APPENDIX A

Local Impact Report

London Borough of Southwark (Ref.10018659)

Application for Development Consent for the

Thames Tideway Tunnel

November 2013

Contents

1. Introduction

1.1 This Local Impact Report (LIR) has been prepared in response to Item 10 of the Examination Timetable in relation to the application for Development Consent by Thames Water Utilities Limited for the Thames Tideway Tunnel.

1.2 In accordance with s60(3) of the Planning Act 2008 it sets out details of the likely impacts of the proposed development upon the London Borough of Southwark. In preparing the LIR consideration has been given to the advice contained within the Planning Inspectorate National Infrastructure Advice Note 1: Local Impact Reports (Version 2).

1.3 This LIR has been formally approved as a Key Decision by the Leader of the Council under the Council's Scheme of Delegation.

Sites Affecting Southwark

1.4 There are two sites within the London Borough of Southwark where works are proposed:

Chambers Wharf - where it is proposed in the application to drive the main tunnel to Abbey Mills Pumping Station and to receive both the main tunnel drive from Kirtling Street to the west and an overflow tunnel from Greenwich.

Shad Thames Pumping Station – where works are proposed to control the Shad Thames Pumping Station combined sewer overflow.

1.5 In addition, works are proposed at **Earl Pumping Station** where it is intended to connect the Earl Pumping Station combined sewer overflow to the Greenwich connection tunnel in order to convey flows to Chambers Wharf where they would be transferred into the main tunnel. Whilst located within the London Borough of Lewisham, the site is located in close proximity to the boundary with Southwark and is therefore likely to result in impacts upon Southwark's residents.

1.6 The proposed works at **Blackfriars Bridge Foreshore** (within the City of London), involving the construction of a combined sewer overflow to intercept an existing sewer, are located on the north bank of the River Thames and also have the potential for impacts upon Southwark's roads and residents.

Structure of Local Impact Report

1.7 For each affected site the report is structured as follows:

1) Description of site and surrounding area
2) Relevant planning history
3) Application proposals
4) General planning policy framework
5) Assessment of local impacts
6) Required mitigation (should consent be granted)

1.8 The assessment of local impacts firstly summaries the policy relevant to the particular issue being assessed, it then briefly summarises the applicants assessment, followed by the Council's assessment of the issue. The issue

headings being considered are mostly consistent with those set out in the applicant's Environmental Statement but, where relevant, additional issues are also considered.

Written Representation

1.9 This report should be read in conjunction with the London Borough of Southwark's Written Representation which sets out the Council's overall position and arguments on the application proposals including specific sections on:

- The legal basis for the application including Strategic Environmental Assessment
- Inadequacy of Thames Waters pre-application consultation
- The applicant's methodology for the construction site selection.
- An impacts assessment of Abbey Mills as a Drive Site and Chambers Wharf as a Receptor Site
- London Borough of Southwark's overall conclusions on the application proposals.

Provision of Further Application Information

1.10 Throughout the application, the applicant has provided only limited information on detailed impacts of the proposals and, in particular, has not been specific on matters relating to details of construction works and the mitigation that is required to overcome and offset impacts. This has made it difficult to properly assess the full impacts of the proposal as much is yet unknown. The lack of detail, precision and certainty in the application is reflected by the need for the Examining authority to ask many detailed questions across many issues that are pertinent to the determination of the application. The Council has provided a detail assessment of the local impacts in this report based upon the information that has been provided in the application and the Council's knowledge of the local area, but reserves the right to provide further written representations and make oral representations at hearings, when the applicant has submitted the further information requested through the questions.

General Planning Policy Framework

National Policy Statement for Wastewater

1.11 The National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure. It is the key document used by the decision maker as the primary basis for deciding development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Projects (NSIP) as defined in the Planning Act 2008.

1.12 In making decisions on waste water NSIPs, the decision maker must also have regard to any local impact report submitted by a relevant local authority, any relevant matters prescribed in regulations and any other matters which it considers are both important and relevant to its decision.

1.13 The Planning Act 2008 also requires that the decision maker must decide an application for waste water infrastructure in accordance with the relevant NPS except to the extent it is satisfied that to do so would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the decision maker;
- be unlawful;
- result in adverse impacts from the development outweighing the benefits; or
- be contrary to regulations about how its decisions are to be taken.

1.14 The Thames Tunnel was designated as an NSIP through the Infrastructure Planning Order, which came into force on 23 June 2012.

National Planning Policy Framework

1.15 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so.

1.16 The NPPF does not contain specific policies for nationally significant infrastructure projects for which particular considerations apply. These are determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the National Planning Policy Framework).

1.17 The NPPF states that local planning authorities should work with other authorities and providers to:

- assess the quality and capacity of infrastructure for wastewater and its treatment, and its ability to meet forecast demands; and
- take account of the need for strategic infrastructure including nationally significant infrastructure within their areas.

London Plan

1.18 London Plan Policy 5.14, Water quality and wastewater infrastructure sets out how the Mayor will work in partnership with the boroughs, appropriate agencies within London and adjoining local planning authorities to ensure that London has adequate and appropriate wastewater infrastructure to meet the requirements placed upon it by population growth and climate change. Policy 5.14 states that development proposals to upgrade London's sewage (including sludge) treatment capacity should be supported provided they utilise best available techniques and energy capture.

1.19 London Plan policy 5.14 states that the development of the Thames Tideway Sewer Tunnels to address London's combined sewer overflows should be supported in principle.

Southwark's Core Strategy

1.20 Core Strategy policy 13, High environmental standards, sets out how the Council will set high standards and support measures for reducing water

pollution and avoid amenity and environmental problems that affect how people use the environment.

1.21 Core Strategy policy 14, Implementation and Delivery, sets out how the Council will work with infrastructure providers to identify and deliver elements of infrastructure required to support growth and deliver environmental improvements at the right time.

Saved Southwark Plan policies

1.22 The saved Southwark Plan policies set out further detailed policies on appropriate type and location of development in the borough. These policies are discussed in further detail in the sections below.

2. Executive Summary

2.1 **Chambers Wharf** is wholly unsuitable as a drive site and will result in significant harm to the area, including noise, air quality, highway safety and traffic impacts. The site is very constrained by its proximity to sensitive receptors including many residential properties directly adjacent to and facing the site, along with three local schools, two of which are located in very close proximity to the site.

2.2 The site is located in heavily populated residential area, as well as properties immediately adjacent to three sides of the site, there are several hundred more properties within the wider vicinity of the site along with businesses and community facilities. The Thames Path runs along side the site via Chambers Street which is also very well used by pedestrians, joggers and forms part of the National Cycle Network.

2.3 Taking account of its sensitive location, the proposed works on this constrained site, along with related traffic and barge activity, taking place over a period of six years or more and seeking to involve 24 hour working for long periods, will result in significant harm to the amenities, residential living conditions and the schools in the vicinity of the site.

2.4 Proposed construction traffic including HGV movements (up to 110 per day) and other light vehicle movements raise serious concerns with regard to road and pedestrian safety. The uncertainty of the applicant's commitment towards barge movements means that these movements could increase dramatically, with severe knock-on effects for the living conditions of residential properties, schools (particularly Riverside Primary School), local highway conditions and impacts on the wider network.

2.5 The cumulative impacts on the area around the site should not be underestimated. The very close proximity to sensitive receptors, the long construction period and the unsatisfactory mitigation provided, coupled with a combination of the recognised impacts including those resulting from noise, air quality, visual amenity and highway safety means that residents and school children will experience significant harm to their living and learning environment for several years. Such an impact will be compounded by the fact the project is likely to follow two years of construction works currently taking place on an adjacent site (180 dwellings) and will be followed by a further two to three years of construction works on the permitted residential development (407 dwellings) on the site itself.

