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
C05XD

Boat repair, off Putney Embankment
THAMES TUNNEL

SITE SUITABILITY REPORT C05XD

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

1.1 Purpose and structure of the report

1.1.1 The Site Selection Methodology Paper (May 2009) (paragraphs 2.3.29 - 2.3.34) outlines the process to be used to create the preferred list of shaft 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, but they depend on the relevance to the site and professional judgement made in the assessments.

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 - Sources of Information, and this level of information is considered to be appropriate to the current stage.

1.1.3 The Background Technical Paper provides information on the requirements for different site types, 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. 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). This is considered in the Preferred Scheme Report.

1.2 Background

1.2.1 The process for selecting sites is set out in the Site Selection Methodology (May 2009) paper. All sites have previously passed through the following parts of Stage 1:

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

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 shaft (and CSO) sites - site data, site visits, site suitability reports, engineering options report and optioneering workshops that will result in the Preferred Scheme Report.

1.3 Consultation

1.3.1 The Thames Water project team held meetings with London local authorities, statutory and other stakeholders to review the provisional short list of shaft and CSO sites. All general and site specific comments can be found in a separate report titled Consultation on the Short List of Sites: Consultation Feedback Report. These comments were considered to help determine the final short list of sites, but they were also considered at the optioneering workshops.

1.3.2 Further meetings were held with London local authorities, statutory and other stakeholders between January and March 2010. Comments are included in this report.
2 SITE INFORMATION

2.1 Site and surroundings

2.1.1 This site is one of the shortlisted sites for West Putney Storm Relief CSO. 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 site is used by a small business for boat repairs and by the Wandsworth, Chelsea and Fulham Sea Cadet Unit. It is located in the London Borough of Wandsworth, close to its boundary with the London Borough of Richmond upon Thames. The site is roughly rectangular in shape and is located at a minimum distance of 30m to the river. Existing road access to the site is from the Embankment via a series of residential routes. The site can be partially viewed from Ashlone Road and from the Thames Path footbridge across Beverley Brook Wharf. A site location plan is attached as Appendix 2.

2.1.3 The surrounding area is characterised by large expanses of protected public open space, river-based sports and leisure facilities and, set at a distance, residential properties. The site is bounded to the east by the Thames Path and River Thames, and to the north and west by Beverley Brook. The Putney Embankment is adjacent to the east and there is a footbridge over the Beverley Brook, opposite the site to the north, forming part of the Thames Path. Further north of the site is an existing Scout hut, located approximately 59 metres away. Further west are the Barn Elms School Sports Centre playing fields. Along the southern boundaries of the site is Leaders Gardens, an area of protected open space which includes children’s play facilities, a sculpture, open space and tennis courts. To the east of the site, across the River Thames, is Bishops Park recreation ground, located in the London Borough of Hammersmith and Fulham.

2.1.4 The nearest residential properties, located in Stockhurst Close, are set approximately 73 metres from the site. These properties are a mix of two-storey terraced dwellings and three-storey flats, separated from the site by dense vegetation which lines Beverley Brook. The site is covered by a number of designated areas under the Wandsworth Unitary Development Plan, the Consolidated London Plan and the London Borough of Richmond upon Thames Unitary Development Plan, including the Thames Policy Area, Putney Embankment Policy Area, an Archaeological Priority Area and Putney Embankment Conservation Area. All the mapped designations are shown on the planning and environment plans in Appendix 3.

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

2.1.6 There is road access to the site off Putney Embankment (via Ashlone Road). There is no rail network local to the site. There are no existing wharfage/jetty facilities at the site - the site is about 20m from the river, separated by the Embankment. A transport plan for the site is attached as Appendix 5.

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

- Beverley Brook gas crossing runs to the north of the site
- Mature woodland
- Existing buildings used by small businesses for boat repairs
- Tide barrier on Beverley Brook, adjacent to the site
- River wall.

2.1.8 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.

2.1.9 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 CS05XD is being considered as a CSO site to intercept the West Putney Storm Relief CSO (CS05X).

3 PROPOSED USE OF SITE – CONSTRUCTION PHASE

3.1.1 The proposed construction phase layouts for the CSO site 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:

- the layout as a CSO site
- 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 Photographs of typical activities associated with the CSO site construction phase are provided in Appendix 7. Potential above ground construction features include:

- approximately 3m high hoarding around the site boundary
- welfare facilities, temporary structures, approximately 3m high
- grout plant, approximately 3 to 5m high, including silos
- mobile crane, approximately 30m high (maximum and not for full construction duration).

3.1.5 Preliminary data associated with the construction phase are provided in Table 3.1.

<table>
<thead>
<tr>
<th>Activity</th>
<th>CSO site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of construction period</td>
<td>0.5 to 2 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>

*There may be feasible opportunities to use barge transport for this site.

4 PROPOSED USE OF SITE – OPERATIONAL PHASE

4.1 Introduction

4.1.1 The indicative operational phase layout for the CSO site is located in Appendix 8 – Operational Phase Layout, and is 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 CSO sites.

4.1.3 The above ground infrastructure at this site is likely to comprise a ventilation column 10m high and 3m diameter, a ventilation building 5m x 15m x 5m high and a 20m x 10m top

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*a It was anticipated that the ventilation column at shafts sites would be 10m high when the assessment in this report was undertaken. Although this was subsequently changed to 15m high, the assessment was not revised as it was considered that the difference would not change any discipline’s conclusion on the suitability of the site.
structure with openings. The top structure is to provide access and egress into the main shaft and flap valve chamber.

4.1.4 The top structures are envisaged to be finished at a level of 107m\(^b\) tunnel datum (TD) (7mAOD), and since the ground level mean value at this site is 104mTD (4mAOD), the top structures would be raised to approximately 3m above the current ground level. For further information on the generic layout of this top structure, refer to Appendix 8.

4.1.5 A hardstanding would be provided to the top structures. The site would not be fenced.

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

| Level of inspections and maintenance and likely working hours, ie. (night/day/weekend) - frequency of visits | 1 daytime visit every six months for electrical/instrument inspection. An additional 1 week maintenance period for tunnel/shaft inspection required per 10 years that could be night/day/weekend working. |
| No of traffic movements | 1 van visit every six months. An additional 1 week period of 2 to 10 movements per day (estimated several vans and 2 cranes) every 10 years. |

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 There would be road access to the site directly off Embankment. The site is 1.9km from the South Circular Road (A205). The shortest route to the A205 would pass over a bridge which is subject to a weight restriction of 16T. An alternative longer route (B349 and A306) to the site would avoid this bridge.

5.1.3 For the construction phase, a through-access would be provided, with both access and egress on Embankment (access via Ashlone Road).

5.1.4 For the operational phase, the access would be directly off Embankment.

Rail

5.1.5 There is no rail network local to this site. Putney railway and Putney Bridge tube station are approximately 1.5km away from the site. However, rail access is not considered to be a significant factor for CSO sites.

\(^b\) It was anticipated that the elevation of top structures at both CSO and shaft sites would be finished at 107mTD when the assessment in this report was undertaken. Although this was subsequently changed to 104.5mTD, the assessment was not revised as it was considered that the difference would not change any discipline’s conclusion on the suitability of the site.
River

5.1.6 River access and jetty/wharfage facilities are not a requirement for CSO sites. However, as the site is close to the river (about 20m, separated by Embankment), there may be feasible opportunities to use barge transport.

5.2 Construction works considerations

5.2.1 The site is currently occupied by a small business building used for boat repairs and a Sea Cadet HQ. Demolition of these would be required.

5.2.2 Data available on third-party assets and significant utilities show that the main items of concern in this area are the tide barrier in Beverley Brook, the National Grid Beverley Brook gas main which runs to the north of the site, and the river wall (including within Beverley Brook). Construction methods would be adopted, as appropriate, to mitigate potential settlement of these assets.

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

5.2.4 The interception chamber and connection culvert to the drop shaft would be outside the site boundary. It is envisaged that the connection culvert would be approximately 40m long and would cross Beverley Brook.

