

**Thames Tideway Tunnel**  
Thames Water Utilities Limited



# Application for Development Consent

Application Reference Number: WWO10001

## Sustainability Statement

Doc Ref: **7.07**

### **Appendix B.12**

#### **Heathwall Pumping Station**

APFP Regulations 2009: Regulation **5(2)(q)**

Hard copy available in

Box **48** Folder **B**  
January 2013

**Thames  
Tideway Tunnel**



Creating a cleaner, healthier River Thames

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## Appendix B: Site-specific appraisal

### B.12 Heathwall Pumping Station

<p><b>Type of site:</b></p>	<p>CSO site, short connection tunnel drive site</p>
<p><b>Description of proposals:</b></p>	<p>The site is situated in the London Borough of Wandsworth. It comprises the Heathwall Pumping Station, Middle Wharf and an area of the foreshore. The site would intercept the Heathwall Pumping Station and the South West Storm Relief and serve as a short connection tunnel drive site.</p>
<p><b>Water quality</b> Maintain and enhance river water quality</p>	
<p><b>Appraisal</b> The proposals would support the objective. Particular issues of relevance to the site appraisal include:</p> <ul style="list-style-type: none"> <li>• The site lies within a Source Protection Zone 1. The shaft would pass through the upper aquifer. Depressurisation of the Lambeth Group would be required; however, measures set out in the <i>CoCP</i> would mitigate discharge of pollutants into the tidal Thames. These measures include settlement of suspended solid and further treatment if necessary.</li> <li>• The construction of a cofferdam into the foreshore would create a pathway for pollutants into the river. Water would need to be pumped out from behind the cofferdam. To avoid deterioration the effluent would be treated through measures outlined in the <i>CoCP</i> which would remove pollutants and contaminants.</li> <li>• The River Thames is a high sediment environment with up to 40,000t (20,000m<sup>3</sup>) of sediment passing the site four times per day during spring tide. Piling within the foreshore would release sediment from the river bed. An estimated 44t (22m<sup>3</sup>) would be released at this site, which would be negligible when compared to natural fluctuation.</li> <li>• Pollutant run-off with surface water into the river would be avoided through appropriate site drainage measures as set out in the <i>CoCP</i>.</li> <li>• Temporary changes in water flow and debris accumulation could arise from the construction of the cofferdam. These effects would be local, temporary and of aesthetic nature and would therefore have limited bearing on the objective.</li> <li>• Once operational the interception of overflow discharge from the Heathwall Pumping Station and the South West Storm Relief CSO would lead to a reduction of spill frequency from 13 to 1 time and from 34 to 4 times respectively. Total spill volume would be reduced from 883,900m<sup>3</sup> to 66,900m<sup>3</sup> and would consequently lead to a reduction of sewage derived litter from 225t to 18t. The proposals would lead to an enhancement in water quality.</li> </ul> <p>In summary, mitigation measures would ensure that water quality would be maintained during construction. The reduction of raw sewage entering the river would enhance water quality during operation.</p>	

Further information can be found in the *Environmental Statement* and the *CoCP*.

## Biodiversity

### Maintain and enhance biodiversity

#### Appraisal

The proposals would support the objective, albeit with some restrictions. Particular issues of relevance to the site appraisal are:

- Some trees, buildings, river wall and hard standing would be cleared off the site. This small loss of habitat would not affect local terrestrial diversity as lost habitat would be of low value. Disturbance of wildlife would be minimised through measures in the *CoCP* which would enforce minimising light spill
- Mature trees adjacent to the site would be protected through measures outlined in the *CoCP*.
- The site is located within the River Thames Tidal Tributary SINC. There would be a temporary loss of approximately 1600m<sup>2</sup> of mostly intertidal habitat through the construction of the cofferdam and campshed. Further changes to the intertidal and subtidal habitat would result from consolidation and sedimentation. There would consequently be a temporary loss of feeding, resting and nursery habitat for local fish populations.
- Waterborne noise and vibration could cause disturbance of local fish populations during construction.
- There would be a permanent loss of intertidal habitat (600m<sup>2</sup>) resulting from landtake for the permanent structure in the foreshore. Compensation on a project wide level is discussed in Volume 3 (see *Environmental Statement*). The objective would be supported as habitat would be maintained on a project wide level but would result in a loss of intertidal feeding and resting habitat.
- There would be direct positive effects on aquatic biodiversity due to the reduced amount of sewage and sewage derived litter entering the ecosystem. This reduction would lead to an increase in dissolved oxygen concentration and reduce the level of sediment nutrient levels, consequently improving the quality of habitats and enhancing biodiversity.