2.6 The concerns over the impacts of the construction activities on the surrounding area are exacerbated by the lack of detail and certainty within the application proposals regarding the layout and operation of what will be a long term construction site. There currently exists far too great an amount of flexibility as to how the construction process will unfold, and the layout of the site for each construction phase, creating the potential for greater than necessary impacts and significant uncertainty for local residents and schools.

2.7 The site at Chambers Wharf is not large enough to contain all the required construction activities and operations without resulting in significant impacts upon the surrounding area. There is not an opportunity to provide the

appropriate amount of space within the site for storage, equipment, office/welfare buildings, vehicle manoeuvring and parking space without adverse impacts resulting. The need to construct an extensive coffer dam to provide barge access will result in further significant noise and transport impacts. These constraints bring the operational viability of the site into serious question, particularly in the event that barge access is restricted during the key construction period.

2.8 The proposed mitigation measures included within the draft requirements and planning obligations accompanying the application are wholly inadequate to provide any meaningful protection for local residents, schools and highway users. The applicant's inability to provide appropriate mitigation measures to mitigate the detrimental effects of the construction works demonstrates the inappropriateness of Chambers Wharf as a main drive site.

2.9 Abbey Mills is clearly a superior site from which to drive the tunnel (as set out in the Borough Council's Written Representation) and would result in significantly less environmental impact than at Chambers Wharf. The application should be amended so that Chambers Wharf is only used as a receptor site which, with appropriate mitigation, would reduce the impacts at Chambers Wharf to acceptable levels.

2.10 Notwithstanding the council's objections to the use of Chambers Wharf as a drive site, should the Panel decide that it should remain as a drive site, much more effective mitigation, including off set of impacts, must be secured. This should include a package of DCO requirements and obligations to mitigate the adverse impacts of the development on a wide range of matters including in relation to construction works and impacts, residential living conditions, visual amenity, local schools and quality of learning environment, heritage, community facilities, transport and sustainability, employment, local procurement, public realm, other community impacts and costs of administration and monitoring. Should the application be amended so Chambers Wharf is a receptor site, a significantly improved package of mitigation would still be required.

2.11 The proposed construction works at **Shad Thames**, **Earl Pumping Station** and **Blackfriars Bridge Foreshore** sites have the potential to result in significant effects upon their surrounding areas and need to be very carefully mitigated in order to minimise impacts upon residents, office users (at Shad Thames) and local highway conditions.

2.12 These sites are located in close proximity to residential properties and the mitigation currently proposed in the draft requirements and obligations is not sufficient to address the impacts resulting from the construction works. At Earl Pumping Station a package of highway mitigation measures is also required in order to prevent serious impacts upon local highway conditions.

2.13 Although Earl Pumping Station is located within the London Borough of Lewisham, it is in close proximity to the boundary with Southwark including areas of residential properties. Access to the site is via the strategic road network within Southwark. It is essential that Southwark is consulted upon and involved with any matters relating to this site including requirements and planning obligations.

2.14 Similarly, whilst located in the City of London, the works proposed at Blackfriars Bridge Foreshore also have the potential to affect Southwark's residents and roads if not properly mitigated against.

3. Chambers Wharf

Description of Site and Surrounding Area

Site and Surrounds

3.1 The existing site measuring 25.6 hectares is located within a predominantly residential area, with residential properties located adjoining or immediately adjacent its eastern, southern and western boundaries. The area surrounding the site is predominantly residential in nature and it is estimated that in 2011 there were approximately 3,824 people living within a 400 metre distance of the development[1]. The River Thames runs along its northern boundary. Three schools are located within close proximity of the site. The Thames Path and National Cycle Route 4 run along Chambers Street which runs parallel and adjacent to the sites southern boundary.

3.2 The site is currently not in use and is largely empty other than an existing electrical sub-station building, the jetty, and mounds of spoil remaining from the demolition of the old cold store warehouse buildings. The former warehouse buildings were built in the 1930's and extended in the 1950's and early 1960's but there has not been a working wharf since the mid 1960's. The buildings were subsequently used for data storage until being demolished in 2008.

Location of Residential Properties

3.3 Axis House (seven storeys) and Luna House (eight storeys) are both residential apartment buildings adjoining the western boundary of the site. Both these buildings contain windows to habitable rooms (including bedrooms and living rooms) facing directly into the site. Axis Court contains twenty eight apartments which directly face the site whilst Luna House contains fourteen north facing apartments which directly face the site, along with a further fourteen north facing apartments with external balcony areas overlooking the River Thames.

3.4 Further residential properties (two and three storey) are located in very close proximity to the eastern boundary of the site on Loftie Street, Bermondsey Wall East and Fountain Green Square, and to the south west corner of the site on Chambers Street.

3.5 There are also residential properties along Bevington Street (the access route the application site) including Wrayburn House and properties off both Waterside Close and Scott Lidgett Crescent.

3.6 Construction has recently commenced on the construction of 180 affordable dwellings opposite the application site on land south of Chambers Street. This development, which will directly face the application site, will be occupied prior to the proposed commencement date of the Thames Tideway Tunnel works.

[1] 2011 Census Population Data used 400m distance assumed to cover Census Output Areas E00020257, E00020273, E00020274, E00020280, E00020282, E00020284, E00167678, E00020276, E00020287, E00168006, E00020277, E00020269, E00166641, and E0002028.

Location of Schools

3.7 A drawing showing the location of residential properties and schools is attached (Appendix 1).

3.8 There are three schools located in the immediate vicinity of the site, with several others also in the local area. The three closest are:

Riverside Primary School, containing approximately 320 pupils, is located fronting onto Bevington Street approximately 50m to the south west of the application site and immediately adjacent to the proposed vehicular access route along Bevington Street.

The main Victorian three storey school building is located approximately 20m from the edge of the road with more recent single storey and two storey class room buildings to the front of this, within 5 metres of the road edge.

St Michaels Secondary School, containing approximately 750 pupils, is located adjacent to the south east corner of the site to the south of Chambers Street.

St Josephs Primary School, containing approximately 345 pupils, is located on Georges Row approximately 200m to the south west of the site.

Recent Planning History

3.9 Detailed planning permission was granted in 2010 for the residential development of both this site and the adjacent site to the south of Chambers Street, comprising a total of 587 dwellings. As outlined above, work has recently commenced on the construction of the section of the development on the site to the south of Chambers Street comprising 180 affordable dwellings which will be located directly opposite the proposed construction site. These dwellings will be occupied by the time construction works is planned to start on the Thames Tunnel.

3.10 Two planning applications were submitted by Thames Water in 2012 and subsequently in 2013 for the removal of the mounds of construction spoil remaining on the site following the demolition of the former warehouse buildings. Both these application were withdrawn by the applicant as it was unable to agree to the proposed noise control conditions required in order to make the works acceptable.

Application Proposals

3.11 Chambers Wharf is proposed to be used as a drive site to drive the tunnel north east to Abbey Mills, and as a receptor site to receive the tunnel boring machines from Kirtling Street to the west and Greenwich Pumping Station to the south east.

3.12 As a main drive site, the application proposals will involve at least six years of intensive construction works at the site including long periods of 24 hour working. The application assumes the works to start in 2016 and be completed in 2021, though the works may take longer than planned.

3.13 Due to the small size of the site, below the size of site normally required for a drive site, a temporary area of reclaimed land in the foreshore, know as a cofferdam, will need to be constructed prior to the commencement of the main construction works in order to create a site large enough to enable the construction of the shaft, tunnels and other structures.

3.14 The shaft, measuring approximately 58 metres deep and with an internal diameter of 25 metres would be constructed on the eastern side of the site behind the temporary cofferdam and behind the existing line of the river wall. The tunnel boring machine will travel north east wards from the shaft, working 24 hours a day to excavate the tunnel which will be lined with precast concrete segments. The shaft will be used to take all excavated material out of the tunnel and to supply the tunnel lining segments. A three sided enclosure will be built over the shaft to seek to reduce noise impacts during tunnelling works.