5.3 Permanent works considerations

5.3.1 The top structures to the drop shaft and flap valve chamber would be 2m above ground level.

5.4 Health and safety

5.4.1 There are no 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 Wandsworth online planning applications database did not identify any planning applications submitted within the last five years applicable to the site.

6.3 Planning context

6.3.1 The following provides a summary of the relevant local planning policies and designations affecting the site. They are taken from the saved policies of the Wandsworth Unitary Development Plan, adopted August 2003, and the Consolidated London Plan, adopted February 2008. Policies are also referred to from the London Borough of Richmond upon Thames Unitary Development Plan (First Review), which was adopted on 1 March 2005 and saved beyond 2008.

6.3.2 The following London Borough of Wandsworth policies are of interest:
6.3.3 **R1 and R2, Thames Policy Area** – the site is located within a Thames Policy Area. Policy R1 states that within the Wandsworth Thames Policy Area, outside the Industrial Employment Areas, Metropolitan Open Land, Putney Embankment Area and the safeguarded wharves, development of sites of 0.5 ha and over will only be permitted if it includes a mix of uses. Policy R2 states that development of sites on the Thames riverside within the WTPA, defined on the proposals map, will not be permitted unless certain provisions and alternative arrangements are made for routes and accesses.

6.3.4 **R14, Putney Embankment Policy Area** – the site is located within the Putney Embankment Policy Area. Policy R14 protects from development that would result in loss of river-based uses and facilities or have a detrimental impact upon the historical character of the area for river sports.

6.3.5 **TBE14 and TBE15, Archaeology Priority Area** – the site is located wholly within a designated Archaeology Priority Area. Policies TBE14 and TEB15 require provision for archaeological investigation, evaluation and, where applicable, preservation in situ or excavation of remains.

6.3.6 **TBE10 and TBE11, Conservation Area** – the site is also wholly located within the Putney Embankment Conservation Area. Policies TBE10 and TBE11 do not permit development if it would harm the character, appearance or setting of a conservation area or fail to respect the grain of the area, and also restrict development involving demolition.

6.3.7 Areas of Quality Rating and Quality of Supply are located to the south (Leaders Gardens) and east (River Thames) of the site. Leaders Gardens is also an area of Public Open Space and Play Equipment. Public Open Space is covered by Policies ON1, ON2 and ON3, which restrict development leading to loss of open space (or part of open space), allotments, and related environmental and recreational functions. Policy LR1, Play Equipment, does not permit development involving the loss of children’s play facilities unless the council has identified no need for the facilities, or the use gives rise to harm to residential or other amenity and there is an identified need, with the site appropriately relocated.

6.3.8 Policy ON7, Green Chains and Links – Green Chains and links run along the southern boundary of the site in-between the Richmond upon Thames and Wandsworth borough boundaries along Beverly Brook. Policy ON7 resists development proposals that would “harm the open nature of any open land, which could contribute to a Green Chain, or links between open spaces, especially between areas of Metropolitan Open Land, and where they would form strategic links with adjoining boroughs”.

6.3.9 The nearest residential properties lie 73m to the south, on Stockhurst Close.

6.3.10 Policy GEN12, Housing, states that in determining proposals for development, the council will seek to protect and enhance the character and amenity of residential areas.

6.3.11 The London Borough of Richmond upon Thames is adjacent to the north of the site and contains the CSO to be intercepted. The following policies are therefore of interest:

6.3.12 **ENV 26, Thames Policy Area** – the area of Richmond to the north of the site is situated within a Thames Policy Area and is subject to Policy ENV 26, which provides that the council will seek to protect and enhance the special character of the Thames by protecting views and vistas including the individual reaches, ensuring development is of an appropriate scale and design quality that respects and makes best use of the river frontage.

6.3.13 **ENV 18, Sites of Special Scientific Interest and Other Sites of Nature Importance** – the River Thames is designated as an SNCI. Policy ENV 18 states that proposals which may have an adverse effect will not be permitted. Developers may be required to show that their proposals will not affect these areas by way of built form, noise, air pollution, light pollution, surface runoff of water, water quality, changes in level, landscaping and other factors, including those raised in the Local Biodiversity Action Plan.

6.3.14 **ENV 11, Retention and Improvement of Public Open Space**, states the council will resist the loss of Public Open Space (POS), and endeavour to increase the enjoyment and visual quality of POS through a high standard of design and by improving access and facilities. The area of Richmond to the north of the site includes the Barn Elms towpath – an area of POS.
6.3.15 Archaeological Priority Area – Barnes Common lies to the west of the site within Richmond. The following two policies are applicable to this designation:

6.3.16 BLT 8, *Evaluation of Archaeological Sites*, states the council will require early discussion with developers and specialist bodies, as well as an archaeological field evaluation on sites proposed for development that may affect archaeological remains, or areas identified for their archaeological potential.

6.3.17 BLT 9, *Development of Archaeological Sites*, requires that in cases where development will affect sites of archaeological importance, the applicant ensures provision, including funding, for "the remains to be preserved in situ, or in exceptional cases where preservation in situ is not appropriate or feasible, excavated and recorded".

6.3.18 ENV 1, *Metropolitan Open Land* – the area to the north of the site within Richmond includes the Thames Barn Elms and Barn Elms areas of Metropolitan Open Land. Under Policy ENV1, there is a presumption against development that is incompatible with the openness of the Metropolitan Open Land. In considering development within MOL, the council will take into consideration the visual impact on the character of the open land.

### 6.4 Consultation comments

6.4.1 A series of consultations on the shortlisted sites were held with London local authorities, statutory and other pan-London stakeholders during July to September 2009 and January to March 2010. This section summarises factual comments that have been made by consultees, and which have informed the SSR assessments.

**London Borough of Wandsworth**

6.4.2 The council stated that there is currently a small commercial boatyard, Chas Newens Marine, on the site. The boatyard is privately owned and operated. The footpath links into Putney Common. The site is located within a conservation area and the local Scouts/ Sea Cadets facilities are safeguarded under community use policies.

**English Heritage**

6.4.3 No comment.

**Environment Agency**

6.4.4 No comment.

**Port of London Authority**

6.4.5 No comment.

**Transport for London**

6.4.6 No comment.

**Other statutory consultees**

6.4.7 No comment.

### 6.5 Planning comments

6.5.1 A number of planning designations are applicable both on and adjacent to the site. These designations have been identified and described in Section 6.3 and of these designations, those relating to archaeology, conservation areas, and the Thames and Putney Embankment Policy areas are of most relevance to the proposed development.

6.5.2 The site falls within a designated archaeology important area. The appropriate level of site investigation should be agreed with the LPA in accordance with policies TBE 14 and TBE
15 of the Wandsworth UDP and policies BL8 and BL9 of the Richmond UDP. Further appraisal of the archaeological potential on the site is provided in Section 7.

6.5.3 The construction site may have an impact on the existing setting of the Putney Embankment Conservation Area, and potentially upon the Bishops Park Conservation Area on the opposite side of the river. Suitable mitigation should reduce some of the potential impacts on appearance and setting; however, it may be more difficult to mitigate against the likely loss of mature trees which heavily surround the site. The loss of trees should be minimised wherever practically possible, and the degree of impact on setting which may be caused by the loss of trees will be an important consideration under Conservation Area policies TBE10 and TBE11. Further heritage considerations are included in Section 7.

6.5.4 The site is located within the Putney Embankment and Thames Policy areas. Both designations seek to protect and enhance riverside sites as well as protect from development that would result in loss of river-based uses or have a detrimental impact upon the historical riverside character. Use of the site would result in the loss of the Sea Cadet facility and would therefore conflict with policies R1, R2 and R14. It is likely that the reparation of any lost facilities would be required within the immediate vicinity. However, consideration will also need to be given to the continued operation of river sports more generally within the surrounding area, and potential mitigation measures to ensure these uses can continue and coexist during the temporary construction works. This may also be important, given that the adjacent Barn Elms site has also been identified for use as a potential major shaft site.

