Section 48: Report on site selection process

Volume 4: Central site appendices J to Q
Thames Tideway Tunnel
Section 48: Report on site selection process

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2. Site selection background technical paper (Summer 2011)

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List of abbreviations

CSO       combined sewer overflow
LLS (N)    northern Low Level Sewer No.1
EU        European Union
PS        pumping station
SR        storm relief
STW       sewage treatment works
TBM       tunnel boring machine
UK        United Kingdom
Introduction

Introduction to Volume 4: Central sites

1.1.1 This volume sets out the site selection process that was followed to identify the most suitable CSO and main tunnel sites in the central section of the main tunnel. Each appendix contains the following sections:

a. Section 1 – Introduction
b. Section 2 – Assessment prior to phase one consultation
c. Section 3 – Assessment prior to phase two consultation
d. Section 4 – Review prior to Section 48 publicity.
e. Section 5 – Confirmation of the proposed site for Section 48 publicity

1.1.2 This volume includes the following Appendices:

a. Appendix J – Cremorne Wharf Depot (Cremorne Wharf Foreshore)
b. Appendix K – Chelsea Embankment Foreshore
c. Appendix L – Kirtling Street (formerly Tideway Walk)
d. Appendix M – Heathwall Pumping Station (formerly Tideway Walk)
e. Appendix N – Albert Embankment Foreshore
f. Appendix P – Victoria Embankment Foreshore
g. Appendix Q – Blackfriars Bridge Foreshore.
Appendix J – Cremorne Wharf Depot (formerly Cremorne Wharf Foreshore)

J.1 Introduction

J.1.1 This appendix sets out the site selection process that was followed to identify the most suitable site to intercept the Lots Road Pumping Station CSO prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

J.1.2 Table J.1 summarises the sites identified as most suitable to intercept the Lots Road Pumping Station CSO at each phase of the process up to Section 48 publicity.

Table J.1 Summary of the sites identified as most suitable to intercept Lots Road Pumping Station CSO at each phase of the project

<table>
<thead>
<tr>
<th>Phase one consultation site:</th>
<th>Cremorne Wharf Foreshore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two consultation site:</td>
<td>Cremorne Wharf Depot</td>
</tr>
<tr>
<td>Section 48 publicity site:</td>
<td>Cremorne Wharf Depot</td>
</tr>
</tbody>
</table>

J.1.3 This appendix is structured as follows:

a. Section J.1 the remainder of this section provides details of the type of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section J.2 provides details of how we identified our preferred site for phase one consultation.

c. Section J.3 provides details of the back-check assessments and reasons why we changed our preferred site for phase two consultation.

d. Sections J.4 and J.5 provide details of the post phase two consultation scheme review and confirmation of the proposed CSO site for Section 48 publicity.

Type of site

J.1.4 We need a site to intercept the local combined sewer overflow (CSO), known as the Lots Road Pumping Station CSO, and to connect this CSO to the main tunnel.

Site selection process

J.1.5 All potential sites were identified in accordance with our Site selection methodology paper, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding
concentrated residential sites and World Heritage Sites). CSO sites also needed to be as close to the existing sewer as practicable; therefore, we followed a localised optioneering approach to identify suitable sites. The sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

J.1.6 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the Site selection methodology paper, which is also briefly outlined below (see J.2.2).

J.1.7 Following phase one consultation, we reviewed the sites and decided to carry out a ‘back-check’ in order to review the preferred and shortlisted sites prior to phase two consultation. This back-check involved a repeat of each relevant stage of our site selection process in order to reconsider which site would be the most suitable to intercept the CSO site. The back-check utilised the same multidisciplinary approach that we followed prior to phase one consultation. The results of this back-check superseded all previous assessments undertaken prior to phase one consultation and reported in J.2, except where noted (see Section J.3.25 to J.3.27).

J.1.8 Following phase two consultation, the Site selection methodology paper required us to review the scheme. The review of CSO sites involved re-checking the choice of sites identified as most suitable to intercept each CSO associated with the proposed route and proposed CSO sites for Section 48 publicity (see Section J.4).

J.2 Phase one consultation preferred CSO site: site selection process

Introduction

J.2.1 Section J.2 explains the implementation of the Site selection methodology paper in order to arrive at the preferred CSO site for phase one consultation.

J.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3); preparation of detailed site suitability reports for each final shortlisted site; and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept Lots Road Pumping Station CSO for phase one consultation.

J.2.3 This stage took place from Spring 2009 to Summer 2010.

J.2.4 The assessments described in Section J.2 were based on the information available at the time and the related stage in the project’s development. The assessments in this section therefore comprise a historic representation of the process. All of the assessments have now been superseded except for some of the site suitability report summaries (also see Sections J.3.25 to J.3.27).
Assessment of the long list sites

J.2.5 The long list of potential sites to intercept the Lots Road Pumping Station CSO was created by conducting a desktop survey of the land in the vicinity of the existing sewer.

J.2.6 In total, four sites were included on the long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the Site selection methodology paper (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology) and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

J.2.7 Table J.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the interception of this CSO. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10XA</td>
<td>Cremorne Wharf Foreshore</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>
| C10XB   | Cremorne Wharf Depot   | **Recommendation:** Not to draft short list.  
**Rationale:** The recycling facility is part of the civic infrastructure and the acquisition costs for this site were likely to be high. |
| C10XE   | Cremorne Gardens       | **Recommendation:** Not to draft short list.  
**Rationale:** There would be a long and difficult connection between the drop shaft and interception chamber of the sewer. |
| C10XF   | Old water intake       | **Recommendation:** Not to draft short list.  
**Rationale:** There would be a long and difficult connection between the drop shaft and interception chamber of the sewer. The site size is on the small side. |
J.2.8 Of the four sites identified, only one was assessed as potentially suitable and passed to the draft short list and three sites were eliminated as they were unsuitable.

**Assessment of draft short list sites**

J.2.9 The draft short list site identified for further assessment at the next stage was C10XA: Cremorne Wharf Foreshore.

J.2.10 This site was further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the *Site Selection Methodology Paper* (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.

J.2.11 At this stage, we also consulted with each of the London local authorities along the route of the project and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

J.2.12 Table J.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10XA</td>
<td>Cremorne Wharf Foreshore</td>
<td><strong>Recommendation:</strong> Retain on short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

J.2.13 The draft short list site was assessed as potentially suitable and passed to the final short list.

**Assessment of the final short list sites**

J.2.14 The site identified for inclusion on the final short list and assessment at the next stage was C10XA: Cremorne Wharf Foreshore.

J.2.15 A site suitability report (SSR) was prepared for the Final Shortlisted site. This report contained an assessment of the site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline using technical knowledge and
Appendix J – Cremorne Wharf Depot (formerly Cremorne Wharf Foreshore)

J.2.16 A summary of the conclusions of each discipline’s assessment from the site suitability report is provided below.

C10XA: Cremorne Wharf Foreshore

J.2.17 Site C10XA is situated on the foreshore of the River Thames, in the Royal Borough of Kensington and Chelsea (RBKC).

J.2.18 The council advised that Cremorne Wharf is safeguarded in the emerging local development framework for waste management use purposes, in line with the London Plan.

J.2.19 To the northwest of the site is a council-run waste transfer station, which is safeguarded for waste management use and therefore protected by planning policy. Further to the north is a newly built five-storey residential building. To the southwest is the now disused Lots Road Power Station, which is likely to be redeveloped in the future. The site is bordered on the east, south and west by the River Thames.

J.2.20 **Engineering:** The site was assessed as suitable as a CSO site because it is relatively unrestricted in size and shape in good proximity to the main tunnel. The site also has good access through Cremorne Gardens or by river.

J.2.21 **Planning:** On balance, the site was assessed as less suitable as a site to intercept this CSO. This is because of the visual impacts and loss of amenity to both Cremorne Gardens and nearby residential receptors with limited scope for mitigation. There might also be a loss of open space from the site access through the gardens.

J.2.22 **Environment:** Overall, the site was assessed as less suitable as a CSO site. The site was considered likely to be suitable from the perspectives of transport, water resources (groundwater), land quality and air quality. However, the site was considered less suitable from the perspectives of archaeology, built heritage and townscape, surface water, ecology, noise and flood risk. Substantial mitigation would be required to limit the impacts associated with using this site, particularly the considerable heritage and aquatic ecological risks associated with the foreshore at this location.

J.2.23 **Socio-economic and community:** The site was assessed as suitable as a CSO site. There would, however, be impacts associated with the access through Cremorne Gardens, both during and following construction.

J.2.24 **Property:** The site was assessed as suitable as a CSO site because, as an undeveloped site, it is likely that the acquisition cost would be acceptable. However, a special parliamentary procedure might be required to acquire this.

Phase one consultation preferred site

J.2.25 Following the completion of the site suitability reports, we held a multidisciplinary workshop to compare the suitability of each of the shortlisted sites based on the site suitability report assessments and to
make a recommendation as to which site should be identified as the preferred site.

J.2.26 The shortlisted site, Cremorne Wharf Foreshore (C10XA), was identified as the preferred site at phase one consultation for the reasons that are summarised and listed in no particular order below:

a. The configuration of the existing sewerage system and the densely developed nature of the area surrounding Lots Road Pumping Station meant that there were no available and suitable sites on land.

b. A number of planning, environmental and community issues were taken into consideration and identified as relevant. However, mitigation could minimise these impacts and prevent conflict with relevant planning policies in the adopted Kensington and Chelsea Unitary Development Plan.

J.2.27 As the site is in the foreshore, access arrangements were considered. It was proposed that the construction access would be gained by a temporary road through Cremorne Gardens, but further consideration would need to be given to its position in order to minimise any potential impact. Access through the waste transfer station during the construction phase was considered but not deemed feasible. This route could, however, be used for operational access.

**J.3 Phase two consultation preferred CSO site: scheme development and site selection**

**Introduction**

J.3.1 Section J.3 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase two consultation.

J.3.2 Following phase one consultation and before phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; completion of a back-check exercise to review the sites identified in Section J.2 and any potential new sites or a combination of sites; application of the assessment process outlined in J.2.2; a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Lots Road Pumping Station CSO for phase two consultation.

J.3.3 This stage took place from Winter 2010 to Autumn 2011.

J.3.4 The assessments described in Section J.3 were based on the information available at the time and the related stage in the project’s development.

**Phase one consultation responses**

J.3.5 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.
Appendix J – Cremorne Wharf Depot (formerly Cremorne Wharf Foreshore)

J.3.6 The main issues and concerns raised during phase one consultation in relation to the Cremorne Wharf Foreshore site (comprising the interception of the local CSO) can be summarised as follows and are listed in no particular order:

a. use of Cremorne Gardens for access
b. loss of open space
c. impact on residential amenity
d. increased traffic and congestion
e. opposition to temporary or permanent works protruding beyond the existing river wall.

J.3.7 The main comments received in support of the preferred site included:

a. The site is next to the waste transfer station so is out of sight and away from residents.
b. The after-use proposals look attractive.

J.3.8 More detail on the consultation responses related to this site and our response to the comments received are provided in the Report on phase one consultation.

J.3.9 Having taken all the comments received into account, particularly the strong objections to the creation of a temporary road through Cremorne Gardens to access the site, we reviewed the access to Cremorne Wharf foreshore. Following productive discussions with the RBKC, the owner of the waste transfer station, regarding the feasibility of accessing our preferred site through the waste transfer facility rather than Cremorne Gardens, we discovered that the waste transfer station might be available as a CSO site. We also reviewed the need for a ventilation column and associated plant at this site and whether these installations could be reduced in size or removed altogether.

**Back-check process**

J.3.10 As a result of the new information on the potential availability of the waste transfer station and further developments to the tunnelling strategy, we began a back-check (as defined in the Site selection methodology paper) to review our selection of Cremorne Wharf Foreshore as our preferred site.

J.3.11 This back-check involved a targeted repeat of each relevant stage of our site selection process to reconsider which site would be most suitable for the interception of the Lots Road Pumping Station CSO. The results from each stage of the back-check process are outlined below.

**Assessment of the back-check long list**

J.3.12 The original long list sites for the Lots Road Pumping Station CSO comprised four sites (see Table J.2). These sites were reviewed along with any new sites identified in the back-checking exercise (ie a reassessment to establish whether there had been any change of circumstances or if any new information had emerged).
Appendix J – Cremorne Wharf Depot (formerly Cremorne Wharf Foreshore)

J.3.13 All sites on the original long list were put on the back-check long list for this CSO. In addition, the following new site was added to the back-check long list: C10XG: Part of Lots Road Power Station site – this is an enlargement of the previous site C10XF.

J.3.14 Site C10XF was subsequently withdrawn as it was replaced by the new site detailed above.

J.3.15 It should be noted that consideration was also given to alternative sites suggested by consultees. However, no other sites were identified that were located within a feasible distance to intercept this CSO.

J.3.16 The back-check long list sites were assessed against the engineering, planning, environment, community, and property considerations set out in Table 2.2 of the Site selection methodology paper.

J.3.17 Table J.4 below summarises the outcome of the back-check assessment of the back-check long list of sites. Sites that were assessed as the least constrained in light of the Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained did not pass to the back-check draft short list for more detailed assessment.

Table J.4 Long list to draft short list for the interception of the Lots Road Pumping Station CSO (Table 2.2 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10XA</td>
<td>Cremorne Wharf Foreshore</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C10XB</td>
<td>Cremorne Wharf Depot</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>
| C10XE   | Cremorne Gardens       | **Recommendation:** Not to draft short list.  
**Rationale:** There would be a long and difficult connection between the drop shaft and interception chamber of the sewer. |
| C10XG   | Part of Lots Road Power Station site | **Recommendation:** To draft short list. |

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

J.3.18 Of the four sites identified, three were assessed as potentially suitable and passed to the draft short list, and one site was eliminated as unsuitable.

Assessment of the back-check draft short list sites

J.3.19 The three back-check draft shortlisted sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper.
J.3.20 Table J.5 below summarises the outcome of the back-check assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the back-check short list to pass to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the back-check short list for more detailed assessment.

J.3.21 The main rationale for excluding these sites at this stage is summarised below.

**Table J.5 Draft short list to final short list for the interception of the Lots Road Pumping Station CSO (Table 2.3 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
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</tr>
</thead>
<tbody>
<tr>
<td>C10XA</td>
<td>Cremorne Wharf Foreshore</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C10XB</td>
<td>Cremorne Wharf Depot</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C10XG</td>
<td>Part of Lots Road Power Station site</td>
<td><strong>Recommendation</strong>: Not to draft short list. Rationale:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Property – Use of the site would result in very high acquisition costs and it is likely that the residential development on the site will commence soon.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

J.3.22 Of the three sites on the draft short list, two were assessed as potentially suitable and passed to the final short list, and one site did not proceed to the final short list.

**Assessment of the back-check final short list sites**

J.3.23 The two back-check final shortlisted sites identified for assessment at the next stage were:


b. C10XB: Cremorne Wharf Depot.

J.3.24 A site suitability report (SSR) was prepared for the new back-check final short list site and the SSR for the phase one shortlisted site was re-evaluated.

**C10XA: Cremorne Wharf Foreshore**

J.3.25 Some Unitary Development Plan (UDP) policies were superseded by the Core Strategy. Furthermore, the site bounds (but is not within) a conservation area. However, these are not significant changes that would alter the assessment or conclusion.
J.3.26 The adjacent waste transfer station is no longer in use and there is a planned redevelopment at the Lots Road power station site. However, the socio-economic and community recommendation remains suitable.

J.3.27 All other discipline recommendations remain unchanged (see Sections J.2.17 to J.2.23).

C10XB: Cremorne Wharf Depot

J.3.28 Site C10XB is located at Cremorne Wharf off Lots Road in the RBKC. The site comprises a safeguarded wharf containing a local authority depot, waste transfer station and jetty.

J.3.29 The site is bound to the southeast by the River Thames, to the north by Thames Water’s Lots Road Pumping Station, which in turn fronts onto Lots Road, to the west by Lots Road Power Station and to the east by Chelsea Wharf. Chelsea Creek is located approximately 55m to the south of the site.

J.3.30 **Engineering:** The site was assessed as suitable as a CSO site as the waste transfer station site has sufficient area available and is reasonably unrestricted in shape. It is also in close proximity to the main tunnel and Lots Road Pumping Station.

J.3.31 **Planning:** On balance, the site was assessed as suitable as a site to intercept this CSO. There are a number of planning designations and policies that apply to the site. The most relevant ones relate to the safeguarding of the waste and wharf facilities, residential amenity and transport. Residential amenity could be affected due to the proximity of some existing and future properties, but the site is fairly well enclosed and mitigation should be feasible. We envisage that the existing planning designations would only be affected for the period of construction, therefore the long-term use of the site for waste and wharf facilities could continue.

J.3.32 **Environment:** Overall, the site was assessed as less suitable as a CSO site. The site was considered likely to be suitable from the perspectives of transport, townscape, ecology, water resources (surface water) and flood risk. However, the site was considered less suitable from the perspectives of archaeology, built heritage, water resources (hydrogeology), air quality, noise and land quality, and investigation would have to be undertaken to assess whether effective mitigation could overcome these impacts.

J.3.33 **Socio-economic and community:** The site was assessed as suitable as a CSO site. Use of the site might result in impacts on nearby businesses and residences adjacent to the site and effective mitigation of any impacts might be difficult to achieve. There are more residential properties located along Lots Road but they are partially screened by existing buildings.

J.3.34 **Property:** The site was assessed as suitable as a CSO site. The site is partly vacant and therefore disturbance costs were likely to be acceptable. Acquisition costs would also likely be acceptable due to the safeguarded wharf and waste facility classification of the site. A compulsory purchase of the site would also technically be possible. However, there are acquisition
risks if the local authority opposes its use as a CSO site. Furthermore, acquisition costs might increase significantly if the existing barriers to redevelopment are lifted.

**Phase two consultation preferred site**

J.3.35 Following the completion of the back-check process, we held a multidisciplinary workshop to compare the original preferred site (C10XA) to Cremorne Wharf Depot (C10XB).

J.3.36 This workshop took into account the findings of all the SSRs and the feedback received during phase one consultation. On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that **C10XB Cremorne Wharf Depot should become the phase two consultation preferred site for the interception of the Lots Road CSO**. This meant that we believed this to be the most appropriate site, subject to further engagement with stakeholders and further design development to verify that conclusion prior to phase two consultation.

J.3.37 In summary, C10XB Cremorne Wharf Depot was identified as the most suitable site for the following reasons:

- a. The site was assessed as suitable by the engineering, planning, community and property disciplines, and only assessed as less suitable by environment in the site suitability report assessment.

- b. Use of the site would avoid the need to create an access road across Cremorne Gardens, which was one of the main concerns identified during phase one consultation in relation to the foreshore site C10XA.

- c. C10XB would avoid the need to undertake significant works in the foreshore and the associated cost, health and safety and environmental impacts.

- d. The site would utilise brownfield land and a safeguarded wharf.

J.3.38 The above points were based on the information available at the time and the related stage in the project's development. The points therefore comprise a historic representation of the process prior to phase two consultation.

**Confirmation of the preferred site for phase two consultation**

J.3.39 The final workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that **C10XB Cremorne Wharf Depot should become the phase two consultation preferred site for the interception of the Lots Road Pumping Station CSO**.

J.3.40 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.
J.4 Post phase two consultation: review of CSO sites for the proposed application

Introduction to the review

J.4.1 Section J.4 explains how we implemented the requirement in the Site selection methodology paper to review the scheme following phase two consultation and prior to Section 48 publicity.

J.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design and/or new technical information; multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

J.4.3 A plan that illustrates all the sites considered for the interception of the Lots Road Pumping Station CSO in the review and how they progressed through the site selection process can be found in Annex J.1.

J.4.4 This stage took place from Spring 2012 to Summer 2012.

Summary of phase two consultation responses

J.4.5 Details of the consultation responses in relation to this site and our responses are provided in the Report on phase two consultation. The main feedback relevant to site selection can be summarised as follows:

a. The preferred site is generally unsuitable.

b. Why have shortlisted sites not been identified? (See point e below).

c. The cost of using the site is too high/not cost effective.

d. Site selection should avoid sites that have been allocated for, are known to be awaiting or have planning permission for redevelopment; in this case the Lots Road Power Station site.

e. Use an alternative site. Suggestions included Cremorne Wharf Foreshore (shortlisted site) and 'a less urban site'.

J.4.6 The main comments received in support of the phase two consultation preferred site included:

a. The preferred site is more suitable than Cremorne Wharf Foreshore, which was put forward at phase one consultation as the preferred site.

b. The revisions to the construction access since phase one consultation to avoid works taking place in Cremorne Gardens are supported.

J.4.7 We recognise the concerns that have been raised, including preference for alternative sites and comments that the site is unsuitable, and we will take these into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

J.4.8 Having taken all comments received during phase two consultation into account, we still believe Cremorne Wharf Depot is the most suitable site to intercept the Lots Road Pumping Station CSO.
Any changes in circumstances or new information

J.4.9 The Cremorne Wharf depot site continues to be a designated safeguarded wharf; however, the Royal Borough of Kensington and Chelsea (RBKC) has consulted on proposals to demolish the existing waste transfer station and introduce a mixed-use scheme, including approximately 80 new residential apartments (a mix of private and affordable) with commercial and small scale business uses on the lower floors. The RBKC intends to submit a planning application for this scheme at some point towards the end of 2012 and are working with the project to ensure that their proposals and our project can both be achieved.

J.4.10 Having considered this new information, we consider that a practical solution can be achieved and, on this basis, we still believe Cremorne Wharf Depot is the most suitable site to intercept the Lots Road Pumping Station CSO.

Main rationale for the selection of the CSO site for Section 48 publicity

J.4.11 In summary and listed in no particular order, C10XB Cremorne Wharf Depot was identified as the proposed Section 48 publicity CSO site because:

a. Overall, all five disciplines (engineering, planning, environment, community and property) preferred to use C10XB over C10XA.

b. C10XB can be accessed from Lots Road using existing access points on either side of the pumping station and therefore avoids the need to create an access road across Cremorne Gardens, which was one of the main concerns identified during phase one consultation in relation to the foreshore site C10XA.

c. C10XB would avoid the need to undertake significant works and the construction of a structure in the foreshore and the associated cost, health and safety, and environmental impacts.

d. The site would utilise brownfield land and a safeguarded wharf, which could be used to support river transport during construction and would be reinstated with existing facilities post construction.

e. All of the works could be accommodated within the depot area of site C10XB, which creates a self contained site that is likely to have less effect on the surrounding residential properties.

f. C10XB is a protected wharf and protected waste transfer station, which means that, based on the current use, acquisition costs would be acceptable. While there is some risk that the site might become suitable for redevelopment in the future in line with surrounding development, the RBKC has been amenable to working with us to accommodate the requirements for a site to intercept the CSO in its development proposals.

 g. Compulsory purchase of the site (C10XB) is technically possible; however, there is a risk of a special parliamentary procedure associated with the acquisition of the foreshore site (C10XA).
J.5 Confirmation of the proposed CSO site for Section 48 publicity

J.5.1 The post phase two consultation review described above in Section J.4 confirmed C10XB: Cremorne Wharf Depot as the proposed site for Section 48 publicity to intercept the Lots Road Pumping Station CSO.

J.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submission of the final application.
Annex J.1
Appendix K – Chelsea Embankment Foreshore

K.1 Introduction

K.1.1 This appendix sets out the site selection process that was followed to identify the most suitable site to intercept the Ranelagh CSO prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

K.1.2 Table K.1 summarises the sites identified as most suitable to intercept the Ranelagh CSO at each phase of the process up to Section 48 publicity.

Table K.1 Summary of the sites identified as most suitable to intercept the Ranelagh CSO at each phase of the project

<table>
<thead>
<tr>
<th>Phase one consultation site:</th>
<th>Chelsea Embankment Foreshore (west of Chelsea Bridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two consultation site:</td>
<td>Chelsea Embankment Foreshore (opposite Bull Ring Gate)</td>
</tr>
<tr>
<td>Section 48 publicity site:</td>
<td>Chelsea Embankment Foreshore (opposite Bull Ring Gate)</td>
</tr>
</tbody>
</table>

K.1.3 This appendix is structured as follows:

a. Section K.1 the remainder of this section provides details of the type of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section K.2 provides details of how we identified our preferred site for phase one consultation.

c. Section K.3 provides details of the back-check assessments and reasons why we changed our preferred site for phase two consultation.

d. Sections K.4 and K.5 provide details of the post phase two consultation scheme review and confirmation of the proposed CSO site for Section 48 publicity.

Type of site

K.1.4 We need a site to control the local combined sewer overflow (CSO), known as the Ranelagh CSO and the northern Low Level Sewer No.1 (LLS1 (N)), and to connect them both to the main tunnel.

Site selection process

K.1.5 All potential sites were identified in accordance with our Site selection methodology paper, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). CSO sites also needed to be as close to the existing sewer as practicable; therefore, we
followed a localised optioneering approach to identify suitable sites. The sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

K.1.6 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the *Site selection methodology paper*, which is also briefly outlined below (see K.2.2).

K.1.7 Following phase one consultation, we reviewed the sites and decided to carry out a ‘back-check’ in order to review the preferred and shortlisted sites prior to phase two consultation. This back-check involved a repeat of each relevant stage of our site selection process in order to reconsider which site would be the most suitable CSO site. The back-check utilised the same multidisciplinary approach that we followed prior to phase one consultation. The results of this back-check superseded all previous assessments undertaken prior to phase one consultation and reported in K.2, except where noted (see Sections K.3.2 to K.3.26).

K.1.8 Following phase two consultation, the *Site selection methodology paper* required us to review the scheme. The review of CSO sites involved re-checking the choice of sites identified as most suitable to intercept each CSO associated with the proposed route and recorded the proposed CSO sites for Section 48 publicity.

**K.2 Phase one consultation preferred CSO site: site selection process**

**Introduction**

K.2.1 Section K.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase one consultation.

K.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the draft shortlisted sites to create a final short list of sites (Table 2.3); preparation of detailed site suitability reports for each final shortlisted site; a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Ranelagh CSO for phase one consultation.

K.2.3 This stage took place from Spring 2009 to Summer 2010.

K.2.4 The assessments described in Section K.2 were based on the information available at the time and the related stage in the project’s development. The assessments in this section therefore comprise a historic representation of the process. All of the assessments have now been superseded except for some of the site suitability report summarises (also see Sections K.3.23 to K.3.26).
## Assessment of the long list sites

K.2.5 The long list of potential sites to intercept the Ranelagh CSO and connect to the northern Low Level Sewer No.1 to divert flows to the main tunnel was created by conducting a desktop survey of the land in the vicinity of the existing sewer.

K.2.6 In total, seven sites were included on the long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology) and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

K.2.7 Table K.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the CSO and the northern Low Level Sewer No.1. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C14XA/CLLAA</td>
<td>Chelsea Embankment Foreshore (west of Chelsea Bridge)</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C14XB</td>
<td>Turning circle (near Bull Ring Gate)</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C14XC/CLLAB</td>
<td>Small area, the Royal Hospital Chelsea southern grounds</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C14XD</td>
<td>Grass area at front of the Royal Hospital Chelsea</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C14XE</td>
<td>Grass area fronting Chelsea Hospital</td>
<td><strong>Recommendation</strong>: Not to draft short list.</td>
</tr>
<tr>
<td></td>
<td><strong>Rationale</strong>: The connection between the shaft site and the route of the sewer would be long and difficult.</td>
<td></td>
</tr>
<tr>
<td>C14XF</td>
<td>Burtons Court</td>
<td><strong>Recommendation</strong>: Not to draft short list.</td>
</tr>
</tbody>
</table>
Rationale: The connection between the shaft site and the route of the sewer would be long and difficult.

Recommendation: To draft short list.

Of the seven sites identified, five were assessed as potentially suitable and passed to the raft short list and two sites were eliminated as they were unsuitable.

Assessment of draft short list sites

The five draft short list sites identified for further assessment at the next stage were:

a. C14XA/CLLAA: Chelsea Embankment Foreshore (west of Chelsea Bridge).

b. C14XB: Turning circle (near Bull Ring Gate).

c. C14XC/CLLAB: Small area, the Royal Hospital Chelsea southern grounds.

d. C14XD: Grass area at front of the Royal Hospital Chelsea.

e. C14XG: Chelsea Barracks.

These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.

At this stage, we also consulted with each of the London local authorities along the preferred route and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

Table K.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

Table K.3 Draft short list to final short list for the Ranelagh CSO and connect the northern Low Level Sewer No.1 (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C14XA/</td>
<td>Chelsea Embankment</td>
<td>Recommendation: Retain on short list.</td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CLLAA</td>
<td>Foreshore (west of Chelsea Bridge)</td>
<td>☑️ Recommendation: Not to draft short list.</td>
</tr>
<tr>
<td>C14XB</td>
<td>Turning circle (near Bull Ring Gate)</td>
<td>☑️ Recommendation: Not to draft short list.</td>
</tr>
<tr>
<td></td>
<td>Rationale:</td>
<td>☑️ Engineering – This is a relatively small site that would require the removal of an entrance to the Royal Hospital Gardens and the public transport (bus) turning circle/stop. Furthermore, the feasibility of a connection to the tunnel is a concern because of the proximity to a Crossrail safeguarded route.</td>
</tr>
<tr>
<td>C14XC/</td>
<td>Small area, the Royal Hospital Chelsea southern grounds</td>
<td>☑️ Recommendation: Not to draft short list.</td>
</tr>
<tr>
<td>CLLAB</td>
<td></td>
<td>☑️ Engineering – The site boundary might need to be extended to the east due to the Crossrail safeguarded route crossing the site.</td>
</tr>
<tr>
<td></td>
<td>Rationale:</td>
<td>☑️ Property – The use of the site was likely to have an adverse effect on Royal Hospital events including the Chelsea Flower Show, which would in turn be likely to affect the site value and the timescales to acquire the site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>☑️ Community – The use of the site would result in a loss of open space which would have potential impacts on community cohesion and health and well-being.</td>
</tr>
<tr>
<td>C14XD</td>
<td>Grass area at front of the Royal Hospital Chelsea</td>
<td>☑️ Recommendation: Not to draft short list.</td>
</tr>
<tr>
<td></td>
<td>Rationale:</td>
<td>☑️ Engineering – The interception chamber would be in a difficult location within Chelsea Bridge Road. This would require both road closure and probable service diversions and there would also be constraints on the tunnel connection. Furthermore, there would be limitations associated with general access and site features.</td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| C14XG   | Chelsea Barracks      | **Recommendation**: Not to draft short list.  
**Rationale:**  
- **Engineering** – The interception chamber would be in a difficult location within Chelsea Bridge Road. This would require both road closure and probable service diversions and there would also be constraints on the tunnel connection. Furthermore, there would be limitations associated with general access and site features.  
- **Planning/Environment** – The site is marked as a disused burial ground. The site also is situated within a Grade II registered park/garden and designated open space. Use of the site could result in an unacceptable level of impact on the designated areas. Furthermore, the use of the site could also impact on nearby receptors (dust/noise impacts).  
- **Community** – The site forms part of a disused burial ground. Furthermore, there would potentially be an impact on community cohesion, health and well-being, and an equalities group.  
- **Property** – There would be substantial acquisition costs; therefore, based on the available information it is not deemed to be viable site.  
- **Community** – There might be an impact on community cohesion, health and well-being and equalities considerations, but given that this is a large site, it might be possible to position the works area away from the most sensitive receptors and put appropriate mitigation measures in place. However, this is difficult to
Appendix K – Chelsea Embankment Foreshore

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>determine as the on-site layout has not been determined (ie a decision on the planning application is outstanding).</td>
<td></td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

K.2.13 Of the five sites on the draft short list, one was assessed as potentially suitable and passed to the final short list and four sites did not proceed to the final short list.

