site means that it is judged to be of relatively low sensitivity. There are only two receptors of medium importance (Bedford Park Conservation Area and Ravenscourt and Starch Green Conservation Area) that may potentially be indirectly impacted on. Mitigation in the form of a high-quality scheme design, landscape design and screening would reduce any adverse impacts arising from the scheme.

In terms of townscape impacts, the site is considered to be suitable as a main tunnel reception site, as its existing character is industrial in nature and, although during construction the presence and operation of machinery, materials stores and buildings on site would impact the character of the site and local views, permanent elements are likely to have only a minimal impact.
<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| Hydrogeological conditions (groundwater and surface water) | **Geology (thickness)**  
- Superficial geology and made ground (2m)  
- London Clay (44m)  
- Lambeth Group (15m)  
- Thanet Sand (9m) | The shaft will be constructed to an invert level of approximately 25.8mbgl and therefore the shaft will be founded in the London Clay. Piezometric head(1) in the Chalk is approximately 8.2m below the base of the construction. Therefore, there is no potential issue in terms of geotechnical design. |
|  | **Hydrogeology**  
- Piezometric level in Chalk aquifer: ~ -32mAOD (~34mbgl) from EA Jan 08 water level contouring |  |
|  | **Groundwater monitoring location**  
- EA hydrometry sites: No hydrometry site nearby. |  |
|  | **Watercourses**  
- River Thames – approximately 1.5km away. |  |
|  | **SPZs and groundwater users** |  |
|  | **SPZ**  
- Not located in a source protection zone defined by EA |  |
|  | **EA licensed groundwater abstractions and details**  
- No public water supply  
- Five licensed abstraction borehole within 2km radius. |  |
|  | Licence Numbers:  
1. 28/39/39/0230 (3 boreholes)  
2. 28/39/39/0197 (2 boreholes) | A simple volumetric approach has been used to calculate the total capture zone of the abstraction borehole. A conservative mean annual recharge of 100mm/year was used to calculate a radius for licensed abstraction boreholes as follows:  
1. 225m  
2. 103m  
As a result, the shaft will not be located within either of these catchment areas. |
## Water resources – hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 1.4km northeast of the site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 1.68km southwest of the site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. London &amp; Quadrant Housing Trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Chiswick Park Estate Management Ltd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstracted aquifer unit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstraction purposes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Industrial, commercial and public service (non-evaporative cooling, drinking, cooking, sanitary, washing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Industrial, commercial and public service (business park – spray irrigation, make-up or top-up water)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstraction quantity (annual):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 63,500m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 13,325m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local authorities (LA) unlicensed groundwater abstractions and details</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No abstraction borehole within 1 km radius.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borehole locations and depths</td>
<td>There are no borehole records of historical water wells within 1km radius.</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
### Water resources – hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential impacts on surface water features</td>
<td>The site is located approximately 1.5km away from the Thames, there are roads and buildings between the site and the river so there is no direct overland pathway to the Thames.</td>
<td>Work needs to be undertaken in consideration of Pollution Prevention Guidelines – PPG1, PPG5 and PPS23.</td>
</tr>
<tr>
<td>Potential impacts on groundwater (resources and quality)</td>
<td>No impact on groundwater at depth is likely since the shaft is to be constructed in London Clay (unproductive strata). At shallow depth, the shaft is located in Langley Silt, which is classified as unproductive strata, so no impact is expected.</td>
<td>See below (likely types of mitigation measures that will be required).</td>
</tr>
<tr>
<td>Likely types of mitigation measures that will be required</td>
<td>No mitigation required if groundwater is not impacted.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential issues</td>
<td>No potential issue</td>
<td>No mitigation required</td>
</tr>
</tbody>
</table>

**Summary:** In terms of hydrogeology, this site is considered suitable as a main tunnel reception site because the shaft is to be constructed in London Clay (unproductive strata). No impact on the Chalk aquifer is expected. The superficial deposits at the site are Langley Silt, which is classified as unproductive strata at the site. Therefore, no impact is expected at shallow depth.