6.5.5 The proposal site is adjacent to the River Thames, a designated Site of Importance for Nature Conservation. This is a general designation, covering the entire River Thames. The purpose of Thames Tunnel Project is to improve the overall environmental condition of the river which, among other gains, will promote biodiversity. Construction activity adjacent to the river, with the appropriate level of mitigation, is considered unlikely to adversely impact upon or conflict with the aims of this designation. However, a fuller assessment of the likely impact on the immediate location is included in Section 7.

6.5.6 The proposal site should not obstruct or impede the Green Chain and Links designation and would therefore not conflict with Policy ON7. It is also considered that, with appropriate mitigation, the proposal should not obstruct or impede an existing river walkway, which would otherwise conflict with Policy TRN 10.

6.5.7 Impacts on the other identified adjacent planning designations are likely to be limited, as well as potential impacts on residential amenity, given the separation distance of 73 metres to the nearest property. The site is well screened with dense vegetation and tree coverage along its boundaries, and therefore should not have an unacceptable impact on views or the surrounding landscape character. The construction works themselves and remaining top structures should also not result in overly prominent development in this location, although the legacy structures should be carefully designed to ensure they are sympathetic to this location and well integrated into the surrounding area.

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 less suitable as a CSO site, as to achieve highway access, significant amounts of residential on-street parking along Putney Embankment and Festing Road would require removal to provide passing places for construction vehicles. If this cannot be achieved, then the site is likely to be unsuitable for HGVs. The route to access rail encounters similar constraints to the TLRN access route; however, rail transport is unlikely to be feasible for the small volumes of excavated material produced by the site.
7.2.2 The site is less suitable for public transport access, and parking for vehicles within the site boundary or in the vicinity is unavailable or inadequate. Parking for the workforce would potentially need to be provided nearby.

7.3 **Archaeology**

7.3.1 On the basis of the information currently available, this site is considered to be less suitable as a CSO site.

7.3.2 Owing to a lack of previous investigations in the area, the nature and extent of archaeological receptors cannot be confidently identified at this stage. However, on the basis of the information available (which includes recordings of an Iron Age settlement circa 50m north of the site and Neolithic find spots in the locality), it is possible that archaeological receptors of potentially high or medium value may be present within this site.

7.3.3 Peat deposits containing archaeological material have been commonly recorded throughout London in a similar proximity to the Thames. While no direct evidence has been revealed, given the location of the site and wider evidence for historical occupation along the river, it is a reasonable assumption to suggest that waterlogged remains and peat deposits of high or medium value may be present.

7.4 **Built heritage and townscape**

7.4.1 In terms of built heritage, this site is considered to be less suitable as a CSO site, primarily because it is located within the Putney Embankment Conservation Area and would require the demolition of the building that exists on the site. This would require a detailed assessment to determine the acceptability of demolition, which is likely to depend upon the contribution that the building makes and the potential for the scheme design to make a positive contribution to the conservation area. Where the building proposed for demolition is not listed, it is less likely that the scheme would result in demolition of a historic building that makes a positive contribution to the area. The site also has the potential to impact upon Bishop’s Park Conservation Area, also a Registered Historic Park and Garden located on the opposite bank of the River Thames, although these impacts could be mitigated against through a high-quality scheme design and/or screening.

7.4.2 In terms of townscape, the site is considered suitable as a CSO site. Although the site would potentially adversely impact the character of the river frontage (especially during construction), in the long-term, there is potential for enhancement.

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

7.5.1 In terms of hydrogeology, this site is considered to be suitable as a CSO site because the drop shaft is to be constructed in London Clay (non-aquifer) and no impact on the Chalk aquifer is expected. The Chalk piezometric head is likely to be approximately 2.6m above the base of construction and should be taken into account in the engineering design. The superficial deposits at the site comprise alluvium, classified as a minor aquifer, which is likely to be the subject of limited impacts on flow due to sheet piling.

7.5.2 In respect of surface water resources, this site is less suitable because it is located directly adjacent to Beverley Brook, and there is a direct pathway for pollution from the site to Beverley Brook and to the River Thames via Beverley Brook. As such, specific mitigation would be required to prevent pollution.

7.6 **Ecology**

7.6.1 Overall, and on the basis of the current information available, relatively few ecological constraints have been identified and the site is considered to be suitable.

7.6.2 This site may require a survey to confirm the presence or absence of bats from the buildings which would be affected, and careful work practices to minimise impacts on surrounding habitats. Invasive Japanese knotweed is known to occur near the mouth of Beverley Brook and may require treatment prior to construction.
7.7 **Flood risk**

7.7.1 In respect of flood risk, the site is less suitable as a CSO site due to its location adjacent to Beverley Brook and the River Thames, and riverside of the tidal defences. This means that the site is at a higher risk of flooding from a combined fluvial/tidal event. The site would require specific mitigation from flooding.

7.8 **Air quality**

7.8.1 This site is considered suitable for use as a CSO site from an air quality perspective. There is a low potential for fugitive emissions of dust during construction to have a perceptible impact at residential receptors closest to the site and 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; however, this can be reduced by minimising the movement of HGVs during peak hours.

7.9 **Noise**

7.9.1 Based on the information currently available, the site is considered to be suitable as a CSO site, due to the relatively large separation distances between the site and the closest sensitive receptors. However, the number of vehicles associated with the construction phase and their access routes (through residential streets) has the potential to cause disturbance to properties along these routes.

7.10 **Land quality**

7.10.1 The site is less suitable as a CSO site, based on the moderate potential for contamination of the site to have occurred, specifically from the use of the site as a works depot.

7.10.2 This may potentially have an impact on site workers and adjacent human receptors through direct contact exposure pathways and, to a lesser extent, volatilisation.

8 **SOCIO-ECONOMIC AND COMMUNITY ASSESSMENT**

8.1 **Socio-economic profile**

8.1.1 A summary of population statistics from the 2001 Census for the Thamesfield ward in the London Borough of Wandsworth are presented below and compared with population averages for London and England as a whole:

- Higher rate of full-time employees and self-employed people, which coincides with a lower proportion of unemployed people
- Higher rate of employment in management, professional occupations and associated technical occupations
- Substantially higher proportion of people educated to Level 4/5 (degree level) than the national or London average
- Higher proportion of people aged between 25 and 44.

8.1.2 Overall, this community profile suggests that the population is mainly young professionals.

8.2 **Issues and impacts**

8.2.1 The greatest impact from a community perspective is likely to be on the Sea Cadet premises on the site. The potential loss of these facilities would impact on the young people and the adult volunteers using the centre.

8.2.2 The site is also a boat repair yard and there will be an impact on this business.

8.2.3 The site is adjacent to Leaders Gardens to the south. The nearest residential properties, located in Stockhurst Close, are set approximately 73 metres from the site. These properties are a mix of two-storey terraced dwellings and three-storey flats, separated from
the site by dense vegetation which lines Beverley Brook. To the west is the Barn Elms School Sports Centre and outdoor recreation facilities. The noise from the use of the site may cause disturbance to users of the gardens, local residents and outdoor sport facilities.

8.2.4 The Putney Embankment is adjacent to the site to the east and there is a footbridge over Beverley Brook, opposite the site to the north, as part of the Thames Path. This is mentioned in several London walking guides and is likely to be a popular route, especially during boat races on the river, including the annual Oxford-Cambridge boat race along the Thames which starts at Putney Bridge and passes by the site. The use of the site is likely to impact on the noise levels and traffic levels along the embankment and may have some effect on local users.