Assessment of the final short list sites

K.2.14 The only site identified for inclusion on the final short list and assessment at the next stage was C14XA/CLLAA: Chelsea Embankment Foreshore (west of Chelsea Bridge).

K.2.15 A site suitability report was prepared for this final shortlisted site. This report contained an assessment of the site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline, using technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline’s perspective.

K.2.16 A summary of the conclusions of each discipline’s assessment from the site suitability report is provided below.

C14XA/CLLAA: Chelsea Embankment Foreshore (west of Chelsea Bridge)

K.2.17 The Chelsea Embankment Foreshore is situated in the foreshore of the River Thames in the Royal Borough of Kensington and Chelsea (RBKC). The site is rectangular in shape and bounded by the River Thames to the east, south and west.

K.2.18 The South Grounds of the Royal Hospital, Ranelagh Gardens and a Grade II registered park and garden lie to the north of the site, separated from it by Chelsea Embankment.

K.2.19 Engineering: The site was assessed as suitable to connect the CSO and LLS1 (N) to the main tunnel because it is relatively unrestricted in size and shape and the site would have good access from the Chelsea Embankment.

K.2.20 Planning: On balance, the site was assessed as less suitable to connect the CSO and LLS1 (N) to the main tunnel. A number of sensitive planning and environmental designations relate to this site and its prominent location, of which the heritage, conservation and Thames Policy Area are the most significant. Mitigation would be required to make the site acceptable for use.

K.2.21 Environment: Overall, the site was assessed as suitable to connect the CSO and LLS1 (N) to the main tunnel. The site was considered likely to...
be suitable from the perspectives of archaeology, built heritage, groundwater, land quality, noise and air quality. However, the site was considered less suitable from the perspectives of transport, townscape, surface water, ecology and flood risk; therefore mitigation would be required to enable the site to be used.

K.2.22 Socio-economic and community: The site was assessed as suitable to connect the CSO and LLS1 (N) to the main tunnel. Its use was likely to cause some noise and access disturbance to users of the path alongside the Chelsea Embankment. Furthermore, the Royal Hospital Chelsea gardens might be affected by the use of the site, although the effects were likely to be minor due to the distance from the site. Mitigation might be required to reduce the effects on these receptors.

K.2.23 Property: Assessed the site as suitable to connect the CSO and LLS1 (N) to the main tunnel. The site is not a developed site and the acquisition costs should be acceptable. However, the foreshore is registered Crown land and therefore the site would need to be acquired by agreement. If negotiations with the Crown failed, the site could not be secured by compulsory purchase.

Phase one consultation preferred site

K.2.24 Following the completion of the site suitability reports, we held a multidisciplinary workshop to consider the suitability of the site on the short list and to confirm that no alternative sites had been overlooked.

K.2.25 The Chelsea Embankment Foreshore (west of Chelsea Bridge) (C14XA/CLLAA) was identified as the preferred site at phase one consultation for a number of reasons, which are summarised and listed in no particular order below:

a. The choice of possible worksites near the CSO was severely limited due to the presence the South Grounds of the Royal Hospital and the Ranelagh Gardens, together with a Grade II registered park and garden that has significant heritage value as well as providing an important resource for the local and wider community for events, such as the Chelsea Flower Show.

b. The preferred site is separated from Ranelagh Gardens and the Royal Hospital by the Highway (A3212), which would provide a barrier between the site and open spaces to the north and help to reduce the impact of construction works. This site would also have good access from the local road network via the A3212, which forms part of the TLRN.

c. Due to the prominent location of the site in a sensitive area, a high level of mitigation would be required to make acceptable use of the site and to ensure that the site could be developed without conflict with RBKC planning policies.
K.3  Phase two consultation preferred CSO site: scheme development and site selection

Introduction

K.3.1 Section K.3 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase two consultation.

K.3.2 Following phase one consultation and before phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; completion of a back-check exercise to review the sites identified in Section K.2 and any potential new sites or a combination of sites; application of the assessment process outlined in K.2.2; a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Ranelagh CSO for phase two consultation.

K.3.3 This stage took place from Winter 2010 to Autumn 2011.

K.3.4 The assessments described in Section K.3 were based on the information available at the time and the related stage in the project’s development.

Phase one consultation responses

K.3.5 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

K.3.6 The main issues raised during phase one consultation in relation to the Chelsea Embankment Foreshore (west of Chelsea Bridge) site can be summarised as follows and are listed in no particular order:

a. traffic congestion
b. impact on the historic nature of the area, including listed structures and buildings
c. impact on aquatic ecology within the River Thames Foreshore
d. construction impact on local amenity, transport congestion, and local events and activities, including the Chelsea Pensioners and Chelsea Flower Show.

K.3.7 More detail on the consultation responses relating to this site and our response to the comments received are provided in the *Report on phase one consultation*.

Back-check process

K.3.8 During phase one consultation, English Heritage raised concerns over the use of our preferred option in the foreshore due to the effects of the permanent works on the historic views westwards along the Thames from the listed Chelsea Bridge and within the setting of the Royal Hospital Chelsea, a Grade I listed building. During discussions with English Heritage, they requested that we investigate the use of the south grounds of the Royal Hospital Chelsea and the Ranelagh Gardens. The
Environment Agency also encouraged us to investigate whether there were any alternative land-based sites.

K.3.9 As a result of this feedback and other comments we received during phase one consultation, we began a back-check (as defined in our Site selection methodology paper) to review our selection of Chelsea Embankment Foreshore (west of Chelsea Bridge) as our preferred site.

K.3.10 This back-check involved a targeted repeat of each relevant stage of our site selection process to reconsider which site would be most suitable for the interception of the Ranelagh CSO and to connect the LLS1 (N) to divert flows to the main tunnel. The results from each stage of the back-check process are outlined below.

**Assessment of the back-check long list**

K.3.11 The original long list for Ranelagh CSO/LLS1 (N) contained seven sites (see Table K.2). These sites were reviewed along with any new sites identified in the back-checking exercise (ie a reassessment to establish whether there had been any changes of circumstances or if any new information had emerged).

K.3.12 All sites on the original long list were put on the back-check long list for this CSO/LLS1 (N). In addition, the following new sites were added to the back-check long list:

- b. C14XJ/CLLAH: Chelsea Embankment Foreshore (opposite Bull Ring Gate) (new site – Crossrail accepted that a small site was feasible with the Crossrail 2 safeguarded zone).

K.3.13 Sites C14XB and C14XC/CLLAB were withdrawn as they were replaced by C14XH/CLLAG.

K.3.14 It should be noted that consideration was also given to alternative sites suggested by consultees, however no other sites were identified that were located within a feasible distance for this CSO/LLS1 (N).

K.3.15 The back-check long list sites were assessed against the engineering, planning, environment, community and property considerations set out in Table 2.2 of the Site selection methodology paper.

K.3.16 Table K.4 below summarises the outcome of the back-check assessment of the back-check long list of sites. Sites that were assessed as the least constrained in light of the Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained did not pass to the back-check draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.
Table K.4 Long list to draft short list for the Ranelagh CSO and to connect the
northern Low Level Sewer No.1 (Table 2.2 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C14XA/CLLAA</td>
<td>Chelsea Embankment Foreshore (west of Chelsea Bridge)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C14XD</td>
<td>Grass area fronting Chelsea Hospital</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The connection between the shaft site and the route of the sewer would be long and difficult. The land is privately owned but could be classified as open space. There are further restrictions relating to the graveyard.</td>
</tr>
<tr>
<td>C14XE</td>
<td>Grass area fronting Chelsea Hospital</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The connection between the shaft site and the route of the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C14XF</td>
<td>Burtons Court</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The connection between the shaft site and the route of the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C14XG</td>
<td>Chelsea Barracks</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C14XH/CLLAG</td>
<td>Ranelagh Gardens</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C14XJ/CLLAH</td>
<td>Chelsea Embankment Foreshore (opposite Bull Ring Gate)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

K.3.17 Of the seven sites identified, four were assessed as potentially suitable and passed to the draft short list and three did not.

Assessment of the back-check draft short list sites

K.3.18 The four back-check draft shortlisted sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper.

K.3.19 Table K.5 below summarises the outcome of the back-check assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the back-check short list to pass to the next stage of assessment. This did not
necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

Table K.5 Draft short list to final short list for the Ranelagh CSO and to connect the northern Low Level Sewer No.1 (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C14XA/CLLAA</td>
<td>Chelsea Embankment Foreshore (west of Chelsea Bridge)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C14XG</td>
<td>Chelsea Barracks</td>
<td><strong>Recommendation:</strong> Not to draft short list.</td>
</tr>
<tr>
<td></td>
<td><strong>Rationale:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Engineering – The interception chamber would be in a difficult location in Chelsea Bridge Road. This would require both road closure and probable service diversions and there would also be constraints on the tunnel connection. Furthermore, there would be limitations associated with general access and site features.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Planning/Environment – A major planning application was pending for this strategic site so there might be considerable risk in using this site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Property – There would be substantial acquisition costs; therefore based on the available information it is not deemed to be a viable site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Community – There are a number of sensitive receptors in the vicinity and there might be an impact on community cohesion, health and well-being, and equalities considerations.</td>
<td></td>
</tr>
<tr>
<td>C14XH/CLLAG</td>
<td>Ranelagh Gardens</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C14XJ/CLLAH</td>
<td>Chelsea Embankment Foreshore (opposite Bull Ring Gate)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.
K.3.20 Of the four sites on the draft short list, three were assessed as potentially suitable and passed to the final short list and one site was not shortlisted.

**Assessment of the back-check final short list sites**

K.3.21 The three back-check final shortlisted sites identified for assessment at the next stage were:

a. C14XA/CLLAA: Chelsea Embankment Foreshore (west of Chelsea Bridge).

b. C14XH/CLLAG: Ranelagh Gardens.

c. C14XJ/CLLAH: Chelsea Embankment Foreshore (opposite Bull Ring Gate).

K.3.22 A site suitability report was prepared for the new back-check final short list sites and the site suitability report for the phase one shortlisted site was also re-evaluated (C14XA/CLLAA).

**C14XA/CLLAA: Chelsea Embankment Foreshore (west of Chelsea Bridge)**

K.3.23 Some UDP policies have been superseded by the Core Strategy. Furthermore, trees lining Chelsea Embankment and abutting the site are not subject to a Tree Preservation Order, but are located within a conservation area and therefore have a form of protection. However, these are not significant changes that would alter the assessment or conclusion.

K.3.24 Works in the Embankment Road might have an impact on local traffic and therefore the local community. However, the socio-economic and community recommendation remained ‘suitable’.

K.3.25 We confirmed that the foreshore is Crown land and therefore acquisition must be by agreement. However, the property recommendation remained ‘suitable’.

K.3.26 All other discipline recommendations remained unchanged (see Section 2, K.2.17 to K.2.23).

**C14XH/CLLAG: Ranelagh Gardens**

K.3.27 Site C14XH/CLLAG is located in the Royal Hospital Chelsea grounds, Ranelagh Gardens and in the carriageway of Chelsea Embankment adjacent to the Gardens. The South Grounds of the Royal Hospital and Ranelagh Gardens are together a Grade II registered park and garden.

K.3.28 Trees that line Chelsea Embankment abutting the site and within the gardens are not subject to a Tree Preservation Order, but are located within a conservation area and therefore have a form of protection. There are no residential properties at the site and there are no signs of ongoing development.

K.3.29 We considered three options: Option 1 within the southern grounds of the Royal Hospital and Options 2 and 3 within Ranelagh Gardens. Site CLLAG was a potential site for the partial interception of the northern Low Level Sewer No 1 (LLS1 (N)). Although identified separately, C14XH and
CLLAG was, in practice, the same physical site and this site was considered to intercept both CS14X and LLS1 (N).

K.3.30 **Engineering:** The site was assessed as *suitable* to connect the CSO and LLS1 (N) to the main tunnel under all three options because, as a highway and inland parkland site, the size and shape could be adjusted to suit final requirements, and it would have good access directly from the TLRN A3212.

K.3.31 **Planning:** On balance, both options were assessed as *less suitable* to connect the CSO and northern LLS1 (N) to the main tunnel. The site is covered by or in the setting of several designations, of which the listed building, registered historic park and garden, conservation area and the Thames Policy Area are the most significant. Some mature trees might be lost under all three options and Options 2 and 3 would have a greater impact on more trees and wildlife. Option 1 would have a greater impact on vistas of the Royal Hospital during construction and on the amenity of established or occasional temporary events held in the South Grounds. All three options would be unlikely to have substantial permanent impacts on townscape, vistas and the setting of the Grade 1 listed Royal Hospital.

K.3.32 **Environment:** All three options were considered *suitable* to connect the CSO and LLS1 (N) to the main tunnel from the perspectives of archaeology, ecology, water resources (hydrogeology and surface water), flood risk, noise and land quality. They were considered *less suitable* in terms of transport, built heritage and townscape and air quality. In addition, Option 3 was also considered *less suitable* in terms of noise, while Options 1 and 2 were considered *suitable*.

K.3.33 Overall, Options 2 and 3 were considered *suitable* while Option 1 was considered *less suitable* because of the considerable constraints associated with the works for the intermediate drop shaft located in Royal Chelsea Hospital Gardens.

K.3.34 **Socio-economic and community:** All three options were assessed as *less suitable* to intercept the CSO and LLS1 (N). This was predominantly due to the potential impact the proposed works could have on users of Ranelagh Gardens, including the effect on the many events that take place in the vicinity. The effects on nearby sensitive receptors, including residential properties to the west of the site, the Lister Hospital and Royal Hospital, are also factors to be considered.

K.3.35 **Property:** Assessed the site as *less suitable* to intercept the CSO and LLS1 (N) for all three options due to the high acquisition costs arising from the possibility of having to provide replacement land, and due to the acquisition risk if a special parliamentary procedure were needed.

**C14XJ/CLLAG: Chelsea Embankment Foreshore (opposite Bull Ring Gate)**

K.3.36 Site C14XJ is rectangular in shape and located in the foreshore of the River Thames. Opposite the site is the Bull Ring Gate to the Royal Hospital. The South Grounds of the Royal Hospital and Ranelagh Gardens, together with a Grade II registered park and garden, lies to the north of the site, separated by the Chelsea Embankment (A3212).
K.3.37 **Engineering:** The site was assessed as suitable to connect the Ranelagh CSO and LLS1 (N) to the main tunnel because its size and shape could be adjusted to suit final requirements, and it would have good access directly from the TLRN A3212. The proposed shaft location was within the Crossrail 2 safeguard zone. However, discussions with Crossrail confirmed that it would be possible to accommodate the drop shaft within this zone.

K.3.38 **Planning:** On balance, the site was assessed as less suitable to connect the CSO and LLS1 (N) to the main tunnel. The site is covered by and abuts several designations of which the conservation area, nearby listed buildings, registered historic park and garden and Thames Policy Area are the most significant.

K.3.39 **Environment:** Overall, the site was assessed as suitable as a CSO interception site. The site was considered suitable from the perspectives of archaeology, built heritage, water resources (hydrogeology), air quality, noise and land quality. This site was considered less suitable from the perspectives of transport, townscape, water resources (surface water), ecology and flood risk.

K.3.40 **Socio-economic and community:** The site was assessed as suitable to connect the CSO and divert flow from the LLS1 (N) to the main tunnel. The greatest impact from a community impacts perspective was likely to be on the adjacent pavement alongside the Chelsea Embankment due to increased noise and disruption. Furthermore, the Royal Hospital and Ranelagh Gardens might be impacted by the use of the site, although effects were likely to be mitigable due to the distance from the site. It appears unlikely that the proposed after-use structures would negatively impact on the local community.

K.3.41 **Property:** Assessed the site as suitable to connect the CSO and LLS1 (N) to the main tunnel. The site is undeveloped foreshore and therefore acquisition costs were likely to be acceptable. However, the foreshore is registered Crown land and therefore the site would need to be acquired by agreement.

**Phase two consultation preferred site**

K.3.42 Following the completion of the back-check process, we held a multidisciplinary workshop to compare the originally preferred site (C14XA/CLLAA) with the new sites (C14XH/CLLAG and C14XJ/CLLAH) identified via the back-check.

K.3.43 This workshop took into account the findings of all the site suitability reports and the feedback received during phase one consultation. On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that Chelsea Embankment Foreshore (opposite Bull Ring Gate) should become the phase two consultation preferred site to intercept the Ranelagh CSO and connect the northern Low Level Sewer No.1 to the main tunnel. This meant that we believed it to be the most appropriate site, subject to further engagement with stakeholders and further design development to verify that conclusion prior to phase two consultation.
K.3.44 In summary, Chelsea Embankment Foreshore (opposite Bull Ring Gate) was identified as the most suitable site for the following reasons:

a. Use of the foreshore would overall reduce the impact on the South Grounds of the Royal Hospital and Ranelagh Gardens, together with a Grade II registered park and garden, both of which have significant heritage value as well as providing an important resource for the local community for events such as the Chelsea Flower Show. The site will be further from the Grade II listed Chelsea Bridge and therefore will have less impact on its setting. The site is also located furthest from residential properties.

b. The preferred site is separated from Ranelagh Gardens and the Royal Hospital by the Highway (A3212), which would provide a barrier between the site and open spaces to the north and help to reduce the impact of the construction works. This site would also have good access from the local road network via the A3212, which forms part of the TLRN.

c. Intercepting the CSO at site C14XJ would result in a more efficient construction site than C14XA. With this alternative, it is possible to intercept the CSO and have the drop shaft closer, which would improve the arrangement of the permanent structures in the foreshore.

K.3.45 The above points were based on the information available at the time and the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.

**Confirmation of the preferred site for phase two consultation**

K.3.46 The final workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that **Chelsea Embankment Foreshore (opposite Bull Ring Gate) should become the phase two consultation preferred site to intercept the Ranelagh CSO and connect the northern Low Level Sewer No.1 to the main tunnel.**

K.3.47 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.

**K.4 Post phase two consultation: review of CSO sites for Section 48 publicity**

**Introduction to the review**

K.4.1 Section K.4 explains how we implemented the requirement in the *Site selection methodology paper* to review the scheme following phase two consultation and prior to Section 48 publicity.

K.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design
and/or new technical information; multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

K.4.3 A plan that illustrates all the sites considered for the interception of the Ranelagh CSO in the review and how they progressed through the site selection process can be found in Annex K.1.

K.4.4 This stage took place from Spring 2012 to Summer 2012.

Summary of phase two consultation responses

K.4.5 Details of the consultation responses in relation to this site and our responses are provided in the Report on phase two consultation. The main feedback relevant to site selection can be summarised as follows:

a. Opposed in principle to the use of any foreshore structures along the tidal Thames as this is likely to lead to a number of detrimental effects of flood risk management, biodiversity and recreation.

b. Ranelagh Gardens (C14XH/CLLAG) is more suitable, since it presents a better alternative in terms of the impact on the historic environment.

c. Site selection should avoid sites adjacent to or containing heritage assets.

K.4.6 The main comments received in support of phase two consultation preferred site included:

a. The use of the preferred site is supported because it is more suitable than the site put forward at phase one consultation as the drop shaft and interception chamber foreshore projections have been combined into a single structure and the diameter of the shaft has also been reduced, thereby reducing the overall footprint of the structure.

b. The preferred site is more suitable than any of the shortlisted sites - specifically Ranelagh Gardens (C14XH/CLLAG).

K.4.7 Having taken all comments received during phase two consultation into account, we still believe Chelsea Embankment Foreshore (opposite to Bull Ring Gate) is the most suitable site to intercept the Ranelagh CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

K.4.8 We recognise the concerns that have been raised, including impact on the natural environment and on existing heritage, and will take these into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Any changes in circumstances or new information

K.4.9 Based on a review of engineering construction risks associated with constructing connection tunnels in the Lambeth Group and additional geotechnical information from borehole investigations that showed that the interface between the London Clay and Lambeth Group is higher than previously thought, we have concluded that the connection tunnel should be as short as possible in order to minimise health and safety risks during construction.
K.4.10 Having considered this new information, this reconfirms Chelsea Embankment Foreshore (opposite to Bull Ring Gate) as the most suitable site to intercept the Ranelagh CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

Main rationale for the selection of the CSO site for Section 48 publicity

K.4.11 In summary and listed in no particular order, C14XJ/CLLAH: Chelsea Embankment Foreshore (opposite Bull Ring Gate) was identified as the proposed CSO site for Section 48 publicity for the following reasons:

a. Use of the site will allow a shorter connection tunnel than a site in Ranelagh Gardens, which would result in reduced health and safety risks associated with constructing a connection tunnel in the Lambeth Group.

b. Use of the foreshore would have significantly less direct impact on the Grade II registered Ranelagh Gardens has significant heritage value. The Gardens also provide an important resource for the local community and for events such as the Chelsea Flower Show.

c. The preferred site will be separated from Ranelagh Gardens and the Royal Hospital by the Chelsea Embankment (A3212), which would provide a barrier between the site and open spaces to the north, helping to reduce the impact of construction works. This site would also have good access from the local road network via the A3212, which forms part of the TLRN.

d. Intercepting the CSO at site C14XJ will result in a more efficient construction site than C14XA. It is possible to intercept the CSO and have the drop shaft closer together on one site, which will improve the arrangement of the permanent structures in the foreshore. The river wall is not listed and the detailed design will blend in to minimise the effect on the long sweeping view and the material will complement those of the embankment. This would also provide the potential for the structure to positively interact with the Royal Hospital by re-establishing its link with the river by opening up views from the river towards the Royal Hospital Chelsea and vice versa along Monument Walk.

e. The CSO at site C14XJ will be further from the Grade II listed Chelsea Bridge and therefore will have less impact on its setting.

f. While use of the site would result in the loss of some foreshore habitat and give rise to potential effects on subsurface archaeology, the foreshore location would allow for use of the river to transport materials, which would reduce the potential effects of road traffic.

g. Whilst the potential effects of foreshore sites are recognised, the construction of the tunnel would deliver improvements to river wide and local water quality, which would result in positive effects on river ecology, including habitat improvements and reduce fish kills.
K.5 **Confirmation of the proposed CSO site for Section 48 publicity**

K.5.1 The post phase two consultation review described above in Section K.4 confirmed **C14XJ/CLLAH: Chelsea Embankment Foreshore (opposite Bull Ring Gate)** as the proposed site for Section 48 publicity to intercept the Ranelagh CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

K.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submission of the final application.
Appendix L – Kirtling Street (formerly Tideway Walk)

L.1 Introduction

L.1.1 This appendix sets out the site selection process that was followed to identify the most suitable site for constructing the central sections of the main tunnel prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

L.1.2 Table L.1 summarises the main tunnel sites to construct the central sections of the main tunnel at each phase of the process up to Section 48 publicity.

Table L.1 Summary of the most suitable sites and uses to construct the central sections of the main tunnel at each phase of the project

<table>
<thead>
<tr>
<th>Phase one consultation site and use</th>
<th>Site: Tideway Walk – combined main tunnel and CSO site</th>
<th>Use: To drive the main tunnel to King’s Stairs Gardens, receive the main tunnel from Barn Elms and intercept two CSOs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two consultation site and use</td>
<td>Site: Kirtling Street – main tunnel double drive site</td>
<td>Use: To drive the main tunnel west to Carnwath Road Riverside and drive the main tunnel east to Chambers Wharf. (see this volume, Appendix M - Heathwall Pumping Station for separate CSO site)</td>
</tr>
<tr>
<td>Section 48 publicity site and use</td>
<td>Site: Kirtling Street – main tunnel double drive site</td>
<td>Use: To drive the main tunnel west to Carnwath Road Riverside and drive the main tunnel east to Chambers Wharf.</td>
</tr>
</tbody>
</table>

L.1.3 This appendix is structured as follows:

a. Section L.1 the remainder of this section provides details of the types of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section L.2 provides details of how we identified our preferred site for phase one consultation.

c. Section L.3 provides details of the back-check assessments and the reasons why we changed our site for phase two consultation.

d. Sections L.4 and L.5 provide details of the post phase two consultation scheme review and confirmation of the proposed main tunnel site for Section 48 publicity.
Type of site

L.1.4 We needed to identify a series of suitable sites to allow us to build the main tunnel. The main tunnel would transfer the collected overflows to the Abbey Mills Pumping Station where they would be transferred via the Lee Tunnel (under construction) to Beckton Sewage Treatment Works.

L.1.5 Larger sites, known as main tunnel drive sites, are required where a tunnel boring machine (TBM) would be inserted into the ground. This type of site would need to handle all the materials excavated by the TBM as it constructs each section of the tunnel. Smaller sites are required to remove the TBM from the ground at the end of a tunnel drive (known as a main tunnel reception/intermediate site). A more detailed description of the different types of site required to construct and operate the project and the size requirements of these sites can be found in the Site selection background technical paper (see Volume 2).

L.1.6 We determined whether a site would be a main tunnel drive or main tunnel reception/intermediate site (ie, the use of the site) by considering the tunnelling drive options (see Volume 1).

Site selection process

L.1.7 The Site selection methodology paper recognises the vital complementary relationship between the site selection process and engineering design developments (see Volume 1). Accordingly, as the site selection process progressed it was increasingly important to compare sites against engineering requirements. A fundamental consideration was the need to identify enough sites in the right locations to enable the project to be built.

L.1.8 All potential sites were identified in accordance with our Site selection methodology paper, which involved a ‘sieving’ approach that commenced with the identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). The main tunnel sites went through increasingly detailed levels of assessment. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement. All the assessments carried out were based on the information available at the time and the related stage in the project’s development.

L.1.9 Below is a brief summary of how the Site selection methodology paper was applied at each stage of the project along with appropriate cross-references to sections in this appendix and to other volumes of this report.

L.1.10 Prior to phase one consultation we applied our sieving multidisciplinary approach to all the assessments outlined in the Site selection methodology paper, which is also briefly outlined below (see L.2.2). A summary of all the assessments and the preferred phase one consultation site and use is presented in Section L.2. In addition, there is a more detailed discussion of the main tunnel tunnelling options and comparisons for all routes at this stage of the project in Volume 1, Sections 4.9 to 4.12).

L.1.11 Following phase one consultation and prior to phase two consultation, we reviewed the sites and decided to carry out a ‘back-check’ (as defined in
the *Site selection methodology paper* in order to review the preferred and shortlisted sites prior to phase two consultation. This back-check involved a repeat of each relevant stage of our site selection process to reconsider which sites would be most suitable to construct the main tunnel, including a re-examination of main tunnel drive options, to identify the preferred main tunnel site and use. The back-check utilised the same multidisciplinary approach that we followed prior to phase one consultation. The results of this back-check are presented in Section L.3. The back-check superseded all previous assessments undertaken prior to phase one consultation (reported in Section L.2), except where noted (see Section 3, L.3.28 to L.3.39). There is also a more detailed discussion of the tunnelling options for the main tunnel and comparisons at this stage of the project in Volume 1, Sections 6.3 to 6.6.

L.1.12 Following phase two consultation and prior to Section 48 publicity, the *Site selection methodology paper* required us to review the scheme. The review of main tunnel sites involved re-checking the choice of most suitable main tunnel site, drive options and site use on the proposed route, which is presented in Section L.4. This was done to confirm the proposed main tunnel site for Section 48 publicity.

L.2 **Phase one consultation preferred main tunnel site: site selection process**

**Introduction**

L.2.1 Section L.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred main tunnel site for the central sections of the tunnel route for phase one consultation.

L.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3); preparation of a detailed site suitability report for each final shortlisted site; preparation of the *Engineering options report* (Spring 2010) with the tunnelling drive options; and multidisciplinary optioneering workshop to consider the detailed contents of the site suitability report for each shortlisted site and the engineering options report and then compare the sites in order to identify the preferred main tunnel site and use (drive or reception/intermediate) for phase one consultation. See also Volume 1, Sections 4.9 to 4.12 for the discussion on pre-phase one consultation discussion on tunnelling drive options.

L.2.3 This stage took place from Spring 2009 to Summer 2010.

L.2.4 The assessments described in Section L.2 were based on the information available at the time and the related stage in the project's development. The assessments in this section therefore comprise a historic representation of the process and all of the assessments have been superseded (also see Section 3, L.3.28 to L.3.39).
Assessment of the long list sites

L.2.5 The long list of potential main tunnel sites for the central sections of the tunnel route was created by conducting a desktop survey of land in the London boroughs of Wandsworth, Southwark and Lambeth, the Royal Borough of Kensington and Chelsea, Westminster and City of London.