3.15 It is proposed that 90% of materials from the tunnel will be transported from the site via barge. There will also be a high amount of vehicular activity which will access the site from Jamaica Road via Bevington Street. Peak daily HGV movements would be 110 per day assuming that 90% of materials are moved by barge. Vehicle movements will significantly increase if this target is not or can not be met. There would be an average of three barge movements per day based on the 90% barge movements figure.

3.16 An area within the illustrative plans for the site, adjacent to the eastern boundary, has been set aside for three storey office and welfare buildings.

3.17 Most of the permanent structures will be underground though three ventilation columns (4-8m in height) and an electrical/control kiosk (2.5m in height) would be located above ground.

3.18 Table 1 below sets out the different phases of work including the proposed length of works for each phase along with the applicable working hours.

Table 1: Chambers Wharf: Construction work phases, hours and working hours

Phase	Work Activity	Approx Time Scale	Year	Working Hours
Phase 1	Site set up	8 months	1	Standard
Phase 2	Main tunnel shaft Construction	14 months	1-2	Standard and Extended
Phase 3	Tunnelling	25 months	2-4	Continuous
Phase 4	Secondary lining	8 months	4-5	Continuous
Phase 5	Construction of other structures	12 months	5-6	Standard
Phase 6	Completion of works / site reinstatement	5 months	6	Standard

3.19 It is important to note that, the proposed plans for the construction phases provided with the application are only *illustrative*. The ES (Vol 20 3.3.11) states that *these plans have been prepared to illustrate **possible** site layouts for the principal construction phases and relevant activities.* Consequently, there is nothing binding the contractor carryout out the construction works to these layouts.

Adequacy of application information

3.20 The Council's concerns are further exacerbated by the fact that much of the information relating to construction works, including the layout and operation of construction activities and plant upon the site, is *illustrative* and therefore could be subject to change when the construction works are implemented. The application recognises that *illustrative* plans are not for approval and only illustrate one way in which the development or an element of it might be arranged. Given the significant impacts resulting from construction works and the proximity of the site operations to residents and schools, it is highly inappropriate for drawings showing each phase of construction activities on the site to be provided in only *illustrative* form. Given the need for the project to demonstrate optimisation of plant layout to minimise noise emissions (Paragraph 4.9.8 of the NPS), the layout and detail of site operations for each phases of the construction works needs to be tied down in approved plans. Otherwise, there is nothing in the draft development consent order to tie the applicant or future contractors to the layout resulting in minimum impacts.

Southwark's Assessment of Local Impacts

Policy framework

3.21 Chambers Wharf is located in the Thames Policy Area (TPA). The purpose of the Thames Policy Area is to recognise the role of the Thames in maintaining London as an exemplary, sustainable world city. Chambers Wharf comprises one of few development opportunities with a river frontage in Southwark and plays an important part in enabling Southwark to attract investment and meet the housing need of the borough. The site has planning permission and were it not for the tunnel proposal would be available for development. If the tunnel proposal goes ahead, the part of the site which fronts the Thames will not become available for development until 2022/23, blighting the regeneration of this part of the borough.

3.22 The National Policy Statement for Waste Water 2012 (NPS) recognises that the construction of infrastructure can involve emissions to air which could lead to adverse impacts on health (4.11.1). Likewise, dust and other emissions from construction have the potential to have a detrimental impact on amenity (4.12.1)

3.23 The London Borough of Southwark has adopted its Air Quality Improvement Strategy and Action Plan 2012-2017 (AQSAP)[2] which sets out the strategy

[2] http://www.southwark.gov.uk/downloads/download/2637/air_quality_strategy_and_action_plan

and measures required levels of pollution within the Borough and the impacts that result.

3.24 The site and surrounding area is within a designated Air Quality Management Area (AQMA), wherein there is a high concentration of Nitrogen Dioxide (NO_2) and particulate matter (PM_{10}), both of which are known to affect peoples health.

3.25 The AQSAP has four objectives:

- To reduce emissions from vehicular transport;
- To tackle emissions from existing fixed sources;
- To reduce emissions from new development, and
- To protect public health and monitor air quality.

3.26 The AQSAP confirms that the highest concentrations of NO_2 are close to busy roads such as Jamaica Road. Exposure to high levels of NO_2 affects the function of lungs, especially children and increased hospital admissions occur in areas with high levels of NO_2. Sources of PM_{10} are more varied than those for NO_2 with dust from construction sites and emissions from road traffic being significant contributories.

Applicant's Assessment

3.27 The site, taking account of the demolition and construction works proposed, is classified in the ES as a high risk site. Given the duration of the works, surrounding properties including residential and local schools are defined in the ES as high sensitive receptors.

3.28 The ES concludes that, in relation to local air quality, the impacts from construction road traffic, river barges and plant emissions would result in minor adverse effects for:

- Axis Court Residential
- Chambers Street Residential (currently under construction)
- 212 Bermondsey Wall East Residential, and
- Riverside Primary School

3.29 In relation to dust, minor adverse impacts are predicted from construction dust at:

- Luna House
- Axis Court
- Fountain Green Square
- Chambers Wharf
- 212 Bermondsey Wall East
- The Thames Path
- The River Thames

3.30 No adverse impacts are predicted in the EA to result from odour during operation of the tunnel.

Assessment of Impacts

3.31 Although the Environmental Impact Assessment considers that the impacts on air quality will be minor, this is based on assumptions made in the application and is heavily dependent upon the contractor carrying out the works in strict compliance with control measures which need to be agreed within the Code of Construction Practice Parts A & B (CoCP). Further detail is needed in the CoCP of the necessary measures.

3.32 Given the proximity of the site to residential properties and schools, along with the length and intensity of the proposed works there is significant risk of impacts upon both local air quality and dust. Both residents and schools have experienced problems and irritation from dust related to recent construction activity in the area.

Noise and Vibration

Policy Framework

3.33 The NPS (Section 4.9) recognises that excessive noise can have wide-impacts on the quality of human life and health (e.g. owing to annoyance or sleep disturbance). It sets out factors which will determine the likely noise impact including:

- The inherent operation noise from the proposed development, and it's characteristics;
- The proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas; and
- The proximity of the proposed development to quiet places and other areas that are particularly valued for their acoustic environment or landscape quality.

3.34 Section 4.9 of the NPS goes onto to state that the project should demonstrate good design through the selection of the quietest cost effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.

3.35 It states that the decision maker should not grant development consent unless it is satisfied that the proposals will meet the following aims:

- Avoid significant adverse impacts on health and quality of life from noise;
- Mitigate and minimise adverse impacts on health and quality of life from noise; and
- Where possible contribute to improvements to health and quality of life through the effective management and control of noise.

3.36 The NPS also states that mitigation measures may include engineering, layout and administrative controls. Only where all other forms of noise mitigation have been exhausted, the applicant may consider it necessary to provide noise mitigation through improved sound insulation to dwellings, or, in extreme cases, through compulsory purchase.

3.37 Saved Southwark Plan policy 3.2 seeks to ensure that development does not result in a loss of amenity, including disturbance from noise, to present of future occupiers in the surrounding area or on the application site.

Applicants Assessment

3.38 The ES concludes that significant noise effects from the construction site are likely at Axis Court and Luna House due to on site construction equipment and at Luna House and 8-14 Fountain Green square due to river based construction traffic. It would not be possible to further reduce the effect at these locations through on site controls, although the residents of Luna House may be eligible to apply for noise insulation through the *Thames Tideway Tunnel noise insulation and temporary re-housing policy*. Application of these measures would mean there would be no significant effects related to noise at Luna House. Predicted noise levels at Axis Court and 8-14 Fountain Green Square do not exceed the thresholds for noise insulation. These properties may, however, be eligible to apply for compensation under the *Thames Tideway Tunnel compensation programme*.