9 PROPERTY ASSESSMENT

9.1 Introduction

9.1.1 The site is used by a small business for boat repairs and by the Wandsworth, Chelsea and Fulham Sea Cadet Unit.

9.2 Crown Land and Special Land comments

9.2.1 The freehold is owned by the London Borough of Wandsworth and let under several leases, although the exact detail and number of interests is unclear. The land may be classified as Special Land under sections 16 and 17 of the Acquisition of Land Act 1981. If this is the case, and if an acquisition cannot be agreed with the freeholder, a Ministerial procedure may be needed after the Order is confirmed. As the whole Order would be subject to the Ministerial procedure, not just this site, the project could be delayed by a minimum period of several months in the best case. In the worst case, the Order might be rejected by the Minister, in which case an Act of Parliament would be needed before the Order could come into effect. This could delay the project for a much longer period and even result in the Order failing.

9.2.2 Until discussions have taken place with the freeholder, it is not known if the acquisition will be agreed. Therefore, there is a risk that if the freeholder will not co-operate, the whole project could be significantly delayed or even stopped by the special parliamentary procedure. It would therefore be advisable to discuss the acquisition with the freeholder at an early stage and seek agreement.

9.3 Land to be acquired

9.3.1 The compensation assessment assumes that the worksite and access to it may need to 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 will need to be acquired permanently.

9.3.2 The permanent area required for the operational phase would measure approximately 12m by 20m and will need access rights from the public highway. Rights may be required in respect of the connecting culvert from the sewer intercept in Beverley Brook.

9.3.3 The site is currently accessible from Putney Embankment and Ashlone Road, and no rights of way or easements have been included in the assessment of the site acquisition cost.

9.4 Property valuation comments

9.4.1 Compensation for the acquisition of new rights is normally based on the diminution in value to the land caused by the acquisition. Compensation for the permanent acquisition of land is normally based on market value. The market value for the land on this site is likely to be acceptable.

9.4.2 If compensation is assessed on a diminution in value basis for the new rights (temporary occupation during works, access rights during works, access rights for operational
purposes) and on a market value basis for the permanent acquisition, the costs are likely to be relatively low and therefore acceptable.

9.4.3 Most, if not all, of the existing buildings would be demolished to enable use of the site during the construction phase. If compensation is assessed on an equivalent reinstatement basis, then the acquisition costs would be significantly higher but may still be within acceptable limits.

9.5 Disturbance compensation comments

9.5.1 This site is likely to give cause to disturbance compensation claims from tenants of the site, who may need relocating or be entitled to extinguishment of business compensation. The boat yard operating onsite is used in conjunction with a larger business operation, based through a shop on Putney Embankment. It is therefore envisaged that extinguishment may not be appropriate, although there will be temporary interruption to the business.

9.5.2 The Sea Cadets may need temporary relocation, perhaps within the adjacent park, during the construction phase, on the basis that they could return on completion of the works.

9.6 Offsite statutory compensation comments

9.6.1 There are unlikely to be any offsite statutory compensation claims under Part 1 of the Land Compensation Act 1973, but this depends on the operations undertaken on the site.

9.6.2 The risk of claims arising under Section 10 of the Compulsory Purchase Act 1973 is considered to be low, provided access is maintained to premises along Putney Embankment during the works.

9.7 Site acquisition cost assessment

9.7.1 The acquisition cost for this site is likely 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 on whether the site moves forward as one of the preferred sites or not.

10.2 Engineering

10.2.1 This site is suitable as a CSO site because it would be of adequate size and would have some level of vehicular access. It would be in close proximity to the river and the assumed alignment of the main tunnel. However, the interception chamber and connection culvert would be outside the site boundary and the connecting culvert would need to cross Beverley Brook. There would also be a requirement for demolition.

10.3 Planning

10.3.1 On balance, this site is considered suitable for use as a CSO site.

10.3.2 It is considered that, with appropriate mitigation measures, the designations affecting the site should not be unacceptably impacted upon. However, further consideration may need to be given to the temporary provision of the Sea Cadets premises and any other river-based recreation facilities currently operating from the site.

10.3.3 The proposal site is unlikely to impact upon residential amenity and should not result in unduly prominent development within the vicinity. The impact on character and appearance of the conservation area, particularly resulting from the loss of trees which currently surround the site, will also require further assessment.
10.4 Environment

10.4.1 Overall, the site is considered to be less suitable as a CSO site.

10.4.2 The site is considered suitable from the perspectives of hydrogeology, ecology, air quality, noise and townscape.

10.4.3 The site is considered less suitable from the perspective of archaeology, built heritage, transport, surface water resources, land quality and flood risk.

10.4.4 Overall, the site is considered less suitable and further investigation will be required as to whether archaeology, built heritage, transport, surface water resources, land quality and flood risk impacts could all be adequately mitigated. Likely mitigation considerations would include:

- Archaeology – there is potential for high or medium value archaeology within the site and as such further investigation would be required.
- Built heritage – further investigation to determine the acceptability of the demolition of a building in a conservation area, which is likely to depend upon the contribution that the building makes and the potential for the scheme design to make a positive contribution to the conservation area, as well as impact on the trees.
- Transport – further investigation into the likely feasibility and acceptability of removing significant amounts of residential on-street parking along Putney Embankment and Festing Road to provide passing places for construction vehicles. Identification of an acceptable means of site access for the workforce, given the poor public transport and shortfall of parking spaces.
- Flood risk and surface water – mitigation to reduce flood risk to the worksite and specific mitigation to prevent pollution of Beverley Brook and the River Thames.
- Land quality – any required remediation of contamination (at this moderate 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 is considered less suitable from a community impacts perspective. The greatest impact is likely to be on the Sea Cadet premises on the site. The potential loss of these facilities will impact directly on people using and working in the centre. The use of the site may result in the loss of a boat repair yard, which is likely to impact on the business directly. Mitigation measures are likely to involve discussions around relocation, reprovision or compensation, but the approach would depend on the property negotiations.

10.5.2 There may also be impacts in terms of noise disturbance to the adjacent Leaders Gardens, the residential properties and the sports centre opposite the site. The Thames Path adjacent to the site may be affected by noise levels from the site. Mitigation may involve noise reduction measures and potentially limiting site working hours.

10.6 Property

10.6.1 This site is considered suitable for a CSO site. The acquisition costs are likely to be acceptable, although compensation claims for disturbance may arise.

10.6.2 It is recommended that discussions with the site owner are started as soon as possible. It is also recommended that the layout of the permanent works is redesigned in order to return as much as possible of the property to the existing business and the Sea Cadets on completion.
APPENDIX 1 – SOURCES OF INFORMATION

Engineering
- Traffic Management and Access Roads/Rail – Scott Wilson
- Access River – BMT
- Third Parties (Shafts/CSOs) – Mott MacDonald and AECOM
- Geology – Thames Water
- Utilities – Thames Water and AECOM
- Construction and Operational Layout Template – London Tideway Tunnels.
- Background Technical Paper – London Tideway Tunnels

Planning
- London Borough of Wandsworth online planning applications database
- Saved policies in the London Borough of Richmond upon Thames Unitary Development Plan (First Review), which was adopted on 1 March 2005 and saved beyond 2008

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

Built heritage and townscape
- Wandsworth List of Locally Listed Buildings
- National Monuments Record - for some additional information regarding registered historic parks and gardens
- Unitary development plans
- Local authority websites
- Bing maps
Water resources – hydrogeology and surface water

- Environment Agency abstraction licence details
- Environment Agency groundwater levels
- Local Authority details of unlicensed abstractors
- Envirocheck

Ecology

- Richmond upon Thames Habitat Action Plan for the Tidal Thames
- Multi-Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk - statutory designated sites
- London Wildweb - http://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.natureontheemap.org.uk
- Priority habitats and species on national and local scales - www.ukbap.org.uk

Flood risk

- Envirocheck

Air quality

- Local Authority websites
  - www.londonair.org.uk/london/asp/default.asp?la_id=&showbulletins=&width=1680
  - http://www.airquality.co.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
Socio-economic and community

- Statistics from the Office of National Statistics 2001 Census data
- Wandsworth, Chelsea & Fulham Sea Cadets [link]
- Site visit: Sign for CHAS NEWENS MARINE CO LTD, who have a registered office 500m south on Putney Embankment.
- Leaders Gardens [link]
- Hounslow LSP [link]
- Leaders Gardens [link]
- Putney Walking Guides [link]
- [link]
- The Boat Race [link]

Property

- Site visit
- Promap, Ordnance Survey and A-Z mapping
- Multimap/Google Earth aerial/satellite photographs
- Mouchel referencing
- VOA website
APPENDIX 2 – SITE LOCATION PLAN
APPENDIX 3 – PLANNING AND ENVIRONMENT PLANS
APPENDIX 4 – PHOTOGRAPHS OF THE SITE AND SURROUNDINGS
View of the site at the current entrance on Ashlone Road, looking northwest across the site.