L.2.6 In total, 157 sites were included on the long list as potential sites for main tunnel shafts. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology) community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

L.2.7 Sites that were assessed as the least constrained in light of the Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites were ultimately judged to be suitable as main tunnel shaft site, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. Full details of these assessments are provided in the Table 2.2 assessment and the accompanying plans.

L.2.8 Of the 157 sites identified for main tunnel shafts at the western end of the tunnel route, 26 were assessed as potentially suitable and passed to the draft short list. The remaining 131 sites were eliminated as unsuitable.

Assessment of draft short list sites

L.2.9 The 26 draft short list sites identified as potentially suitable at Table 2.2 were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the *Site selection methodology paper* (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessments undertaken at the long list stage but focussed on more detailed local considerations.

L.2.10 At this stage, we also consulted with each of the London boroughs and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

L.2.11 As with the Table 2.2 assessment, sites that were assessed as least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites judged to be more constrained were not retained on the short list for more detailed assessment. Full details are provided in the Table 2.3 assessment and the accompanying plans.
L.2.12 Of the 26 sites on the draft short list, 11 were assessed as potentially suitable for use and passed to the final short list. The remaining 15 sites did not proceed to the final short list.

**Assessment of the final short list sites**

L.2.13 Eleven final shortlisted sites were retained for more detailed assessment as potential main tunnel shaft sites. In some cases, the sites were grouped together and consequently, 13 sites or scenarios were considered on the final short list:

The sites identified as suitable as main tunnel drive or reception/intermediate sites were:

a. S61WH: Battersea Park
b. S68WH: Battersea Power Station
c. S68WH with S69WH: Industry/warehouses, Cringle Street
d. S69WH: Industry/warehouses, Cringle Street
e. S73WH with S79WH: Industry/warehouses, Tideway Walk
f. S74WH with either S72WH or S73WH or S79WH: Industry/warehouses, Tideway Walk
g. S79WH with S80WH: Tideway Walk and TWUL Pumping Station including Middle Wharf.

The sites identified as suitable as main tunnel reception/intermediate sites only were:

a. S72WH: Concrete batching plant and wharf, Cringle Street
b. S73WH: Industry/warehouses, Tideway Walk
c. S79WH: Warehouses, Tideway Walk
d. S87WH: Warehouse, Post Office Way
e. S04WR: Open space, Grosvenor Road
f. S11WR: Foreshore, adjacent to Riverwalk House and Vauxhall Bridge.

L.2.14 A site suitability report was prepared for each of the Final Shortlisted sites. These reports contained an assessment of each site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline using technical knowledge and professional judgement as appropriate and assessed as **suitable**, **less suitable** or **not suitable** from that discipline’s perspective.

L.2.15 A summary of the conclusions of each discipline’s assessment from the site suitability reports is provided below.

**S61WH: Battersea Park**

L.2.16 Site S61WH is located in Battersea Park, a Grade II* registered park and garden in the London Borough of Wandsworth. The site is bounded to the north by the River Thames, to the east by Queenstown Road and Chelsea.
Bridge, to the west by Albert Bridge Road and to the south by Prince of Wales Drive. The park contains woodland, grassed areas, a lake, gardens, and a diverse range of community facilities and public amenities.

L.2.17 The site was assessed for use as a main tunnel double drive site (i.e., driving the tunnel in two directions from this site), main tunnel single drive site and a main tunnel reception/intermediate site.

L.2.18 **Engineering:** Assessed the site as **suitable** as a main tunnel double drive, single drive or reception/intermediate site. This was predominantly due to the good site size, river and road access. Also, the locations of the proposed shafts would be sufficiently far away from major third-party assets such as the Crossrail Line 2 Safeguarded Zone, Albert Bridge and Chelsea Bridge to avoid impacting on them.

L.2.19 **Planning:** Assessed the site as **not suitable** as a main tunnel double drive or single drive site. This was predominantly due to the scale of proposed works and the land-take required, which was considered too great for this sensitive location, which is subject to a number of policy designations. The conflict with planning policies, including those relating to heritage conservation, Metropolitan Open Land and public open space, would very likely be unacceptable, particularly given the scale, longevity and prominence of both the construction works and after-structures.

L.2.20 The site was also assessed as **less suitable** as a main tunnel reception/intermediate site due to the reduced scale of construction activity and permanent land-take. Significant mitigation would, however, be required.

L.2.21 **Environment:** Overall, the site was assessed as **less suitable** for all types of site. The site was considered likely to be **suitable** from the perspectives of transport, archaeology, water resources, flood risk, air quality, noise and land quality. However, the site was **less suitable** from the perspectives of built heritage, townscape and ecology.

L.2.22 The site was considered **less suitable**, owing primarily to impacts on townscape character and heritage receptors.

L.2.23 **Socio-economic and community:** Assessed the site as **not suitable** as a main tunnel double drive site due to the likely cumulative community impacts. The areas of the park directly affected by the proposed double drive main tunnel site were likely to be valued by the community as areas of open space. Based on its current use, Chelsea Bridge Fields appears to be a unique open space within Battersea Park, due to its elevation and tree cover. The riverside edge of Festival Pleasure Gardens offers views across the river and over the park, and would therefore likely be popular.

L.2.24 The site was assessed as **less suitable** from a community impacts perspective for a main tunnel drive or reception/intermediate site. As with the main tunnel double drive site, it appears that the area of the park proposed for use as a main tunnel drive or reception/intermediate site is valued by the community as areas of open space.

L.2.25 **Property:** Assessed the site as **suitable** as a main tunnel single drive or reception/intermediate site. The level of risk would increase with the land...
area required and the impact on the park’s amenities. The area required for a main tunnel double drive site was considered to be unacceptably large in this context, and the site was therefore considered not suitable.

**S68WH: Battersea Power Station and S68WH with S69WH: Industry/warehouses, Cringle Street**

L.2.26 Sites S68WH and S69WH are located in the London Borough of Wandsworth, adjacent to the railway lines that run parallel to Chelsea Bridge and located directly on the riverfront. Site 68WH is occupied by the disused Grade II* listed Battersea Power Station. Site S69WH is occupied by two industrial buildings, which are surrounded by general purpose hardstanding for parking and loading/unloading, although the southern area of S69WH is narrow and less useable. Both sites are irregular in shape. Access is via Cringle Street.

L.2.27 The site was assessed as a split main tunnel double drive site, which would involve two shafts on a site, including both S68WH and S69WH, to drive the main tunnel in two directions; a main tunnel drive site using only S68WH; and main tunnel reception/intermediate site using only S68WH.

L.2.28 **Engineering:** Assessed the site as less suitable as either a split main tunnel double, single or reception/intermediate site. The presence of Battersea Power Station would restrict site traffic and, for a main tunnel double and single drive site, the length of river frontage available was insufficient to accommodate the necessary jetties. For all site types, there were also potential problems with contaminated land and numerous underground structures that would impact on the shaft location, which might require enabling works and protection measures. It is also possible that there are other underground structures associated with the power station in addition to those currently identified.

L.2.29 **Planning:** Assessed the site as less suitable as a split main tunnel double or single drive site as construction would require significant land-take across the site and a substantial amount of construction activity both on-site and in the river. This level of construction activity would reduce the potential to redevelop the site in parallel with other uses, which could cause delay or even hinder the potential regeneration of such a prominent site. Potential impacts on the appearance and setting of the Grade II* Battersea Power Station listed building would likely require significant mitigation and the level of disruption might be unacceptable.

L.2.30 The site was assessed as suitable as a main tunnel reception/site as, due to the smaller site size required, it might be possible to implement regeneration proposals alongside the use of the site for the project.

L.2.31 Under all three proposed scenarios, the design, permanent access and particularly visual impact of the remaining after-use structures would also require further consideration in relation to the Grade II* listed power station and future regeneration plans.

L.2.32 **Environment:** Overall, the site was considered suitable for all three scenarios, although mitigation would be required.
L.2.33 Based on the information available at the time, the sites were considered **suitable** from the perspectives of transport, archaeology, water resources, flood risk, air quality, and noise. The sites were considered **less suitable** from the perspective of built heritage, townscape, ecology and land quality. Overall, the sites were considered **suitable**, subject to further investigation of whether built heritage, townscape, ecology, and land quality impacts could be adequately mitigated.

L.2.34 **Socio-economic and community:** This site was regarded as **suitable** for all three scenarios, as it appears that it would be unlikely to have a significant impact on the local community due to the existing industrial and commercial land uses around the site.

L.2.35 Industrial and commercial properties in the vicinity of the site appeared most likely to be impacted by the proposed use of the site. Of these premises, it appears that the adjacent Cringle Dock Refuse Transfer Station to the east, which is used by residents of the borough, would be most likely to be affected.

L.2.36 **Property:** This site was regarded as **not suitable** for all three scenarios due to significant acquisition costs.

**S69WH: Industry/warehouses, Cringle Street**

L.2.37 Site S69WH is situated on industrial land in the Nine Elms Industrial Area, at the end of Cringle Street between Cringle Dock Refuse Transfer Station and the Grade II* listed Battersea Power Station. A Grade II listed Thames Water Pumping Station occupies part of the southern end of the site.

L.2.38 The site was assessed as a main tunnel reception/intermediate site only.

L.2.39 **Engineering:** Assessed this site as **suitable** as a main tunnel reception/site based on its size and accessibility. There were potential constraints that would require further investigation in order to finalise an assessment of overall suitability, such as final existing tunnel alignments and potential contamination issues.

L.2.40 **Planning:** This site was considered **suitable** as a main tunnel reception/intermediate site. There are few planning designations that apply to the site, and it was considered that with appropriate mitigation measures, these designations would unlikely be unacceptably impacted on. Potential redevelopment of the site in conjunction with Battersea Power Station would require further consideration.

L.2.41 **Environment:** Overall, the site was assessed as **suitable** as a main tunnel reception/intermediate site. However, mitigation would be required to enable the site to be used. Based on the information available at the time, the site was **suitable** from the perspectives of transport, archaeology, built heritage and townscape, water resources, ecology, air quality and noise. The site was considered **less suitable** from the perspectives of flood risk and land quality.

L.2.42 Overall, the site was considered **suitable**, subject to further investigation of whether flood risk, land quality and built heritage impacts could be adequately mitigated.
L.2.43 **Socio-economic and community:** This site was considered suitable as a main tunnel reception/intermediate site. It appears unlikely that it would have a significant impact on the local community, due to the current industrial and commercial land uses around the site. The adjacent Cringle Dock Refuse Transfer Station to the east, which is used by residents of the borough, might be affected. Mitigation might involve discussions around hours of use and access to the waste facility.

L.2.44 **Property:** This site was assessed as less suitable as a main tunnel reception/intermediate site, on the basis of the anticipated high acquisition cost relative to its size.

L.2.45 As many redevelopment schemes such as the Battersea Power Station proposals are progressing slowly due to current economic conditions, this site looked favourable. However, development aspirations might mean that any land acquisition and associated diminution in value could prompt a significant claim by the landowner.

**S73WH: Industry/warehouses, Tideway Walk and S73WH with S79WH: Industry/warehouses, Tideway Walk**

L.2.46 Site S73WH is situated on land occupied by an industrial warehouse in the Nine Elms Industrial Area. The site fronts onto Kirtling Street to the south and is bounded by the River Thames to north. The Cringle Street ready-mix concrete depot is situated to the west of the site and Tideway Industrial Estate is situated to the east. The site consists of a single warehouse building and a small, general purpose area for loading/unloading and site parking.

L.2.47 Site S73WH was considered as a main tunnel reception/intermediate site and as a split main tunnel drive site with S79WH.

L.2.48 **Engineering:** The site was considered suitable as a split main tunnel drive site with S79WH in terms of size and access by road. However, availability of jetty/wharfage facilities is critical and might not be possible at this location. Overall, the site was considered suitable as a split main tunnel drive site, subject to availability of jetty/wharfage facilities.

L.2.49 The site was assessed as suitable as a main tunnel reception/site; it is of adequate size and has good potential for access by road.

L.2.50 **Planning:** Assessed the site as suitable as either a split main tunnel drive or reception/intermediate site. There are few planning designations that apply to the site and we considered that, with appropriate mitigation measures, these designations would unlikely be unacceptably impacted on. Potential impacts on the future use of the Battersea Power Station site required further consideration and mitigation.

L.2.51 **Environment:** This site was assessed as suitable as a split main tunnel drive or reception/intermediate site, although mitigation would be required for either purpose.

L.2.52 Based on the information available at the time, the site was regarded as suitable for both types of site from the perspectives of transport, archaeology, built heritage, townscape, hydrogeology, surface water, air
quality and noise. The site was also suitable as a reception shaft site from the perspective of ecology.

L.2.53 This site was considered **less suitable** for both site types from the perspective of flood risk and land quality. The site was also considered **less suitable** as a split main shaft site from the perspective of ecology.

L.2.54 Overall, the site was considered **suitable**, subject to further investigation of whether flood risk, land quality, ecology, air quality and noise impacts could be adequately mitigated.

L.2.55 **Socio-economic and community:** The site was considered **less suitable** as a split main tunnel drive site as, although it is unlikely that it would have a significant impact on the local community, there might be livelihood implications for operators and employees of the businesses that were likely to be lost or require relocation from the Tideway Industrial Estate. Mitigation would likely involve discussions around relocation and/or compensation.

L.2.56 The new material jetty and excavated materials loading jetty proposed for the split main tunnel drive site might affect the use of the existing jetty to the east of the site, which has mooring posts and residential boats, and the jetty for the concrete batching plant adjacent to the site to the west. Mitigation might involve discussions around relocation of jetties and mooring posts, and/or disruption to neighbouring residential boats. Mitigation might also be required to reduce the potential for impact on the Thames Path and on residential properties to the east of the site.

L.2.57 This site was considered **suitable** as a main tunnel reception/site, as it is unlikely that it would have a significant impact on the local residential community due to the industrial and commercial land uses around the site. However, there might be livelihood implications for operators and employees of the warehouse, which were likely to be lost or require relocation. Mitigation would likely involve discussions around relocation and/or compensation.

L.2.58 There is also the potential that works would impact on the houseboats moored opposite the site to the east and on the Thames Path. Mitigation might be required to maintain their access and reduce potential impacts.

L.2.59 **Property:** The combined site S73WH and S79WH was considered **not suitable** for a split main tunnel drive site due to likely substantial acquisition costs. In addition to the high land value, multiple compensation claims for business disturbance should be anticipated.

L.2.60 Site S73WH was considered **suitable** as a main tunnel reception/site, although this was likely to be a relatively expensive option.

**S72WH: Cringle Street**

L.2.61 Site S72WH, also known as Cringle Wharf, is situated on land currently used as a materials depot in the Nine Elms Industrial Area in the London Borough of Wandsworth.

L.2.62 The site was considered as a main tunnel reception/intermediate site.
L.2.63 **Engineering:** This site was assessed as **suitable** as a main tunnel reception/intermediate site because of its good size, proportions and access possibilities. The location of the site would minimise the alignment diversion of the main tunnel from the centre of the river.

L.2.64 **Planning:** This site was considered **suitable** as a main tunnel reception/site. There are few planning designations that apply to the site and we considered that, with appropriate mitigation measures, these designations would unlikely be unacceptably affected. The implications of using the site without incorporating river-based transport or associated infrastructure would require further investigation in terms of compliance with the safeguarded wharf designation.

L.2.65 **Environment:** Overall, the site was assessed as **suitable** as a main tunnel reception/intermediate site, although mitigation would be required. Based on the information available at the time, the site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, hydrogeology, surface water, ecology, air quality and noise.

L.2.66 This site was considered **less suitable** from the perspectives of flood risk and land quality. However, the site was considered suitable overall, subject to further investigation of whether flood risk and land quality could be adequately mitigated.

L.2.67 **Socio-economic and community:** This site was identified as **suitable** as a main tunnel reception/intermediate site. It seems likely that the greatest impact of the site’s use would be the loss or relocation of the depot currently located onsite. Mitigation might be required to ensure the refuse transfer station adjacent to the site to the west and the warehouse adjacent to the site to the east would not be significantly affected. Mitigation might also be required to ensure the houseboats moored to the east of the site, the job centre and Brook Court would not be significantly affected by the construction works and associated vehicle movements.

L.2.68 **Property:** This site was assessed as **suitable** as a main tunnel reception/intermediate site. It appears likely that use of this site would have less of an impact than other nearby sites that under consideration for potential development. However, the cost of acquisition was likely to be relatively expensive, regardless of whether the business was relocated or extinguished.

**S74WH with either S72WH or S73WH or S79WH:** Industry/warehouses, Tideway Walk

L.2.69 The sites under consideration were S72WH, S73WH, S74WH, S79WH and S80WH, all located in the Nine Elms area of the London Borough of Wandsworth. All sites combined are bounded by Cringle Dock to the west, Nine Elms Lane to the east and the River Thames to the north.

L.2.70 Site S72WH was considered as a split main tunnel double drive site in conjunction with sites S73WH, S74WH, S79WH and S80WH.

L.2.71 **Engineering:** Assessed this site as **suitable** as a split main tunnel double drive site because of its size, proportions and access possibilities. Wharfage/jetty facilities would be critical for this site because of the likely
material volumes from a double drive site. Demolition works would be required to accommodate the relevant temporary works, and Heathwall Pumping Station would have to be protected and maintained during the construction works.

L.2.72 **Planning:** Considered the site **suitable** as a split main tunnel double drive site. There are few planning designations that apply to the site and it is considered that, with appropriate mitigation measures, it is unlikely that these designations would be unacceptably affected. The proposal site would result in the loss of employment space and the relocation of lost facilities might be required in order to comply with LPA policy.

L.2.73 Consideration needed to be given to any necessary mitigation measures that would protect local residents from noise, dust and site activity, and the potential relocation of adjacent houseboats. It was also necessary to determine the impact and potential for mitigation for the existing safeguarded wharves, as well as the location and potential impacts of proposed jetty and conveyor facilities.

L.2.74 **Environment:** Overall, the site was assessed as **suitable** as a split main tunnel double drive site, although mitigation would be required. Based on the information available at the time, the site was assessed as **suitable** from the perspectives of transport, archaeology, built heritage, townscape, surface water, and air quality.

L.2.75 This site was considered **less suitable** from the perspectives of ecology, hydrogeology, and flood risk, noise and land quality. Overall, the site was considered **suitable**, subject to further investigation of whether ecology, hydrogeology, flood risk, noise, land quality and potentially townscape impacts could be adequately mitigated.

L.2.76 **Socio-economic and community:** Assessed the site as **less suitable** as a split main tunnel double drive site, as there would be a number of potential impacts on the local community and economy.

L.2.77 It appeared that the greatest potential impact would be the loss of, or need to relocate, the various industrial and commercial facilities onsite. In this respect, use of the site might affect the local economy through the loss of a relatively large number of businesses in one area. There might be livelihood impacts on local workers and operators. It also appeared likely that a river-dwelling community living in the houseboats moored adjacent to site S79WH would face the loss of their homes or major disruption associated with the need to relocate.

L.2.78 The use of site also appeared likely to require diversions or other changes to a section of the Thames Path, which was found to be a well-used, pleasant riverside environment in a predominantly industrial area.

L.2.79 **Property:** Considered this site **not suitable** as a split main tunnel double drive site, due to significant acquisition costs.

**S79WH: Warehouses, Tideway Walk**

L.2.80 Site S79WH incorporated the Tideway Industrial Estate, industrial buildings and warehousing, as well as general purpose areas for loading/unloading and parking, all in the Nine Elms Industrial Area of the
London Borough of Wandsworth. The proposed site is bounded by Kirtling Street to the west, Nine Elms Lane to the southeast and the River Thames to the north.

L.2.81 The site was considered as a main tunnel reception/intermediate site.

L.2.82 **Engineering:** Assessed this site as *suitable* as a main tunnel reception/intermediate site due to good overall size and good road access with a short route to the TLRN. The shaft could be constructed on the river frontage. The site would, however, require significant demolition.

L.2.83 **Planning:** The site was assessed as *suitable* as a main tunnel reception/intermediate site. There are few planning designations that apply to the site, and it is considered that, with appropriate mitigation measures, it is unlikely that these designations would be unacceptably affected. The proposed site would result in the loss of employment space and the relocation of lost facilities might be required in order to comply with LPA policy.

L.2.84 Consideration needs to be given to any necessary mitigation measures that would protect nearby houseboat residents from noise, dust and site activity.

L.2.85 **Environment:** Overall, the site was assessed as *suitable* as a main tunnel reception/intermediate site, although mitigation would be required.

L.2.86 Based on the information available at the time, the site was considered *suitable* from the perspectives of transport, archaeology, built heritage, townscape, surface water, ecology, air quality and noise. This site was considered *less suitable* from the perspectives of flood risk, hydrogeology and land quality.

L.2.87 Overall, the site was considered *suitable*, subject to further investigation of whether potential flood risk, hydrogeology and land quality impacts could be adequately mitigated.

L.2.88 **Socio-economic and community:** Assessed the site as *less suitable* as a main tunnel reception/intermediate site, since significant mitigation would be required to address the impact on the businesses located on the Tideway Industrial Estate and the residents of the houseboats moored adjacent to the site.

L.2.89 Mitigation would likely to require discussions around relocation and/or compensation. A diversion of the Thames Path would likely affect various user groups, including local workers and residents, as well as occasional users from a wider catchment, including nature or river enthusiasts. Finding acceptable diversions to the path might be complicated as the area is primarily covered by large industrial developments.

L.2.90 **Property:** This site was assessed as *not suitable* for a main tunnel reception/intermediate site due to significant acquisition costs.

**S79WH with S80WH: Tideway Walk and TWUL Pumping Station**

L.2.91 Sites S79WH and S80WH are both located in the Nine Elms Industrial Area of the London Borough of Wandsworth.
L.2.92 Site S79WH incorporates the Tideway Industrial Estate, a concrete batching plant and other industrial buildings and warehousing, as well as general purpose areas for loading/unloading and parking. The proposed site is bounded by Kirtling Street to the west, Nine Elms Lane to the southeast and the River Thames to the north.

L.2.93 S80WH is Thames Water’s Heathwall Pumping Station and Middle Wharf, which is a designated safeguarded wharf and was formerly used as a concrete batching plant.

L.2.94 S79WH was considered as a split main tunnel drive site (with S80WH and C17XB, which is Middle Wharf and overlaps half of S80WH) and to intercept both the Heathwall Pumping Station CSO (CS16X) and the South West Storm Relief Sewer CSO (CS17X). The site selection process to identify a preferred site to intercept these CSOs is covered separately in Appendix M.

L.2.95 **Engineering:** Assessed this site as *suitable* as a split main tunnel drive site with two CSO interceptions, due to its good size and reasonable proportions, good access possibilities, and potential wharfage/jetty facilities. Demolition works would be required to accommodate the relevant temporary works, and Heathwall Pumping Station would need to be protected and maintained during the construction works.

L.2.96 **Planning:** Considered the site *suitable* as a split main tunnel drive site with two CSO interceptions. It was considered that, with appropriate mitigation measures, it is unlikely that the designations applicable to the site would be unacceptably affected. The proposed site would result in the loss of employment space and it might be necessary to relocate lost facilities in order to comply with LPA policy.

L.2.97 Consideration needed to be given to any necessary mitigation measures that would protect local residents from noise, dust and site activity, and the potential to relocate the existing moored houseboats on the site. It would also be necessary to determine potential impacts on the existing safeguarded wharf and appropriate locations of the two proposed jetties, to ensure the site layout arrangements are acceptable.

L.2.98 **Environment:** Overall, the site was assessed as *suitable* as a split main tunnel drive site with two CSO interceptions.

L.2.99 Based on the information available at the time, the site was considered *suitable* from the perspectives of transport, archaeology, built heritage and townscape, surface water, air quality and noise. This site was considered *less suitable* from the perspectives of groundwater, ecology, flood risk and land quality.

L.2.100 Overall, the site was considered *suitable*, subject to further investigation of whether groundwater, ecology, flood risk and land quality impacts could be adequately mitigated.

L.2.101 **Socio-economic and community:** Assessed the site as *suitable* as a split main tunnel drive site with two CSO interceptions. However, it was likely that there would be significant impacts on the businesses operating out of the premises, which were likely to be lost if we used the site. In
addition, a number of houseboats would likely require relocation, as their mooring would probably be lost or face significant disruption as a result of the proposed site configurations. Mitigation would likely involve discussions around relocation and/or compensation.

L.2.102 Diversions to the Thames Path, or any other change to the well-used riverside open space adjacent to the site on the north, would likely have an impact on various user groups, including local residents and local workers, as well as occasional users from a wider catchment, including nature or river enthusiasts. Finding acceptable diversions to the path might be complicated, as mitigation might be difficult in this area, which is covered with large industrial developments.

L.2.103 Use of the site would also likely disrupt the commercial and industrial businesses in the vicinity and could impact on the residential development to the east of the site.

L.2.104 **Property:** Considered this site not suitable as a split main tunnel drive site with two CSO interceptions, due to significant acquisition costs.

**S87WH: Warehouse, Post Office Way**

L.2.105 Site S87WH is situated within the site previously occupied by the publishers TSO, located in the Nine Elms Industrial Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the Post Office Sorting Office depot. The site is presently vacant and comprises a large complex that consists of a six-storey office block and several low-rise storage and distribution warehouses.

L.2.106 The site was considered as a main tunnel drive and reception/site.

L.2.107 **Engineering:** This site was assessed as less suitable as either a main tunnel drive or reception/intermediate site because of the high-level of demolition required. In addition, its location with respect to the river would require the main tunnel to deviate significantly from the centre line of the river, and the overflow culvert would need to cross the busy Nine Elms Lane. The site is also in close proximity to a number of warehouses, the stability of which might be affected by the shaft. For use as a main tunnel drive shaft, the provision of jetty facilities would be difficult and have a number of constraints. There would also be a need for overhead conveyors to transport materials to and from the site over the busy Nine Elms Lane.

L.2.108 **Planning:** The site was considered less suitable as a main tunnel drive site but suitable as a reception/intermediate site. There are existing industrial activities close to the residents at Elm Quay Court that already impact on the residential amenity. However, the amenity for some residents overlooking the proposed site might be further affected. Use of the proposed site might also have adverse impacts from noise, dust and site traffic, and mitigation would be required. These impacts on residential properties were likely to be greater for the main drive shaft rather than the reception/intermediate site option, due to reduced scope for site development away from these properties.
L.2.109 The potential impacts arising from the use of the site as a reception/site were considered fewer than for a main tunnel drive site and it is likely that they could be mitigated. In the case of both proposed options, the implementation programme and potential conflicts with the proposed American Embassy on the adjacent site were uncertain at this stage, and required further consideration and on-going monitoring.

L.2.110 Environment: The site was considered less suitable as a main tunnel drive site. The site was considered suitable from the perspectives of archaeology, built heritage and townscape, surface water and air quality but less suitable from the perspectives of transport, hydrogeology, ecology, flood risk, noise and land quality.

L.2.111 The site was assessed as suitable as a main tunnel reception/drive site, although mitigation would be required. Based on the information at the time, the site was considered suitable from the perspectives of transport, archaeology, built heritage, townscape, surface water, ecology, air quality and noise. The site was considered less suitable from the perspectives of flood risk, hydrogeology and land quality.

L.2.112 Socio-economic and community: This site was assessed as suitable as either a main tunnel drive or reception/intermediate site. Its use might impact on the Elm Quay Court residential development opposite the site to the north, due to the proximity to the jetty for loading excavated materials and the general proximity to the site. Mitigation might therefore involve discussions around minimising such disruption. Given the general industrial and commercial nature of the area, further significant impacts on the local community were likely to be minimal.

L.2.113 Property: Considered the site as suitable as either a main tunnel drive or reception/intermediate site, at significant but acceptable cost. The advantages of the site were that it is a significant size, unoccupied at that time, and it lies in an area identified for regeneration. However, there were potential issues of Crown ownership which required further investigation and it was necessary to acquire access rights for jetties and for the overflow culvert, which added to the acquisition cost.

S04WR: Open space, Grosvenor Road

L.2.114 The site S04WR is an area of open space known as Pimlico Gardens, located in the London Borough of Westminster.

L.2.115 The site was considered for use as a main tunnel reception/intermediate site.

L.2.116 Engineering: This site was considered less suitable as a main tunnel reception/intermediate site because it is narrow. In addition, two single-storey buildings would require demolition. It did, however, benefit from good road access.

L.2.117 Planning: Assessed the site as less suitable as a main tunnel reception/intermediate site. The site had a number of onsite and adjacent sensitive receptors, such as a public open amenity space, a conservation area, listed buildings and residential properties. The site area was compact and therefore offered very little flexibility in terms of the siting of
construction works at a distance from these receptors, and might even have been too small for use if the approved planning application for redevelopment of the existing restaurant building was implemented. Mitigation, reduced hours of construction and the re-provision of lost onsite facilities might be required by the LPA. However, visual impacts from the loss of mature trees might be difficult to mitigate.

L.2.118 **Environment:** Overall, the site was considered potentially **suitable** as a main tunnel reception/intermediate site.

L.2.119 Based on the information available at the time, the site was assessed as **suitable** from the perspectives of transport, archaeology, surface water, ecology and flood risk. The site was considered less suitable from the perspectives of built heritage, townscape, hydrogeology, air quality, noise and land quality.

L.2.120 **Socio-economic and community:** Assessed this site as **less suitable** as a main tunnel reception/intermediate site from a community impacts perspective. The proposed site is located in an area of open space (Pimlico Gardens) and on a community facility (Westminster Boating Base), and is adjacent to tennis courts. The use of the site would probably lead to loss of the gardens and boating base, which might have a relatively severe impact on local open space users and recreational river users. Mitigation might involve discussions around relocating these facilities.

L.2.121 The works and remaining permanent structure would likely disrupt use of the gardens and access to the river. Revenue from the use of the boating base and park for event hire and as a film location might be lost, at least temporarily, as a result of the works. Here, mitigation might involve sensitive discussions around suitable relocation and/or compensation.

L.2.122 In addition, the site would likely cause disruption to the residential development and gardens opposite, particularly the dwellings that overlook the park and river. Mitigation might involve discussions around project timescales, operating times, minimising noise, and view masking.