In summary, terrestrial biodiversity would be maintained during construction and operation. The temporary and permanent loss of subtidal and intertidal habitat would not support the objective as fish habitat would be lost. However, habitat quality would be improved and permanent landtake compensated on a project-wide level. The proposals would consequently support the objective as some habitat would be lost but remaining habitat would be enhanced through interception of the CSO.

Further information can be found in the *Environmental Statement* and the *CoCP*.

## Climate change mitigation

### Maximise energy efficiency and minimise the carbon footprint of the project

#### Appraisal

This objective is most appropriately appraised at the project level, as opposed to the site level. This is because whilst there are variations in energy and CO<sub>2</sub> emissions between sites, in general, these are representative of the different types of site proposed (eg, drive site, CSO interception). The individual sites do not provide an appropriate measure of how

far this sustainability objective has been achieved for each site. This is detailed within the *Energy and Carbon Footprint report*.

Procedures to maximise energy efficiency and minimise the carbon footprint of the scheme would be implemented through project-wide initiatives, and not specifically at the site level. Energy Management Plans would be implemented through the CoCP, which, alongside Thames Water's proposals to account for carbon emissions throughout the construction process, would assist in the management of emissions arising from the sites.

Energy and emissions are discussed in the thematic appraisal within the climate change mitigation section (see Appendix A). Additional details are also provided within the *Energy and Carbon Footprint report*.

Whilst predominantly addressed at the project-wide level, at the site level it is anticipated that the proposals would broadly support the objective. The following broad issues are anticipated to arise at the site:

- Greenhouse gas emissions resulting from construction materials at the site would be approximately 9,500t CO<sub>2</sub>e. During the construction phase approximately 360t CO<sub>2</sub>e and 1,000t CO<sub>2</sub>e would result from logistics and construction (TBM, plant and machinery operation, lighting and welfare facilities) respectively.
- At the site level the carbon footprint would be reduced as the location facilitates transport by barge. Approximately 90% of cofferdam fill and excavated material from the shaft would be transported via barge minimising the need for HGVs. This would minimise the carbon footprint by 18t CO<sub>2</sub>e.
- Further the carbon footprint at the site would be reduced as the construction would allow interception of two CSOs, rather than two separate interceptions.
- During operation the site would make use of passive ventilation. Consequently it would support the objective by minimising the energy requirements for venting and maximising the efficiency of ventilation points.

In summary, the proposals would support the objective as the carbon footprint would be minimised through use of river services and interception of two CSOs at one site.

Further information can be found in the *Environmental Statement* and the *Energy and Carbon Footprint report*.

## **Change adaptation and flood risk**

**Maximise resilience and adaptability to change;**

**Take account of flood risk in the design of sites**

### **Appraisal**

The objective on resilience and adaptability to climate is predominantly considered at a project-wide level due to relevant changes in population and climate occurring at regional level rather than specifically at a site level (see Appendix A).

However, at the site level the proposals would support the objectives to maximise resilience and adaptability to climate change, and take account of flood risk in design. Particular issues of relevance to the site appraisal include:

- The site is located within a high probability flood zone and is at risk of fluvial and tidal flooding from the River Thames. Current flood defences would be maintained and further defences would be established around the site to protect from flooding to statutory level. The flood defences would be designed so that they can be raised in

the future in accordance with the Environment Agency's TE2100. Scour would be monitored and mitigated against where necessary. Therefore there would be no increase in flood risk from the river.

- Flood risk from surface water would not be increased by the development as site drainage would be provided. CSOs would be maintained during construction so that there would be no increase in sewer flood risk.
- The site is not at risk from groundwater flooding. Monitoring of groundwater levels during construction and operation is proposed.
- The site lies within an area of deficient open space and within the Central Activity Zone. However, the site is located adjacent to the river which would alleviate urban heat effects. Therefore the proposals would support the objective as they assist resilience against future changes in temperature.

In summary, the proposals have taken flood risk into account in the design of the site. There would be no increase in flood risk. Resilience to future temperature changes would be given as the site lies adjacent to the River Thames.

Further details can be found in the *Environmental Statement*, the *Site Selection Report* and the *CoCP*.