3.39 With regards to vibration, the ES concludes that significant adverse effects are predicted at Luna House and 8-14 Fountain Green Square in relation to piling. It may be possible to reduce the vibration effects by using low vibration piling methods. If ground conditions at the site are such that these methods could be implemented, effects would not be significant. However, the specific ground conditions encountered would not be known until piling in underway. If ground conditions do not allow these methods to be implemented then the residents that would be affected by vibration may be eligible to apply for compensation through the *Thames Tideway Tunnel compensation programme*.

Assessment of Impacts

3.40 The Council has commissioned Bureau Veritas to undertake an assessment of the potential noise and vibration impacts associated with the proposed construction works at Chambers Wharf. Bureau Veritas's full assessment is included in Appendix 2 of this Local Impact Report. The assessment also considers the potential noise and vibration impacts at Abbey Mills should the drive direction be reversed so that the tunnel is driven from Abbey Mills to Chambers Wharf. This is dealt within Southwark's Written Representation which should be considered in conjunction with this Local Impact Report. In relation to Chamber's wharf, the key findings are set out below.

3.41 The assessment is based on the EA assumption that 90% of excavated and imported materials in connection with both the coffer dam and the tunnelling being removed by barge. The remaining 10% would be removed by HGV via the road network.

Typical construction plant that is likely to be used on-site includes:

- Excavators
- Cranes
- Earthmoving plant
- Compressors
- Diesel generators
- Vibratory rollers

- Barges
- Hand held tools such as disc cutters, grinders and nut runners
- Piling plant
- Concrete pumping plant and trucks
- Rock breakers and crushing plant
- Dewater pumps
- Tunnel boring machine

3.42 Phase **1 – Site Set up (Eight Months):** During river wall demolition and the site enabling works (lasting one month) the noise levels would result in significant day time impacts upon surrounding residential properties. With windows closed, the noise impacts upon schools would not be significant, but with windows open the noise levels at Riverside Primary School and St Michaels College would be significant.

3.43 During coffer dam construction, including piling operations (lasting seven months) noise impacts would be significant for surrounding residential properties, particularly at Luna House. With windows closed, the noise impacts upon the schools would not be significant but with windows open the impacts would be significant. With windows open, the noise from piling activities is likely to significantly affect pupils' concentration levels.

3.44 **Phase 2 – Main Tunnel Shaft Construction (Fourteen Months):** As part of this phase, extended working hours will be required to facilitate continuous concrete pouring associated with the main shaft construction. During the day time, this is most likely to significantly impact upon 210-212 Bevington Street [where is this?]. At night time, noise from the concrete pump would result in significant noise impacts at other residential properties including on Bevington Street and Fountain Green Square. The noise impact upon schools during this phase is not likely to be significant.

3.45 **Phase 3 – Tunnelling (25 months)**: This phase involves continuous 24 hour working to facilitate continuous tunnel boring including the operation of water/slurry pumps and the slurry processing plant. The most significant impact from noise is likely to result from the loading of barges at night which would result in significant impacts at Luna House, Axis Court, 33 East Lane and the newly built flats facing the site at Chambers Street.

3.46 **Noise from Construction Traffic:** Even based on 90% of materials being moved by barge in relation to the coffer dam construction and tunnelling works, significant impacts from vehicle movements are predicted to occur for residential properties on Chambers Street and Loftie Street. At its peak, the ES estimates that during shaft construction there would be an average of 55HGV trips per day amounting to 110 movements per day. The impacts would be even greater should there be more HGV road movements than predicted in the EA. For example, should river transportation reduce by only 2% (to 88%) then the resulting increase in HGV movements would lead to an increase in traffic noise of 3.0dB on Bevington Street and 3.6dB on Chambers Street. This would result in significant and harmful impacts upon both residential properties and at Riverside Primary School. The harmful and disturbing impacts would be even more exacerbated should river transport be reduced further.

3.47 Further traffic noise would result for properties and schools around the site from non HGV movements. It is difficult to predict and quantify the number of such movements but the ES estimates that at peak times there will be 504 light vehicle movements per day in addition to the HGV movements. Accessing the site via Bevington Street and Chambers Street these will result in further disturbance for adjacent residential properties and Riverside Primary School.

3.48 [Further comment to be provided on predicted noise levels in relation to recommended noise levels for sleep, living and work and how the predicted noise levels relate to these]

3.49 **Noise from Barges:** Based upon 90% of the materials being moved by barge, the peak number of movements would be three barges per day (six barge movements, with a total of 1,668 barge movements over the entire construction period). Barge movements will be reliant on tidal restrictions, so there will be both day and night time movements. Properties within Luna House to the southwest and Fountain Green Square to the southeast are located only approximately 75m from the barge berths and the noise assessments shows that there will be significant noise impacts upon these properties.

3.50 **Vibration:** Whilst the Environmental Statement indicates that vibration levels would cause significant impacts on some residential properties the Council is concerned that the impacts would be significantly greater than predicted in the application. The application notes that specific ground conditions encountered would not be known until piling is underway. It may therefore not be possible to use low impact vibration methods which would extend the range of properties and other receptors such as schools that would be detrimentally affected. This is a significant concern for residential amenity and, from the information available it is not possible to properly determine whether or not adverse impacts would result from other methods of vibration. This concern is extenuated by the lack of any robust measures within the draft DCO, CoCP, requirements and s106 as proposed in the application to ensure that the contractor will utilise low vibration piling methods unless it is absolutely not possible. If it should not be possible to use these methods, there is then serious risk of further significant impacts upon the surrounding area for residents and schools. Furthermore, the Thames Tunnel compensation programme is not sufficiently robust to offset the significant impacts.

3.51 **Cumulative impacts from construction noise, disturbance and vibration:** It is also pertinent to the impacts from noise, that following the completion of the Thames Tunnel works, a further two to three years of construction works are likely to follow when the permitted residential development on the site is implemented. The intrusive construction work currently taking place on the affordable housing development on the land to the south of Chambers Street should also be factored into. This is expected to be completed in spring 2015. Therefore, dependent on the start date of the Thames Tunnel construction works, all these construction projects will l result in approximately eleven years of almost continuous noise and disturbance for local residents and school children. The switch of Chambers Wharf from a drive site to a receptor site would be highly beneficial in reducing the cumulative impacts upon local residents.

3.52 **Uncertainty regarding site layout:** The Council's concerns are further exacerbated by the fact that much of the information relating to construction works, including the layout and operation of construction activities and plant upon the site, is *illustrative* and therefore could be subject to change when the construction works are implemented. The application recognises that *illustrative* plans are not for approval and only illustrate one way in which the development or an element of it might be arranged. Given the significant impacts resulting from construction works and the proximity of the site operations to residents and schools, it is highly inappropriate for drawings showing each phase of construction activities on the site to be provided in only *illustrative* form. Given the need for the project to demonstrate optimisation of plant layout to minimise noise emissions (Paragraph 4.9.8 of the NPS), the layout and detail of site operations for each phases of the construction works needs to be tied down in approved plans. Otherwise, there is nothing in the draft development consent order to tie the applicant or future contractors to the layout resulting in minimum impacts.

3.53 The same point applies in relation to the Code of Construction Practice. For example, a statement is included in the *Site layout* section that *the site layout shall ensure that noise generating operations will be located away from sensitive receptors*. This is a generic statement that does not provide any clear indication as to how the site layout will be set out in such a way to safeguard amenities. The Council therefore considers that drawings should **submitted and agreed showing the site layout (including structures, buildings** and operations) and the construction operations will need to be carried out in accordance with these drawings as a requirement of any development consent. This will ensure that particularly noisy activities do not take place in close proximity to residential properties. Working hours permissible for the different zones of the site should also be imposed to ensure that activities with the potential to produce noise do not take place in close proximity to residential premises.