L.2.123 **Property:** Considered the site as **suitable** as a main tunnel reception/intermediate site from a property perspective. The acquisition cost should be acceptable; however, a special parliamentary procedure might be needed to acquire it, which could cause unacceptable delays to the project. The construction site would probably take part of number 135 Grosvenor Road, which has planning permission for residential redevelopment. If possible, the construction site arrangement should be amended to avoid that property and a potentially significant compensation claim.

**S11WR: Foreshore, adjacent to Riverwalk House and Vauxhall Bridge**

L.2.124 Site S11WR is located adjacent Vauxhall Bridge on the foreshore of the River Thames in the City of Westminster.

L.2.125 The site was considered as a main tunnel reception/intermediate site.

L.2.126 **Engineering:** Considered the site as **less suitable** as a main tunnel reception/intermediate site because it is narrow and not conducive to an efficient working layout. It would also require extensive temporary works,
including river protection, to create sufficient space for the construction phase.

L.2.127 **Planning:** Assessed the site as *less suitable* as a main tunnel reception/intermediate site. The site is subject to a number of onsite and adjacent designations and sensitive receptors, such as a conservation area and a nature conservation area of metropolitan importance, as well as residential and employment properties. Mitigation would be required to reduce visual, general amenity and setting impacts on these designations.

L.2.128 The site area is also compact and therefore offered very little flexibility in terms of siting the construction works at a distance from sensitive receptors, such as the adjacent office building. Mitigation and reduced hours of construction might also be required to avoid unacceptable adverse impacts on amenity.

L.2.129 **Environment:** Overall, the site was considered *less suitable* as a main tunnel reception/intermediate site. The site was considered *suitable* from the perspectives of transport, archaeology and noise but *less suitable* from the perspectives of built heritage, townscape, water resources (hydrogeology and surface water), ecology, air quality, land quality and flood risk.

L.2.130 Overall, the site was considered *less suitable*, and further investigation would be required as to whether built heritage, townscape, water resources (hydrogeology and surface water), ecology, air quality, land quality, flood risk, and potential noise impacts could all be adequately mitigated.

L.2.131 **Socio-economic and community:** Considered this site *less suitable* as a main tunnel reception/intermediate site. Use of the site would likely severely impede the use of Riverside Walk Gardens during operations, disrupt the view of the river, and create cumulative noise impacts with Milbank Road. Mitigation might involve discussions around the time span of operations. Remnant structures in the foreshore would likely remain as visual clutter when seen from Riverside Walk Gardens.

L.2.132 **Property:** Considered this site *suitable* as a main tunnel reception/intermediate site. It is an undeveloped area of foreshore and the acquisition cost should be acceptable. However, a special ministerial procedure might be needed to acquire it, which could cause delays to the project. Early discussions should be held with the PLA to establish whether it would agree to acquisition.
Phase one consultation preferred site

L.2.134 Consideration of the main tunnel sites up until short list stage principally focussed on each individual site in isolation from the assessment of tunnel drive and alignment options (ie, how the tunnel would be constructed and the route it would take). However, due to the nature of the scheme, it was necessary to select a package of main tunnel sites, having regard to how they would work in combination and in relation to the tunnel alignment and CSO connections.

L.2.135 The Engineering options report (Spring 2010) described the process of identifying the tunnelling options, taking into account engineering requirements. The main points are summarised below.

L.2.136 The engineering team took into consideration possible drive options – the combination of ways in which the tunnel could be constructed by ‘driving’ between combinations of shortlisted main tunnel sites – having particular regard to changes in ground conditions and the requirement for different types of tunnelling machines, construction risks and timescales.

L.2.137 To manage the total number of combinations of tunnel drive and reception/site options, which together make up a ‘drive option’, the available shortlisted main tunnel sites were grouped together in zones. The zones were based on the geographical locations of the sites along the line of the River Thames, as illustrated in Figure L.1 below. The zones were numbered and named for convenient referencing as shown in the figure.

Figure L.1 Location of site zones

L.2.138 Our preferred Abbey Mills route for the main tunnel would run from west London (Zones S1 to S7) to Abbey Mills Pumping Station (Zone S11). Zones S8 to S10 were only required for the River Thames and Rotherhithe routes, which did not become our preferred route options and were not relevant to Zone S5, so are not considered further in this appendix.

L.2.139 Multidisciplinary workshops were held to identify the most suitable main tunnel shortlisted site in each zone, taking into account the conclusions reached in the site suitability reports, as described above.
L.2.140 The distance between potential sites in this zone and the next set of potential sites to the east (Zone S6 Shad) is such that a main tunnel site in this zone would be required in order to ensure that maximum recommended tunnelling distances are not exceeded. There is also a change in geology at Zone S5, which means that it would be desirable to have a main tunnel site in this location. The drive options for the central section of the tunnel were also constrained by the fact that the only potentially available main tunnel sites identified in Zones S6 to S7 were assessed as suitable solely as main tunnel reception/intermediate sites. This meant that either a main tunnel drive site or main tunnel double drive site (ie, where the main tunnel is driven in two directions from one site) needed to be identified in Zone S5. Therefore, at this stage all the sites in Zone S5 that were identified as only suitable for main tunnel reception/intermediate sites were discounted.

L.2.141 The next decision was whether to use a site in Zone S5 as a double drive site (to drive the tunnel both east and west) or, alternatively, to use the site as a single drive site to drive the tunnel in one direction only and receive it from the other direction.

L.2.142 As a consequence, the following two site options were identified as the preferred sites for Zone S5 from which to construct the central sections of the main tunnel:

a. Option 1: S79WH with S80WH: Tideway Walk (suitable as a main tunnel drive site)

b. Option 2: S79WH with S80WH with S72WH, S73WH and S74WH: Tideway Walk (suitable as a double main tunnel drive site).

L.2.143 The sites at Tideway Walk were identified as the preferred site options for excavating a shaft to construct the central sections of the main tunnel for a number of reasons, which are summarised below:

a. S79WH and S80WH offered the opportunity to combine the requirements of the main tunnel drive works with the CS16X Heathwall Pumping Station interception and the CS17X South West Storm Relief interception, thereby minimising the CSO works into one site.

b. The other drive site possibilities (including S61WH: Battersea Park and S68WH: Battersea Power Station) are further from the Heathwall Pumping Station and South West Storm Relief sewers, which would therefore increase the scope of works required to connect these CSOs to the main tunnel.

c. The preferred sites are close to the river, which would minimise the main tunnel alignment deviation from the centre of the river and reduce potential third-party impacts.

d. The access and road transport to the preferred site was very good. Access to the river was a little more restricted but possible. It would require the installation of jetties to the eastern end, which would need to be designed to minimise the impact on both Middle Wharf and RMC Battersea Wharf. These areas are safeguarded wharves.
Appendix L – Kirtling Street (formerly Tideway Walk)

e. The shaft sites S72WH, S73WH, S74WH, S79WH and S80WH are all clustered together in an area of industrial character consisting of warehouse buildings, depots and office accommodation.

f. The five sites (S72WH, S73WH, S74WH, S79WH and S80WH) covered an area of approximately 35,000m². The combined sites were considered suitable from the perspectives of engineering, planning and environment, but less suitable from a property and community perspective. The combined sites fall within a number of designated areas of the *Wandsworth Unitary Development Plan*, including the Nine Elms Opportunity Area, an archaeological priority area, the Thames Policy Area and a safeguarded wharf. The closest sensitive receptors were two moorings on the immediate river frontage of site S79WH, currently in use by a small residential boating community. There are a number of existing jetty facilities along the river foreshore associated with the combined sites. There is road access from Kirtling Street and Cringle Street, which is a short distance from the A3205 (Nine Elms Lane).

g. It was considered that the constraints identified in relation to sites S72WH, S73WH, S74WH, S79WH and S80WH could be addressed with appropriate mitigation measures and that there would be no substantive conflict with planning policy. However, serious concerns remained in terms of property and acquisition costs for these sites, the proposed developments that might commence and the likely multiple land ownership and rights. This concern existed to a lesser or greater extent for all the sites considered, although the land acquisition concerns differed for S61WH: Battersea Park, which was least favourable in view of planning, environmental and community considerations.

L.2.144 A series of comparisons was then made in order to determine how best to use the potential sites identified across all the zones to construct the main tunnel.

L.2.145 The outcome of these comparisons was that we identified S79WH with S80WH as the phase one consultation preferred site in Zone S5, as the tunnel strategy required only a single drive shaft for the main tunnel in this zone. This site would also be used to connect the Heathwall Pumping Station CSO to the main tunnel as the CSO is nearby and the vortex drops could be housed within the main shaft (see this volume, Appendix M).

L.2.146 At the same time, site S17RD: Barn Elms Sports Centre was identified as a preferred drive site for the main tunnel in zones S1 to S4 for phase one consultation (see Volume 3, Western appendices, Appendix G), and S54SK: King’s Stairs Gardens was identified as a preferred reception/site for the main tunnel in Zone S6 (see Volume 5, Eastern appendices, Appendix R). In addition, there is a more detailed discussion of the main tunnel tunnelling options and comparisons for all routes and at this stage of the project in Volume 1, Sections 4.9 to 4.12).
L.3 Phase two consultation preferred main tunnel site: scheme development and site selection

Introduction

L.3.1 Section L.3 explains the implementation of the Site selection methodology paper in order to arrive at the preferred main tunnel site for the central sections of the tunnel route for phase two consultation.

L.3.2 Following phase one consultation and prior to phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; a back-check exercise to review the sites listed in Section L.2 and any potential new sites or a combination of sites; application of the assessment process outlined in L.2.2, including the preparation of a new Engineering options report (Summer 2011) with revised tunnelling drive options; a multidisciplinary optioneering workshop to consider the detailed contents of the site suitability report for each shortlisted site and the Engineering options report and compare sites to identify the preferred main tunnel site and use (drive or reception/intermediate) for phase two consultation (also see Volume 1, Sections 6.3 to 6.6 for the discussion on pre-phase two consultation discussion on tunnelling drive options).

L.3.3 This stage took place from Winter 2010 to Autumn 2011.

L.3.4 The assessments described in Section L.3 were based on the information available at the time and the related stage in the project’s development.

Phase one consultation responses

L.3.5 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

L.3.6 The main issues and concerns raised during phase one consultation in relation to the Tideway Walk site are listed below:

a. impact on boat moorings and community severance
b. impact on residential amenity
c. impact on the planned regeneration of the area
d. design of the permanent proposals for the site
e. impact on Cringle Dock Wharf.

L.3.7 The main comments received in support included:

a. it is a brownfield site in an industrial area
b. it would have less impact on the existing heritage than the alternatives
c. it has good transport infrastructure and would allow transport of material by barge
d. it would have reduced impact on residential amenity compared to the alternatives
e. the proposals for the site following construction are considered acceptable.

L.3.8 More detail on the consultation responses relating to this site and our response to the comments received are provided in the Report on phase one consultation.

Back-check process

L.3.9 Our site monitoring discovered that our preferred main tunnel site at Tideway Walk was no longer available for use. Site S79WH had planning permission for a residential development and demolition work had started on site. We therefore carried out a back-check to find an alternative site¹ and to review our drive options for Zone 5.

L.3.10 This back-check involved a targeted repeat of each relevant stage of our site selection process (as defined in the Site selection methodology paper) to find the most suitable main tunnel site in Zone S5.

L.3.11 As already noted, it was desirable to have a main tunnel drive site in this zone. The need to identify a new main tunnel drive site in this zone and others in Zones S0 to S4 and S6 to S7 also provided an opportunity to review the tunnelling strategy for the central sections of the tunnel.

Engineering assumptions

L.3.12 As part of the back-check process, the engineering assumptions that were used during the initial phase of site selection were reviewed to see whether design developments or new technical information altered any of the original assumptions.

L.3.13 The outcome of this review was that the size of construction site required for a main tunnel drive site in zones S0 to S5 (the section of the tunnel that would be constructed predominantly in London Clay) was reduced from 18,000m² to 15,000m². This important change allowed the back-check process to review sites that were previously considered too small for main tunnel drive sites. At the same time, it was established that the size of site required for a double drive site (i.e., tunnelling in two directions concurrently from one shaft) should be 20,000m².

L.3.14 The following section outlines the results of each stage of the back-check process.

Assessment of the back-check long list

L.3.15 The original long list sites for main tunnel drive shaft sites in Zone S5 contained 157 sites. These sites were reviewed alongside any newly identified sites to determine the ‘scope’ of the back-check exercise – that is, which sites would be subject to reassessment as a result of relevant changes of circumstances or new information that had emerged. The scoping exercise found we needed to reassess the following sites:

¹ It should be noted that S80WH is the same site area as our phase two consultation site C16XB to intercept Heathwall Pumping Station CSO and South East Storm Relief CSO (see this volume, appendix M for details). At the SSR stage, described later in this section, we only consider S80WH with S86WH and S94WH to provide both these potential sites with access to the River Thames.
L.3.16 The following new sites were also added to the back-check long list:

a. S92WH: Part of Battersea Power Station (previously part of S68WH and S69WH)
b. S93WH: Kirtling Street (previously S73WH with S74WH and S75WH)
c. S94WH: Post Office Way (previously S87WH and part of S88WH)
d. S95WH: Depots, Ponton Road (previously part of S89WH and all of S90WH).

L.3.17 All the other sites on the original long list were scoped out as there had been no change in circumstances that necessitated a reappraisal. The potential group of sites listed above was put on the back-check long list. It should be noted that at this stage, we also considered alternative sites suggested by consultees.

L.3.18 Sites S69WH, S73WH, S74WH, S75WH, S87WH, S88WH, S89WH and S90WH were withdrawn as they were replaced by the new sites, as detailed above.

L.3.19 The back-check long list sites were then assessed against the engineering, planning, environment, community and property considerations set out in Table 2.2 of the Site selection methodology paper.

L.3.20 Table L.2 below summarises the outcome of the back-check assessment of the back-check long list of sites. Sites that were assessed as the least constrained in light of the Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained did not pass to the back-check short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

L.3.21 For the sites that were retained at this stage, we then determined how to assess them under the Table 2.3 assessment in respect of size. For some sites, this also included examining neighbouring sites to see whether they could be used together.
### Table L.2 Long list to draft short list for main tunnel sites in Zone S5 (Table 2.2 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>S61WH</td>
<td>Battersea Park</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S68WH</td>
<td>Battersea Power Station</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S72WH</td>
<td>Cringle Street</td>
<td><strong>Recommendation:</strong> To draft short list as a split main tunnel site and reception/intermediate site with S93WH. Also to consider as a reception/intermediate site on its own.</td>
</tr>
<tr>
<td>S86WH</td>
<td>Post Office, Nine Elms Lane</td>
<td><strong>Recommendation:</strong> To draft short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S92WH</td>
<td>Part of Battersea Power Station</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S93WH</td>
<td>Kirtling Street</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S94WH</td>
<td>Post Office Way</td>
<td><strong>Recommendation:</strong> To draft short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S95WH</td>
<td>Depots, Ponton Road</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S03WR</td>
<td>Foreshore, Grosvenor Road</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S04WR</td>
<td>Open space, Grosvenor Road</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S11WR</td>
<td>Foreshore, adjacent to Riverwalk House and Vauxhall Bridge</td>
<td><strong>Recommendation:</strong> To draft short list as a main tunnel reception/intermediate site.</td>
</tr>
</tbody>
</table>

**NB:** The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

L.3.22 Of the 11 sites identified, all 11 were assessed as potentially suitable and passed to the draft short list.
Assessment of the back-check draft short list sites

L.3.23 The 11 back-check draft shortlisted sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper.

L.3.24 Table L.3 below summarises the outcome of the back-check assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the back-check short list to pass to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the back-check short list for more detailed assessment.

Table L.3 Draft short list to final short list for main tunnel sites in Zone S5 (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>S61WH</td>
<td>Battersea Park</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S68WH</td>
<td>Battersea Power Station</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S72WH</td>
<td>Cringle Street</td>
<td><strong>Recommendation:</strong> Retain on short list as a split main tunnel site and reception/intermediate site with S93WH. Also consider as a reception/intermediate site on its own.</td>
</tr>
<tr>
<td>S86WH</td>
<td>Post Office, Nine Elms Lane</td>
<td><strong>Recommendation:</strong> Retain on short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S92WH</td>
<td>Part of Battersea Power Station</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S93WH</td>
<td>Kirtling Street</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S94WH</td>
<td>Post Office Way</td>
<td><strong>Recommendation:</strong> Retain on short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S95WH</td>
<td>Depots, Ponton Road</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reception/intermediate site.</td>
</tr>
</tbody>
</table>
| S03WR   | Foreshore, Grosvenor Road | **Recommendation:** Not to short list for consideration as a main tunnel site or a main tunnel reception/intermediate site. **Rationale:**  
  - Engineering – Further investigation showed that the location of the EDF cable that passes through the site would constrain the use of this site.  
  - Property – The multiple leases might make acquisition complex. There is also potential for a high discretionary purchase cost.  
  - Community – There is a significant number of sensitive receptors in close proximity to the site including residents, a nursery school and a recreation area. |
| S04WR   | Open space, Grosvenor Road | **Recommendation:** Not to short list for consideration as a main tunnel site or a main tunnel reception/intermediate site. **Rationale:**  
  - Engineering – Further investigation showed that the location of the EDF cable that passes through the site would constrain the use of this site.  
  - Property – The site has multiple owners and residents also have shared ownership of the adjoining tennis courts, so acquisition might be complex. Also the discretionary purchase cost was likely to be high.  
  - Community – There is a significant number of sensitive receptors in close proximity to the site including community gardens, tennis courts and a boat club. |
| S11WR   | Foreshore, adjacent to Riverwalk House and Vauxhall Bridge | **Recommendation:** Not to short list for consideration as a main tunnel site or a main tunnel reception/intermediate site. **Rationale:**  
  - Engineering – Further investigation showed that the access arrangement would be very constrained. |
### Site ID | Site name/description | Recommendation and rationale
--- | --- | ---
 | | • Community – There was a limited amount of sensitive receptors, but it might affect the adjacent Riverwalk House and small area of open space. However, if the site needed to be moved further north, it might have more impact on the Chelsea Collage of Art and Design and the Tate Britain gallery.

**NB:** The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

L.3.25 Of the 11 sites on the back-check draft short list, eight were assessed as potentially suitable and passed to the final short list and three were eliminated as unsuitable.

**Assessment of the back-check final short list sites**

L.3.26 Following back-check, the eight shortlisted sites identified for assessment at the next stage were:

Sites identified as suitable as main tunnel drive or reception/intermediate sites:

a. S61WH: Battersea Park
b. S68WH: Battersea Power Station
c. S72WH: Kirtling Street (with Cringle Street) – split main tunnel site with S93WH
d. S86WH: Post Office, Nine Elms Lane – split main tunnel site with S80WH
e. S92WH: Part of Battersea Power Station
f. S93WH: Kirtling Street
g. S94WH: Post Office Way – split main tunnel site with S80WH
h. S95WH: Depots, Ponton Road.

L.3.27 A site suitability report was prepared for the new back-check final short list sites and the site suitability reports for the phase one shortlisted sites were re-evaluated (see L.2.16 to L.2.36). The size of site required was reduced in line with the revised engineering assumptions for main tunnel drive sites constructed in clay.

**S61WH: Battersea Park**

L.3.28 **Engineering:** The engineering assessment remained unchanged.

L.3.29 **Planning:** While a number of development plan documents have been adopted since the site suitability report was completed, the updated policies do not impact on the final planning assessment decisions.

L.3.30 **Environment:** The environment assessment remained unchanged.
L.3.31 **Socio-economic and community**: It was likely that there would be an impact on neighbouring residential properties that was not included in the previous assessment. However, the socio-economic and community recommendations remained as **not suitable** for a main tunnel double drive site and **less suitable** for a main tunnel single drive and reception/intermediate site.

L.3.32 **Property**: Site acquisition costs were likely to be very high if replacement land were required. The property assessment was **less suitable** as a main tunnel double or single drive site due to the high acquisition costs associated with providing replacement land. Acquisition costs were likely to be acceptable for a reception/intermediate site. The property assessment therefore remained **suitable**.

**S68WH: Battersea Power Station**

L.3.33 **Engineering**: The engineering assessment remained unchanged.

L.3.34 **Planning**: While a number of development plan documents have been adopted since the site suitability report was completed, the updated policies would not have an impact on the final planning assessment decisions.

L.3.35 **Environment**: The environmental assessment remained unchanged.

L.3.36 **Socio-economic and community**: It was likely there would be an impact on neighbouring residential properties that wasn’t included in the previous assessment. However, the socio-economic and community recommendations remained **suitable** for all site types.

L.3.37 **Property**: This site was considered **less suitable** as a main tunnel double and drive site and a reception/intermediate site. The site appeared to be in private ownership and therefore presented no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site would command residential development value and the acquisition cost would be very high. If development commenced, the site might no longer be available for acquisition, which would represent a significant risk to the project.

L.3.38 It was important that any use of the worksite did not prejudice the wider redevelopment of the Battersea Power Station site. If development was prejudiced, any acquisition might be opposed by the London Borough of Wandsworth, the GLA and Treasury Holdings. This would create a significant acquisition risk.

L.3.39 There was also a risk that the acquisition cost could be significantly higher than currently estimated if noise and dust from works prevented development of the rest of the Battersea Power Station site.

**S72WH/S93WH: Kirtling Street (with Cringle Street)**

L.3.40 S72WH, also known as Cringle Wharf, is situated on land currently used as a materials ready-mix concrete depot. S72WH is relatively flat and rectangular in shape. The depot site connects to an existing jetty by means of an overhead conveyor structure. The majority of the site
consists of outdoor storage areas for aggregates for use as part of a ready-mix operation.

L.3.41 S93WH is situated across three parcels of land currently occupied by industrial warehousing, a depot, a former petrol filling station and office buildings in the Nine Elms Industrial Area of the London Borough of Wandsworth. Kirtling Street and Cringle Street run through and around the construction site. The site is bounded by the River Thames to north.

L.3.42 This site was considered a main tunnel double and single drive site and a reception/intermediate site.

Engineering: This site was considered suitable as a main tunnel double or single drive site or a reception/intermediate site because the site is a suitable size, located on the riverside and in a good location for the tunnel alignment. Furthermore, the shaft and jetty are located some distance from the houseboats at Nine Elms Pier and from the Riverlight development on the Tideway Walk site. The combined site is also large enough to accommodate the ready-mix concrete operator and for them to use the existing Cringle Wharf jetty.

L.3.44 Planning: On balance, the combined sites were considered suitable as a main tunnel double or single drive site or a reception/intermediate site, provided that sufficient mitigation measures are employed to avoid unacceptable impacts on planning designations. Although part of site S93WH is within the planning application boundary to redevelop the Battersea Power Station, this area would be required for the latter phases of the approved proposals, which were likely to be compatible with our construction timetable.

L.3.45 The site could be used either with or without the aggregates facility in accordance with its designation as a safeguarded wharf. Further consultation with the operator of the aggregates wharf might be required in order to avoid a conflict in operations and barge movements with the joint use of the jetty facility. Proposals for use of the jetty would also need to ensure that the works would not negatively impact operations of the adjacent Waste Transfer Station to the west.

L.3.46 The increase in tunnelling activity and transport movements associated with a double drive would result in a higher level of noise, dust, lighting and more traffic movement, with potentially twice as many transport movements as a single drive site. However, due to the location of the site in a wider industrial area designated for substantial future regeneration, the surrounding receptors would likely experience disruption from the associated construction activity in any case. However, the cumulative impacts of increased vehicle movements would need to be considered with the redevelopment proposals that come forward in the surrounding area in order to ensure that wider cumulative impacts would not be experienced.

L.3.47 Environment: Overall, the site was considered suitable as a main tunnel double or single drive site or a reception/intermediate site.
Based on the information available at the time, the site was assessed as **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources (surface water), and flood risk.

This site was considered **less suitable** from the perspectives of water resources (hydrogeology), ecology, air quality, noise and land quality.

Overall, the site was considered **suitable**, but further investigation would be required as to whether water resources (hydrogeology), ecology, air quality, noise and land quality impacts could all be adequately mitigated.

**Socio-economic and community**: This site was considered **less suitable** as a main tunnel double or single drive site because its use would likely affect a residential boat community moored to the east of the site. The effects would be greatest if the site were used as a double drive site due to the greater scale of work as a result of 24-hour working, the scale of work and the location of the extended jetty facilities. The disruption caused by the use of jetties was likely to be reduced if we could utilise the whole of site S72WH.

The site was considered **suitable** as a reception/intermediate site as this option appeared likely to cause less disruption to the boat community. Even though 24-hour working was still proposed, the scale of work would be vastly reduced when compared to the other options and it appeared more likely that the impacts could be mitigated.

**Property**: The combined site was considered **less suitable** as a main tunnel double or single drive site or a reception/intermediate site. The site is in private ownership, therefore there would be no significant procedural difficulties in acquiring the land using compulsory purchase powers. Furthermore, the site includes a protected wharf which would prevent higher value uses, resulting in lower acquisition costs for that part of the site. However, the majority of the site would command residential development value. This would result in high acquisition costs. Also, if development commenced, the site might no longer be available, which would represent a risk to the project.

If the site were shared with the current wharf user, disturbance costs were likely to be lower as the business could continue to operate, but this would not make a significant difference to the overall acquisition cost. Therefore, the assessment remained **suitable** for all site options.

**S86WH: Post Office, Nine Elms Lane**

S86WH is situated in the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west, south and east by industrial uses, such as warehouses and depots, as well as the New Covent Garden Market. The site is currently occupied by the Royal Mail Sorting Office depot.

The site was considered for use as a main tunnel double or single drive site and a reception/intermediate site.

**Engineering**: Assessed the site as **less suitable** as a main tunnel double or single drive site or reception/intermediate site because of the likelihood
of highly contaminated ground on site. The distance from the river would require the main tunnel to deviate significantly from the river and pass south of Battersea Power Station under the redevelopment site and a number of critical service tunnels along Nine Elms Lane. The provision of jetty facilities would be difficult, with a number of constraints, and the need for overhead conveyors to transport the excavated materials over Nine Elms Lane via site S80WH.

L.3.58 **Planning:** On balance, the site was considered **less suitable** as a main tunnel single main drive or reception/intermediate site. Use of the proposed site would likely have an unacceptable impact on the development potential of the surrounding area. As the main shaft would be located away from the River Thames, the tunnel alignment would have to divert further inland and potentially affect the feasibility of future high-density and high-rise development opportunities above the alignment.

L.3.59 A main tunnel double drive site was also considered **less suitable** as it would increase tunnelling activity and transport movements, and require use of overhead conveyors. This would likely result in increased levels of noise, dust, lighting and potentially twice as many transport/traffic movements.

L.3.60 **Environment:** Overall, the site was considered **less suitable** as a main tunnel double or single drive site or reception/intermediate site. This was primarily due to the high potential for ground contamination of the site as a result of the site’s previous use as a gas works. Known contamination issues included heavy metals and the potential to encounter underground tanks on site and subterranean tar lagoons that were not mapped. Remediation costs would therefore likely be extensive.

L.3.61 Based on the information available at the time, the site was considered **suitable** for all site options from the perspectives of transport, archaeology, built heritage and townscape, flood risk and water resources (surface water). It was also **suitable** from the perspectives of ecology for the reception/intermediate site option.

L.3.62 The site was considered **less suitable** for all site options from the perspectives of water resources (hydrogeology), air quality, noise and land quality. It was also **less suitable** from the perspectives of ecology for the single or double main tunnel drive site.

L.3.63 If the site were to be selected, further investigation would be required as to whether hydrogeology, ecology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.64 **Socio-economic and community:** This site was considered **less suitable** as a main tunnel double or single drive site. This was predominantly because use of and access to the materials jetties associated with the site would likely involve some construction related disruption to Elm Quay residents and the boat community moored in the vicinity of the existing pumping station.

L.3.65 The site was considered **suitable** as a reception/intermediate site as it appeared unlikely that its use for this option would impact on the local
community, especially in the context of the proposed redevelopment of the whole area.

L.3.66 **Property:** If the Royal Mail office on site were not operational, the site would be **less suitable** as a main tunnel double or single drive site. The site would likely command residential development value and the acquisition cost would be high. However, the site was considered **suitable** as a reception/intermediate site with acceptable acquisition costs.

L.3.67 If the site remained operational for Royal Mail purposes, it would be considered **not suitable** on grounds of acquisition cost and risk for all three options. However, Royal Mail has development aspirations for the site and therefore it is unlikely that the operational use of the site will continue.

**S92WH: Part of Battersea Power Station**

L.3.68 The site forms part of the area identified for the Battersea Power Station redevelopment scheme in the Nine Elms area of the London Borough of Wandsworth.

L.3.69 The site is irregular in shape, with a river frontage, and accessible via Cringle Street and Kirtling Street.

L.3.70 The site is occupied by an existing district heating plant which serves the north side of the river, as well as general purpose hardstanding for parking, loading/unloading and storage. The central area of the site also contains the Grade II listed Battersea Power Station and the southern section includes areas cleared for the power station redevelopment.

L.3.71 The site was considered for use as a double or single main tunnel drive site and a reception/intermediate site.

L.3.72 **Engineering:** The site was considered **suitable** as a main tunnel single drive and reception/intermediate site but **less suitable** as a main tunnel double drive site because of the constrained site shape, because a double drive option would require a larger shaft and leave very limited access room around it. Although the site is directly by the river, which is good for the tunnel alignment, it would require the relocation of the ‘Dalkia’ district heating boiler building (for Dolphin Square) prior to commencing works and is close to existing Thames Water shafts associated with clean water tunnels under the river, including the London Ring Main. Handling of materials by river barge would have to be at the existing Battersea Power Station jetty, which might not be available.

L.3.73 **Planning:** On balance, the site was considered **less suitable** as a main tunnel double or single drive site or a reception/intermediate site. Following discussions with the applicant, there are proposals for the land forming S92WH to be the construction site for the approved Battersea Power Station redevelopment works and is critical to the implementation of the permission. It was therefore envisaged that the area proposed for the project would unlikely be temporarily used for a main tunnel site without delaying or preventing the redevelopment of a significant portion of the wider site or the listed power station itself.
For a main tunnel double drive site, there was also a potential conflict of barge movements, the use of the river, and the proximity to the existing Waste Transfer Station barge access.