In terms of surface water resources, this site is considered suitable as a main tunnel reception site because there is no direct pathway for pollution to the River Thames. However, standard mitigation would be required.
## Ecology (terrestrial and aquatic)

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory designations</td>
<td>Gunnersbury Triangle, Chiswick Eyot and Wormwood Scrubs LNRs are within 2km.</td>
<td>None required</td>
</tr>
<tr>
<td>Non-statutory designated wildlife sites</td>
<td>Site is 250m west of Wendell Park site of local interest.</td>
<td>None required</td>
</tr>
<tr>
<td>BAP priority habitats</td>
<td>London BAP habitat 'built up areas and gardens' lies within this area.</td>
<td>Loss of built up areas and gardens may require compensatory habitat provision.</td>
</tr>
<tr>
<td>Protected or otherwise notable species within the study area</td>
<td>Site may have potential to support breeding birds and roosting bats. No direct impact on aquatic receptors.</td>
<td>If bat roosts were found to be present, mitigation would be required for any buildings to be affected by works, possibly including offsite provision. Careful placement of lighting to minimise illumination of surrounding habitat is likely to be required.</td>
</tr>
</tbody>
</table>

### Summary
This site is suitable as a main tunnel reception site and may require only basic ecological surveys if selected. Should notable or protected species be present, it is likely that some limited habitat mitigation or compensation would be required.
## Flood risk assessment

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood risk zone</td>
<td>Flood Zone 3 (one in 200-year flood extent) but defended to the one in 1,000-year flood level – there is a residual risk of a breach for which mitigation would need to be considered as part of the FRA. Sewage transmission infrastructure is considered to be water compatible according to Table D.2 of PPS25</td>
<td>An FRA would be required to assess the residual risk of flooding to the site.</td>
</tr>
<tr>
<td>Assessment of conditions for SUDS</td>
<td>There is space on site for SUDS, however existing buildings on site may cause SUDS issues. The superficial geology on site is silty clay and, as such, further investigation on site is required to assess the suitability for infiltration SUDS.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Potential issues</td>
<td>No other issues</td>
<td>No other issues</td>
</tr>
</tbody>
</table>

**Summary:** This site is suitable as a main tunnel reception site because although there may be constraints on SUDS due to space and suitability for infiltration, the site is protected to the one in 1,000-year flood level.
### Air quality

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQMA</td>
<td>The air quality objective for NO₂ is exceeded on major roads in the vicinity of the site.</td>
<td>There is a need for more site specific data.</td>
</tr>
<tr>
<td>Sensitive receptors</td>
<td>There are residential properties along the access route to/from the TLRN (A40) along Old Oak Road and The Vale (A4020). There are also residential properties on Warple Way. There are residential properties within 50m of the proposed site on Emlyn Gardens, Warple Way and Greenend Road.</td>
<td>There are relevant air quality sensitive receptors present along the route construction traffic is likely to take and close to the proposed construction works.</td>
</tr>
<tr>
<td>Existing traffic issues</td>
<td>The main traffic issue in this area is exhaust emissions from vehicles along the A4 corridor.</td>
<td>Additional vehicle emissions have a low potential to interfere with local air quality action plan policies.</td>
</tr>
<tr>
<td>Existing sources of significant air pollutants</td>
<td>See above.</td>
<td>See above.</td>
</tr>
<tr>
<td>Notable gaps in existing air quality monitoring</td>
<td>There is no data available at the likely access to A40 and the nearest existing data indicates existing AQLV exceeded.</td>
<td>Collect a minimum of six months’ diffusion tube data at site access to the A40 or other point of access to major road network.</td>
</tr>
<tr>
<td>Potential issues</td>
<td>The risk from additional exhaust emissions from construction HGVs is undefined at present. The risk from dust impacts is moderate.</td>
<td>Minimise HGV movements on the local road network during the peak hour. Standard dust control measures will minimise the effect of fugitive dust on nearby sensitive receptors.</td>
</tr>
</tbody>
</table>

**Summary:** The site is less suitable for use as a main tunnel reception site due to the potential for fugitive emissions of dust during construction to have a perceptible impact at residential properties in close proximity to the site. These impacts could be minimised with standard dust control measures. There is potential for HGV movements on the local road network to cause localised air quality impacts in areas of already poor air quality. This could, to some extent, be mitigated by minimising the movement of HGVs during peak hours.