View looking north along Embankment, with the buildings currently occupying the site in the left of the picture.
View of the site from the entrance to the tide barrier on Beverley Brook path, looking east towards the site.
APPENDIX 5 – TRANSPORT PLAN
Residential area
On-street parking
On-street parking

Local Authority Boundary
Short Listed CSO Sites
CSO (Directly Controlled)
Transport Access Routes
TFL Road Network
Thames Path
London Cycle Routes

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Map Ref: 101PL-S5-00762
Date: 2009/11/19
Projection: British National Grid

Thames Water Utilities
MAJOR PROJECTS

The Point, 7th Floor, 31 North Wharf Road, Paddington, London W2 1AF

Title:
APPENDIX 5
C05XD SITE
TRANSPORT PLAN
APPENDIX 6 – SERVICES AND GEOLOGY PLAN
APPENDIX 7 – CONSTRUCTION PHASE LAYOUT
APPENDIX 8 – OPERATIONAL PHASE LAYOUT
NOTE:
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 VENTILLATION 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>Transport</th>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to road network</td>
<td>Site will make use of existing access onto Ashlone Road which is a no through road forming a junction with Embankment approximately 15m to the north. The proposed access point is close to a pedestrian access for Leaders Gardens to the south, and on street parking along Embankment. Ashlone Road and Embankment are subject to 30mph speed limits and are street lit. Ashlone Road has a carriageway width of 8m. Embankment has a carriageway width of 7.8m and contains on street parking (reducing effective carriageway width to 4m). Achievable visibility out of the site access along Ashlone Road is 10m to the south (end of road) and 30m to the north (junction with Embankment). Access to the A205 (TLRN strategic highway network) from Ashlone Road onto Embankment, then along Festing Road, to Lower Richmond Road (becoming Mill Hill Road) and Rocks Lane (A306). This route avoids traffic calming along Queens Ride. Access to the A205 (TLRN strategic highway network) runs through a residential area and is restricted by parked vehicles on both road sides of Embankment (reducing effective carriageway width to 4m) and Festing Road (reducing effective carriageway width to 3.6m). There are no visible restrictions over railway bridge on Rocks Lane. Distance to TLRN 2.2km from site.</td>
<td>Signs warning pedestrians of the possible presence of HGVs using the site access on Ashlone Road / Warnings to construction vehicles using the site access of nearby pedestrians to minimise conflicts between construction traffic and pedestrians. Conclusion: Road access suitable as site will make use of an existing access on Ashlone Road. Access route to the TLRN (A205) will use Embankment and Festing Road which have narrow effective carriageway widths of 4m and 3.6m respectively due to on street parking on both sides. Selective on street parking should be removed to provide passing places for construction vehicles.</td>
<td></td>
</tr>
</tbody>
</table>
## Transport

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to river</td>
<td>River access not required for CSO site. Excavated material will be transported to a main site by road.</td>
<td>River access not required as excavated material will be transported away 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 by a CSO site. Access to railway sidings at Clapham Junction uses the same route to the TLRN (A205); proceeding eastwards along the A205 then onto Putney High Street and Putney Bridge Road. Putney Bridge Road avoids the two 15’0” height restricted rail bridges on the A205. The route continues along the A3, A217, onto York Road and along Plough Road. On return, the A3 is used towards the roundabout with the A219 to avoid the 15’0” height restricted bridge on Upper Richmond Road. The route runs through a high street area, and over and under several bridges (with no visible restrictions) in addition to the constraints already identified upon accessing the TLRN. Access to rail taken off York Way (A3205) onto Plough Road for Clapham Junction, Traincare Depot railway sidings. Distance 8.3km to rail access point from CSO site.</td>
<td>Route to possible rail link at Clapham Junction runs through a high street area along York Road and under/over several bridges (with no visible restrictions) in addition to the constraints encountered upon accessing the TLRN (A205). Clapham Junction railway sidings at the Traincare Depot accessible using Plough Road.</td>
</tr>
<tr>
<td>Parking</td>
<td>No parking provision for workforce within the site boundary as there is very limited space available. On street parking is available within vicinity of site but is restricted to permit holders only Mon-Fri 09:30-10:30. Additional parking for workforce will therefore be required.</td>
<td>Parking for vehicles within site boundary unavailable. Alternative parking on street inadequate as for permit holders only Mon-Fri 09:30-10:30. Parking for workforce will therefore need to be provided, most likely along Embankment with a change in the restrictions for existing bays currently for permit holders.</td>
</tr>
<tr>
<td>Transport</td>
<td>Site considerations</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Public transport accessibility</td>
<td>PTAL 1-2, as identified within Table 2.3.</td>
<td>PTAL least suitable. Public transport access issues for workforce.</td>
</tr>
<tr>
<td>Traffic Management</td>
<td>Provision of new parking spaces along Embankment / a change to the restrictions of existing on street parking spaces along Embankment or Festing Road required.</td>
<td>Temporary traffic management in the form of marking out new parking bays along Embankment (if restrictions cannot be changed) and removal of a significant number of spaces along Embankment and Festing Road to create passing places.</td>
</tr>
</tbody>
</table>

**Summary:** The site is less suitable as a CSO site as, to achieve highway access, significant amounts of residential on-street parking along Embankment and Festing Road would require removal to provide passing places for construction vehicles. If this cannot be achieved, then the site is likely to be unsuitable for HGVs. The route to access rail encounters similar constraints to the TLRN access route however rail transport is unlikely to be feasible for the small volumes of excavated material produced by the site.

The site is less suitable for Public transport access, and parking for vehicles within site boundary or in the vicinity is unavailable or inadequate. Parking for workforce would potentially need to be provided nearby.

The site is less suitable for Public transport access and this is significant given that parking for vehicles within site boundary or on roads in the immediate vicinity is unavailable. Parking for workforce will therefore need to be provided nearby.
### 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>Within the Wandsworth Archaeological Priority Area.</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>Summary of historical uses</td>
<td>The site was developed in the late 19th and appears largely unchanged from that date.</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 within the site. In this case an Iron Age settlement is recorded c.50m north of the site and Neolithic findspots are recorded elsewhere in the locality. Peat deposits are also likely in this location.</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 sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Other receptors with the potential to be directly affected</td>
<td>The dewatering of adjacent waterlogged deposits may be an issue considering the close proximity of the site to the Thames.</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>Extent of existing disturbance</td>
<td>There is no evidence of any disturbance within the site. Geotechnical data indicates a 9m thickness of made and superficial ground which may include archaeological material.</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 issues</td>
<td>Detailed design proposals, and an outline method statement will be required to enable initial assessment of development impacts, and to inform mitigation proposals. With the currently available Mitigation methods could include:</td>
<td>Desk based assessment Production of deposits model</td>
</tr>
</tbody>
</table>
### Archaeology

<table>
<thead>
<tr>
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</table>
|                     | information it is not possible to highlight specific potential issues. | • Archaeological monitoring of geotechnical investigations  
• Archaeological evaluation  
• Archaeological watching brief  
• Archaeological excavation |

**Summary:** On the basis of the information currently available this site is considered to be less suitable as a CSO site.

Owing to a lack of previous investigations in the area, the nature and extent of archaeological receptors cannot be confidently identified at this stage. However, on the basis of the information available, which includes recordings of an Iron Age settlement c.50m north of the site and Neolithic findspots in the locality, it is possible that archaeological receptors of potentially high or medium value may be present within this site.