3.54 In addition, the site is too small to properly operate as a drive site. The application has not demonstrated that there is sufficient space within the site to house all the required activities without resulting in serious harm upon the surrounding area. The applicant notes this itself at paragraph 3.3.50 of Volume 18 (Chambers Wharf) of the Final Report on Site Selection Process: "Additional land to the south of Chambers Street is required to use the site as a main tunnel drive site. This land would house temporary offices and welfare facilities including parking..". This land, however, is not included in the application site and is currently being developed under the residential planning permission which covered both the main Chambers Wharf site and this additional area of land to the south of Chambers Street. This land would have allowed more space for storage and other operations.

3.55 The size of the site results in significant impacts. For example, it has resulted in the illustrative plans showing work areas being in close proximity to windows of adjacent residential properties and has led to the highly undesirable situation where site office/welfare buildings are proposed in a location which would result in a serious loss of light and amenity for neighbouring residential properties. Whilst these temporary buildings are intended to also provided noise screening, including noise screening to an adjacent school, it is not acceptable for there to be a trade off between noise impacts and day/sun light impacts for such a lengthy period of time (six years).

3.56 Paragraph 4.9.8 of the NPS requires that a project should demonstrate good design through the selection of the quietest cost effective plant available. The Council does not consider that that has been demonstrated - there is no explanation of the basis on which plant has been selected. The Council also does not consider that the applicant has complied with the requirement in the NPS for the containment of noise within buildings wherever possible. Whilst some of the noise generating activities on the site will be contained in buildings, others are not thereby heightening the impacts on surrounding properties.

3.57 **Conclusions on Noise and Vibration:**

- Significant harm will result from the construction works at Chambers Wharf for residents and pupils of local schools.

- The tunnelling works, lasting for approximately 25 months and involving 24 working hours, will cause serious disturbance and sleeping difficulties for residents living the vicinity of the site, particularly from barge filling operations and movements.

- Significant impacts would result at Riverside Primary School and St Michaels Secondary School during river wall demolition, piling operations and coffer dam construction.

- Significant disturbance from HGV movements will occur on Chambers Street and Loftie Street. Should the number of the HGV movements increase above estimates in the ES significant impacts would also result upon Riverside Primary School and residential properties in Bevington Street.

- The uncertainty and flexibility of the site layout and construction details exacerbates the potential for unacceptable impacts on residents and school children.

- The duration and magnitude of noise impacts at Chambers Wharf would be significantly reduced should the site be used as a receptor site rather than as a drive site. The main benefit being the absence of approximately 25 months of construction, barge and traffic noise from the 24 hour tunnelling operations. As set out in the Council's Written Representation, Abbey Mills is far more suitable as a drive site than Chambers Wharf resulting in much less noise and disturbance upon the surrounding area.

- Significant impacts would still result from the use of the site as a receptor site (e.g. from river wall demolition, coffer dam construction and shaft construction) and much greater mitigation than currently proposed in the application will be required to be secured in the DCO and accompanying s106 agreement.

Townscape and Visual Impacts

Policy Framework

3.58 Core Strategy strategic policy 12 seeks to ensure that development achieves a high quality of both architectural and urban design, enhancing the quality of the built environment.

3.59 Saved Southwark Plan Policy 3.12, Quality in Design, states that development should achieve a high quality of both architectural and urban design, enhancing the quality of the build environment. New buildings and alterations to existing buildings should and embody a creative and high quality design solution, specific to their site's shape, size, location and development opportunities and where application, preserve or enhance the historic environment.

3.60 Saved Southwark Plan Policy 3.13, Urban Design, states that the principles of good urban design should be taken into account in all developments. This includes having regard to the local context and making a positive contribution to the character of the area.

3.61 Saved Southwark Plan policy 3.30, Protection of Riverside facilities, states that within the Thames Policy Area, the LPA will protect and enhance existing facilities that support and increase the use and enjoyment of the Thames and functions and activities associated with the Thames including;

i. Access points to and alongside the river, including stairs, piers and the Thames Path
ii. Sport and Leisure facilities
iii. Docks, including protection against partial or complete infilling
iv. Walking and cycling routes
v. Mooring facilities; and
vi. Facilities for passenger and tourist traffic

Applicant's Assessment

3.62 The ES concludes that significant adverse effects on most of the surrounding townscape areas are predicted during the construction phase. This is due to the change of setting in relation to construction activity, presence of the cofferdam and barge loading.

3.63 Significant effects would also occur at eight of the nine residential viewpoints and three of the four recreational viewpoints as well as visibility of night time lighting on the site and the presence of the noise enclosure in some views.

Southwark Assessment of Impacts

The setting of the King Edward III Manor House Conservation Area:

3.64 The council is currently consulting on the proposal to extend the Edward III Rotherhithe Conservation Area west along the river frontage to Fountain Green Square immediately tot he east of the Chamber Wharf site. This will mean that the proposed development will affect the setting of this conservation area.

3.65 The council's saved Policy 3.18 in relation the setting of listed buildings, conservation areas and world heritage sites states:

3.66 Permission will not be granted for developments that would not preserve or enhance:

i. The immediate or wider setting of a listed building; or
ii. An important view(s) of a listed building; or
iii. The setting of the Conservation Area; or
iv. Views into or out of a Conservation Area; or
v. The setting of a World Heritage Site; or
vi. Important views of /or from a World Heritage Site.

3.67 Views from the river frontage are distinctive, characterful and take in a number of London's most prominent landmarks including Tower Bridge. As a consequence they are an important part of the character and appearance of this conservation area and their loss will be severely damaging.

3.68 It is with concern that we note the assertion in the applicant's own information that the site works will have **major adverse** effects on the viewpoints within the extended conservation area. The NPPF states in paragraph 129: "*when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal*."

3.69 In this case, and for the duration of the construction works the arrangement, design and appearance of the hoardings and the acoustic enclosure are of paramount importance to ensure that these major adverse impacts are avoided. The information supplied does not offer any detail about the design of these significant medium-term structures and raises significant concerns over the acceptability of this proposal.

3.70 Further, the view towards the city and Tower Bridge from Fountain Square on the flank of the hoarding and the acoustic enclosure brings into focus the appearance of the substantial structures which will form part of the site enclosure for the duration of the works. The detailed design of these enclosures and the level of the top of the access shaft should be adjusted to reflect this. In order to mitigate the impact of the access shaft the detailed design of the top of the access shaft should be reserved by condition with detailed plans and section demonstrating that the top will be set down below the level of the consented basement car park.

3.71 Details of all structures, buildings, enclosures and hoardings need to be submitted for the approval of the Council prior to the commencement of each phase of the works.

Socio-Economic Impacts

Policy Framework

3.72 **Core Strategy** Strategic Objective 1A is to *create employment and link local people to jobs*, this is delivered primarily through Strategic Policy 10 – Jobs and business which includes commitments for *targeting new jobs and training opportunities which arise from development towards local people* and *promoting supply chain opportunities for local businesses.*

3.73 **Southwark's Economic Wellbeing Strategy** re-states the council's core aim to *narrow the gap between the Southwark and the London employment rates*. Under this theme the strategy highlights the following ambitions:

- every young person will leave school or training ready for work and more aware of how to start and develop a business
- regeneration and development provide lasting jobs for residents in both construction and related industries and end-use job in developments, through training and skills programmes funded by section 106 contributions and CIL
- residents are supported into work through other council and externally funded programmes (e.g. Connexions, Southwark Works, DWP - Troubled Families)
- mainstream employment services (Jobcentreplus and the Work Programme) work effectively for Southwark residents
- we increase and improve employer engagement, making sure residents receive training relevant to the jobs market and to employer needs
- local skills provision and training is of the highest quality and backed by a local college of choice with strong employer and community links

3.74 **Southwark's Section 106 policy** includes standard mechanisms through which major developments will be expected to deliver local employment and skills outcomes and local SMEs supported to access supply chain opportunities in the construction period. These include standard expectations for on-site job brokerage, training resources and targets for employment of unemployed local residents, provision of apprenticeships, NVQs and short course qualifications.