**Environment:** Overall, the site was considered less suitable as a main tunnel double or single drive site or a reception/intermediate site. The site was considered suitable from the perspectives of transport, archaeology, surface water, hydrogeology, flood risk and noise. In the case of the reception/intermediate option, the site was also considered suitable from the perspectives of ecology. The site was considered less suitable from the perspectives of built heritage, townscape, air quality and land quality. In the case of the main tunnel double and single drive options, the site was also considered less suitable from the perspective of ecology. Overall, the site was considered less suitable, and further investigation was required as to whether built heritage, townscape, ecology, air quality and land quality impacts could all be adequately mitigated.

**Socio-economic and community:** This site was considered suitable as a main tunnel double or single drive site or a reception/intermediate site.

At this stage, it appeared that the use of the site would be unlikely to cause major levels of disruption to the local community. However, that would depend on the ability to relocate the district heating facility efficiently to minimise any break in service and ensure that construction works would be effectively screened from residential properties opposite the eastern and southern edge of the site.

**Property:** This site was considered less suitable as a main tunnel double or single drive site or a reception/intermediate site. The site appeared to be in private ownership and should therefore present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site would command residential development value and the acquisition cost would be very high. If development commenced, the site might no longer be available for acquisition, which would represent a significant risk to the project.

It was important that any use of the worksite would not prejudice the wider redevelopment of the Battersea Power Station site. If development were prejudiced, any acquisition might be opposed by the London Borough of Wandsworth, the GLA, and Treasury Holdings. This would create a significant acquisition risk.

There is also a risk that the acquisition cost could be significantly higher than currently estimated if noise and dust from works prevented development of the rest of the Battersea Power Station site.

**S93WH: Kirtling Street**

Site S93WH is situated across three parcels of land currently occupied by an industrial warehousing, a depot, a former petrol filling station and office buildings in the Nine Elms Industrial Area of the London Borough of Wandsworth. Kirtling Street and Cringle Street run through and around the construction site. The site is bound by the River Thames to the north.
L.3.82 The Cringle Street ready-mix concrete depot, an office building, Cringle Dock Waste Transfer Station and Thames Water Pumping Station are situated to the west of the site. The Tideway Industrial Estate, Nine Elms Lane and the Royal Mail Sorting Office are situated to the east. New Covent Garden Market and properties located along Battersea Park Road are located to the south of the site.

L.3.83 The site was considered for use as a main tunnel double or single drive site or a reception/intermediate site.

L.3.84 Engineering: This site was considered suitable as a main tunnel double or single drive site or a reception/intermediate site because the site is a suitable size, is located on the riverside and would be acceptable for the tunnel alignment. The provision of jetty facilities would be difficult, as it would rely on using the area in front of the existing Nine Elms Pier and Cringle Wharf and/or using the pier itself, which would mean relocating a significant number, and possibly all, of the residential boats around Nine Elms Pier.

L.3.85 Planning: On balance, the combined sites were considered suitable as a main tunnel double or single drive site or a reception/intermediate site, provided that sufficient mitigation measures are employed to avoid unacceptable impacts on planning designations. While part of the site is within the planning application boundary to redevelop the Battersea Power Station, this area forms the latter phases of the approved proposals, which were likely to be compatible with our construction timetable.

L.3.86 The use of jetties for a drive site would require a much higher standard of mitigation to avoid unacceptable effects on the amenity of the existing houseboats from 24-hour working, noise, dust, lighting and traffic movements. However, a number of houseboats might require temporary relocation.

L.3.87 The increase in tunnelling activity and transport movements associated with a double drive would result in higher levels of noise, dust, lighting and potentially twice as many transport movements as a single drive site. However, the fact that the site is located in a wider industrial area designated for substantial future regeneration, the surrounding receptors would likely experience disruption from the associated construction activity in any case.

L.3.88 Environment: Overall, the site was considered suitable as a main tunnel double or single drive site or a reception/intermediate site.

L.3.89 Based on the information available at the time, the site was assessed as suitable from the perspectives of transport, archaeology, built heritage, townscape, water resources (surface water), and flood risk.

L.3.90 This site was considered less suitable from the perspectives of water resources (hydrogeology), ecology, air quality, and noise and land quality.

L.3.91 Overall, the site was considered suitable, but further investigation would be required as to whether water resources (hydrogeology), ecology, air quality, noise and land quality impacts could all be adequately mitigated.
L.3.92 **Socio-economic and community:** This site was considered less suitable as a main tunnel double or single drive site or reception/intermediate site because any form of site in this location would likely require the relocation of the residential boat community moored in the vicinity of the site. The impacts would be greatest if the site were used as either a double or single drive site due to the requirement for 24-hour working and the proposed location of the jetties. While the reception/intermediate site option might cause less disruption and it is more likely that the impacts could be mitigated, a number of houseboats would still be in close proximity to the main shaft works area.

L.3.93 **Property:** This site was considered less suitable as a main tunnel double or single drive site or a reception/intermediate site primarily due to high acquisition costs. The site is in private ownership and therefore the freehold ownership should present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site would command residential development value and the acquisition cost would be high. Also, if development commenced, the site might no longer be available for acquisition, which would represent a risk to the project. The site is also part occupied by the Victoria and Albert Museum, which is a Crown interest that cannot be acquired by compulsory purchase; therefore acquisition would need to be by agreement.

**S94WH: Post Office Way**

L.3.94 S94WH is situated within the site previously occupied by the publishers TSO, located in the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the Post Office sorting depot, and the east by the proposed American Embassy site. The site is currently vacant and comprises a large complex that consists of a six-storey office block and several low-rise storage and distribution warehouses.

L.3.95 The site was considered for use only as a main tunnel single drive and reception/intermediate site as it is too small to accommodate the core and ancillary activities required for a main tunnel double drive site.

L.3.96 **Engineering:** This site was considered less suitable as either a main tunnel single drive site or reception/intermediate site because of the likelihood of highly contaminated ground and underground structures, and its location with respect to the river would require the main tunnel to deviate significantly from the river and pass directly under Heathwall Pumping Station or the Tideway Industrial Estate. The provision of jetty facilities would be difficult and subject to a number of constraints and there would be a need for overhead conveyors to transport excavated materials over Nine Elms Lane via S80WH. Also the location of this site means the alignment of the main tunnel would need to make a tight 124-degree return.

L.3.97 **Planning:** On balance, the site was considered suitable as a reception/site. The site has good transport and access connections onto Nine Elms Lane and the industrial context of the site means the works would be unlikely to have a detrimental effect on the amenity of the surrounding area.
L.3.98 On balance, the site was considered **less suitable** as a main tunnel single drive site. The use of overhead conveyors across Nine Elms Lane to manage the increased construction activity on the site, and the proximity of the jetties to residential properties at Elm Quay Court and the existing houseboat community, would have an unacceptable impact on amenity.

L.3.99 **Environment:** Overall, the site was considered **less suitable** as a main tunnel single drive site or reception/intermediate site. This was primarily due to the high potential for ground contamination of the site as a result of its previous use as a gas works. Known contamination issues included heavy metals and the potential to encounter underground tanks on site and subterranean tar lagoons that were not mapped. Remediation costs would therefore likely be extensive.

L.3.100 Based on the information available at the time, the site was **suitable** from the perspectives of transport, archaeology, built heritage and townscape, flood risk and water resources (surface water). For the reception/intermediate option, the site was also considered suitable from the perspective of ecology.

L.3.101 This site was considered **less suitable** from the perspectives of water resources (hydrogeology), noise, and air and land quality. For the single main tunnel drive option, the site was also considered **less suitable** from the perspective of ecology.

L.3.102 Overall, the site was considered **less suitable**, and further investigation would be required as to whether hydrogeology, ecology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.103 **Socio-economic and community:** This site was considered **less suitable** as either a main tunnel single drive site or a reception/site.

L.3.104 The use of this site and the associated infrastructure appeared likely to affect residents of Elm Quay Court and the houseboat community in the vicinity. Works in this location could also impact on any future residents of the Tideway industrial development, the Royal Mail Sorting Office site and users of the US Embassy site.

L.3.105 **Property:** This site was considered **less suitable** as a main tunnel site or reception/intermediate site due to acquisition risks and high acquisition costs. The site appeared to be in private ownership and therefore compulsory purchase of the site was possible. However, the site would command residential development value and the acquisition cost would be very high for the single drive option. Furthermore, if development commenced, the site might no longer be available for acquisition, which would represent a significant risk to the project.

L.3.106 We have also received an initial objection to the use of this site in strong terms from the US Government, as it is adjacent to the new US Embassy site. If the US Government mounted an objection to the use of this site, this would represent a significant risk of failure to get confirmed compulsory purchase powers to acquire the site.
S95WH: Depots, Ponton Road

L.3.107 S95WH is situated in the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the proposed American Embassy site, to the northeast/east by New Covent Garden Flower Market and by railway lines to the south. The site largely comprises a number of low-rise distribution depots, an electricity substation and part of the South Bank Business Centre.

L.3.108 The site was considered for use as a main tunnel double or single drive site and a reception/intermediate site.

L.3.109 **Engineering:** This site was considered **suitable** as a main tunnel double or single drive site or a reception/intermediate site because the site is large enough, close to the river and the tunnel would not have to pass below any third-party structures. One disadvantage was that the river access is separated from the site by Nine Elms Lane, which would require excavated materials conveyors to cross over Nine Elms Lane at a high level, and materials would have to traverse along Nine Elms Lane from Middle Wharf.

L.3.110 **Planning:** On balance, the site was considered **suitable** for a reception/intermediate site. The site had good transport and access connections onto Nine Elms Lane, and the industrial context of the site meant that the works would be unlikely to have a detrimental effect on the amenity of the surrounding area.

L.3.111 However, the proposed site was considered **less suitable** as a main tunnel single drive site as it would likely have an unacceptable impact on the residents of Elms Quay Court and Riverside Court, situated to the north of the site and fronting onto the River Thames. The proposed overhead conveyor belt that would transport excavated materials from the site to the jetty would pass between the two residential properties in close proximity. The barge movements to and from the jetty might also cause disturbance to the residents fronting the river.

L.3.112 The proposed main tunnel double drive option was considered **not suitable.** The planning considerations and impacts grew in significance for a double drive with increased tunnelling activity and the associated intensification of noise, dust, lighting and traffic impacts. These impacts were of particular concern in relation to the use of the overhead conveyors and the potentially significant impact on residential amenity. A potential conflict in the relationship between the construction site and the adjacent proposed US Embassy might also become more critical due to the additional construction activity associated with a double drive concentrated on the same site area as a single main drive site.

L.3.113 **Environment:** Overall, the site was considered **suitable** for use as a main tunnel double or drive site or a reception/intermediate site. However, mitigation would be required to enable the site to be used.

L.3.114 Based on the information available at the time, the site was considered **suitable** from the perspectives of transport, archaeology, built heritage and townscape, flood risk, water resources (surface water) and ecology.
L.3.115 The site was considered less suitable from the perspectives of water resources (hydrogeology), noise, and air and land quality.

L.3.116 Overall, the site was considered suitable, subject to further investigation of whether hydrogeology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.117 **Socio-economic and community:** This site was considered less suitable as a reception/intermediate site due to the potential impact on the residential properties located opposite and overlooking the site and, to a lesser extent, the commercial businesses operating out of the premises, currently located on site and opposite the site to the northeast and southwest.

L.3.118 The site was considered not suitable as either a main tunnel double or single drive site due to the increased tunnelling work. This would involve greatly increased material inputs and removal and require the use of materials jetties and conveyors, which we proposed to locate opposite two large residential developments and to the east of a houseboat community moored on the foreshore. In addition, a greater number of businesses operating out of premises on the site would require relocation and there was greater potential to impact on business in the surrounding area.

L.3.119 **Property:** This site was considered less suitable as a main tunnel double or single drive site or a reception/intermediate site. The site appeared to be in private ownership which should present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site would command residential development value and the acquisition cost would be high. There was also the potential for high discretionary purchase costs.

L.3.120 We have received a strong initial objection from the US Government to the use of this site as it is adjacent to the new US Embassy site. If the US Government mounted an objection to the use of this site, this would represent a significant risk of failure to get confirmed compulsory purchase powers to acquire the site.

**Phase two consultation preferred site**

L.3.121 Following the completion of the back-check process, we held a multidisciplinary workshop to select the most suitable main tunnel site in Zone S5 Battersea for each type of use (i.e., main tunnel double drive, main tunnel single drive and main tunnel reception/intermediate) from the shortlisted sites and drive options in the *Engineering options report* (Summer 2011) to determine the preferred site. This workshop took into account the site suitability report findings, drive options, and feedback received during phase one consultation and interim engagement.

L.3.122 Figure L.2 illustrates the location of the preferred and shortlisted sites in Zone S5 Battersea.
The workshop agreed that S72WH/S93WH: Kirtling Street (with Cringle Street) was the most suitable main tunnel site in Zone 5. Generally, the sites south of Nine Elms Lane (S86WH with S80WH, S94WH with S80WH and S95WH) were less suitable for a number of reasons. Foremost is the fact that the route to the river for the removal of excavated material is much more difficult than from sites immediately adjacent to the River Thames. Battersea Park (S61WH) is a greenfield site, whereas Battersea Power Station (S68WH) is a brownfield site with planning permission for a major mixed-used development that would be significant to the Nine Elms Opportunity Area.

In reviewing the drive options with S72WH/S93WH: Kirtling Street (with Cringle Street) as the most suitable site in Zone S5, following consideration of various drive options, we determined that this site should be used as a main tunnel double drive site. That is, two TBMs would be launched into a shaft at this site in order to construct the central sections of the main tunnel. One TBM would drive the main tunnel in a westerly direction to S87HF: Carnwath Road Riverside and a second TBM would, at the same time, be used to drive the main tunnel in an easterly direction to S76SK Chambers Wharf.

On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that S72WH/S93WH: Kirtling Street (with Cringle Street) should be the recommended phase two preferred main tunnel site. This meant that we believed this to be the most appropriate site, subject to further engagement with stakeholders and further design development to verify that conclusion prior to phase two consultation.
In summary S72WH/S93WH: Kirtling Street (with Cringle Street) was identified as the preferred double drive main tunnel site for the following reasons (in no particular order):

a. The site at S72WH/S93WH: Kirtling Street (with Cringle Street) is brownfield land in a predominantly industrial area where large-scale redevelopment is proposed in the Nine Elms Opportunity area.

b. S72WH/S93WH: Kirtling Street (with Cringle Street) has direct river access with a greater river frontage than site S93WH on its own, and much better access compared to sites that would require crossing over Nine Elms Lane.

c. The wider area of river frontage would allow for the construction of jetties and conveyors, which would result in improved barge access and could handle large seagoing vessels. There is also an opportunity to make use of the existing Cringle Wharf jetty. All of these arrangements would result in less impact on nearby houseboats and reduce the risk of potential relocation.

d. The Greater London Authority recommended use of this site in its formal response to our phase one consultation. Also, Cringle Wharf is a safeguarded wharf and our proposed use would be consistent with this designation.

e. The main shaft could be located adjacent to the river and therefore it is unlikely that the alignment of the main tunnel would pass under any significant buildings.

f. The site forms part of the later stages of the Battersea Power Station redevelopment proposals and therefore offered the potential for complementary timescales of works.

g. Use of this site also appeared likely to cause less disruption to residents of Elm Quay than a number of the other options under consideration, which would have required more works in closer proximity to these properties.

While there were a number of reasons why Kirtling Street (with Cringle Street) was identified as our preferred site, there were a number of potential issues that we needed to address, particularly in relation to the Battersea Power Station development proposal, if this site were selected. The reasons included potential acquisition problems and costs, the impact of the permanent structures required to operate the tunnel with the regeneration plans for the site, and conflict with adjacent users.

In addition to identifying a suitable site in Zone S5, the back-check process also reviewed main tunnel shaft sites in Zones S1 to S4 and S6 to S7, and the overall tunnelling strategy. The options for these zones were reviewed at the same multidisciplinary workshop as the Kirtling Street site.

This process identified S72WH/S93WH: Kirtling Street (with Cringle Street) as the preferred main tunnel double drive site in Zone 5. We also identified S87HF: Carnwath Road Riverside as the preferred main tunnel site in Zones S1 to S4 (see Volume 3, Western appendices, Appendix G) and S76SK: Chambers Wharf as the preferred main tunnel site in zones...
Appendix L – Kirtling Street (formerly Tideway Walk)

S6 to S7 (see Volume 5, Eastern appendices, Appendix R). There is also a more detailed discussion of the tunnelling options for the main tunnel and comparisons at this stage of the project in Volume 1, Sections 6.3 to 6.6.

L.3.130 The above points for based on the information available at the time at the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.

**Confirmation of the preferred site for phase two consultation**

L.3.131 A final preferred sites workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that **S72WH/S93WH: Kirtling Street (with Cringle Street) should become the phase two consultation preferred site for a double drive shaft to construct the central sections of the main tunnel. Hereafter, this site was referred to as Kirtling Street.**

L.3.132 Sites S87HF: Carnwath Road Riverside and S76SK: Chambers Wharf were also confirmed as main tunnel reception/intermediate sites to receive the TBM used to construct the central sections of the main tunnel driven from S72WH/S93WH: Kirtling Street (with Cringle Street).

L.3.133 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and the scheme for the project.

**L.4 Post phase two consultation: review of main tunnel sites**

**Introduction to the review**

L.4.1 Section L.4 explains how we implemented the requirement in the Site selection methodology paper to review the scheme following phase two consultation and prior to Section 48 publicity.

L.4.2 The scheme review at this stage of the site selection process comprised: review comments from phase two consultation related to main tunnel sites and tunnelling options associated with Zone S5 for the central sections of the main tunnel set out in the Engineering options report (Spring 2012); consideration of any ongoing scheme design and/or new technical information; multidisciplinary workshops and reviews to re-consider the various site and drive comparisons, and reasons for the most suitable main tunnel site and use for Section 48 publicity.

L.4.3 This stage took place from Spring 2012 to Summer 2012.

**Summary of phase two consultation responses**

L.4.4 Details of the consultation responses in relation to this site and our responses are provided in the Report on phase two consultation. The main feedback relevant to site selection can be summarised as follows:

a. Alternative and shortlisted sites were not properly considered.
b. Shortlisted sites in relation to Battersea Power Station and part of Battersea Power Station were not properly considered.

c. Site selection should avoid sites in residential and/or densely populated areas. In particular, this site would impact on the Nine Elms Pier boat community.

d. Selection of this preferred site was poorly justified/inadequately explained; clarification is needed as to the need for the Kirtling Street site and an explanation as to why the Heathwall site does not suffice for both development proposals.

e. Use an alternative site. Suggestions included Cringle Wharf and Battersea Power Station.

f. Alternative drive strategies were suggested for the central section of the main tunnel.

L.4.5 The main comments received in support of the site included:

a. The identification of a new preferred site since phase one consultation is supported/the preferred site is more suitable than the site put forward at phase one and any alternative site.

b. The site is a brownfield site/in an industrial area and of limited value to the local community. Use of the site would have limited effects on the local area and the community.

c. The site selection is supported because the project needs to be undertaken.

L.4.6 Due to suggested alternative drive options, we reviewed our tunnelling strategy and prepared a revised Engineering options report (Spring 2012), which concluded that the suggested alternatives would not add any new drive options, so the potentially feasible main tunnel drive options remained the same as those in the Engineering options report (Summer 2011) prior to phase two consultation.

L.4.7 Having taken all comments received during phase two consultation into account, we still believe S72WH/S93WH: Kirtling Street (with Cringle Street) is the most suitable double drive main tunnel site to construct the central sections of the main tunnel.

Any changes in circumstances or new information

L.4.8 Two planning permissions were recently granted and two planning applications were recently submitted by third parties, which constituted new information and a potential change in circumstances.

L.4.9 Outline planning permission was granted (application reference: 2011/1815) in March 2012 for the demolition of all existing buildings and construction of a mixed-use redevelopment on land to the south of Nine Elms Lane, comprising a DHL Depot, 1-12 Ponton Road and 51 Nine Elms Lane. The site subject to the planning permission included the Post Office Way site (S94WH) – (split main tunnel site with (S80WH)) and the Depots, Ponton Road site (S95WH).
L.4.10 Outline planning permission was granted (application reference: 2011/2462) in March 2012 for the demolition of all existing buildings and construction of a mixed-use redevelopment at the South London Mail Centre, 53 Nine Elms Lane. The site subject to the planning permission included the Post Office, Nine Elms Lane site (S86WH) (split main tunnel site with S80WH)).

L.4.11 A planning application was submitted (registered 27/02/2012) (application reference: 2012/0764) for the installation of additional concrete plant for a temporary period of four years, including erecting a new aggregate feed hopper and three cement silos connected by vertical conveyors; car and cycle parking; and relocation of existing temporary offices. The planning application area covered part of sites S72WH: Kirtling Street (with Cringle Street) - split main tunnel site with S93WH) and S93WH: Kirtling Street.

L.4.12 A planning application was submitted under reference 2011/1926 for the redevelopment of Nine Elms Pier, Tideway Walk (to the east of S72WH: Kirtling Street (with Cringle Street) split main tunnel site with S93WH) and S93WH: Kirtling Street) to include demolition of the existing pier and erection of a new marina to provide permanent moorings for 33 houseboats. However, on 17 November 2011 the Department of Communities and Local Government issued an Article 25 Direction under Town & Country Planning (Development Management Procedure) (England) Order 2010 to prevent the Local Planning Authority from determining the application if they recommended approval.

L.4.13 Implementation of the planning application would have increased the number of sensitive receptors (houseboats) adjacent to the phase two consultation preferred site. These additional receptors could have experienced disturbance and might have required temporary relocation during our construction works, which had the potential to increase a number of compensation claims. The position of the new marina would have also obstructed our construction site layout, in particular the jetty and barge facilities required for river transport at the site. This potential scenario was determined as unacceptable by Secretary of State, who would only consider lifting the Direction on confirmation that an agreed position had been reached between the Local Planning Authority, the applicant and Thames Water. There were discussions between all parties to try to reach an amicable solution. Although this application represented new information, it did not cause a site selection issue. The application was prevented from being approved and implemented and in any case, although likely to be more difficult and costly, it is considered that the construction effects could be mitigated.

L.4.14 There was also some new property information. Firstly, the part of S93WH which was occupied by the Victoria and Albert Museum, a Crown tenant which cannot be acquired by compulsory purchase, is now vacant and therefore has a reduced acquisition risk. Secondly, on-going discussions between Cemex and the project team indicate it may be possible to work with them to mitigate any business disturbance.
L.4.15 Having considered this new information, we still believe S72WH/S93WH: Kirtling Street (with Cringle Street) is the most suitable double drive main tunnel site to construct the central sections of the main tunnel.

**Summary of tunnelling drive options**

L.4.16 We re-reviewed the shortlisted sites, we still believe S72WH/S93WH: Kirtling Street (with Cringle Street) is the most suitable site in main tunnel Zone S5 Battersea. As noted in paragraph L.4.6 above, the drive options did not change so main tunnel comparisons in Volume 1, Main report, Section 6.6 remains valid. Therefore S72WH/S93WH: Kirtling Street (with Cringle Street) remains the most suitable site for a main tunnel double drive site that would be used to drive the main tunnel west to Carnwath Road Riverside and east to Chambers Wharf.

**Main rationale for the selection of the CSO site for Section 48 publicity**

L.4.17 We re-reviewed the tunnelling drive options and we still believe S72WH/S93WH: Kirtling Street (with Cringle Street) is the most suitable site in main tunnel Zone S5 Battersea to provide a main tunnel double drive site that would be used to drive the main tunnel west to Carnwath Road Riverside and east to Chambers Wharf.

L.4.18 As noted in paragraph L.4.8 above, the drive options did not change, but we still reviewed the drive options and the main tunnel comparisons in Section 3 above remain valid (also see Volume 1, Main report, Sections 6.3 to 6.6). Therefore, S72WH/S93WH: Kirtling Street (with Cringle Street) is the most suitable site to provide a main tunnel double drive site that would be used to drive the main tunnel west to Carnwath Road Riverside and east to Chambers Wharf.

L.4.19 In summary, S72WH/S93WH: Kirtling Street (with Cringle Street) was identified as the most suitable double drive main tunnel site to construct the central sections of the main tunnel for the following reasons (in no particular order):

a. S72WH/S93WH: Kirtling Street (with Cringle Street) is brownfield land in a predominantly industrial area where large-scale redevelopment was proposed in the Nine Elms Opportunity area, so it was more capable than other areas of accommodating a double drive site.

b. S72WH/S93WH: Kirtling Street (with Cringle Street) has direct river access with a greater river frontage than site S93WH on its own, and much better access compared to sites that would require materials to cross over Nine Elms Lane. Site S72WH/S93WH also has good vehicular access directly off Nine Elms Lane (A3205).

c. The use of S72WH/S93WH: Kirtling Street (with Cringle Street) would avoid the loss of greenfield land at Battersea Park (a Grade II* registered park and garden) and effects on listed buildings at Battersea Power Station.

d. Cringle Wharf is a safeguarded wharf and our proposed use would be consistent with this designation.
e. The wider area of river frontage would allow for the construction of jetties and conveyors, which would improve barge access and be able to handle large seagoing vessels. There was also an opportunity to make use of the existing Cringle Wharf jetty. All of these arrangements would result in less impact on nearby houseboats and reduce the risk of relocation compared to using S93WH on its own.

f. Although part of the site forms part of the Battersea Power Station redevelopment proposals, this part was scheduled for later development phases and therefore offered the potential for complementary timescales for works.

g. The main shaft could be located adjacent to the river and therefore it was unlikely that the alignment of the main tunnel would pass under any significant buildings.

h. Use of this site also appeared likely to cause less disruption to residents of Elm Quay than a number of the other options under consideration, which would have required more works in closer proximity to these properties.

i. The acquisition risk associated with S72WH/S93WH: Kirtling Street (with Cringle Street) was considered less than the other shortlisted sites. Given that the other sites were subject to planning permission for mixed-use development, acquisition costs for land within Battersea Park were likely to be very high if replacement land were required and the costs associated with the Battersea Power Station sites would also be very high since the Battersea Power Station site has recently been sold as a single unit.

L.5 Confirmation of the proposed CSO site for Section 48 publicity

L.5.1 The post phase two consultation review described above in Section L.4 confirmed S72WH/S93WH: Kirtling Street (with Cringle Street) as a main tunnel double drive site that would be used to drive the main tunnel west to Carnwath Road Riverside and east to Chambers Wharf.

L.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submission of the final application.
Appendix M – Heathwall Pumping Station (formerly Tideway Walk)

M.1 Introduction

M.1.1 This appendix sets out the site selection process that was followed in order to identify the most suitable site to intercept the Heathwall Pumping Station and South West Storm Relief CSOs prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

M.1.2 Table M.1 summarises the CSO sites to intercept the Heathwall Pumping Station and South West Storm Relief CSOs at each phase of the process up to Section 48 publicity.

Table M.1 Summary of the most suitable sites to intercept the Heathwall Pumping Station and South West Storm Relief CSOs at each phase of the project

| Phase one consultation site: | Tideway Walk – combined main tunnel and CSO site |
| Phase two consultation site: | Heathwall Pumping Station – CSO interception only (Kirtling Street – main tunnel site – see Appendix L) |
| Section 48 publicity site: | Heathwall Pumping Station – CSO interception only (Kirtling Street – main tunnel site – see Appendix L) |

M.1.3 This appendix is structured as follows:

a. Section M.1 the remainder of this section provides details of the type of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section M.2 provides details of how we identified our preferred site for phase one consultation.

c. Section M.3 provides details of the back-check assessments and the reasons why we changed our site for phase two consultation.

d. Sections M.4 and M.5 provide details of the post phase two consultation scheme review and confirmation of the proposed CSO site for Section 48 publicity.

Type of site

M.1.4 We need a site to intercept the local combined sewer overflows (CSOs), known as the Heathwall Pumping Station and South West Storm Relief CSOs, and to connect them to the main tunnel.
Site selection process

M.1.5 All potential sites were identified in accordance with our *Site selection methodology paper*, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). CSO sites also need to be as close to the existing sewer as practicable, so we followed a localised optioneering approach to identify suitable sites. The sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

M.1.6 Prior to phase one consultation we applied our sieving multidisciplinary approach to all the assessments outlined in the *Site selection methodology paper*, which is also briefly outlined below (see M.2.2).

M.1.7 Following phase one consultation, we reviewed the sites and decided to carry out a ‘back-check’ in order to review the preferred and shortlisted sites prior to phase two consultation. This back-check involved a repeat of each relevant stage of our site selection process to reconsider which site would be the most suitable CSO site. The back-check utilised the same multidisciplinary approach that we followed prior to phase one consultation. The results of this back-check superseded all previous assessments undertaken prior to phase one consultation and reported in B.2, except where noted (see Sections M.3.24 to M.3.25).

M.1.8 Following phase two consultation, the *Site selection methodology paper* required us to review the scheme. The review of CSO sites involved re-checking the choice of most suitable CSO site for each CSO requiring interception associated with the proposed route and recorded the proposed CSO sites for Section 48.

M.2 Phase one consultation preferred CSO site: site selection process

Introduction

M.2.1 Section M.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase one consultation.

M.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3); preparation of detailed site suitability reports for each final shortlisted sites; and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Heathwall Pumping Station and South West Storm Relief CSOs at phase one consultation.

M.2.3 This stage took place from Spring 2009 to Summer 2010.
M.2.4 The assessments described in Section M.2 were based on the information available at the time and the related stage in the project’s development. The assessments in this section therefore comprise a historic representation of the process. All of the assessments have now been superseded; except for some of the site suitability report summaries (also see Sections M.3.24 to M.3.25).

Assessment of the long list sites

M.2.5 The long list of potential sites to intercept the Heathwall Pumping Station and South West Storm Relief CSOs was created by conducting a desktop survey of the land in the vicinity of the existing sewer.