Route Option 3 would be the preferred option of the three in air quality terms as it predominantly passes through a commercial/industrial estate.
# Noise

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise band level (from Defra noise maps)</td>
<td>Information from Defra noise maps indicates daytime noise levels of less than 58 dB $L_{Aeq}$ and night-time noise levels of less than 50 dB $L_{Aeq}$ at residential properties on Greenend Road, Hawkshead Road and Worcester Drive to the southwest and Warple Way to the east. The properties facing the site are likely to experience relatively low daytime and night-time noise levels due to the distance between them and the nearest major road (A4020). Noise levels from the Defra noise maps provide an indication of prevailing noise levels only, and will not be employed in any detailed assessments for chosen sites.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sensitive receptors</td>
<td>There are sensitive receptors in close proximity (approximately 10m) to the southwest and east of the site. Sensitive receptors to the southwest consist of two- and three-storey residential dwellings. Sensitive receptors to the east at Emlyn Gardens and Warple Way consist of five- to seven-storey residential flats. Sensitive receptors to the north on Canham Road consist of two-storey residential properties. There are three proposed access routes to the site. In Option 1, vehicles will access the site via Warple Way and egress via Canham Road and Stanley Gardens. In Option 2, vehicles will access and egress via Warple Way. In Option 3, vehicles will access and egress the site from the Acton Park Industrial Estate via a disused railway line. These routes contain a number of noise-sensitive properties, and these receptors may be considerably affected by HGV traffic.</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
### Noise

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing traffic issues</td>
<td>Local road traffic, coupled with more distant road traffic on the A4020 to the north, will contribute to the local noise climate in the area. Acton Park Industrial Estate is located to the north of the proposed site and may also contribute to the noise climate in the area. A pumping station exists within the site boundary, although no information with regard to this as a source of noise is currently available.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Existing sources of significant noise emissions</td>
<td>Local road traffic, coupled with more distant road traffic on the A4020 to the north, will contribute to the local noise climate in the area. Acton Park Industrial Estate is located to the north of the proposed site and may also contribute to the noise climate in the area. A pumping station exists within the site boundary, although no information with regard to this as a source of noise is currently available.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential issues</td>
<td><strong>Construction:</strong> The construction period is estimated at six to seven years and working hours will be 12 hours per day (7am to 7pm), Monday to Saturday. This has the potential to result in adverse noise impacts on the sensitive receptors surrounding the site, in particular those on Greenend Road, Hawskhead Road, Worcester Road and properties along Warple Way. A relatively high number of daily HGV movements are anticipated, and this has the potential to result in adverse noise impacts to noise-sensitive properties. Option 1 has the potential to result in adverse noise impacts on sensitive properties on Warple Way, Canham Road and Stanley Gardens. Option 2 has the potential to result in adverse noise impacts on sensitive properties located along Warple Way. Option 3 has the potential to result in adverse noise impacts on properties located on Greenend Road and Hatfield Road. The site is relatively large and while</td>
<td>Adherence to the good site practices provided in BS5228. Siting of noisy equipment and construction activities as far as is practicable from sensitive receptors. Provision of site boundary noise fences.</td>
</tr>
<tr>
<td>Site considerations</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>the shaft location may be fixed, ancillary plant should be sited as far as is practicable from surrounding sensitive receptors. Proposed 3m site boundary fencing will provide useful noise mitigation to some plant and construction activities. Vibration resulting from general construction works is not anticipated to result in an adverse impact. The nearest receptors to the proposed shaft location are at a distance of approximately 25m and it is unlikely that vibration levels from shaft sinking will give rise to cosmetic building damage. However, vibration levels may cause annoyance. Vibration from tunnelling should be considered on a case-by-case basis at particular sensitive locations. Operation: With appropriate attenuation (if necessary), there is no reason why noise from the ventilation column and top chamber should result in adverse noise impacts to nearby sensitive receptors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary:** This site is less suitable as a main tunnel reception site due to the relatively short distances to the closest sensitive receptors. Any shielding afforded by the site perimeter barriers will be largely ineffectual for properties along Warple Way due to the height of these receptors. The number of vehicles associated with the construction phase and their access routes (close to residential areas) also has the potential to cause disturbance to properties lining those access routes. Of the three access options, Option 3 is likely to result in the least disturbances as it predominantly passes through a commercial/industrial estate. The routes along Warple Way have the potential for residents to be considerably affected by HGV traffic.
## Site considerations