Applicant's Assessment

3.75 Consideration of the amenity of local residents and schools is provided in the assessment of socio economics.

3.76 The ES concludes that as significant noise and visual affects are anticipated, the effects on the amenity of residents close to the site would be significant. Residents may be eligible to apply for noise insulation or temporary re-housing along with compensation through the project compensation programme which has been established to address claims of exceptional hardship or disturbance.

3.77 The amenity effects on users of local schools, and the Thames Path would not be significant.

Impacts

Impacts Upon Day/Sun light

3.78 The council raises strong objection to the impact upon day and sunlight, and overbearing visual appearance, resulting from proposed buildings and structures required during the construction works.

3.79 The three storey office and welfare building, shown in the illustrative plans to be located in the south west corner of the site for the duration of the project, would be located as close as five metres from the facing windows of the neighbouring apartments in Axis Court. This would result in seriously harmful impacts upon day and sunlight to facing rooms and from its visually overbearing appearance. Similar impacts would result upon the nearest residential properties on Chambers Street.

3.80 The proposed acoustic shed (required for approximately three years) would also result in adverse impacts from loss of day light and overbearing appearance for residents of Fountain Green Square and Bermondsey Wall East. Furthermore, any containing structure adjacent to Luna House has the potential for similar impacts on Luna House.

3.81 In relation to the argument that the buildings are required for noise screening, mitigation of one significant impact, particularly an impact which remains significant despite that mitigation is not acceptable if it results in another significant impact. This is therefore indicative of the unsuitability of Chambers Wharf as a main drive site.

3.82 These impacts are an unacceptable situation for residents over such a lengthy time period.

General Amenity Impacts

3.83 The application documents have significantly underestimated the impacts of the construction works upon people living, learning and working in the surrounding area. Not only will specific impacts result from individual effects, but the combined cumulative harm upon the surrounding area will be very significant. Given the overall impacts it is clear that the site is not suitable as a drive site for this project.

3.84 Even where the applicant's Environmental Statement has highlighted the potential for significant impacts, the mitigation subsequently proposed falls far short of what would be required to begin to mitigate for and off set the impacts. A major weakness in the application is that, where mitigation is proposed in the ES, it is not carried through into the draft DCO, draft requirements or the draft S106 agreement. The sparseness of the applicants draft s106 heads of terms is testament to the failings of the application for development consent.

Economic Development and Employment

3.85 This part of the Socio-Economic section considers the local economic impact of the proposed scheme, specifically in terms of employment, skills and contract supply chains. The applicant's ES has not properly assessed this within the Socio Economic chapter.

3.86 The Skills and Employment Strategy will contribute to the delivery of these key council policies and we broadly welcome its ambition and scope. We welcome the high level commitments to maximising the economic benefits of the Thames Tideway Tunnel in terms of employment and procurement spending. However we have specific comments and concerns relating to implementation and more detailed aspects such as target setting.

3.87 **Employment and skills:** The Skills and Employment Strategy submitted with the DCO application sets out the numbers of jobs that are estimated to be generated through the scheme. It indicates that across the scheme duration there will be a total of 19158 'Man Years' of employment (one person employed for one year) with a peak headcount in 2019 of 4250 employees.

3.88 Increased labour demand within Southwark is expected to be 14% of the total project employment requirements. This generates the following potential impact on labour demand in Southwark.

	1 year jobs	Peak headcount
Total project wide jobs	19158	4250
Southwark based jobs (14%)	2682	595

3.89 The targets to employ 20% Southwark residents at Chambers Wharf and the supplementary targets for project-wide local employment are supported and must be included within the S106 agreement. It will be essential that these conditions are contractually enforced throughout the supply chain to oblige contractors and sub-contractors to engage meaningfully with the local employment brokerage resources the project proposes.

3.90 The Skills and Employment Strategy does not offer targets for the employment of previously unemployed people within the workforce. For progress to be made towards Southwark's policy commitments to increase the local employment rate through supporting unemployed residents to secure and sustain employment a clear local target must be set. In line with Southwark's Section 106 SPD we are seeking a local target of 10% of FTE (1 year) jobs in Southwark to be secured and sustained for 6 months by unemployed borough residents. For the purposes of the S106 agreement this will be set as a whole number of outcomes based on the figures within the Skills and Employment Strategy, as follows.

	1 year jobs
Southwark based jobs	2682
Previously unemployed borough resident sustained in work for 26 weeks (10%)	268

3.91 The Skills and Employment Strategy sets a target of one job in 50 (2%) to be an apprenticeship. Support for young people and apprenticeships are a priority for the council. Southwark has worked closely with developers on other large infrastructure projects to achieve targets of 3% FTE jobs as apprenticeships seeks movement towards this target. We would also seek that the 20% targets for local employment be enhanced to 40% when applied to local apprenticeships. For the purposes of the S106 agreement this will be set as a whole number of outcomes based on the figures within the Skills and Employment Strategy, as follows.

	1 year jobs	Apprentices
Total	19158	581

project wide jobs		
Southwark based jobs (14%)	2682	81
Of which Borough resident (40%)	536	32

Local procurement and supply chain:

3.92 The project is estimated to have a total cost of £4.1billion, providing substantial opportunity for local economic growth through supply chain diversification and local procurement. Applying the borough employment split to the project costs would suggest a value of approximately £600million (14%) for the works within Southwark.

3.93 Southwark's Section 106 SPD provides for obligations to be placed on developments to promote the accessibility of supply chain contracts to businesses, in particular small and medium sized enterprises, based in the borough. The SES provides for the use of the Compete For procurement portal and for contractors to employ a Supply Chain Manager to engage with local suppliers. To reinforce the commitment to local procurement, the council is seeking an aspirational target of £60m in contracts to be secured by Southwark based businesses, based on 10% of estimated local spend.

Draft Section 106 Heads of Terms:

3.94 The Council's Section 106 SPD allows for developments to deliver obligations for employment, skills and local procurement in-kind, or to make a financial contribution to the Council's own programmes, which is calculated on the estimated cost to the Council of commissioning equivalent outcomes itself. Where applicants elect to deliver obligations in-kind, the financial contribution is included in the agreement as a default payment to the Council, should the obligations not be delivered to a reasonable level against pre-set targets.

3.95 A management fee is levied on all developments at 7.5% of the financial contribution for employment during construction, which contributes towards the Council's costs in managing, monitoring and coordinating employment and skills obligations over the development period. This is payable whether obligations are delivered in-kind or through a financial contribution.

3.96 Subject to detailed drafting, the following Heads of Terms are therefore sought for economic development and employment within the Section 106 agreement.

1) An Employment During Construction contribution is set at £655,847

2) An Employment During Construction Management Fee of £49,189 set and paid to the Council on implementation of the works in Southwark.

3) TWUL is obliged to implement the SES.

4) Targets are set within the S106 for delivery of the SES in Southwark as follows:

- A minimum 268 unemployed Southwark residents to be supported into employment on Southwark work sites and sustained in work for at least 26 weeks
- A minimum 81 apprentices to be delivered on Southwark work sites, a minimum 40% of whom are to be Southwark residents
- 268 Southwark residents trained in short industry relevant qualifications
- £60million of contracts secured by Southwark businesses

5) If the Project Hub at Chamber's Wharf as defined in the SES is not implemented at a date 6 months following the site implementation the Employment During Construction contribution will be paid in full.

6) Performance under the SES will be reviewed annually. If performance falls below 50% of Target the Employment During Construction contribution will be paid at a proportion appropriate to the under-performance.