Peat deposits containing archaeological material have been commonly recorded throughout London in a similar proximity to the Thames. While no direct evidence has been revealed, given the location of the site and wider evidence for historical occupation along the river, it is a reasonable assumption to suggest that waterlogged remains and peat deposits of high or medium value may be present.
### Built Heritage and Townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| Designations including Conservation Areas, including trees | Listed Buildings  
There are no statutorily listed buildings within 250m of C05XD.  
Locally Listed Buildings  
Although a Local List is maintained by the borough of Hammersmith and Fulham, this data was not available at this time of this assessment. However, there are no locally listed buildings within 250m of C05XD located within the boroughs of Richmond-upon-Thames or Wandsworth  
Conservation Areas  
Fulham Reach Conservation Area: 230m  
Bishops Park Conservation Area: 115m  
Putney Embankment Conservation Area: 0m (The site is located within this conservation area)  
Registered Historic Parks & Gardens  
Bishops Park, Grade II: 200m  
Locally Listed Parks and Gardens  
There are no Locally Listed Parks or Gardens within 250m of C05XD.  
Protected Views  
King Henry VIII’s Mound, Richmond Park, to St Pauls: 70m | In the case of conservation areas, registered historic parks and gardens, and protected views, a high quality scheme design and adequate screening for the development may be required, as discussed below.  
A detailed desk-based assessment in conjunction with archaeology work will be required to further determine the likely impact of the development and to inform more detailed mitigation proposals.  
On the basis of currently available information (June 2009) and on the basis of certain receptors not being present within 250m of C05XD, mitigation will not be applicable in the case of listed buildings, locally listed buildings and locally listed parks and gardens. |
| Potential receptors of medium to very high importance with the potential to be directly affected | The Putney Embankment Conservation Area is likely to be directly affected as C05XD lies within the boundaries of the designated area. | Mitigation to enhance or preserve the character or appearance of the Putney Embankment Conservation Area will be required. This is likely to require a high quality scheme design and/or screening to |
### Built Heritage and Townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
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<tr>
<td></td>
<td></td>
<td>mitigate against potential adverse impacts upon the designated area. Should the proposal require demolition of buildings within a conservation area, a detailed assessment is likely to be required. The acceptability of demolition is likely to depend upon the contribution that the building makes and the potential for the scheme design to make a positive contribution to the CA. Where the building proposed for demolition is not listed, it is less likely that the scheme would result in demolition of a historic building that makes a positive contribution to the area.</td>
</tr>
<tr>
<td>Other receptors of lesser importance with the potential to be directly 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 indirectly affected</td>
<td>There is the potential for two Conservation Areas (Fulham Reach and Bishops Park Conservation Areas), one Registered Park and Garden (Bishops Park) and one Protected View (King Henry VII’s Mound, Richmond Park, to St Pauls) to be indirectly affected. The Bishops Park Conservation Area is located on the opposite (eastern) bank of the River Thames from C05XD but there are likely to be some views to and from the site and the designated area. Mitigation in the form of a high-quality scheme design and/or screening is therefore likely to be required to reduce any potential visual impact of C05XD upon the conservation area. In contrast, the Fulham Reach Conservation Area is located 230m away from C05XD on the opposite (eastern bank of the River Thames). Over this distance, and with the presence of mature planting on both banks of the River Thames, the development of C05XD is unlikely to result in an</td>
<td></td>
</tr>
<tr>
<td>Site consideraciones</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>----------------------</td>
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<td>-------------------------------------</td>
</tr>
<tr>
<td>Built Heritage and Townscape</td>
<td>indirect visual impact upon the conservation area and mitigation is therefore unlikely to be required. The Bishops Park registered historic park and garden (Grade II) is located 200m from C05XD on the opposite (eastern) bank of the River Thames. From the boundary of the registered area there are likely to be views across the River Thames towards C05XD and therefore mitigation in the form of a high-quality scheme design and/or screening is likely to be required to reduce the visual impact of the site upon this built heritage receptor. The protected view from King Henry VIII’s Mound, Richmond Park, to St Pauls lies 70 m from the site and the vista and its setting is unlikely to be altered by the development at C05XD. Mitigation will therefore not be applicable in relation to this receptor.</td>
<td></td>
</tr>
<tr>
<td>Other receptors of lesser importance with the potential to be indirectly 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 is within Thames Policy Area and Putney Embankment Policy Area. Sensitive site of the Wandsworth Chelsea &amp; Fulham Sea Cadet Headquarters. Barn Elms School Sports Centre to the north, River Thames to the east, and Leaders Gardens and residential properties to the south and south west on Stockhurst Close and Horne Way. The demolition of the building on site would increase openness of the site and surroundings. The</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 river frontage. Removal of building could enhance river frontage. Presence and operation of machinery, materials stores and buildings on site would potentially severely impact character of the river frontage.</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>presence and operation of machinery, materials stores and buildings would potentially result in temporary, adverse direct impacts on the character of the site and temporary, adverse indirect impacts on neighbouring areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential views likely to be affected</td>
<td>Partially open views from the river and from the Thames Path and Beverley Brook Path. Partially interrupted views of the site from surrounding properties in Stockhurst Close and Horne Way and Barn Elms School Sports Centre.</td>
<td>During construction, use of hoardings and appropriate lighting. Design of finished appearance of electrical kiosk and ventilation column to be given careful consideration. Planting to screen permanent plant. Demolition of existing building would be visually significant. Therefore, appropriate design in terms of materials and planting would be important to protect visual amenity.</td>
</tr>
<tr>
<td>Particular considerations on sites where new permanent structures are required</td>
<td>New permanent structures will be constructed and these have the potential to have a direct impact upon the character or appearance of the Putney Embankment Conservation Area. These structures also have the potential to have an indirect impact upon the setting and views to and from one other conservation area (Bishops Park Conservation Area) and one registered historic park and garden (Bishops Park). The potential visual intrusiveness of the new structures upon these built heritage receptors will therefore need to be considered.</td>
<td>Any permanent structures will need to be of a high quality design in order that their visual intrusiveness is minimised; screening may also be required. This would be required so that they preserve or enhance the character or appearance of the Putney Embankment Conservation Area in accordance with planning policy and English Heritage guidance. Similarly, the scheme design and/or screening will also need to preserve or enhance the character or appearance of the Bishops Park Conservation Area, its setting and views to and from it in accordance with planning policy and English Heritage guidance. Similar mitigation will be required to reduce the visual impact of C05XD upon the setting.</td>
</tr>
<tr>
<td>Built Heritage and Townscape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Site considerations</strong></td>
<td><strong>Comments</strong></td>
<td><strong>Mitigation required and conclusions</strong></td>
</tr>
<tr>
<td><strong>Potential issues</strong></td>
<td>There are several built heritage receptors within 250m of C05XD. One conservation area has the potential to experience a direct impact from the development whilst the remaining built heritage receptors within 250m of C05XD are likely to experience an indirect impact. There is likely to be the potential to mitigate any adverse direct and indirect impacts through a high quality scheme design and/or screening.</td>
<td>The scheme design will have to be of a sufficiently high quality and may need to include some screening so that the potential direct and indirect impacts of C05XD upon two Conservation Areas and one registered historic park and garden are mitigated.</td>
</tr>
</tbody>
</table>

**Summary:** In terms of built heritage, this site is considered to be less suitable as a CSO site, primarily because it located within Putney Embankment Conservation Area and would require the demolition of the building that exists on the site. This would require a detailed assessment to determine the acceptability of demolition, which is likely to depend upon the contribution that the building makes and the potential for the scheme design to make a positive contribution to the CA. Where the building proposed for demolition is not listed, it is less likely that the scheme would result in demolition of a historic building that makes a positive contribution to the area. The site also has the potential to impact upon Bishops Park Conservation Area, also a Registered Historic Park & Garden, located on the opposite bank of the River, although these impacts could be mitigated against through a high-quality scheme design and/or screening.