<table>
<thead>
<tr>
<th>Site location</th>
<th>Grid reference: 521246, 179656</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current site use</td>
<td>The site is part of an existing pumping station site.</td>
</tr>
<tr>
<td>Topography</td>
<td>No site visit has been undertaken by a land quality specialist at this stage.</td>
</tr>
<tr>
<td>Field evidence of contamination (ie, visual/olfactory)</td>
<td>No site visit has been undertaken by a land quality specialist at this stage.</td>
</tr>
<tr>
<td>Current surrounding land use (immediately adjacent to site)</td>
<td>Aerial images show: The pumping station works extend to the northwest of the proposed shaft location. Beyond the site boundary to the south and west, a car parking area is present, beyond which two- and three-storey residential properties are located. Four-storey residential apartment blocks are located beyond Warple Way to the northeast and east of the site. Commercial/industrial land uses appear to be present further to the north of the site, however this area may be undergoing redevelopment.</td>
</tr>
</tbody>
</table>

## Geological and hydrogeological information

<table>
<thead>
<tr>
<th>Geological strata</th>
<th>Superficial geology and made ground (2m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>London Clay (44m)</td>
</tr>
<tr>
<td></td>
<td>Lambeth Group (15m)</td>
</tr>
<tr>
<td></td>
<td>Thanet Sand (9m)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Underlying aquifer classes</th>
<th>Unproductive strata: London Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary aquifer: River terrace deposits, Lambeth Group, Thanet Sand</td>
<td></td>
</tr>
<tr>
<td>Principal aquifer: Chalk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Groundwater vulnerability/Soil classification (High/Intermediate/Low/Not applicable)</th>
<th>River terrace deposits – minor aquifer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High leaching potential of soils (U)²</td>
</tr>
</tbody>
</table>

| Source protection zone details | Not located in a source protection zone defined by EA |
| Surface water receptor | None |

## Relevant information within a 250m radius of the site

<table>
<thead>
<tr>
<th>Historical potentially contaminating activities (based on mapping data)</th>
<th>On site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open land 1868-1882</td>
</tr>
<tr>
<td></td>
<td>North and southwest junction of the Hammersmith branch railway (southern boundary), 1868-1967</td>
</tr>
</tbody>
</table>
### Site considerations | Land quality
---|---
- Sewage disposal works/pumping station, 1896 – present |  
**Off site**
- Open land (surrounding site), 1868-1899
- Diesel engineering works (8m northwest), 1947-1972
- Works – use not specified (8m northwest), 1972-1996
- Corrugated paper works (12m north), 1909-1920
- Electrical engineering works (17m northeast), 1947-1972
- Works – use not specified (17m northeast), 1972-1996
- Tanks – contents unknown (closest 34m southwest), 1954-1974
- Nine electrical substations (closest 37m southeast), 1954-1974
- Transport – light manufacture (40m northwest), 1920
- Factory/works – use not specified (43m north), 1910 – present
- Clay bricks and tiles manufacture (50m west), 1896
- Motor car engineering works (57m northwest), 1909-1934
- Engineering works (83m northwest), 1909-1920
- Acton Park Industrial Estate (90m northwest), 1976-1996
- Allied Industrial Estate (135m north), 1976-1996
- Car repairing works and garage (104m north), 1909-1920
- Carriage factory (228m north), 1909-1920
- Dyes and cleaning works (230m northwest), 1910 - 1960