M.2.6 The Heathwall Pumping Station (CS16X) and South West Storm Relief (CS17X) are close together and therefore were considered together.

M.2.7 In total, five sites were included on the long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the Site selection methodology paper (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology), and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

M.2.8 Table M.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the interception of these CSOs. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the Draft Shortlist for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16XA</td>
<td>Foreshore, adjacent to Heathwall Pumping Station (partly overlaps C17XA)*</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C17XA</td>
<td>Foreshore, adjacent to Middle Wharf (partly overlaps C16XA)*</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C17XB</td>
<td>Part of Heathwall Pumping Station and Middle Wharf*</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C17XC</td>
<td>Post office, Nine Elms Lane+</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C17XD</td>
<td>Parking area, New Covent</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>
Appendix M – Heathwall Pumping Station (formerly Tideway Walk)

Section 48: Report on site selection process
Volume 4: Central site appendices J to Q

Site ID | Site name/description | Recommendation and rationale
--- | --- | ---
Garden Market+ | | 

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary. Sites marked with * could potentially intercept both the Heathwall Pumping Station CSO (CS16X) and the South West Storm Relief CSO (CS17X), but sites marked with + could only intercept the South West Storm Relief CSO. Originally, sites were identified to intercept each CSO, which is why some sites overlap.

M.2.9 Of the five sites identified, all five were assessed as potentially suitable and passed to the draft short list.

Assessment of draft short list sites

M.2.10 The five draft short list sites identified for further assessment at the next stage were:

a. C16XA: Foreshore, adjacent to Heathwall Pumping Station (partly overlaps C17XA)*
b. C17XA: Foreshore, adjacent to Heathwall Pumping Station (partly overlaps C16XA)
c. C17XB: Part of Heathwall Pumping Station and Middle Wharf
d. C17XC: Post office, Nine Elms Lane
e. C17XD: Parking area, New Covent Garden Market.

M.2.11 These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.

M.2.12 At this stage, we also consulted with each of the London boroughs and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

M.2.13 Table M.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

Table M.3 Draft short list to final short list for the interception of the Heathwall Pumping Station and South West Storm Relief CSOs (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16XA</td>
<td>Foreshore, adjacent to Heathwall Pumping Station (partly overlaps C17XA)*</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>C17XA</td>
<td>Foreshore, adjacent to Middle Wharf (partly overlaps C16XA)*</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C17XB</td>
<td>Part of Heathwall Pumping Station and Middle Wharf *</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C17XC</td>
<td>Post office, Nine Elms Lane+</td>
<td><strong>Recommendation</strong>: Not to short list.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Rationale</strong>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engineering – Use of this site would require a very deep interception (about 19m).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Property – The site would require loss of parking affecting the post office’s business.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This would result in a high acquisition cost.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community – It was likely that there would be a significant local economic impact due to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the impact on the post office.</td>
</tr>
<tr>
<td>C17XD</td>
<td>Parking area, New Covent Garden Market+</td>
<td><strong>Recommendation</strong>: Not to short list.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Rationale</strong>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engineering – Use of this site would require a very deep interception (about 19m).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Planning/Environment – Planning permission was approved in 2008 for a change in use from</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a bank to an educational facility.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Property – Loss of parking at New Covent Garden Market would result in high acquisition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>costs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community – There might be some impact on equalities considerations and the local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>community, and it was likely that there would be a significant local economic impact on the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Covent Garden Market.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary. Sites marked with * can potentially intercept both Heathwall Pumping Station (CS16X) and South West Storm Relief (CS17X), but sites marked with + can potentially only intercept South West Storm Relief (CS17X). Originally, sites were identified to intercept each CSO, so hence why some sites overlap.

M.2.14 Of the five sites on the draft short list, three were assessed as potentially suitable and passed to the final short list. Two sites did not proceed to the final short list. Further details of all the sites shortlisted at this stage of the site selection process can be found in the Shortlisted sites report.
Assessment of the final short list sites

M.2.15 The three sites identified for inclusion on the final short list and assessment at the next stage were:

a. C16XA: Foreshore, adjacent to Heathwall Pumping Station (partly overlaps C17XA)
b. C17XA: Foreshore, adjacent to Middle Wharf (partly overlaps C16XA)
c. C17XB: Part of Heathwall Pumping Station and Middle Wharf.

M.2.16 A site suitability report was prepared for each of the Final Shortlisted sites. These reports contained an assessment of each site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline, using technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline’s perspective.

M.2.17 A summary of the conclusions of each discipline’s assessment from the site suitability reports is provided below.

C16XA: Foreshore, adjacent to Heathwall Pumping Station

M.2.18 Site C16XA is located in the foreshore of the River Thames, close to Nine Elms Lane in the London Borough of Wandsworth. This site also partly overlaps C17XA.

M.2.19 The site adjoins a predominantly industrial area. The site is located to the northeast of the Thames Water Heathwall Pumping Station and the safeguarded Middle Wharf. Several houseboats and a restaurant are moored west of this site.

M.2.20 Engineering: The site was considered suitable as a CSO site because it is of adequate size and would have reasonable access direct from a major road through Thames Water-owned land.

M.2.21 Planning: On balance, the site was considered suitable as a CSO site. There were a number of applicable planning and environmental designations, but they would not be unacceptably affected. Furthermore, during and after the works, the structures would not be prominent in this industrial area.

M.2.22 Environment: Overall, the site was assessed as suitable as a CSO site. The site was considered likely to be suitable from the perspectives of transport, archaeology, built heritage and townscape, hydrogeology and air quality. However, the site was considered less suitable from the perspectives of surface water, ecology, flood risk, noise and land quality. Various mitigation measures would be required.

M.2.23 Socio-economic and community: The site was assessed as suitable as a CSO site. The greatest impact would be disruption experienced by the houseboats (Tideway Dock and Nine Elms Pier) and restaurant (the Battersea Barge) adjacent to the site. Mitigation would involve relocation,
which might be difficult considering availability of mooring on the River Thames in London.

**M.2.24 Property:** The site was assessed as *suitable* as a CSO site as the acquisition costs were likely to be acceptable. However, a special ministerial procedure might be required, which could cause delays.

**C17XA: Foreshore, adjacent to Middle Wharf**

**M.2.25** Site C17XA is located in the foreshore of the River Thames, close to Nine Elms Lane in the London Borough of Wandsworth. This site also partly overlaps C16XA.

**M.2.26** The site adjoins a predominantly industrial area. It is located to the northeast of the Thames Water Heathwall Pumping Station and the safeguarded Middle Wharf. Several houseboats and a restaurant are moored west of this site.

**M.2.27 Engineering:** The site was considered *suitable* as a CSO site because it is relatively unrestricted in size and shape and would have reasonable access direct from a major road.

**M.2.28 Planning:** On balance, the site was considered *suitable* as a CSO site. There were a number of applicable planning and environmental designations, but they would not be unacceptably affected. Furthermore, during and after the works, the structures would not be prominent in this industrial area.

**M.2.29 Environment:** Overall, the site was assessed as *suitable* as a CSO site. The site was considered likely to be *suitable* from the perspectives of transport, archaeology, built heritage and townscape, hydrogeology and air quality. However, the site was considered *less suitable* from the perspectives of surface water, ecology, flood risk, noise and land quality. Various mitigation measures would be required.

**M.2.30 Socio-economic and community:** The site was assessed as *suitable* as a CSO site. The greatest impact would be disruption experienced by the houseboats (Tideway Dock and Nine Elms Pier) and the restaurant (the Battersea Barge) adjacent to the site. Mitigation would involve relocation, which might be difficult considering the availability of mooring on the River Thames in London.

**M.2.31 Property:** The site was assessed as *suitable* as a CSO site as the acquisition costs were likely to be acceptable. However, a special ministerial procedure might be required, which could cause delays.

**C17XB: Part of Heathwall Pumping Station and Middle Wharf**

**M.2.32** Site C17XB is located on part of the Heathwall Pumping Station site and the safeguarded Middle Wharf, which was formerly used as a concrete batching plant. The site is also adjacent to the River Thames in the London Borough of Wandsworth.

**M.2.33** Immediately to the north of the site are the River Thames Foreshore and a jetty. To the east are a small area of open space and an eight-storey residential block known as Elm Quay. Opposite the site to the south are an office/factory and the Tideway Industrial Estate. To the west of the site
M.2.34 **Engineering:** The site was considered **suitable** as a CSO site because it is of adequate size with good road access.

M.2.35 **Planning:** On balance, the site was considered **suitable** as a CSO site. There were a number of applicable planning and environmental designations, but they would not be unacceptably affected. The site is located on a safeguarded wharf which might provide the opportunity for river transport.

M.2.36 **Environment:** Overall, the site was assessed as **suitable** as a CSO site. The site was considered likely to be **suitable** from the perspectives of transport, archaeology, built heritage and townscape, water resources (both hydrogeology and surface water), ecology, flood risk and air quality. However, the site was considered **less suitable** from the perspectives of noise and land quality. Various mitigation measures would be required.

M.2.37 **Socio-economic and community:** The site was assessed as **suitable** as a CSO site. The greatest impact would be disruption experienced by the houseboats (Tideway Dock and Nine Elms Pier) and the restaurant (the Battersea Barge) adjacent to the site. Mitigation would involve relocation, which might be difficult considering the availability of mooring on the River Thames in London. It is unlikely that the use of the site would have a significant impact on the local community, given its existing use. Furthermore, the site has been decommissioned and cleared so it is unlikely that there would be impacts on the local economy.

M.2.38 **Property:** The site was assessed as **suitable** as a CSO site as the site is owned by Thames Water.

**Identification of the preferred site for phase one consultation**

M.2.39 Following the completion of the site suitability reports, we held a multidisciplinary workshop to compare the suitability of each of the shortlisted sites based on the site suitability report assessments and to recommend which site should be identified as the preferred site.

M.2.40 The preferred site at phase one consultation for the interception of the Heathwall Pumping Station CSO and South East Storm Relief CSO was C17XB. The CSO site was combined with the main tunnel sites (S79WH and S80WH, which also partly overlaps C17XB), and together these sites became collectively known as Tideway Walk (S79WH/S80WH/C17XB – see also Appendix L for discussion on main tunnel sites in Zone S5 Battersea).

M.2.41 C17XB (part of Heathwall Pumping Station and Middle Wharf, with the drop shaft constructed on land) was identified as the preferred site to intercept both CSOs. The reasons for this decision are summarised below in no particular order:

a. Generally, C16XA/C17XA (overlapping foreshore sites with the drop shaft constructed in the river) and C17XB (land-based site) were
considered suitable in engineering, planning, environmental, community and property terms. However, C16XA/C17XA as a foreshore site would introduce increased construction costs and health and safety risks associated with working in a river environment. It would also require the temporary and permanent structures to be located in the river foreshore, which would entail a loss of foreshore habitat. Therefore, site C17XB was preferred over C16XA/C17XA (the foreshore site) as a suitable and feasible land-based site available in this location, near to the route of these sewers.

b. C17XB is owned by Thames Water and includes Heathwall Pumping Station and Middle Wharf, so the proposed use of this site was consistent with the existing uses.

c. C17XB contains Middle Wharf, which is designated as a safeguarded wharf with jetty facilities. The wharf might provide an opportunity to export and import construction material via the River Thames, which would reduce the need for vehicular traffic to and from the site.

d. From a property point of view, both C16XA/C17XA and C17XB were considered suitable but, as the land-based site is owned by Thames Water, there would be no acquisition costs for C17XB.

M.2.42 C17XB was therefore identified as the preferred site for the interception of the South West Storm Relief CSO and the Heathwall Pumping Station CSO, in association with the preferred main tunnel sites S79WH/S80WH2. At phase one consultation, these sites were collectively known as Tideway Walk (S79WH/S80WH/C17XB).

M.3 Phase two consultation preferred CSO site: scheme development and site selection

Introduction

M.3.1 Section M.3 explains the implementation of the Site selection methodology paper in order to arrive at the preferred CSO site for phase two consultation.

M.3.2 Following phase one consultation and before phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; a back-check exercise to review the sites identified in Section M.2 and any potential new sites or a combination of sites; application of the assessment process outlined in M.2.2; a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Heathwall Pumping Station and South West Storm Relief CSOs at phase two consultation.

2 The engineering details of how these CSOs would be dealt with in relation to the main tunnel shaft are complicated. Basically, both interceptions would connect to the main shaft, which would contain two drop shafts. There would be an intermediate shaft next to the South West Storm Relief CSO interception chamber, so the connecting culvert could pass under Heathwall Pumping Station to the main shaft.
M.3.3 This stage took place from Winter 2010 to Autumn 2011.

M.3.4 The assessments described in Section M.3 were based on the information available at the time and the related stage in the project's development.

**Phase one consultation responses**

M.3.5 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two.

M.3.6 The main issues and concerns raised during phase one consultation in relation to the combined main tunnel shaft and CSO site at Tideway Walk are summarised below in no particular order:

a. impact on boat moorings and community severance
b. impact on residential amenity
c. impact on the planned regeneration of the area
d. design of permanent proposals for the site
e. impact on Cringle Dock Wharf.

M.3.7 The main comments received in support of the preferred site included:

a. it is a brownfield and industrial site and area
b. it would have less impact on existing heritage
c. it has good transport infrastructure and would allow transport of materials by barge
d. it would reduce the impact on residential amenity
e. the proposals for the site following construction are acceptable.

M.3.8 More detail on the consultation responses relating to the combined Tideway Walk site and our response to these comments is provided in the *Report on phase one consultation*.

M.3.9 In addition to the consultation comments, further engagement with the London Borough of Wandsworth and the landowner revealed that a large proportion of the Tideway Walk site was unavailable due to a major residential development that had been granted planning permission and demolition had commenced on site. However, the overall tunnelling strategy required a main tunnel site in the Battersea area. The distance between potential sites in this zone and the next set of potential sites to the east (Zone S6 Shad) was such that a main tunnel site in this zone was required to ensure that maximum recommended tunnelling distances were not exceeded, and it was necessary to change TBMs in this area. There is also a need to intercept the Heathwall Pumping Station and South West Storm Relief CSOs.

M.3.10 This resulted in the need for a back-check to identify alternative locations for a main tunnel site and a CSO site. Due to the lack of land near the Heathwall Pumping Station, this was likely to mean that two separate sites would be needed, one for the main tunnel site (see Appendix L– Kirtling Street, which became the preferred main tunnel site to replace Tideway...
Walk) and a second to intercept the two local CSOs. The site to connect the two CSOs to the main tunnel could be much smaller with fewer permanent structures so we believed that there was still potential for it to be located in the vicinity of the Heathwall Pumping Station.

**Back-check process**

M.3.11 As detailed above, our site monitoring and the phase one consultation feedback identified that the majority of the preferred site at Tideway Walk (S79WH) was no longer available for use for a main tunnel site.

M.3.12 As a result, there was a need to find an alternative main tunnel site (for details see Appendix L – Kirtling Street) and a site to intercept both the Heathwall Pumping Station and South West Storm Relief CSOs. Due to the fact that Kirtling Street, the new preferred main tunnel site, is not close to the Heathwall Pumping Station and South West Storm Relief CSOs, which need to be intercepted, a standalone CSO site was required. As a result, we began a back-check (as required by the *Site selection methodology paper*) to review our preferred site selection for the interception of the CSOs.

M.3.13 This back-check involved a targeted repeat of each relevant stage of our site selection process to reconsider which site would be most suitable for the interception of the Heathwall Pumping Station and South West Storm Relief CSOs. The following outlines each stage of the back-check process.

**Assessment of the back-check long list sites**

M.3.14 A number of potential CSO sites were identified in the vicinity of the two CSOs. There was a choice between a foreshore site (adjacent to Heathwall Pumping Station and Middle Wharf) and a land-based site (Heathwall Pumping Station and Middle Wharf). The site areas and site IDs were simplified in order to make it easier to compare them. The following sites were assessed:

a. C16XA: Foreshore (adjacent to Heathwall Pumping Station and Middle Wharf) – previously C16XA and C17XA

b. C16XB: Heathwall Pumping Station (includes Middle Wharf) – previously part of C17XB.

M.3.15 Sites C17XA (to avoid overlapping foreshore sites) and C17XB (to avoid overlapping land-based sites) were withdrawn and replaced by the new sites, as outlined above. This allowed us to draw a more straightforward comparison between building the drop shaft on a foreshore site or a land-based site, which were capable of intercepting both CSOs.

M.3.16 The back-check long list sites were assessed against the engineering, planning, environment, community and property considerations set out in Table 2.2 of the *Site selection methodology paper*.

Table M.4 below summarises the outcome of the back-check assessment of the back-check long list of sites. Sites that were assessed as the least constrained in light of the Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites were
ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained did not pass to the back-check draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

**Table M.4 Long list to draft short list for the interception of the Heathwall Pumping Station and South West Storm Relief CSOs (Table 2.2 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16XA</td>
<td>Foreshore (adjacent to Heathwall Pumping Station and Middle Wharf)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C16XB</td>
<td>Heathwall Pumping Station (includes Middle Wharf)</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>

**NB:** The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

M.3.17 Of the two sites identified, both were assessed as potentially suitable and passed to the draft short list.

**Assessment of the back-check draft short list sites**

M.3.18 The two back-check draft shortlisted sites were further assessed by the engineering, planning, environment, community, and property disciplines having regard to the considerations set out in Table 2.3 of the *Site selection methodology paper*.

M.3.19 Table M.5 below summarises the outcome of the back-check assessment of the draft short list of sites. Sites that were assessed as the least constrained in light of the Table 2.3 considerations were retained on the back-check short list to pass to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the back-check short list for more detailed assessment.

M.3.20 The main rationale for excluding these sites at this stage is summarised below.

**Table M.5 Draft short list to final short list for the interception of the Heathwall Pumping Station and South West Storm Relief CSOs (Table 2.3 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C16XA</td>
<td>Foreshore (adjacent to Heathwall Pumping Station and Middle Wharf)</td>
<td><strong>Recommendation:</strong> Retain on short list.</td>
</tr>
<tr>
<td>C16XB</td>
<td>Heathwall Pumping Station</td>
<td><strong>Recommendation:</strong> Retain on short list.</td>
</tr>
</tbody>
</table>
Appendix M – Heathwall Pumping Station (formerly Tideway Walk)

Section 48: Report on site selection process
Volume 4: Central site appendices J to Q

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(includes Middle Wharf)</td>
<td></td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

M.3.21 Of the two sites on the draft short list, both were assessed as potentially suitable and passed to the final short list.

Assessment of the back-check final short list sites

M.3.22 The two back-check final shortlisted sites identified for assessment at the next stage were:

a. C16XA: Foreshore (adjacent to Heathwall Pumping Station and Middle Wharf)

b. C16XB: Heathwall Pumping Station (includes Middle Wharf).

M.3.23 A site suitability report was prepared for the new back-check final short list sites and the site suitability reports for the phase one shortlisted sites were re-evaluated.

C16XA: Foreshore (adjacent to Heathwall Pumping Station and Middle Wharf)

M.3.24 Although a number of development plan documents had been adopted since the site suitability report was completed, the updated policies did not affect the final planning assessment recommendation.

M.3.25 All other discipline recommendations remained unchanged (see Sections M.2.18 to M.2.31).

C16XB: Heathwall Pumping Station (includes Middle Wharf)

M.3.26 Site C16XB is located in the Nine Elms Industrial Area of the London Borough of Wandsworth. The site comprises a Thames Water pumping station and a vacant safeguarded wharf that contains an existing electrical substation and jetty.

M.3.27 The site is bounded to the north by the River Thames, it fronts onto Nine Elms Lane to the south, and is situated between the Tideway Industrial Estate and Elm Quay. The wider area is industrial in character and consists of warehouse buildings, depots and office accommodation.

M.3.28 **Engineering:** The site was assessed as **suitable** as a CSO site because it is of adequate size, has good river access and available road access.

M.3.29 **Planning:** The site was assessed as **suitable** for a CSO site. There were a number of planning designations applicable to the site, but we considered that, with appropriate mitigation measures, it was unlikely that these designations would be unacceptably affected. Furthermore, part of the site was designated for the construction of the project. The eastern portion is a safeguarded wharf (Middle Wharf) and the works were likely to be acceptable for such a site, provided they did not impact on the future development potential of the site.

M.3.30 **Environment:** Overall, the site was assessed as **suitable** as a CSO site. The site was considered likely to be **suitable** from the perspectives of
transport, archaeology, built heritage, townscape, hydrogeology, air quality and noise. However, the site was considered **less suitable** from the perspectives of surface water, flood risk, ecology and land quality. Various mitigation measures would be required.

**M.3.31 Socio-economic and community:** The site was assessed as **suitable** as a CSO site. There would be some impact on the houseboat community moored to the west of the site and the residents of apartments at Elm Quay given the location of the shaft. However, given the distance to those receptors, the impacts were unlikely to be significant.

**M.3.32 Property:** The site was assessed as **suitable** as a CSO site as the site is primarily owned by Thames Water. Furthermore, the area that is not in Thames Water’s ownership is undeveloped foreshore and therefore acquisition costs were likely to be acceptable. However, the foreshore and riverbed part of the worksite was likely to be Crown- or PLA-owned land. Crown land cannot be compulsorily purchased. If it were owned by the PLA, there were risks associated with acquiring land by compulsory purchase from another statutory undertaker.

**Phase two consultation preferred site**

**M.3.33** Following the completion of the back-check process, we held a multidisciplinary workshop to assess the suitability of a site to intercept both the Heathwall Pumping Station and South West Storm Relief CSOs. A foreshore site (C16XA) was compared to a land-based site (C16XB).

**M.3.34** This workshop took into account the findings of all the site suitability reports and the feedback received during phase one consultation. On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that **C16XB: Heathwall Pumping Station should become the recommended phase two consultation preferred site for the interception by means of a combined drop shaft for both the Heathwall Pumping Station and South West Storm Relief CSOs.** This meant that we believed this to be the most appropriate site, subject to further engagement with stakeholders and further design development to verify that conclusion prior to phase two consultation.

**M.3.35** In summary, C16XB Heathwall Pumping Station (including Middle Wharf) was identified as the most suitable site for the following reasons:

a. C16XB is available and it is a suitable land-based site that would reduce the impacts associated with working in the foreshore (C16XA).

b. C16XB site would allow the interception of both CSOs and room for the CSO drop shaft in one location, thereby minimising the impact of permanent works in the foreshore.

c. C16XB is owned by Thames Water.

**M.3.36** The above points were based on the information available at the time and the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.
**Confirmation of the preferred site for phase two consultation**

M.3.37 The final workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that **C16XB: Heathwall Pumping Station should become the phase two consultation preferred site for the interception of both the Heathwall Pumping Station and South West Storm Relief CSOs.**

M.3.38 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.

**M.4 Post phase two consultation: review of CSO sites for the proposed application**

**Introduction to the review**

M.4.1 Section M.4 explains how we implemented the requirement in the *Site selection methodology paper* to review the scheme following phase two consultation.

M.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design and/or new technical information; multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

M.4.3 A plan that illustrates all the sites considered for the interception of the Heathwall Pumping Station and South West Storm Relief CSOs in the review and how they progressed through the site selection process can be found in Annex M.1.

M.4.4 This stage took place from Spring 2012 to Summer 2012.

**Summary of phase two consultation responses**

M.4.5 Details of the consultation responses in relation to this site and our responses are provided in the *Report on phase two consultation*. We reviewed all phase two consultation comments and took them into account in the development of the proposed scheme. The main feedback relevant to site selection can be summarised as follows:

a. opposed in principle to the use of any foreshore structures along the tidal Thames as this is likely to lead to a number of detrimental effects of flood risk management, biodiversity and recreation.

M.4.6 The main comments received in support of the preferred site included:

a. support for the use of the preferred site
b. the preferred site is more suitable than the shortlisted site in terms of reducing the adverse impacts on archaeology
c. no objection in principle in terms of navigational safety.

M.4.7 Having taken all comments received during phase two consultation into account, we still believe C16XB Heathwall Pumping Station is the most
suitable site to intercept of the Heathwall Pumping Station and South West Storm Relief CSOs.

M.4.8 We recognise the concerns that have been raised, including utilisation of the foreshore, and we will take this into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Any changes in circumstances or new information

M.4.9 The multidisciplinary review of this site confirmed that there was no new information that would lead to any changes in circumstances.

M.4.10 Given that there are no changes in circumstances or new information with relevance to site selection, we still believe C16XB: Heathwall Pumping Station is the most suitable site to intercept of the Heathwall Pumping Station and South West Storm Relief CSOs.

Main rationale for the selection of the CSO site for Section 48 publicity

M.4.11 In summary, C16XB: Heathwall Pumping Station was identified as the most suitable CSO site for the following reasons (in no particular order):

a. C16XB is available and predominantly owned by Thames Water, thus reducing any property risk associated with development in the foreshore. As a suitable land-based site its use would also reduce the impacts associated with working in the foreshore compared to C16XA.

b. C16XB would allow the interception of both CSOs and the creation of the drop shaft in one location, thereby minimising the impact of permanent works in the foreshore.

c. C16XB is partly designated for the construction of the project and partly designated as a safeguarded wharf. The temporary construction works would be in accordance with these designations and the permanent works should not preclude the future use of the safeguarded wharf.

d. The use of C16XB would avoid greater use of the foreshore, which is designated as a Site of Metropolitan Importance for Nature Conservation.

e. The land-based area of the majority of the site is owned by Thames Water and it may be possible to carry out the works required in the foreshore by way of a river works licence.

M.5 Confirmation of the proposed CSO site for Section 48 publicity

M.5.1 The post phase two consultation review described above in Section M.4 confirmed that C16XB: Heathwall Pumping Station should become the phase two consultation preferred site for the interception of both the Heathwall Pumping Station and South West Storm Relief CSOs.
M.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submitting the final application.
Annex M.1
### Appendix N– Albert Embankment Foreshore

#### N.1 Introduction

**N.1.1** This appendix sets out the site selection process that was followed to identify the most suitable site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

**N.1.2** Table N.1 summarises the sites identified as most suitable to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs at each phase of the process up to Section 48 publicity.

**Table N.1 Summary of the sites identified as most suitable to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs at each phase of the project**

<table>
<thead>
<tr>
<th>Phase one consultation site:</th>
<th>Albert Embankment Foreshore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two consultation site:</td>
<td>Albert Embankment Foreshore</td>
</tr>
<tr>
<td>Section 48 publicity site:</td>
<td>Albert Embankment Foreshore</td>
</tr>
</tbody>
</table>

**N.1.3** This appendix is structured as follows:

- **Type of site**

**N.1.4** We need a site to intercept the local combined sewer overflows (CSOs), known as the Clapham Storm Relief and Brixton Storm Relief CSOs, and to connect these CSOs to the main tunnel.

**Site selection process**

**N.1.5** All potential sites were identified in accordance with our *Site selection methodology paper*, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). CSO sites also needed to be as close to the existing sewer as practicable; therefore, we followed a localised optioneering approach to identify suitable sites. The
sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

N.1.6 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the *Site selection methodology paper*, which is also briefly outlined below (see N.2.2).

N.1.7 Following phase one consultation, we reviewed sites and decided that there was no need to carry out a ‘back-check’ but we did carry out a general review of the preferred and shortlisted sites prior to phase two consultation.

N.1.8 Following phase two consultation, the *Site selection methodology paper* required us to review the scheme. The review of CSO sites involved re-checking the choice of sites identified as most suitable to intercept each CSO associated with the proposed route and proposed CSO sites for Section 48 publicity.

N.2 Phase one consultation preferred CSO site: site selection process

**Introduction**

N.2.1 Section N.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase one consultation.

N.2.2 Prior to phase one consultation, the site selection process comprised:
- identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2);
- assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3);
- preparation of detailed site suitability reports for each final shortlisted site and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs for phase one consultation.

N.2.3 This stage took place from Spring 2009 to Summer 2010.

N.2.4 The assessments described in Section N.2 were based on the information available at the time and the related stage in the project’s development.

**Assessment of the long list sites**

N.2.5 The long list of potential sites to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs was created by conducting a desktop survey of the land in the vicinity of the existing sewers.

N.2.6 The Clapham Storm Relief (CS19X) and Brixton Storm Relief (CS20X) CSOs are close together either side of Vauxhall Bridge, and were therefore considered together.