## Excavated materials and waste management

Minimise waste arisings and its impacts on the environment and communities and to promote re-use, recovery, recycling and beneficial use

### Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- It is estimated that 40,000t of excavated materials mainly consisting of London clay (22,000t) would arise during construction. The materials would be managed in accordance with the *Excavated material and waste strategy* (see *Environmental Statement Vol 3 Appendix A3*) which seeks to maximise re-use of materials.
- An estimated 880t of construction waste would be generated. Approximately 8t of welfare waste would arise per year during the construction period. This would be managed through measures in the *CoCP* including a site waste management plan to maximise re-use, recovery, recycling and beneficial use in accordance with the waste hierarchy.
- Excavated materials would be mainly transported away from the site via barge. This would greatly reduce the impacts on the environment and communities arising from the use of HGVs.
- Operational waste would result from maintenance of the air management unit and would be negligible. Therefore the objective would not be affected.

In summary, the proposals would support the objective as they promote re-use, recovery, recycling and beneficial use in accordance with the waste hierarchy. Further, river transport would alleviate effects on the environment and communities which would result from the removal of waste.

Further information can be found in the *Environmental Statement*, the *Excavated material and waste strategy* (see *Environmental Statement Vol 3 Appendix A3*) and the *CoCP*.

## Resources and raw materials

### Promote the sustainable use of resources

#### Appraisal

The objective to promote the sustainable use of resources is most appropriately appraised as a project-wide issue, rather than specifically at the site level. Whilst it would be important to work towards the objective through ongoing considerations towards the further design of sites, the major opportunities would arise by taking interventions across the project as a whole.

A significant volume of materials would be required to support construction. The concrete specification required is central to the durability of the tunnel and therefore the scope for promoting the sustainable use of resources is limited by engineering requirements. A range of measures are proposed at the project level which support the objective and which would assist to promote the sustainable use of resources. Further details are available in the project-wide appraisal within the resources and raw materials section (see Appendix A). Whilst addressed predominantly at the project-wide level, specifics at the site level would support the objective. The following considerations are relevant to the sustainability at the site level:

- It is estimated that 30,000L of water would be required per day during the peak construction in 2018. This is due to the large amount of water needed for shaft concrete/grout (20,000L/d). Further, water is required for mitigation measures such as washdown and dust suppression (7,000L/d). The water requirements are within the available water for London, as estimated in the Thames Water's Resource Management Plan. The volume of water used is considered sustainable.
- Development on the site would allow for the interception of two CSOs. This would minimise the requirements for resources and raw materials and would therefore support the objective.
- The operation of the site is not anticipated to present a large demand for materials, with the exception of those required in routine maintenance.

In summary, the proposals would make sustainable use of water and would minimise the requirements for materials as two CSOs would be intercepted at this site.

Further information can be found in the *Environmental Statement*.

## Population, human health and equality

### Ensure health and safety, and support well-being of communities in which the project operates;

### Encourage equality and sustainable communities

#### Appraisal

The proposals would overall support the objectives. The proposals would encourage equality and sustainable communities. Particular issues of relevance to the site appraisal include:

- Construction at the site would last approximately three years and would operate on standard and continuous working hours. The *CoCP* set out measures to ensure that health and safety within the community would not be affected and to support well-being.
- Adverse effects relating to vibration have been mitigated by adoption of lower vibration compaction.

- One receptor in the surrounding area of the site would be affected by noise during construction. As no further on-site mitigation would be possible, measures such as secondary glazing and compensation would be in place for affected receptors. Whilst this would ensure health and safety, it could have affects on the well-being of receptors.
- The site is located within the London Borough of Wandsworth AQMA. Construction emissions and dust resulting from the works would be minimised through mitigation measures and the use of river transport.
- The Thames Path would be rerouted to the river front in operation. Further, there would be a gain of public amenity space. This would ensure the well-being within the community and support the proposals in operation.
- The reduction of sewage spills would be beneficial for recreational river users as the number of days per year they would be exposed to pathogens would be reduced from 188 to 20 days.
- Encouraging equality and sustainable communities is predominantly addressed at the project-wide level. However, extensive public consultation has been undertaken to take into account the community's views on the proposals at the site. This has been considered in conjunction with engineering, environmental, planning and cost issues to achieve a balance between vying interests. Consequently, it is considered that the proposals support the objective of equality and sustainable communities.

In summary the proposals would support the objective as they would ensure that health and safety within the community is not compromised through the construction. However, significant effects relating to noise during construction could remain, which could not be further mitigated. Measures would be in place to off-set such effects, but there could still be an effect on well-being. There would be beneficial effects to users of the Thames Path and recreational users of the river during operation. Extensive public consultation has helped to encourage equality and sustainable communities.

Further details can be found in the *Environmental Statement* and the *CoCP*.