In terms of townscape, the site is considered suitable as a CSO site. Although the site would potentially adversely impact the character of the river frontage especially during construction, in the long-term there is potential for enhancement.
## Water resources - hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| Hydrological conditions (Groundwater and Surface Water) | • Geology (thickness)  
• Superficial Geology and Made Ground (9m)  
• London Clay (42m)  
• Lambeth Group (18m)  
• Thanet sand (9m)  
• Hydrogeology  
• Piezometric Level in Chalk Aquifer: ~ -25mAOD (~30mbgl) from EA Jan 08 water level contouring  
• Groundwater Monitoring Location  
EA Hydrometry Sites:  
• TQ27-336 - approximately 2.38 km south of the site (water levels to Dec 1994)  
• TQ27-159 - approximately 2.59 km southeast of the site (water levels to March 2009)  
| Watercourses | • Immediately adjacent to Beverley Brook, and a few metres from the point of confluence with the River Thames.  
| Source Protection Zones (SPZ) and groundwater users | SPZ  
• Not located in a Source Protection Zone defined by EA  
• EA Licensed Groundwater Abstractions and Details  
No public water supply  
• 3 licensed abstraction borehole within 2km radius  
Licence Numbers:  
1. 28/39/39/0221 (1 borehole),  
2. 28/39/39/0177 (2 borehole)  
Locations:  
1. 325 m northeast of the site (other side of the River Thames)  
2. 1.36 km southwest of the site (other side of the River Thames)  
| A simple volumetric approach has been used to calculate the 400 days travel times 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. 72m  
2. 109m  
As a result, the drop 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>Operator:</td>
<td>1. Fulham Football Club Ltd. 2. Trustees of the Hurlingham Club</td>
<td></td>
</tr>
<tr>
<td>Abstracted Aquifer Unit:</td>
<td>1. Chalk 2. Gravel</td>
<td></td>
</tr>
<tr>
<td>Abstraction Purposes:</td>
<td>1. Industrial, commercial and public service (sports grounds/facilities - spray irrigation) 2. Industrial, commercial and public service (sports grounds/facilities - spray irrigation)</td>
<td></td>
</tr>
<tr>
<td>Abstraction Quantity (annual):</td>
<td>1. 6,500m³ 2. 15,000m³</td>
<td></td>
</tr>
<tr>
<td>• Local Authorities (LA) Unlicenced Groundwater Abstractions and Details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No abstraction borehole within 1km radius inside Hammersmith and Fulham Council</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No abstraction borehole within 1 km radius inside Richmond Upon Thames Council Boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No abstraction borehole within 1 km radius inside Wandsworth Council Boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borehole locations and depths</td>
<td>There are 8 historical records of water wells: 5 deep wells and 3 shallow wells within 1km radius. Depth range: 96.3 – 152.4m. Depth range: 14.6 – 14.8m.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential impacts on surface water features</td>
<td>The site is located adjacent to the River Thames and the Beverley Brook. There is a direct pathway for pollution to the Beverley Brook and to the Thames.</td>
<td>Work needs to be undertaken in consideration of Pollution Prevention Guidelines – PPG1, PPG5 and PPS23.</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 groundwater (resources and quality)</td>
<td>No impact on groundwater at depth is likely since the drop shaft is to be constructed in London Clay (non aquifer). At shallow depth, the drop shaft is located in Alluvium which is classified as a minor aquifer. Impact on shallow aquifer is likely to be limited where water is excluded from the excavation by sheet piling.</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 as groundwater is not impacted.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential issues</td>
<td>Potential upward pressure is expected during construction. Limited impact on flow in shallow aquifer due to sheet piling.</td>
<td>Pressure to be considered as part of geotechnical design.</td>
</tr>
</tbody>
</table>

**Summary:** In terms of hydrogeology, this site is considered to be suitable as a CSO site because the drop shaft is to be constructed in London Clay (non aquifer), and no impact on the Chalk aquifer is expected. The Chalk piezometric head is likely to be approximately 2.6 m above the base of construction and should be taken into account in the engineering design. The superficial deposits at the site comprise Alluvium classified as a minor aquifer, which is likely to be the subject of limited impacts on flow due to sheet piling.

In respect of surface water resources, this site is less suitable because it is located directly adjacent to the Beverley Brook, and there is a direct pathway for pollution from the site to the Beverley Brook, and to the River Thames via the Beverley Brook. As such, specific mitigation would be required to prevent pollution.
<table>
<thead>
<tr>
<th>Ecology (terrestrial and aquatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site considerations</strong></td>
</tr>
<tr>
<td>Statutory designations</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Non-statutory designated wildlife sites</td>
</tr>
<tr>
<td>BAP priority habitats</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Protected or otherwise notable species within the Study Area</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Potential issues</td>
</tr>
</tbody>
</table>
**Ecology (terrestrial and aquatic)**

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>

**Summary:** Overall, and on the basis of the current information available, relatively few ecological constraints have been identified and the site is considered to be suitable.

This site may require a survey to confirm the presence/absence of bats from the buildings which would be affected, and careful work practices to minimise impacts on surrounding habitats. Invasive Japanese knotweed is known to occur near mouth of Beverley Brook and may require treatment prior to construction.
### Flood risk assessment

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flood Risk Zone</strong></td>
<td>The site is located within Flood zone 3 and is at risk of flooding from the Beverley Brook and the River Thames. The site is not defended as it is located riverside of the tidal defences and is therefore at a higher risk of flooding from a combined fluvial/tidal event.</td>
<td>An evacuation plan will be required for this site in the event of a flood and further flood mitigation measures may be required to protect the site from the 1 in 100/200 year flood level and to protect temporary buildings.</td>
</tr>
<tr>
<td><strong>Assessment of conditions for SuDS</strong></td>
<td>Space for surface attenuation SuDS is limited due to site size constraints, hence it would be difficult to attenuate runoff from the site to PPS25 requirements for the duration of construction. Infiltration SuDS are unlikely to be efficient and hence feasible due to the nature of the superficial geology, and this would need to be investigated.</td>
<td></td>
</tr>
<tr>
<td><strong>Potential issues</strong></td>
<td>No further issues identified</td>
<td>No further issues identified</td>
</tr>
</tbody>
</table>

**Summary:** In respect of flood risk, the site is less suitable as a CSO site, due to its location adjacent to the Beverley Brook and the River Thames, and riverside of the tidal defences. This means that the site is at a higher risk of flooding from a combined fluvial/tidal event. The site would require specific mitigation from flooding.
<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Air Quality</td>
<td>The air quality objective for NO₂ is exceeded on major roads in vicinity of site. There is a diffusion tube located at the approximate point the site traffic accesses the A205.</td>
<td>There is a nearby diffusion tube for this site, however it cannot be guaranteed the LA will maintain the monitoring point.</td>
</tr>
<tr>
<td>Sensitive Receptors</td>
<td>There are residential properties along the South Circular (A205) and along the access route from the A205 to the site. There are residential properties within 80m of the proposed site on Stockhurst Road.</td>
<td>There are relevant air quality sensitive receptors present along the route the construction traffic is likely to take.</td>
</tr>
<tr>
<td>Existing traffic issues</td>
<td>The main traffic issue in this area is exhaust emissions along the A205 corridor.</td>
<td>Additional vehicle emissions have a high 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 A205 and the nearest existing data indicates existing exceedance of AQLV.</td>
<td>Collect minimum 6 months diffusion tube data at site access to A205 or other point of access to major road network in case the LA removes their tube.</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 low.</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:** This site is considered suitable for use as a CSO site from an air quality perspective. There is a low potential for fugitive emissions of dust during construction to have a perceptible impact at residential receptors closest to the site, and 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, however this can be reduced by minimising the movement of HGVs during peak hours.
### 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 Horne Way and Stockhurst Close, located to the south and south west of the site. The closest residential properties to the site are likely to experience low daytime and night-time noise levels due to their remoteness from major roads. 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 at a distance of approximately 75m to the south of the site at Stockhurst Close, and at 105m on Horne Way. Further residential properties are located to the South on Festing Road. To the west and northwest of the site are playing fields and to the east of the site, on the other side of the River Thames, is Bishops Park with residential properties beyond on Stevenage Road. Sensitive receptors to the south consist of 3-storey residential dwellings at Stockhurst Close. To the south west there are 6 storey residential flats on Horne Way. There are a number of sensitive receptors adjacent to the site access route which will be considerably affected by HGV traffic, and include Embankment and Festing Road. The Thames Path and other recreational facilities lie adjacent to the site access.</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 on Horne Way and Embankment coupled with more distant road traffic on the A306 and A219, will contribute to the local noise climate in the area of the sensitive receptors.</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 A306 to the west and the A219 to the south east will contribute to the local noise climate in the area of the sensitive receptors. There are no railway lines or significant industrial noise sources evident in the area.</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
| Potential issues | Construction:  
The construction period is estimated at 2 to 3 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 upon the sensitive receptors on Embankment to the south of the site.  
A relatively high number of daily HGV movements are anticipated and this has potential to result in adverse noise impacts upon properties on Embankment and other nearby residential streets.  
Proposed 3m site boundary fencing will provide useful noise mitigation to some plant and construction activities. Situating plant in the northern area of the site would maximise the distance between them and the nearest receptors and minimise the potential disturbance.  
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 75m and it is unlikely that vibration levels will result in minor cosmetic damage or annoyance during shaft sinking. Vibration from tunnelling should be considered on a case by case basis at particular | 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 if practicable. |
## Noise