N.2.7 In total, 28 sites were included on the combined long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as Table...
2.2) including the engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology) and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

N.2.8 Table N.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the interception of this CSO. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

**Table N.2 Long list to draft short list for the interception of the Clapham Storm Relief and Brixton Storm Relief CSOs (Table 2.2 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C19XA</td>
<td>Foreshore, adjacent to St George Wharf and Vauxhall Bridge</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C19XB</td>
<td>Spring Gardens</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C19XC</td>
<td>Large traffic island alongside of Wandsworth Road</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The site has very restricted working area and the engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C19XD</td>
<td>Small business area adjacent South Lambeth Road</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The site has very restricted working area.</td>
</tr>
<tr>
<td>C19XE</td>
<td>Vauxhall Park</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C19XF</td>
<td>Gardens to properties along Fentiman Road</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The site is too narrow and the engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C19XG</td>
<td>Travis Perkins yard</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C19XH</td>
<td>Area at junction of Wyvil Road and Kings House</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C19XJ</td>
<td>Area of gardens behind block of flats fronting Wandsworth</td>
<td><strong>Recommendation:</strong> Not to draft short list. <strong>Rationale:</strong> The site has very restricted...</td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Road</td>
<td>working area and the engineering connection to the sewer would be long and difficult.</td>
<td></td>
</tr>
</tbody>
</table>
| C19XK   | Parking and access area to flats adjacent Luscombe Way | **Recommendation**: Not to draft short list.  
**Rationale**: The site is too narrow and the engineering connection to the sewer would be long and difficult. |
| C19XL   | Gardens to properties adjacent Wyvil Road | **Recommendation**: Not to draft short list.  
**Rationale**: The site has very poor access. |
| C20XA   | Foreshore, adjacent to SIS Building and Vauxhall Bridge | **Recommendation**: To draft shortlist. |
| C20XB   | Traffic island adjacent Wandsworth Road | **Recommendation**: Not to draft shortlist.  
**Rationale**: The engineering connection to the sewer would be long and difficult. |
| C20XC   | Spring Gardens Park | **Recommendation**: To draft short list. |
| C20XD   | Playing fields at St Anne’s RC Primary School on Harleyford Road | **Recommendation**: To draft short list. |
| C20XE   | Community Gardens | **Recommendation**: To draft short list. |
| C20XF   | St. Marks C of E Primary School and grounds | **Recommendation**: Not to draft short list.  
**Rationale**: The site comprises a school and its grounds. This is special land and the acquisition costs were likely to be relatively high. |
| C20XG   | Car parking to flats | **Recommendation**: Not to draft short list.  
**Rationale**: The site is very irregular shape and working would be very restricted. |
| C20XH   | Open Space, Claylands Road | **Recommendation**: To draft short list. |
| C20XJ   | Gardens to flats | **Recommendation**: Not to draft short list.  
**Rationale**: The site is too narrow and the engineering connection to the sewer would be long and difficult. |
| C20XK   | Gardens to flats | **Recommendation**: Not to draft short list.  
**Rationale**: The engineering connection to the sewer would be long and difficult. |
| C20XL   | Parking adjacent business unit | **Recommendation**: Not to draft short list.  
**Rationale**: The site is too small and narrow and the engineering connection to the sewer would be long and difficult. |
<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20XM</td>
<td>Grounds of Orchard Hill Developed College</td>
<td><strong>Recommendation:</strong> Not to draft short list.  <strong>Rationale:</strong> The engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C20XN</td>
<td>Grass fronting flats on Kennington Lane</td>
<td><strong>Recommendation:</strong> Not to draft short list.  <strong>Rationale:</strong> The site is too narrow and the engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C20XP</td>
<td>Gardens between flats on Kennington Lane</td>
<td><strong>Recommendation:</strong> Not to draft short list.  <strong>Rationale:</strong> The engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C20XQ</td>
<td>Parking within blocks of flats off Brockwall House</td>
<td><strong>Recommendation:</strong> Not to draft short list.  <strong>Rationale:</strong> The site is too narrow and the engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C20XR</td>
<td>Parking for gasometers</td>
<td><strong>Recommendation:</strong> Not to draft short list.  <strong>Rationale:</strong> The engineering connection to the sewer would be long and difficult.</td>
</tr>
<tr>
<td>C20XS</td>
<td>Foreshore, adjacent to offices, Albert Embankment.</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

N.2.9 Of the 28 sites identified, ten were assessed as potentially suitable and passed to the draft short list, and 18 sites were eliminated as they were unsuitable.

N.2.10 Hydraulic modelling of the sewer network system indicated that, in order to achieve the required reduction in CSO flows from the Clapham Storm Relief CSO, it would be necessary to intercept the flow downstream of the connection between the Clapham Sewer and the southern Low Level Sewer No 1. Therefore, any sites that would necessitate intercepting the Clapham Sewer upstream of this connection would not be suitable.

N.2.11 The consequence of this was that three sites identified for further assessment were considered no longer suitable to intercept this CSO. Consequently, these sites were ‘parked’ and were not assessed at the next stage. These sites were:
   a. C19XE: Vauxhall Park
   b. C19XG: Travis Perkins yard
   c. C19XH: Area at junction of Wyvil Road and Kings House.

**Assessment of draft short list sites**

N.2.12 The remaining seven draft short list sites identified for further assessment at the next stage were:
   a. C19XA: Foreshore, adjacent to St George Wharf and Vauxhall Bridge
b. C20XA: Foreshore, adjacent to SIS Building and Vauxhall Bridge

c. C20XC: Spring Gardens Park

d. C20XD: Playing fields at St Anne’s RC Primary School on Harleyford Road

e. C20XE: Community Gardens

f. C20XH: Open Space, Claylands Road

g. C20XS: Foreshore, adjacent to offices, Albert Embankment.

N.2.13 These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the Site selection methodology paper (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.

N.2.14 At this stage, we also consulted with each of the London local authorities along the route of the project and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

N.2.15 Table N.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C19XA</td>
<td>Foreshore, adjacent to St George Wharf and Vauxhall Bridge</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C20XA</td>
<td>Foreshore, adjacent to SIS Building and Vauxhall Bridge</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>
| C20XC   | Spring Gardens Park   | **Recommendation:** Not to short list. **Rationale:**
  - Engineering – This would be a very difficult tunnel connection that might have considerable impact on the public highway.
  - Community – There would be an impact |
<table>
<thead>
<tr>
<th>Site ID</th>
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<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>on the park and City Farm, but the site is large so it might be possible to mitigate impacts and locate the site so as to reduce disruption.</td>
</tr>
</tbody>
</table>
| C20XD   | Playing fields at St Anne’s RC Primary School on Harleyford Road | **Recommendation**: Not to shortlist  
**Rationale:**  
- Planning/Environment – There would be impacts on a number of designations including open space and sports facilities.  
- Property – The playing fields have a good quality surface which meant that replacement costs could be significant.  
- Community – There would be a temporary loss of playing fields which was likely to impact on children as an equality group and community cohesion. |
| C20XE   | Community Gardens     | **Recommendation**: Not to short list.  
**Rationale:**  
- Engineering – The site is very constrained.  
- Planning/Environment – The site is disadvantaged due to the potential significant cumulative impact on heritage, landscape and ecological designations.  
- Community – The site is a community garden in the midst of a combination of potentially sensitive receptors, which made the site less suitable due to the likely impact on community cohesion and health and well-being of the local community. |
| C20XH   | Open Space, Claylands Road | **Recommendation**: To draft short list. |
| C20XS   | Foreshore, adjacent to offices, Albert Embankment. | **Recommendation**: To draft short list. |

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

N.2.16 Of the seven sites on the draft short list, four were assessed as potentially suitable and passed to the final short list and three sites did not proceed to the final short list.
Assessment of the final short list sites

N.2.17 The four sites identified for inclusion on the final short list and assessment at the next stage were:

a. C19XA: Foreshore, adjacent to St George Wharf and Vauxhall Bridge
b. C20XA: Foreshore, adjacent to SIS Building and Vauxhall Bridge
c. C20XH: Open Space, Claylands Road
d. C20XS: Foreshore, adjacent to offices, Albert Embankment.

N.2.18 A site suitability report (SSR) was prepared for each of the Final Shortlisted sites. These reports contained an assessment of each site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline using technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline’s perspective.

N.2.19 A summary of the conclusions of each discipline’s assessment from the site suitability reports is provided below.

C19XA: Foreshore, adjacent to St George Wharf and Vauxhall Bridge

N.2.20 Site C19XA is located on the foreshore of the River Thames in the Vauxhall area of the London Borough of Lambeth.

N.2.21 The site is situated to the south of Vauxhall Bridge adjacent to a large high-rise residential development. To the northeast is the Secret Intelligence Service (SIS) building.

N.2.22 Engineering: The site was considered less suitable as a CSO site as it does not have any viable land-based access.

N.2.23 Planning: On balance, the site was considered less suitable for a CSO interception site because the site is in close proximity to residential properties and its prominent location might impact on the conservation area.

N.2.24 Environment: Overall, the site was assessed as less suitable as a CSO site due to the substantial environmental constraints identified. The site was considered likely to be less suitable from the perspectives of all environmental disciplines, which included archaeology, built heritage groundwater, transport, townscape, surface water, ecology, flood risk, noise, air quality and land quality.

N.2.25 Socio-economic and community: The site was considered less suitable for a CSO interception site due to its proximity to residences and businesses within the St George Wharf development, which would be affected throughout construction. Users of the Thames Path were also likely to be impacted.

N.2.26 Property: The site was considered suitable as a CSO site as the acquisition cost should be low and the site is undeveloped. However, there were risks of delays in acquisition.
C20XA: Foreshore, adjacent to SIS Building and Vauxhall Bridge

N.2.27 Site C20XA is located on the foreshore of the River Thames in the Vauxhall area of the London Borough of Lambeth.

N.2.28 The site is situated to the north of Vauxhall Bridge. Adjacent to the southeast of the site is Secret Intelligence Service (SIS) building.

N.2.29 **Engineering:** The site was considered less suitable as a CSO site as the site does not have any viable land-based access if road access through Lack's Dock is not permitted. The proximity to Vauxhall Bridge presented additional difficulties.

N.2.30 **Planning:** On balance, the site was considered less suitable for a CSO interception site because it is in close proximity to office buildings and its prominent location might impact on the conservation area.

N.2.31 **Environment:** Overall, the site was assessed as suitable as a CSO site, although mitigation would be required. The site was considered likely to be suitable from the perspective of transport, subject to constructing a new site access and widening the existing slipway. The site was also suitable from the perspectives of archaeology, air quality and noise. The site was considered less suitable from the perspectives of built heritage, groundwater, townscape, surface water, ecology, flood risk and land quality.

N.2.32 **Socio-economic and community:** The site was considered suitable as a CSO interception site, although it was likely that there would be impacts on the SIS building and other buildings overlooking the site. The slipway to the north might also be affected. However, these impacts could be mitigated.

N.2.33 **Property:** The site was considered suitable as a CSO site as the acquisition cost should be low and the site is undeveloped. However, there was a risk of delays in acquisition.

C20XH: Open Space, Claylands Road

N.2.34 Site C20XH is situated on an area of communal gardens and car parking serving local authority flats in the Oval area of the London Borough of Lambeth.

N.2.35 The site is situated in a predominantly residential area, bounded on all sides by multi-storey flats. A community hall and playground also lie adjacent to the proposed site.

N.2.36 **Engineering:** The site was considered less suitable as a CSO site because it is situated too far from the river and the interception of the sewer would be difficult.

N.2.37 **Planning:** On balance, the site was considered not suitable as a CSO interception site because the site is in close proximity to residential dwellings and use of the site would result in a loss of residential amenity.

N.2.38 **Environment:** Overall, the site was assessed as suitable as a CSO site. The site was considered likely to be suitable from the perspectives of archaeology, water resources (both hydrogeology and surface water), ecology, flood risk and land quality. The site was considered less suitable
from the perspectives of transport, built heritage and townscape, air quality and noise.

N.2.39 **Socio-economic and community:** The site was considered **not suitable** as a CSO interception site. There would be significant construction impacts on adjacent residents and a garden and parking facilities would be lost. Permanent features would restrict long-term restoration of the area. There is also a community hall adjacent to the site that would be heavily disrupted.

N.2.40 **Property:** The site was considered **suitable** as a CSO site.

**C20XS: Foreshore, adjacent to offices, Albert Embankment.**

N.2.41 Site C20XS is located on the foreshore of the River Thames in the Vauxhall area of the London Borough of Lambeth.

N.2.42 The site is situated to the north of Vauxhall Bridge and to the west of a high-rise office building. Adjacent to the southeast of the site is the Secret Intelligence Service (SIS) building.

N.2.43 **Engineering:** The site was considered **suitable** as a CSO site as it could accommodate the required works, would require no demolition and is close to the main tunnel alignment. Road access would be required outside the site boundary in Lack’s Dock. If this were not possible, river access would be required.

N.2.44 **Planning:** On balance, the site was considered **suitable** as a CSO interception site because it was unlikely to impact on any planning designations and minor impacts could be appropriately mitigated.

N.2.45 **Environment:** Overall, the site was assessed as **suitable** as a CSO site. The site was considered likely to be **suitable** from the perspectives of transport, archaeology, air quality, noise and land quality. The site was considered **less suitable** from the perspectives of built heritage, groundwater, townscape, surface water, ecology and flood risk. However, the site was **suitable** if those impacts could be adequately mitigated.

N.2.46 **Socio-economic and community:** The site was considered **suitable** as a CSO interception site. There would be impacts on the Thames Path and the two large office buildings opposite the site. The open space adjacent to the SIS building and use of the existing slipway to the north might also be disrupted.

N.2.47 **Property:** The site was considered **suitable** as a CSO site with acceptable acquisition cost.

**Phase one consultation preferred site**

N.2.48 Following the completion of the site suitability reports, we held a multidisciplinary workshop to compare the suitability of each of the shortlisted sites based on the site suitability report assessment and to make a recommendation as to which site should be identified as the preferred site.

N.2.49 From the four shortlisted sites, the foreshore, adjacent to offices, Albert Embankment (C20XS) was identified as the preferred site at phase one.
consultation for a number of reasons, which are summarised in no particular order below:

a. Interception of the Brixton Storm Relief would be difficult from site C20XH, which therefore had to be considered in conjunction with C19XA. Use of C20XH would result in substantial impacts on adjacent residential properties, including noise, vibration, dust and traffic movements, as well as a temporary loss of public open space and residential parking. This would lead to conflict with planning policies in the Lambeth Unitary Development Plan. In addition, the sewer interception works would be complex and disruptive, and an additional 700m connection tunnel would be required to connect the site to the main tunnel. For these reasons, and also the fact that site C19XA would also be required, C20XH was not preferred.

b. C19XA is also situated adjacent to a large residential development, which would cause disruption to businesses and residents. Furthermore, there would be impacts on a conservation area, archaeological resources and river ecology. These impacts would lead to conflict with planning policies in the Lambeth Unitary Development Plan. Access to this site is also difficult; therefore C19XA was not preferred.

c. C20XA was also not preferred for similar reasons to C19XA. Access to the site would be very difficult and disruptive, and there would be impacts on the Albert Embankment conservation Area and amenity, in conflict with planning policy.

d. C20XS offers a location where the new foreshore structure would be less prominent and minimise fluvial impact. A temporary access route along the foreshore from Albert Embankment Gardens would have to be provided to site C20XS during construction, as the Counter Terrorism Security Adviser (CTSA) had indicated that it was unlikely that the use of the slipway in Lack’s Docks would be acceptable for construction purposes. However, permanent access would be facilitated through Lack’s Dock.

**N.3 Phase two consultation preferred CSO site: scheme development and site selection**

**Introduction**

N.3.1 Section N.3 explains the implementation of the Site selection methodology paper in order to arrive at the preferred CSO site for phase two consultation.

N.3.2 Following phase one consultation and before phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs for phase two consultation.

N.3.3 This stage took place from Winter 2010 to Autumn 2011.
Phase one consultation responses

N.3.4 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

N.3.5 The main issues and concerns raised during phase one consultation in relation to the Albert Embankment Foreshore site are summarised as follows in no particular order:

a. loss of open space at Albert Embankment Gardens from the access road
b. impact on the conservation area, and listed buildings and structures
c. impact on residential amenity
d. an alternative access should be found
e. design of the permanent structures for the site.

N.3.6 The main comments received in support of the preferred site included:

a. It is the most sensible of the four options consulted on.
b. In principle, the site will be suitable once completed.

N.3.7 More detail on the consultation responses relating to this site and our response to the comments received are provided within Report on phase one consultation.

N.3.8 Having taken all comments received during phase one consultation into account, we still believed that Albert Embankment Foreshore (C20XS) was the most appropriate site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs. On balance, the potential impacts of its use appeared likely to be less than the other possible options identified during the site selection process. We did not believe there were any suitable alternative land-based sites. We recognised that concerns were raised and took them into account when developing the project further, including measures to minimise potential impacts. As a result, we explored whether an alternative access parallel to Lack’s Dock would be possible and whether the ventilation column for this site could be reduced in size.

N.3.9 The above points were based on the information available at the time and the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.

Confirmation of the preferred site for phase two consultation

N.3.10 The final workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that **C20XS: Albert Embankment Foreshore should remain the preferred site for the interception of the Clapham Storm Relief and Brixton Storm Relief CSOs.**
N.3.11 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.

N.4 Post phase two consultation: review of CSO sites for the proposed application

Introduction to the review

N.4.1 Section N.4 explains how we implemented the requirement in the Site selection methodology paper to review the scheme following phase two consultation and prior to Section 48 publicity.

N.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design and/or new technical information and multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

N.4.3 A plan that illustrates all the sites considered for the interception of the Clapham Storm Relief and Brixton Storm Relief CSOs in the review and how they progressed through the site selection process can be found in Annex N.1 and Annex N.2.

N.4.4 This stage took place from Spring 2012 to Summer 2012.

Summary of phase two consultation responses

N.4.5 Details of the consultation responses in relation to this site and our responses are provided in the Report on phase two consultation. We reviewed all phase two consultation comments and took them into account in the development of the proposed scheme. The main feedback relevant to site selection can be summarised as follows:

a. Opposed in principle to the use of any foreshore structures along the tidal River Thames as this is likely to lead to a number of detrimental effects of flood risk management, biodiversity and recreation.

b. Query why shortlisted sites had not been identified.

c. Do not support changes to the extent of preferred site since phase one consultation/do not support the specific location of the site.

d. Concerns regarding the effects of construction on the structure, amenity and working conditions in the office building adjacent to the preferred site, and the potential effect on the working environment from the installation of ventilation columns as part of the permanent works.

e. Can the project legally acquire the necessary property rights for use of the preferred site?

N.4.6 The main comments received in support of the preferred phase two consultation site included:

a. Support for the use of the preferred site.

b. Sufficiently far away from residential areas.
c. Generally in the right location, although the structure in the River Thames has not been designed to take account of navigational risk.

d. Accept the necessity of using this site provided that adverse impacts on this site and on heritage assets across the project are properly mitigated.

N.4.7 Having taken all comments received during phase two consultation into account, we still believe C20XS: Albert Embankment Foreshore is the most suitable site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs.

N.4.8 We recognise the concerns that have been raised, including utilisation of a foreshore site and impact upon adjacent land uses, and we will take these into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Any changes in circumstances or new information

N.4.9 Feedback was received from the occupants of Vauxhall Cross that cannot be made public for security reasons. We can confirm, however, that the issues mainly related to the means of achieving construction rather than the location of the construction site.

N.4.10 In addition to the above, a new passenger service pier, St Georges Wharf pier, was constructed adjacent to site C19XA.

N.4.11 Having considered this new information, we still believe C20XS: Albert Embankment Foreshore is the most suitable site to intercept the Clapham Storm Relief and Brixton Storm Relief CSOs.

Summary of post phase two targeted consultation responses

N.4.12 Phase two consultation feedback was received from the occupants of Vauxhall Cross. Due to this unique site circumstance, we took the decision to hold a targeted consultation in Summer 2012 as part of our scheme review, in order to request specific feedback on a possible alternative access route for construction vehicles from Albert Embankment via a temporary road between Camelford House and Tintagel House. All other aspects of our proposals for the Albert Embankment Foreshore site would remain as set out at phase two consultation.

N.4.13 All comments received in relation to the Albert Embankment Foreshore site during the targeted consultation were reviewed at a workshop. Having taken all comments received into account, we still believe C20XS: Albert Embankment Foreshore is the most suitable site.

N.4.14 Due to the exceptional circumstances, we will be taking both access routes forward. We will take these access route options into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.
Main rationale for the selection of the CSO site for Section 48 publicity

N.4.15 In summary and listed in no particular order, C20XS: Albert Embankment Foreshore was identified as the proposed Section 48 publicity CSO site for the following reasons:

a. The site allows both CSOs to be intercepted in one location.

b. It would have the least impact on the setting of the listed Vauxhall Bridge.

c. It would have the least impact on fluvial flows and is furthest from the authorised navigation channel.

d. The proposed structure could incorporate new habitat to offset, in part, habitat that would be lost.

e. Whilst the potential effects of foreshore sites are recognised, the construction of the tunnel would deliver improvements to river wide and local water quality, which would result in positive effects on river ecology, including habitat improvements and reduce fish kills. We will continue to seek to minimise the effects of our proposals.

N.4.16 Access options have been reviewed and we believe a practical solution can be developed in consultation with relevant stakeholders.

N.5 Confirmation of the proposed CSO site for Section 48 publicity

N.5.1 The post phase two consultation review described above in Section N.4 confirmed C20XS: Albert Embankment Foreshore will remain the proposed site for Section 48 publicity to interception of the Clapham Storm Relief and Brixton Storm Relief CSOs.

N.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submission of the final application.
Annex N.1
Annex N.2
P.1 Introduction

P.1.1 This appendix sets out the site selection process that was followed to identify the most suitable site to intercept the Regent Street CSO prior to the following stages of the project: phase one consultation, phase two consultation and Section 48 publicity.

P.1.2 Table P.1 summarises the sites identified as most suitable to intercept the Regent Street CSO at each phase of the process up to Section 48 publicity.

Table P.1 Summary of the sites identified as most suitable to intercept Regent Street CSO at each phase of the project

<table>
<thead>
<tr>
<th>Phase one consultation site:</th>
<th>Victoria Embankment Foreshore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two consultation site:</td>
<td>Victoria Embankment Foreshore</td>
</tr>
<tr>
<td>Section 48 publicity site:</td>
<td>Victoria Embankment Foreshore</td>
</tr>
</tbody>
</table>

P.1.3 This appendix is structured as follows:

a. Section P.1 provides details of the type of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section P.2 provides details of how we identified our preferred site for phase one consultation.

c. Section P.3 provides details of how we reviewed our preferred site ahead of phase two consultation.

d. Sections P.4 and P.5 provide details of the post phase two consultation scheme review and confirmation of the proposed CSO site for Section 48 publicity.

Type of site

P.1.4 We need a site to control the local combined sewer overflow (CSO), known as the Regent Street CSO and the Low Level Sewer No.1, and to connect them to the main tunnel.

Site selection process

P.1.5 All potential sites were identified in accordance with our Site selection methodology paper, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). CSO sites also needed to be as close to the existing sewer as practicable; therefore, we followed a localised optineering approach to identify suitable sites. The
sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

P.1.6 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the *Site selection methodology paper*, which is also briefly outlined below (see P.2.2).

P.1.7 Following phase one consultation, we reviewed the sites and decided that there was no need to carry out a ‘back-check’ but we did carry out a general review of the preferred and shortlisted sites prior to phase two consultation.

P.1.8 Following phase two consultation, the *Site selection methodology paper* required us to review the scheme. The review of CSO sites involved re-checking the choice of sites identified as most suitable to intercept each CSO associated with the proposed route and proposed the selected CSO sites for Section 48 publicity.

P.2 Phase one consultation preferred CSO site: site selection process

Introduction

P.2.1 Section P.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase one consultation.

P.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3); preparation of detailed site suitability reports for each final shortlisted sites and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept Regent Street CSO for phase one consultation.

P.2.3 This stage took place from Spring 2009 to Summer 2010.

P.2.4 The assessments described in Section P.2 were based on the information available at the time and the related stage in the project’s development.

Assessment of the long list sites

P.2.5 The long list of potential sites to intercept the Regent Street CSO and the northern Low Level Sewer No.1 to divert flows to the main tunnel was created by conducting a desktop survey of the land in the vicinity of the existing sewer.

P.2.6 In total, four sites were included on the long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology) and community and property (neighbouring land
uses, site use, Special Land/Crown land and acquisition costs) considerations.

Table P.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the interception of the CSO and connection to the northern Low Level Sewer No.1. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

**Table P.2 Long list to draft short list for the Regent Street CSO and the northern Low Level Sewer No.1 (Table 2.2 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C22XA/CLLAC</td>
<td>Victoria Embankment Foreshore</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C22XB</td>
<td>A3211 Victoria Embankment</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C22XC/CLLAD</td>
<td>Victoria Embankment Gardens</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
<tr>
<td>C22XD</td>
<td>Whitehall Place and Whitehall Court</td>
<td><strong>Recommendation:</strong> To draft short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

P.2.7 Of the four sites identified, all were assessed as potentially suitable and passed to the draft short list.

**Assessment of draft short list sites**

P.2.8 The four draft short list sites identified for further assessment at the next stage were:

a. C22XA/CLLAC: Victoria Embankment Foreshore
b. C22XB: A3211 Victoria Embankment
c. C22XC/CLLAD: Victoria Embankment Gardens
d. C22XD: Whitehall Place and Whitehall Court.

P.2.9 These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the *Site selection methodology paper* (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.
P.2.10 At this stage, we also consulted with each of the London local authorities along the route of the project and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

Table P.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

Table P.3 Draft short list to final short list for the Regent Street CSO and the northern Low Level Sewer No.1 (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
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<tbody>
<tr>
<td>C22XA/CLLAC</td>
<td>Victoria Embankment Foreshore</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C22XB</td>
<td>A3211 Victoria Embankment</td>
<td><strong>Recommendation</strong>: Not to final short list. <strong>Rationale:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Engineering – The site is heavily constrained by its shape and its location on the road carriageway.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Planning/Environment – There were concerns regarding disruption to a strategic public highway and the impact on planning and environmental designations. Further investigation would be required to use this site.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Property – The use of this site is likely to result in issues that might arise from the disruption to a strategic public highway.</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Community – The site would result in a potential obstruction to the entrance of Victoria Embankment Gardens.</em></td>
</tr>
<tr>
<td>C22XC/CLLAD</td>
<td>Victoria Embankment Gardens</td>
<td><strong>Recommendation</strong>: Retain on short list.</td>
</tr>
<tr>
<td>C22XD</td>
<td>Whitehall Place and Whitehall Court</td>
<td><strong>Recommendation</strong>: Not to final short list. <strong>Rationale:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Engineering – The site is heavily constrained by its shape and its location on the road carriageway.</em></td>
</tr>
<tr>
<td>Site ID</td>
<td>Site name/description</td>
<td>Recommendation and rationale</td>
</tr>
<tr>
<td>--------</td>
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</tr>
</tbody>
</table>
|        |                       | • Planning/Environment – Access to properties in the area might be impacted.  
  • Property – The closure of Whitehall Place might cause significant disruption to surrounding properties.  
  • Community – The site is surrounded by commercial premises and a number of high-density residential properties. There are a number of other sensitive receptors in the vicinity that might be affected, including the Victoria Embankment Gardens. |

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

P.2.11 Of the four sites on the draft short list, two were assessed as potentially suitable and passed to the final short list and two did not proceed to the final short list.

**Assessment of the final short list sites**

P.2.12 The two sites identified for inclusion on the final short list and assessment at the next stage were:
  a. C22XA/CLLAC: Victoria Embankment Foreshore

P.2.13 A site suitability report was prepared for each of the Final Shortlisted sites. These reports contained an assessment of each site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline, using technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline’s perspective.

P.2.14 A summary of the conclusions of each discipline’s assessment from the site suitability reports is provided below.

**C22XA/CLLAC: Victoria Embankment Foreshore**

P.2.15 Site C22XA/CLLAC is situated on the foreshore of the River Thames in the City of Westminster. The site is adjacent to the Hungerford Bridge and Golden Jubilee footbridges. The site area includes two permanently moored vessels. Embankment Pier and a mooring lie to the north of the site and Embankment Station is situated to the northwest.

P.2.16 The west side of the site is bordered by Victoria Embankment (the A3211) and beyond are the Victoria Embankment Gardens.
P.2.17 **Engineering:** The site was assessed as **suitable** as a CSO site to intercept the CSO because it is relatively unrestricted in size and shape and has good road access.

P.2.18 **Planning:** On balance, the site was assessed as **less suitable** to intercept this CSO. This is because it is in a prominent and sensitive location for both heritage and nature conservation considerations with limited scope for mitigation.

P.2.19 **Environment:** Overall, the site was assessed as **less suitable** as a CSO site. The site was considered likely to be **suitable** from the perspectives of archaeology, land quality, noise and air quality. However, the site was considered **less suitable** from the perspectives of transport, built heritage and townscape, water resources (surface water and hydrogeology), ecology and flood risk.

P.2.20 **Socio-economic and community:** The site was assessed as **less suitable** to intercept this CSO. Use of the site would result in the loss of the moorings for the bar-restaurant boats, which might significantly affect these businesses, particularly due to the low likelihood of finding a suitable alternative city centre mooring location. Furthermore, it is unlikely to be possible to reinstate these moorings following construction. It was also likely that the Embankment Pier would be severely disrupted.

P.2.21 Visual and noise disturbance would also impact on pedestrians along the Victoria Embankment, as well as landmarks in close proximity.

P.2.22 **Property:** Assessed the site as **suitable** as a CSO site with an acceptable acquisition cost.

**C22XC/CLLAD: Victoria Embankment Gardens**

P.2.23 The Victoria Embankment Gardens is situated in the City of Westminster. The site is separated from the River Thames by the Victoria Embankment (A3211). The site is within the Victoria Embankment Gardens, a Grade II listed garden, which contains a number of listed features. The garden is a well-maintained public open space screened to obscure views of the road and River Thames.

P.2.24 **Engineering:** The site was assessed as **less suitable** as a CSO site because of significant constraints from existing assets, including the District and Circle lines. In addition, use of this site would also require work in the foreshore to make the connection to the northern Low Level Sewer in the Embankment wall; in effect, a foreshore site would also be required.

P.2.25 **Planning:** There are a number of onsite and adjacent sensitive receptors, such as a registered Grade II garden, conservation area, listed buildings and residential properties. The site was therefore assessed as **not suitable** as a site to intercept this CSO because of the cumulative effect on both heritage and open space designations, including a significant number of mature trees.

P.2.26 **Environment:** Overall, the site was assessed as **less suitable** as a CSO site, given the substantial environmental constraints identified. The site was considered likely to be **suitable** from the perspectives of archaeology,
land quality and air quality. However, the site was considered **less suitable** from the perspectives of transport, built heritage and townscape, water resources (surface water and hydrogeology), ecology, flood risk and noise.

P.2.27 **Socio-economic and community:** The site was assessed as **not suitable** as a site use to intercept this CSO. Use of the site appeared likely to have substantial adverse effects on the gardens and their users. Necessary permanent hardstanding would make reinstatement difficult following construction. There would also be noise disruption impacts on pedestrians and nearby buildings.

P.2.28 **Property:** The site was assessed as **less suitable** for use to intercept this CSO as acquisition costs were likely to be high.

**Phase one consultation preferred site**

P.2.29 Following the completion of the site suitability reports, we held a multidisciplinary workshop to compare the suitability of each of the shortlisted sites based on the site suitability report assessments, and to make a recommendation as to which site should be identified as the preferred site.