7) And if performance under the SES is below 50% of Target for two successive annual review periods the council can also demand payment of the Employment During Construction contribution in full.

8) Any Employment During Construction contribution received may be pooled and spent on training and employment projects across the borough.

Transport

Policy Framework

3.97 Core Strategy strategic policy 2 sets out how the Council will encourage walking, cycling and the use of public transport rather than travel by car. This will include encouraging the use of the River Thames for transport and seeking reduce congestion, traffic and pollution.

3.98 Saved Southwark Plan policy 5.2 states that planning permission will be granted for development unless;

i. There is an adverse impact on transport networks for example, through significant increases in traffic or pollution; and/or
ii. Adequate provision has not been made for servicing, circulation and access to, from and through the site; and/or
iii. Consideration has not been given to impacts of development on the bus probity network and Transport for London road network.

Applicant's Assessment

3.99 The ES concludes that the measures proposed as part of the project to minimise disruption and ensure safety of road users and pedestrians would ensure that transport effects during construction would not be significant at this site. However, minor adverse effects would result in several respects including upon:

- Pedestrians and cyclists
- Local residents
- Private vehicle users
- Emergency vehicles
- Pupils, parents and staff of St Michaels Secondary and Riverside Primary School
- River vessel operators

Southwark's assessment of local impacts

Local area context:

3.100 The streets to the north of Jamaica Road in this area are characterised by low levels of vehicular traffic, providing a pleasant and safe environment for walking and cycling including along the 'flagship' riverside route. Access by motor vehicle is maintained, but limited by various 'filtered permeability' measures such as road closures and one-way streets to prevent extraneous traffic from using local streets. The area has recently become a 20mph zone. The Mayor of London is proposing that the Thames Quietway cycle route be delivered through the area, directly along Chambers Wharf by 2016[3]. The area surrounding the site is predominantly residential in nature and it is estimated that in 2011 there were approximately 3,824 people living within a 400 metre distance of the development[4]. There are also four schools within the same radius all of which have a high proportion of children walking to school along safe, quiet streets.

3.101 Under the planned drive site scenario for Chambers Wharf a peak of 110 heavy goods vehicle movements per day would be introduced to this environment. In the 'worst case' scenario examined by the TA this number would increase to 570[5].

Point of concern:

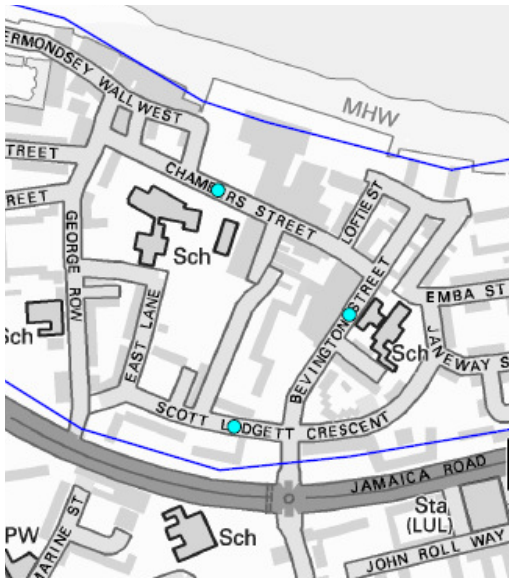
3.102 *The presence of large number of heavy good vehicles and related traffic in this area would be wholly out of keeping with the local area context.*

3.103 *Chambers Wharf is not an appropriate location for a drive site, whereas the impact of the use of this location as a receptor site is likely to have more manageable impacts.*

[3] Correspondence from the Mayor's Cycling Commissioner to Southwark Council, 18th June 2013
[4] 2011 Census Population Data used 400m distance assumed to cover Census Output Areas E00020257, E00020273, E00020274, E00020280, E00020282, E00020284, E00167678, E00020276, E00020287, E00168006, E00020277, E00020269, E00166641, and E0002028.
[5] TTT Transport Assessment, Chambers Wharf, Thames Water, January 2013, 20.5.72

Traffic context

3.104 Traffic counts in the immediate vicinity of the proposed drive site were carried out by the Council in April 2013 at the locations shown below.



3.105 The following table summarises the results of the traffic counts for an average day (counts done over a two week period).

Location	Direction	Total flow	Total vehicles AM peak (08:00 – 09:00)	Total vehicles PM peak (18:00 – 19:00)	85th percentile speeds (mph)
Chambers Street	Eastbound	395	21	43	22.6
Chambers Street	Westbound	536	74	31	23.0
Bevington Street	Northbound	699	51	64	30.6
Bevington Street	Southbound	402	23	27	29.8
Scott Lidgett Crescent	Eastbound	373	29	30	21.4

Scott Lidgett Crescent	Westbound	643	87	49	21.9

3.106 The best case scenario[6] stated in the TA of 11 HGVs generated by the site per hour in each direction equates to 23% more traffic in the AM peak and 30% more traffic in the PM peak on Chambers Street and a 30% and 24% increase on Bevington Street respectively. Off peak these percentages are significantly higher.

3.107 The all-by-road scenario requires 570 HGVs per day or 57 HGVs per hour in each direction. This equates to 60% extra vehicles in the AM peak and 77% extra vehicles in the PM peak on Chambers Street and 77% extra vehicles in the AM peak and 62% extra vehicles in the PM peak on Bevington Street. As before these percentages are higher off peak (where existing vehicle flows are lower) and are percentages of all traffic, most of which is cars (not large vehicles).

Point of concern:

3.108 *Even under the proposed scenario (with 90% of the materials transported by barge) and only considering HGV traffic generated by the site, local streets will see a significant increase in overall traffic flows.*

3.109 *Under the 'all-by-road' scenario traffic on local streets will increase dramatically, greatly distorting the planned function of the local road network.*

Vulnerable road users:

3.110 Given the low levels of motor vehicle traffic in the vicinity of the proposed drive site, conditions are favourable for walking and cycling and many trips are made by these modes. Of greatest significance are the trips generated by local schools, several of which are directly affected by the proposals.

Schools:

3.111 There are three schools in the immediate vicinity of the site, please see appendix 1 for locations of school entrances.

3.112 The approximate number of pupils at each school are:

School	Number of pupils
Riverside Primary School	320
St Michael's Catholic College	750
St Josephs Roman Catholic Primary School	345

School Opening times are as follows:

School	Breakfast club	School times	After school activities

[6] TTT Transport Assessment, Chambers Wharf, Thames Water, January 2013, P.3

Riverside	08:00 – 09:15	09:15 – 15:15	15:15 – 17:45
St Michael's	08:00 – 08:45	08:50 – 15:30	15:30 – 16:30
St Josephs	08:00 – 08:40	08:55 – 15:15	15:15 – 18:00

3.113 The schools are open 5 days a week during term time and St Michaels have a Saturday school and holiday revision classes.

Riverside Primary School:

3.114 The entrance to the school is located just south of the junction between Janeway Street and Scott Lidgett Crescent. The school Travel Plan states that 83% of the pupils live within 1km of the school and most in the surrounding areas of Dickens Estate and along Jamaica Road. Many have to cross Jamaica Road to get to the school.

3.115 High levels of pedestrian activity would also be expected on Bevington Street in the vicinity of the Chambers Street junction, as a result of children and parents accessing the school. A pedestrian refuge crossing facility has been proposed on Bevington Street, however despite this, it is considered that the increase in HGV movements will still have a significant adverse impact on the amenity of pedestrians and the levels of fear experienced especially given that many will be of primary school age.

3.116 Riverside's last three hands up surveys have shown 81% of pupils walking and cycling to school. This equates to around 260 pupils walking and cycling on the surrounding streets to and from school (during the AM and PM peaks).

3.117 The school are very active in the school travel plan process and work hard to reduced car use and encourage active travel. They are also very active with regard to road safety and take part in the road safety quiz, theatre in education, pedestrian training and junior citizen.