## Economy

### Promote a strong and stable economy

#### Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- A maximum of 40 workers would be employed at any one time at this site during construction. This employment opportunity would support the objective for a strong and stable economy.
- The Battersea Barge business would need to be relocated a short distance upstream for the duration of the construction. Adverse affects associated with the relocation are possible. However, these effects would be temporary and statutory compensation measures may be applicable. The Thames Path would be enhanced and public realm gained. Under the assumption that the temporary relocation would be successful the proposals would support the objective.

In summary the proposals would support the objective through employment of approximately 40 workers.

Further details can be found in the *Environmental Statement*.

### **Environmental protection and enhancement**

**Minimise significant adverse environmental effects relating to air quality, noise and vibration, and lighting from construction and operation of the Thames Tideway Tunnel;**

**Protect and enhance the character of landscapes and townscapes;**

**Protect and conserve the historic environment.**

#### **Appraisal**

The proposals would support the objectives. However, it would not be possible to militate against all significant adverse environmental effects relating to noise. Particular issues of relevance to the site appraisal include:

##### **Environmental effects**

- There would be no significant adverse vibration effects resulting from construction as lower vibration compaction would be adopted.
- Through mitigation measures as set out in the *CoCP* and the use of barges, adverse environmental effects on air quality would not be significant.
- Measures set out in the *CoCP* would minimise noise resulting from the construction. However, one receptor would experience significant adverse environmental effects relating to noise during construction, as no further on-site mitigation would be possible. Measures to off-set these effects would be in place where applicable.
- No significant adverse environmental effects would result from lighting of the construction site.
- The proposals would consequently support the objective as they seek to minimise significant adverse environmental effects, albeit with some restrictions relating to noise.

##### **Landscape and townscape**

- The character of the site and the surrounding townscape would be altered during construction. This would result from the presence of construction activity and equipment such as site hoarding, cranes, lorries and barges. However, this change would be temporary.
- The Thames Path would be rerouted to the river front in operation and an area of public realm would be gained. Landscaping of the Thames Path would be provided with designs tied into the Riverlight development. The townscape would therefore be enhanced in operation, supporting the objective.

##### **Historic environment**

- The site lies within an Archaeological Priority Area designated by the Wandsworth Council. No heritage assets or listed buildings are located on or adjacent to the site.
- The setting of the surrounding conservation areas and the Grade II\* listed Battersea Power Station would be slightly altered through the presence of construction activity and equipment such as site hoardings and welfare facilities. However, these effects would be temporary and restricted to the construction period.
- No buried assets of high significance are expected on site. However, any buried heritage assets found on site would be handled through mitigation measures set out in the *CoCP* to form preservation by record.

In summary, there would be significant adverse environmental effects relating to noise

during construction. No significant adverse environmental effects relating to vibration, air quality or lighting would arise from the construction. There would be temporary changes to the character of the site and the surrounding area during construction. However, the townscape would be enhanced in operation. The historic environment and heritage assets would be protected, albeit with some temporary changes to the setting during construction.

Further details can be found in the *Environmental Statement* and the *CoCP*.

## Land use

### Efficient and sustainable use of land and buildings

#### Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- The site would make efficient and sustainable use of brownfield eliminating the need for development on greenfield.
- Electrical and control equipment would be located in the existing pumping station building during operation. By making efficient use of the existing building the proposals reduce the need for further construction of buildings.

In summary, the proposals would support the objective by making efficient use of brownfield and an existing building.

Further information can be found in the *Environmental Statement* and the *Site Selection Report*.

## Sustainable transport

### Minimise the detrimental impacts associated with the transport of construction materials and waste on communities and the environment, by prioritising the use of sustainable transport

#### Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- Cofferdam fill and shaft excavated material would be transported to and away from the site via barge. This would greatly reduce the need for HGV transport and associated detrimental impacts on the environment and communities.
- Approximately 36 HGV movements per day would be required during peak construction which would last approximately 1 month. It has been estimated that 12 HGV movements per day would be necessary averaged over the construction period. The *CoCP* sets out measures such as the requirement for a transport management plan to minimise detrimental impacts associated with transport on communities and the environment.
- The PTAL for the site has been classified as 3 to 4, indicating a moderate level of accessibility via public transport. Other methods of travel include walking, cycling and taxi/motorcycle. Measures in the *CoCP* such as only allowing vehicles necessary for undertaking works on site would help minimise additional road traffic and associated detrimental effects. The proposals would be taken forward with a Project Framework Travel Plan and prioritise sustainable transport and would consequently support the objective.

In summary, the transport of materials via barge would minimise detrimental impacts associated with higher road traffic. No workers would travel to the site by car as measures

set out in the *CoCP* encourage the use of public transport. Consequently the proposals would support the objective.

Further details can be found in the *Environmental Statement* and the *CoCP*.

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