P.2.30 While we recognised that both sites had considerable challenges to overcome, on balance, Victoria Embankment Foreshore (C22XA/CLLAC) was identified as the preferred site at phase one consultation for the following reasons (listed in no particular order):

a. In planning terms, the use of both sites would have significant heritage impacts. However, in the case of Victoria Embankment Gardens (C22XC/CLLAD), these impacts would be greater as they would be difficult to mitigate effectively. Furthermore, use of this site would also cause loss of open space and loss of the last original remaining layout of the gardens. There are important local and river views on both sites that would need to be taken into account in the design.

b. Conflict with Westminster Core Strategy and saved UDP policies might arise in attempting to relocate the permanent moorings adjacent to Victoria Embankment Foreshore (C22XA/CLLAC).

c. Both sites had a number of environmental constraints that would require extensive mitigation. However, on balance, we considered that the Victoria Embankment Foreshore (C22XA/CLLAC) would be preferable primarily due to the fact that the site is further away from buildings (some of them listed) than the Victoria Embankment Gardens site (C22XC/CLLAD). There would be less impact from construction noise and dust on nearby hotel residents and offices, and less significant impact on the appearance and setting of the gardens and listed buildings.

d. Victoria Embankment Gardens (C22XC/CLLAD) would have a much greater community impact due to the temporary loss of the gardens and the permanent impacts associated with hardstanding and maintenance access requirements. The impact of the permanent structures on the foreshore could be mitigated with landscaping.
proposals that are sympathetic to the shore. Furthermore, impacts associated with the foreshore site on pedestrians and vehicles could be mitigated through effective management plans.

e. The use of Victoria Embankment Foreshore (C22XA/CLLAC) would allow all the works to be carried out in one site. Furthermore, while the site includes London Underground lines, the shaft could be positioned to have minimal impact on them. The use of Victoria Embankment Gardens (C22XC/CLLAD) would require a sewer to be constructed below the District and Circle lines, which would be fraught with difficulties, including the need to close the District and Circle lines to undertake works and associated surveys. The structures associated with the railway during the works would potentially be affected.

P.3 Phase two consultation preferred CSO site: scheme development and site selection

Introduction

P.3.1 Section P.3 explains the implementation of the Site selection methodology paper in order to arrive at the preferred CSO site for phase two consultation.

P.3.2 Following phase one consultation and before phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept Regent Street CSO for phase two consultation.

P.3.3 This stage took place from Winter 2010 to Autumn 2011.

Phase one Consultation responses

P.3.4 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

P.3.5 The main issues and concerns raised during phase one consultation can be summarised as follows (in no particular order):

a. impact on the ecology of the foreshore
b. impact on the existing heritage in the area
c. impact of construction on local residents and businesses, such as the Hispaniola and the Tattershall Castle
d. impact on boat users navigating the River Thames.

P.3.6 More detail on the consultation responses relating to this site and our response to the comments received are provided in the Report on phase one consultation.

P.3.7 Having taken all comments received during phase one consultation into account, we still believed that Victoria Embankment Foreshore was the most appropriate site (see prior to phase two consultation map in Annex
P.2). We considered the use of the foreshore preferable to the temporary loss of and permanent effects on the Grade II listed Victoria Embankment Gardens. We recognised the concerns that were raised, particularly with regard to the local built heritage and local businesses, and took these and other concerns into account in developing the project further, including measures to minimise any potential impacts. We also looked at whether the ventilation column and associated machinery for this site could be reduced in size or removed altogether.

P.3.8 The above points were based on the information available at the time and the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.

**Confirmation of the preferred site for phase two consultation**

P.3.9 The final workshop was held in Summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that Victoria Embankment Foreshore should remain the preferred site for the interception of the Regent Street CSO and connection of the northern Low Level Sewer No.1 to the main tunnel.

P.3.10 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.

**P.4 Post phase two consultation: review of CSO sites for the proposed application**

**Introduction to the review**

P.4.1 Section P.4 explains how we implemented the requirement in the *Site selection methodology paper* to review the scheme following phase two consultation and prior to Section 48 publicity.

P.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design and/or new technical information; multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

P.4.3 A plan that illustrates all the sites considered for the interception of the Regent Street CSO in the review and how they progressed through the site selection process can be found in Annex P.1.

P.4.4 This stage took place from Spring 2012 to Summer 2012.

**Summary of phase two consultation responses**

P.4.5 Details of the consultation responses in relation to this site and our responses are provided in the *Report on phase two consultation*. We reviewed all phase two consultation comments and took them into account in the development of the proposed scheme. The main feedback relevant to site selection can be summarised as follows::
a. Opposed in principle to the use of any foreshore structures along the tidal Thames as this is likely to lead to a number of detrimental effects of flood risk management, biodiversity and recreation.

b. Query why shortlisted sites were not identified.

c. Do not support changes to the extent of preferred site since phase one consultation, as although it would encourage a reduction in site footprint and minimise projection into the river.

d. Boat will not be able to remain in its current location.

P.4.6 The main comments received in support of the preferred site at phase two consultation included:

a. Qualified support for the preferred site, including that the site is generally in the right location, although the structure in the River Thames has not been designed to take account of navigational risk; further work should be undertaken to ensure that the site can be delivered in an acceptable way.

P.4.7 Having taken all comments received during phase two consultation into account, we still believe C22XA/CLLAC: Victoria Embankment Foreshore is the most suitable site to intercept the Regent Street CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

P.4.8 We recognise the concerns that have been raised, including utilisation of the foreshore and impact upon surrounding uses, and we will take these into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Any changes in circumstances or new information

P.4.9 No significant changes in circumstances or new information were identified.

P.4.10 Given that there are no changes in circumstances or new information with relevance to site selection, we still believe C22XA/CLLAC: Victoria Embankment Foreshore is the most suitable site to intercept the Regent Street CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

Summary of post phase two targeted consultation responses

P.4.11 Notwithstanding that fact that there was no significant new information and/or changes in circumstances, as part of the detailed design process and as a result of phase two consultation comments, we considered potentially making some changes to our phase two consultation preferred site. We therefore took the decision to hold a targeted consultation in Summer 2012 as part of our scheme review, in order to request specific feedback on a few detailed design matters relating to our phase two consultation preferred site at Victoria Embankment Foreshore.

P.4.12 We asked for feedback on the following three detailed matters:

a. Revised design of the permanent works (‘island design’)
b. revised construction layout, shape and extent, and to address navigation risk

c. options related to the potential relocation of the Hispaniola and Tattershall Castle ships.

P.4.13 All comments received in relation to the Victoria Embankment Foreshore site during the targeted consultation were reviewed at a workshop. Having taken all comments received into account, we still believe C22XA/CLLAC: Victoria Embankment Foreshore is the most suitable site to intercept the Regent Street CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

a. The ‘island’ design for the permanent structure is innovative, but it is not appropriate location given the historical setting and views.

b. Consideration should be given to a simpler alternative design that would modify the permanent structure presented at phase two consultation.

c. Consideration should be given to a more symmetrical design, so is in better keeping with the local historical environment and less impact on the views from the Hungerford footbridge.

P.4.14 All of these matters covered at targeted consultation will be taken into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Main rationale for the selection of the CSO site for Section 48 publicity

P.4.15 In summary, Victoria Embankment Foreshore was identified as the most suitable CSO site for the following reasons (in no particular order):

a. It would not result in the loss of the historic gardens and the associated impact on the local community due to the temporary loss of public open space during construction and the permanent impact of the operational structures.

b. It would allow all the works to be located in one site.

c. It would allow a shorter connection tunnel than a site in Victoria Embankment Gardens, which would result in reduced health and safety risks associated with constructing a connection tunnel in the Lambeth Group geology and beneath the London Underground Circle and District lines.

d. While there would be potential impacts in relation to flood risk management with the foreshore site, it is further away from Whitehall Court and the Liberal Club, which would reduce the effect on the setting and the potential construction effects such as noise and dust on local residents and hotel users.

e. Whilst the potential effects of foreshore sites are recognised, the construction of the tunnel would deliver improvements to river wide and local water quality, which would result in positive effects on river
ecology, including habitat improvements and reduce fish kills. We will continue to seek to minimise the effects of our proposals.

P.4.16 On balance, we believe we will not need to move the Hispaniola ship. We also propose to temporarily move and reinstate the Tattershall Castle ship and mooring. Any appropriate mitigation measures related to these ships will be subject of detailed design development.

P.5 Confirmation of the proposed CSO site for Section 48 publicity

P.5.1 The post phase two consultation review described above in Section P.4 confirmed C22XA/CLLAC: Victoria Embankment Foreshore as the proposed site for Section 48 publicity to intercept the Regent Street CSO and connect the northern Low Level Sewer No.1 to the main tunnel.

P.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to submission of the final application.
Appendix Q– Blackfriars Bridge Foreshore

Q.1 Introduction

Q.1.1 This appendix sets out the site selection process that was followed to identify the most suitable site to intercept the Fleet Main CSO prior to the following stages of the project; phase one consultation, phase two consultation and Section 48 publicity.

Q.1.2 Table Q.1 summarises the sites identified as most suitable to intercept the Fleet Main CSO at each phase of the process up to Section 48 publicity.

<table>
<thead>
<tr>
<th>Table Q.1 Summary of the sites identified as most suitable to intercept the Fleet Main CSO at each phase of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase one consultation site:</strong> Blackfriars Bridge Foreshore</td>
</tr>
<tr>
<td><strong>Phase two consultation site:</strong> Blackfriars Bridge Foreshore</td>
</tr>
<tr>
<td><strong>Section 48 publicity site:</strong> Blackfriars Bridge Foreshore</td>
</tr>
</tbody>
</table>

Q.1.3 This appendix is structured as follows:

a. Section Q.1 provides details of the type of site needed and a brief summary of how the Site selection methodology paper was applied at each stage of the project.

b. Section Q.2 provides details of how we identified our preferred site for phase one consultation.

c. Section Q.3 provides details of how we reviewed our preferred site ahead of phase two consultation.

d. Sections Q.4 and Q.5 provide details of the post phase two consultation scheme review and confirmation of the proposed CSO site for Section 48 publicity.

Type of site

Q.1.4 We need a site to intercept the local combined sewer overflow (CSO), known as the Fleet Main CSO and the Low Level Sewer No.1, to connect them to the main tunnel.

Site selection process

Q.1.5 All potential sites were identified in accordance with our Site selection methodology paper, which involved a ‘sieving’ approach that commenced with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). CSO sites also needed to be as close to the existing sewer as practicable; therefore, we followed a localised optineering approach to identify suitable sites. The
sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and professional judgement.

Q.1.6 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the *Site selection methodology paper*, which is also briefly outlined below (see Section Q.2.2).

Q.1.7 Following phase one consultation, we reviewed the sites and decided that there was no need to carry out a ‘back-check’, but we did carry out a general review of the preferred and shortlisted sites prior to phase two consultation.

Q.1.8 Following phase two consultation, the *Site selection methodology paper required* us to review the scheme. The review of CSO sites involved re-checking the choice of sites identified as most suitable to intercept each CSO associated with the proposed route and proposed CSO sites for Section 48 publicity.

Q.2 Phase one consultation preferred CSO site: site selection process

**Introduction**

Q.2.1 Section Q.2 explains the implementation of the *Site selection methodology paper* in order to arrive at the preferred CSO site for phase one consultation.

Q.2.2 Prior to phase one consultation, the site selection process comprised: identification of sites for inclusion on a long list; assessment of sites on the long list to create a draft short list of sites (Table 2.2); assessment of the Draft Shortlisted sites to create a final short list of sites (Table 2.3); preparation of detailed site suitability reports for each final shortlisted site and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept Fleet Main CSO for phase one consultation.

Q.2.3 This stage took place from Spring 2009 to Summer 2010.

Q.2.4 The assessments described in Section Q.2 were based on the information available at the time and the related stage in the project’s development.

**Assessment of the long list sites**

Q.2.5 The long list of potential sites to intercept the Fleet Main CSO and connect the northern Low Level Sewer No.1 to the main tunnel to divert flows was created by conducting a desktop survey of the land in the vicinity of the existing sewer.

Q.2.6 In total, four sites were included on the long list. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape,
open space and ecology) and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.

Q.2.7 Table Q.2 below provides a summary of the outcome of the Table 2.2 assessment in respect of the long list of sites considered for the interception of the CSO and connection to the northern Low Level Sewer No.1. Sites that were determined to be the least constrained in light of the Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out at Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised in the table below.

**Table Q.2 Long list to draft short list for Fleet Main CSO and connect the northern Low Level Sewer No.1 (Table 2.2 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C27XA/CLLAE</td>
<td>Foreshore (Blackfriars Bridge)</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C27XB</td>
<td>Blackfriars Underpass</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C27XC</td>
<td>Yard, Apothecary Street</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
<tr>
<td>C27XD</td>
<td>Tudor Street</td>
<td><strong>Recommendation</strong>: To draft short list.</td>
</tr>
</tbody>
</table>

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

Q.2.8 Of the four sites identified, all four were assessed as potentially suitable and passed to the draft short list and no sites were eliminated as unsuitable.

**Assessment of draft short list sites**

Q.2.9 The four draft short list sites identified for further assessment at the next stage were:

a. C27XA/CLLAE: Foreshore (Blackfriars Bridge)
b. C27XB: Blackfriars Underpass
c. C27XC: Yard, Apothecary Street
d. C27XD: Tudor Street.

Q.2.10 These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the *Site selection methodology paper* (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.
Appendix Q – Blackfriars Bridge Foreshore

Q.2.11 At this stage, we also consulted with each of the London local authorities along the route of the project and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

Q.2.12 Table Q.3 below summarises the outcome of the Table 2.3 assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below.

Table Q.3 Draft short list to final short list for the Fleet Main CSO and the northern Low Level Sewer No.1 (Table 2.3 assessment)

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C27XA/CLLAE</td>
<td>Foreshore (Blackfriars Bridge)</td>
<td><strong>Recommendation:</strong> Retain on short list.</td>
</tr>
</tbody>
</table>
| C27XB | Blackfriars Underpass | **Recommendation:** Not to short list.  

**Rationale:**
- Engineering – The site is narrow and the proximity to Blackfriars Bridge would make working conditions difficult.
- Planning/Environment – It would cause major disruption to a TLRN route, underpass and other key transport links.
- Community – It would impact on the Thames Path.
- Property – It would cause major disruption to a strategic highway, which TfL was likely to oppose, so special acquisition procedures were likely to be required which could delay programme.

| C27XC | Yard, Apothecary Street | **Recommendation:** Not to short list.  

**Rationale:**
- Engineering – The site is narrow and constrained by the Thames link, which would make working difficult.
- Community – It would impact on sensitive receptors.
Appendix Q – Blackfriars Bridge Foreshore

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
</table>
| C27XD   | Tudor Street          | **Recommendation:** Not to short list.  
**Rationale:**  
- Engineering – It is a very small, constrained site that would be difficult to use.  
- Planning/Environment – It would disrupt the highway network and it was unlikely that significant use of New Bridge Street would be allowed. |

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

Q.2.13 Of the four sites on the draft short list, one was assessed as potentially suitable and passed to the final short list and three sites did not proceed to the final short list.

**Assessment of the final short list sites**

Q.2.14 The site that was identified for inclusion on the final short list and assessment at the next stage was C27XA/CLLAE: (Blackfriars Bridge) Foreshore.

Q.2.15 A site suitability report was prepared for the Final Shortlisted site. This report contained an assessment of the site’s suitability, having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation with no comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline, using technical knowledge and professional judgement as appropriate, and assessed as **suitable, less suitable** or **not suitable** from that discipline’s perspective.

Q.2.16 A summary of the conclusions of each discipline’s assessment from the site suitability report is provided below.

**C27XA/CLLAE: Blackfriars Bridge Foreshore**

Q.2.17 Site C27XA is located on the foreshore of the River Thames, adjacent to Blackfriars Bridge in the City of London. It is rectangular in shape and would be accessed via Victoria Embankment. Blackfriars Millennium Pier is located in the site. The site also takes up the northern part of the Blackfriars Underpass, although the working area would be located adjacent to it, to the west.

Q.2.18 To the north of the site, and across Victoria Embankment, are multi-storey office buildings with windows and balconies that overlook Blackfriars Bridge and the site.

Q.2.19 **Engineering:** This site was assessed as **less suitable** as a CSO site as it would require extensive foreshore works to intercept the very large flows from the Fleet Main CSO and northern Low Level Sewer No.1. The site would also be difficult to access by road in the construction phase and would likely require river access in both the construction and operational phase.
phases. There were potential concerns that the only way to transfer the flows at this location into the main tunnel would be to align the main tunnel so that the CSO shaft would be online. However, as it was the only feasible site at Fleet, it represented the best option and needed to be progressed.

Q.2.20 **Planning:** On balance, the site was considered suitable as a CSO site. Although the site was subject to a number of direct and adjacent policy designations, we considered that it was likely to be suitable in planning terms if appropriate mitigation could be provided. However, satisfactory mitigation was likely to include the suitable relocation of the Blackfriars Millennium Pier facility, as the loss of the pier was unlikely to be acceptable.

Q.2.21 **Environment:** Overall, the site was suitable as a CSO site, although mitigation would be required. Based on the information available at the time, the site was suitable from the perspectives of archaeology, townscape, groundwater, air quality, noise and land quality.

Q.2.22 This site was considered less suitable from the perspectives of transport, built heritage, surface water, flood risk and ecology. Overall, the site was considered suitable, subject to further investigation of whether transport, built heritage and townscape, surface water and ecology impacts could be adequately mitigated.

Q.2.23 **Socio-economic and community:** The site was assessed as less suitable as a CSO site as the majority of the Blackfriars Millennium Pier and the pedestrian access to the pier was likely to be temporarily lost, which might impact on commuters and tourists who use the boat service. Mitigation might involve discussions around relocation of the pier or provision of alternative transport services.

Q.2.24 **Property:** The site was assessed as less suitable due to the combination of potentially significant costs relating to Blackfriars Pier, and the acquisition risks related to ownership of the foreshore.

**Phase one consultation preferred site**

Q.2.25 Following the completion of the site suitability report, we held a multidisciplinary workshop to consider the suitability of the shortlisted site based on the site suitability report assessment, and to confirm that no alternative sites had been overlooked.

Q.2.26 Blackfriars Bridge Foreshore (C27XA/CLLAE) was the only shortlisted site, and was identified as the preferred site at phase one consultation for a number of reasons that are summarised in no particular order below:

a. No other sites were shortlisted as they had been discounted for the reasons set out above. This site was identified as suitable from a planning and environment perspective but less suitable from the engineering, community and property perspectives.

b. In particular, there were engineering challenges due to the shape and constrained location of the site that would require careful design in order to provide a suitable solution. As the site is in the foreshore,
acquisition would need to take account of special ministerial or parliamentary procedures.

c. From a community perspective, it would be necessary to consider mitigation measures to reduce the impact on users of the Blackfriars Millennium Pier.

d. While suitable from a planning and environment perspective, it would be necessary to consider the impact on listed buildings and the conservation area, and to employ appropriate screening and mitigation.

Q.3 Phase two consultation preferred CSO site: scheme development and site selection

Introduction

Q.3.1 Section Q.3 explains the implementation of the Site selection methodology paper in order to arrive at the preferred CSO site for phase two consultation.

Q.3.2 Following phase one consultation and prior to phase two consultation, the site selection process comprised: review of comments from phase one consultation; consideration of any ongoing scheme design and/or any new information received; and a multidisciplinary optioneering workshop to identify the preferred CSO site to intercept the Fleet Main CSO for phase two consultation.

Q.3.3 This stage took place from Winter 2010 to Autumn 2011.

Phase one consultation responses

Q.3.4 As part of the site selection methodology, all feedback received during phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

Q.3.5 The main issues and concerns raised during phase one consultation in relation to the Blackfriars Bridge Foreshore site are summarised as follows in no particular order:

a. impact of construction on the foreshore
b. impact on existing heritage features, including Blackfriars Bridge and views of the bridge from St Paul’s Cathedral
c. permanent design of the site following construction
d. temporary relocation of river passenger services and businesses based at Blackfriars Pier.

Q.3.6 The main comments received in support of the preferred site included that the proposals for the site following construction would enhance the existing riverfront and views from either side of the site.

Q.3.7 More detail on the consultation responses relating to this site and our response to the comments received is provided in the Report on phase one consultation.
Q.3.8 Having taken all comments received during phase one consultation into account, we still considered Blackfriars Bridge Foreshore (C27XA/CLLAE) the most appropriate site (see the map prior to phase two consultation in Annex Q.2) because it was the only possible location at which we could intercept the Fleet Main CSO. We did not believe there were any suitable alternative land-based sites. We recognised the concerns that were raised, particularly with regard to local built heritage, and we took these and other concerns into account in developing the project further, including measures to minimise any potential impacts.

Q.3.9 The above points were based on the information available at the time and the related stage in the project’s development. The points therefore comprise a historic representation of the process prior to phase two consultation.

Confirmation of the preferred site for phase two consultation

Q.3.10 The final workshop was held in Summer 2011 to verify the choice of preferred sites and consider any outcomes of further engagement and scheme development. The conclusion reached was that Blackfriars Bridge Foreshore should remain the preferred site for the interception of the Fleet Main CSO and connection of the northern Low Level Sewer No.1 to the main tunnel.

Q.3.11 Phase two consultation provided an opportunity for the public to comment on our revised preferred site and scheme for the project.

Q.4 Post phase two consultation: review of CSO site for the proposed application

Introduction to the review

Q.4.1 Section B.4 explains how we implemented the requirement in the Site selection methodology paper to review the scheme following phase two consultation and prior to Section 48 publicity.

Q.4.2 This stage of the site selection process comprised: review of comments from phase two consultation; consideration of any ongoing scheme design and/or new technical information; and multidisciplinary workshops and reviews to identify the proposed CSO site for Section 48 publicity.

Q.4.3 A plan that illustrates all the sites considered for the interception of the Fleet Main CSO in the review and how they progressed through the site selection process can be found in Annex Q.1.

Q.4.4 This stage took place from Spring 2012 to Summer 2012.

Summary of phase two consultation responses

Q.4.5 Details of the consultation responses in relation to this site and our responses are provided in the Report on phase two consultation. We reviewed all phase two consultation comments and took them into account in the development of the proposed scheme. The main feedback relevant to site selection can be summarised as follows::
a. Object to the use of this preferred site in particular:
   i. although there does not appear to be any realistic alternative to this site, there are significant concerns about the site construction proposals and the likely impacts on highway capacity and road users in the area
   ii. opposed in principle to the use of any foreshore sites.

b. The preferred site is generally unsuitable; fundamental concerns regarding the implications of the site for navigational safety, flood risk management, biodiversity, recreation and the effects on highway capacity and road users in this area.

c. Existing uses of the site present development constraints.

d. Site selection should avoid sites adjacent to or containing heritage assets; the Grade II listed Carmelite is located directly opposite the proposed site, and is within the Whitefriars Conservation Area.

e. Query why shortlisted sites were not identified.

f. Use an alternative site. Suggestions included the foreshore in front of Inner Temple Gardens.

Q.4.6 Having taken all comments received during phase two consultation into account, we still believe C27XA/CLLAE: Blackfriars Bridge Foreshore is the most suitable site to intercept the Fleet Main CSO and connection of the northern Low Level Sewer No.1 to the main tunnel.

Q.4.7 We recognise the concerns that have been raised, including impact on the natural environment and adjacent land uses, and will take these into account when developing the project further, including measures which can be put in place to minimise any significant potential impacts.

Any changes in circumstances or new information

Q.4.8 An application was granted for a new pier to be constructed at Chrysanthemum Pier; however, this would have no effect on the location of our main works. We proposed to relocate the President to the proposed new pier during the works subject to agreement and minor works being undertaken to modify the pier.

Q.4.9 Having considered this new information, we still believe C27XA/CLLAE: Blackfriars Bridge Foreshore is the most suitable site to intercept the Fleet Main CSO and connection of the northern Low Level Sewer No.1 to the main tunnel.

Main rationale for the selection of the CSO site for Section 48 publicity

Q.4.10 In summary, Blackfriars Bridge Foreshore was identified as the proposed Section 48 publicity CSO site for the following reasons (in no particular order):

a. No other suitable sites were found to intercept the Fleet Main CSO and connect to the low level sewer due to the constrained urban nature of the area around the Fleet Main CSO.
b. There were engineering challenges due to the constrained location of the site and the large flows that need to be diverted to the tunnel, which would require large hydraulic structures. However, this would be addressed through careful design in order to provide a suitable solution from a navigation perspective and in relation to the fluvial impacts on the river.

c. Although the foreshore site includes London Underground Waterloo and City line tunnels, the shaft could be positioned to minimise impact on them.

d. As the site is in the foreshore, it would need to be acquired from the Port of London Authority. It is possible to acquire interests from the Port of London Authority using compulsory purchase powers; however, this could pose a risk to the project. It was preferable to reach an agreement through discussions. Furthermore, the foreshore is not easily accessed by the general public and unlikely to be considered ‘open space’, which would reduce risk of needing to provide replacement land.

e. Blackfriars Millennium Pier could be relocated to mitigate the impact on users of the pier.

f. While suitable from a planning and environment perspective, it would be necessary to consider the impact on listed buildings and the conservation area. However, we considered it possible to employ appropriate screening and mitigation.

Q.5 Confirmation of the proposed CSO site for Section 48 publicity

Q.5.1 The post phase two consultation review described above in Q.4 confirmed C27XA/CLLAE: Blackfriars Bridge Foreshore as the proposed site for Section 48 publicity to intercept the Fleet Main CSO and connection of the northern Low Level Sewer No.1 to the main tunnel.

Q.5.2 Section 48 publicity provides an opportunity for the public to comment on the proposed sites and the project as a whole. Comments received in response to Section 48 publicity will be reviewed and taken into consideration prior to the submission of the application.
Annex Q.1
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>combined sewer overflow (CSO)</td>
<td>A structure, or series of structures, designed to allow spillage of excess wastewater from a combined sewer under increased rainfall conditions. Flows may discharge by gravity or by pumping.</td>
</tr>
<tr>
<td>connection culvert</td>
<td>A covered channel structure that connects an interception chamber to a drop shaft.</td>
</tr>
<tr>
<td>connection tunnel</td>
<td>A tunnel that connects a drop shaft to the main tunnel.</td>
</tr>
<tr>
<td>CSO site</td>
<td>A site that contains the CSO interception chambers, connection culverts and the drop shaft from which the connection tunnel is built. Each site needs to provide enough space for all construction related activities, which vary depending on the diameter of the shafts and the method of tunnel construction.</td>
</tr>
<tr>
<td>drive site</td>
<td>A main tunnel site containing the shaft from which the tunnel boring machine is ‘driven’ forward, ie, starts from. Excavated material is removed from and segments are fed into the tunnel via the shaft at the drive site.</td>
</tr>
<tr>
<td>drop shaft</td>
<td>A vertical, circular structure that connects a connection culvert to a connection tunnel. This is used to drop flow down to the main tunnel level.</td>
</tr>
<tr>
<td>intermediate site</td>
<td>A site that contains the intermediate shafts from which the construction of the main tunnel is supported by activities such as secondary lining. Each site needs to provide enough space for all construction related activities, which vary depending on whether the concrete for the secondary lining is made on the site or made elsewhere and delivered to the site by lorries.</td>
</tr>
<tr>
<td>Lee Tunnel</td>
<td>The Lee Tunnel comprises a storage and transfer tunnel from Abbey Mills Pumping Station to Beckton STW and the interception of the Abbey Mills CSO.</td>
</tr>
<tr>
<td>main tunnel</td>
<td>The tunnel from Abbey Mills to Acton Storm Tanks.</td>
</tr>
<tr>
<td>main tunnel site</td>
<td>A site from which the main tunnel is built. Each site needs to provide enough space for all construction related activities, which vary depending on the type of tunnel boring machine used and whether the site is a drive site, a double drive site or a reception site.</td>
</tr>
<tr>
<td>mitigation measures</td>
<td>Actions proposed to moderate adverse impacts and to enhance beneficial impacts arising from the whole or specific elements of the development.</td>
</tr>
<tr>
<td>pumping station</td>
<td>A vertical, circular structure that has pumps located at the bottom. This is used to lift storm water flows up to the sewage treatment works.</td>
</tr>
<tr>
<td>receptors</td>
<td>People (both individually and communally) and the socio-economic systems they support.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>reception site</td>
<td>A main tunnel site that contains the shaft from which the tunnel boring machine is ‘received’, ie, ends up. The tunnel boring machine is removed from the tunnel via the shaft at this reception site.</td>
</tr>
<tr>
<td>sewage or wastewater</td>
<td>Waterborne wastes from domestic uses of water, derived from households, trade and industry.</td>
</tr>
<tr>
<td>sewerage</td>
<td>A system of pipes for the collection and transportation of domestic and industrial wastewater.</td>
</tr>
<tr>
<td>shaft</td>
<td>Duct/pipe/vertical tunnel.</td>
</tr>
<tr>
<td>storm water</td>
<td>Rainwater that funnels into sewers to be mixed with sewage and is either treated at sewage works or overflows into rivers.</td>
</tr>
</tbody>
</table>
| Thames Tideway Tunnel project           | The Thames Tideway Tunnel project comprises a main tunnel, running from west to east London that is integrated with the existing sewerage system via connection tunnels in order to control 34 ‘unsatisfactory’ CSOs. These tunnels store and transfer the intercepted flows to Beckton STW. The project consists of two main elements:  
• Works to design, construct and maintain the main tunnel, which provides the majority of the storage capacity and enables transfer of combined sewage to Beckton STW in east London.  
• Works to control and intercept combined sewage overflows unsatisfactory CSOs and transfer them into the main tunnel. This includes connection tunnels to link intercepted CSOs to the main tunnel. |
| Tideway                                 | The tidal area of the River Thames (ie, from Teddington to the Thames Estuary).                                                              |
| tunnel alignment                        | The horizontal and vertical route of the proposed tunnels, including connection tunnels and main tunnel sites.                                 |
| tunnel boring machine                   | A machine with a circular cross-section that is used to excavate tunnels through a variety of ground conditions.                              |
For further information or to comment on our proposals please see our website: www.thamestunnelconsultation.co.uk

It is very important that you understand the information we have provided. If you need further information in another language, braille, large print or audio format please contact us on 0800 0721 086.