<p>| Pollution incidents to controlled waters | None |
| Landfill sites | None |
| Other waste sites | None |
| Registered radioactive substances | None |</p>
<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Land quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel stations/depots</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Contemporary trade directory entries</strong></td>
<td>Eight</td>
</tr>
<tr>
<td>- Furniture manufacturers, inactive (60m northwest)</td>
<td></td>
</tr>
<tr>
<td>- Generators – sales and services, inactive (67m northwest)</td>
<td></td>
</tr>
<tr>
<td>- Oil and gas exploration supplies and services, active (100m north)</td>
<td></td>
</tr>
<tr>
<td>- Garage service, inactive (105m south)</td>
<td></td>
</tr>
<tr>
<td>- Picture and picture frame, renovation and restoration, inactive (116m north)</td>
<td></td>
</tr>
<tr>
<td>- Fireplaces and mantelpieces, active (177m south)</td>
<td></td>
</tr>
<tr>
<td>- Commercial cleaning services (178m south)</td>
<td></td>
</tr>
<tr>
<td>- Printers, active (196m north)</td>
<td></td>
</tr>
</tbody>
</table>

### Site classification based on above information

<table>
<thead>
<tr>
<th>Activity</th>
<th>Distance and direction to site</th>
<th>Contaminants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential site contaminants derived from surface sources (eg, contaminants in made ground)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Some potential for made ground from potential filling operations during development</td>
<td>1) On site and directly adjacent to site</td>
<td>1) Metals, PAHs, TPH</td>
</tr>
<tr>
<td>2) Sewage works/ pumping station</td>
<td>2) On site and directly adjacent to site</td>
<td>2) Metals, TPH, PAHs, nitrogen compounds</td>
</tr>
<tr>
<td>3) Railway operations</td>
<td>3) On site</td>
<td>3) Metals, TPH, PAHs, Pesticides</td>
</tr>
<tr>
<td><strong>Potential site contaminants derived from offsite sources and transported to site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Diesel engineering works</td>
<td>1) 8m northwest</td>
<td>1) Metals, TPH, PAHs</td>
</tr>
<tr>
<td>2) Corrugated paper works</td>
<td>2) 12m north</td>
<td>2) Metals, TPH, PAHs</td>
</tr>
<tr>
<td>3) Electrical engineering works</td>
<td>3) 17m northeast</td>
<td>3) Metals, TPH, PAHs</td>
</tr>
<tr>
<td></td>
<td>4) closest located 34m southwest</td>
<td>4) Metals, TPH, PAHs</td>
</tr>
</tbody>
</table>
### Site considerations

<table>
<thead>
<tr>
<th>Land quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) Tanks – contents unknown</td>
</tr>
<tr>
<td>5) Electrical substation</td>
</tr>
<tr>
<td>5) closest located 37m southwest</td>
</tr>
<tr>
<td>PAHs, solvents</td>
</tr>
<tr>
<td>5) PCBs</td>
</tr>
</tbody>
</table>

#### Potential contamination pathways to site

**Conceptual Site Model**

**Source 1:** A1, A2, A3, B4

**Source 2:** E1, F7

### Contamination category

**Category 3 – assessed as high risk**

**Summary:** The site is less suitable as a main tunnel reception site based on the high potential for contamination to have occurred from the onsite sewage works/pumping station (ie, from waste materials’ impact on soils and shallow groundwater) and from offsite activities to have impacted shallow groundwater, which may have migrated beneath the site. The identified sources of contamination may impact on site workers and adjacent human receptors through direct contact/vapour inhalation exposure pathways.

### Notes:

1. From BGS Geological Model, giving average ground condition profile. Local near surface conditions may vary, particularly within the river.

2. Soil information for urban areas is based on fewer observations than elsewhere in the country. Therefore, a worst case vulnerability (H) is assumed until proven otherwise.

3. Refer to schematic Conceptual Site Model for explanation of site-specific source-pathway-receptors.
Contacts

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Call: 0303 444 5000
Visit: http://infrastructure.planningportal.gov.uk