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensitive locations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With appropriate attenuation (if necessary), there is no reason why noise from the ventilation column and associated permanent structures should result in adverse noise impacts to nearby sensitive receptors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary:** Based on the information currently available, the site is considered to be suitable as a CSO site due to the relatively large separation distances between the site and the closest sensitive receptors. However, the number of vehicles associated with the construction phase and their access route (through residential streets) has the potential to cause disturbance to properties lining the access routes.
# Land Quality

<table>
<thead>
<tr>
<th>Site location</th>
<th>Grid Reference: 523527, 176213</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current site use</td>
<td>Site comprises Sea Cadet HQ, storage area and yard appended to the Sea Cadet Centre, and may function as a boat repair/storage area.</td>
</tr>
<tr>
<td>Topography</td>
<td>Area of site which can be viewed from southern entrance appears to be flat. Edge of site to the north-west comprises wharf wall. Ground rises a gently to the west.</td>
</tr>
<tr>
<td>Field Evidence of Contamination (ie, visual/olfactory)</td>
<td>Evidence suggests that site is boat storage/repair area, possible storage of fuels.</td>
</tr>
<tr>
<td>Current surrounding land use (immediately adjacent to site)</td>
<td>North/Northwest: Beverley Brook (Wharf area and Tide Barrier) at point of confluence with River Thames. East: Putney Embankment Road and the River Thames beyond. South/Southwest: Ashlone Road. Leaders Gardens (protected open space that includes a café and children's play area) and Beverley Brook. Area immediately west of site is informal recreational area within the flood plain.</td>
</tr>
</tbody>
</table>

## Geological and hydrogeological information

<table>
<thead>
<tr>
<th>Geological Strata&lt;sup&gt;3&lt;/sup&gt; (Thickness)</th>
<th>Superficial Geology and Made Ground (9m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• London Clay (42m)</td>
</tr>
<tr>
<td></td>
<td>• Lambeth Group (18m)</td>
</tr>
<tr>
<td></td>
<td>• Thanet sand (9m)</td>
</tr>
<tr>
<td>Underlying aquifer classes (Major/Minor/Non-aquifer)</td>
<td>Non-Aquifer: London Clay</td>
</tr>
<tr>
<td></td>
<td>Minor Aquifer: River Terrace Deposits, Lambeth Group, Thanet Sands</td>
</tr>
<tr>
<td></td>
<td>Major Aquifer: Chalk</td>
</tr>
<tr>
<td>Groundwater vulnerability/Soil classification (High/Intermediate/Low/Not applicable)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>River Terrace Deposits - Minor Aquifer</td>
</tr>
<tr>
<td></td>
<td>High Leaching Potential of Soils (U)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Source Protection Zone details</td>
<td>Not located in a Source Protection Zone defined by EA</td>
</tr>
<tr>
<td>Surface water receptors</td>
<td>Beverly Brook (Immediately to the north)</td>
</tr>
<tr>
<td></td>
<td>River Thames (30-40m northeast)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Site history information and historical potentially contaminating activities (based on mapping data)</th>
<th>Onsite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Open land, 1862-1895</td>
</tr>
<tr>
<td></td>
<td>• Works yard/depot, 1896-1991</td>
</tr>
<tr>
<td></td>
<td>• Wharf (transport support and cargo handling), 1909-present</td>
</tr>
<tr>
<td></td>
<td>• Sea Cadet HQ, 1955-present</td>
</tr>
</tbody>
</table>
## Land Quality

<table>
<thead>
<tr>
<th>Offsite</th>
<th>Wharf, (transport support and cargo handling), (30m southwest), 1920-1972</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numerous electrical substations south to southwest of the site (closest located 80m southwest), 1951-1972</td>
</tr>
<tr>
<td></td>
<td>Tank – contents unspecified, (155m southwest), 1913-1952</td>
</tr>
</tbody>
</table>

### Pollution incidents to controlled waters
- **One**
  - Miscellaneous – Unknown, minor incident (150m east), within River Thames

### Landfill sites
- **None**

### Other waste sites
- **None**

### Registered radioactive substances
- **None**

### Fuel stations/Depots
- **None**

### Contemporary trade entries
- **Three**
  - Domestic cleaning service, inactive, (100m southwest)
  - Stained glass designers and producers, active, (180m south)
  - Laundry equipment manufacturers and suppliers, inactive, (220m southwest)

### 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>Potential site contaminants derived from surface sources (eg, contaminants in made ground)</td>
<td>1) Some potential for made ground from potential filling operations during development 2) Wharf operations (transport support and cargo handling) 3) Works yard/depot</td>
<td>1) Onsite and directly adjacent to site 2) Onsite 3) Onsite</td>
</tr>
<tr>
<td>Potential site contaminants derived from offsite sources and transported to site</td>
<td>1) Wharf operations</td>
<td>1) 30m southwest</td>
</tr>
<tr>
<td>Identified source-pathway-receptor risk assessment at CSO construction stage (Conceptual Site Model)2</td>
<td>Source 1: A1, A3, B4 Source 2: D6, E1</td>
<td></td>
</tr>
</tbody>
</table>

### Contamination category
- **Category 2 – assessed as Medium Risk**

### Conclusion
The site is less suitable as a CSO site based on the moderate potential for contamination of the site to have occurred, specifically from the use of the site as a works depot. This has the potential to impact on site workers and adjacent human receptors through direct contact exposure pathways, and to a lesser extent volatilisation.
<table>
<thead>
<tr>
<th>Land Quality</th>
</tr>
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<tbody>
<tr>
<td><strong>Notes:</strong></td>
</tr>
<tr>
<td>1. 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.</td>
</tr>
<tr>
<td>2. Refer to schematic Conceptual Site Model for explanation of site-specific source-pathway-receptors</td>
</tr>
<tr>
<td>3. From BGS Geological Model giving average ground condition profile. Local near surface conditions may vary, particularly within the river.</td>
</tr>
</tbody>
</table>
Contacts

For information about the Thames Tideway Tunnel
Call: 0800 0721 086 Lines are open 24 hours a day
Visit: www.thamestadewaytunnel.co.uk
Email: info@tidewaytunnels.co.uk

For our language interpretation service call 0800 0721 086

For information in Braille or large print call 0800 0721 086

For information about acceptance of our application and the examination process please contact the Planning Inspectorate.

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