3.118 The latest mode split data (survey 2013) shows the following:

	Car	Car share	Bus	Rail/LU	Bicycle	Walk	Park & walk	Other
Percentage	16	0	7	10	14	67	1	3
Number of pupils	51	0	22	32	45	215	3	10

3.119 The school has the following targets:

- Reduce car use from 16% to 14% by February 2014
- Increase cycling from by 1% by February 2014

3.120 St Michael's Secondary School:
The entrance to the school is located on East Lane. The school has a wide catchment area with pupils coming as far as from Kent and Essex.

3.121 Most students attend St Michael's using the bus, tube and rail which involves walking from the bus stops on Jamaica Road or the stations Bermondsey and London Bridge. There are still quite a high proportion of pupils who walk all the way to school.

3.122 High levels of pedestrian activity have been recorded on Bevington Street with in excess of 460 people crossing the carriageway in the vicinity of the junction with Scott Lidgett Crescent during the AM peak hour. This level of pedestrian activity is likely to be closely related to the proximity to St Michael's Catholic College and, although there are wide pedestrian footways in the vicinity there are no controlled pedestrian crossing facilities to reduce any intimidation experienced.

3.123 The latest mode split data (survey 2011) shows the following:

	Car	Car share	Bus	Rail/LU	Bicycle	Walk	Park & walk	Other
Percentage	6	2	54	24	2	11	1	0
Number of pupils	41	14	372	165	14	76	7	0

3.124 The school has the following Travel Plan targets:

- Increase levels of walking by 10% from its current percentage (11%) by June 2012
- Increase levels of cycling by 10% from its current percentage (2%) by June 2012

St Joseph's Primary School:

3.125 The entrance to the school is located on George Row. Over 75% of the pupils come from the local area (SE1 or SE16) although staff travel from further afield.

3.126 The majority of pupils walk to school and the previous hands up survey data shows that since 2009 the number of pupils walking has increased and car travel has decreased.

3.127 The school is particularly concerned about Jamaica Road following a fatal pedestrian collision involving one of their pupils in April 2005.

3.128 The latest mode split data (survey 2011) shows the following:

	Car	Car share	Bus	Rail/LU	Bicycle	Walk	Park & walk	Other
Percentage	21	3	10	2	0	57	5	2
Number of pupils	74	11	35	7	0	200	18	7

3.129 The school has the following targets:

- Increase levels of walking by 10% from its current percentage (57%) by June 2012
- Increase levels of cycling by 10% from its current percentage (0%) by June 2012

3.130 Their targets are to improve safety on the journey to school for those walking and cycling and to encourage more walking to school. They also want all year 3 pupils to receive pedestrian training on an annual basis.

Summary

3.131 The table below shows the numbers of pupils currently using the area by each mode and how many would be if the schools meet/have met their targets.

	Current numbers	Target numbers
Walking	519	623
Cycling	59	167
Walking between bus stops or rail/LU stations and school	634	634

3.132 Given the above figures the council is concerned that the Chambers Wharf TA significantly underestimates pedestrian and cycle activity in the vicinity of the site. Data contained within the TA indicates that the numbers of pedestrian trips recorded along Chambers Street during the AM and PM peak hours are low with 21 two-way pedestrian movements in the AM peak hour and 24 two-way pedestrian movements during the PM peak hour. A total of 42 two-way cycle movements were recorded in the AM peak hour and 24 two-way cycle movements were recorded in the PM peak hour[7].

3.133 In other locations along the route for construction traffic, the volumes of pedestrian and cycle trips are significantly higher. For example a total of 463 two-way pedestrian movements were recorded crossing Bevington Street in the AM peak hour in the vicinity of Scott Lidgett Crescent which is one of the principle routes to St Michael's College.

3.134 Parsons Brinckerhoff on behalf of TfL also express concerns about under reporting of pedestrian activity the TA[8]:

3.135 Observations made during the site visit across a 15-minute period confirmed eastbound pedestrian flows on Chambers Street to be significantly larger than the AM figures provided in table 18.4.8 of the TA. A number of parents were observed accompanying children to riverside school. It is therefore anticipated that pedestrian flows on Chambers Street during the construction period will be higher than the figures presented in the TA (This may be a result of the pedestrian counts being carried out in the non-neutral months of July and

[7] TTT Transport Assessment, Chambers Wharf, Thames Water, January 2013, Table 20.4.8

[8] Technical Note TN 17-04 Issue 01, Parsons Brinckerhoff, March 2013

August). As a result, the impact to pedestrians during the construction period may be more significant than proposed in the TA.

3.136 Based on school travel plan data the total walking or cycling movements in the AM peak are 1,212 and are targeted to be 1,424. Assuming pupils travel home from school the same way they travel to school that means 2,424 movements on foot or by bicycle each week day during term time, with school targets of 2,848 movements by these modes per day. Walk or cycle trips in the area therefore exceed motor vehicle trips by a factor of approximately 10 to 1.

Points of concern:

3.137 The data presented in the TA in relation to walking appears to significantly under-represent this mode. Education related walk and cycle trips are likely to represent the majority of all trips made in the vicinity of the proposed drive site.

3.138 If walking and cycling to local schools reduce due to parents and pupils wishing to avoid coming into contact with the construction traffic there could be additional traffic of over 500 vehicles in each peak which will impact significantly on the surrounding streets, especially the Jamaica Road/St James's Road junction.

3.139 *2,848 movements in the area on foot and by bicycle means a high number of possible interactions between pupils and HGVs.*

Clarification and further information required:

3.140 *It is unclear when the pedestrian counts reported in the TA took place – the TA suggests 4 hours over two days in 2011 – PB suggest July and August - therefore we request further information on the counts carried out. In any event further counts are required due to the very small sample size. Any counts carried out outside of school term time cannot be considered.*

Walking environment

3.141 Changes in traffic flows can result in pedestrians and cyclists experiencing increased levels of fear and intimidation and delay. In addition pedestrians and cyclists also experience changes in amenity levels.

3.142 In relation to pedestrian delay, changes in the volume, composition, or speed of traffic may affect the ability of people to cross roads. Therefore increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend upon the general level of pedestrian activity, visibility and general physical conditions of the crossing location. The Institute of Environmental Management and Assessment (IEMA) publication *"Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic"* note that, when existing traffic flows are low, increases in traffic of around 30% can double the delay experienced by pedestrians attempting to cross a road.

3.143 As stated above, available data suggests that walking is the predominant mode in the vicinity of the proposed drive site. Southwark Council share the concerns put forward by Parsons Brinckerhoff on behalf of TfL in particular with regards to the walking environment:

Pedestrians

3.144 The quality of the footway surfacing at Chambers Street is generally poor. Although footways are wide, dropped kerbs are not provided at inactive crossovers on the southern footway. Parents with prams/buggies were observed using both the southern footway and the partial northern footway. Considering the anticipated increase in pedestrians on the southern footway as a result of the construction proposals, we would suggest that the developer should consider improving the continuity and quality of the southern footway. The southern footway could be improved by infilling inactive crossovers and accesses.

3.145 The northern footway along Chambers Street is intermittent and very narrow. Despite the lack of formal facilities provided, site observations show that pedestrians continue to use the northern footway and the live carriageway bordering the northern footway as a walking route. Additional measures should be implemented to ensure pedestrians are discouraged from using the closed northern footway during construction.

3.146 During construction, the northern side of the footway along Chambers Street, which includes the Thames path, will be closed. The TA states that pedestrians would be diverted to the southern footway using suitable crossing points. Designated crossing locations are present at both ends of Chambers Street at the junctions of Bevington St / Chambers St and George Row / Chambers St. However, no designated crossing facilities are provided at the Thames path to assist pedestrians crossing between Loftie Street and East Lane and the southern footways on Chambers Street. A speed table is available at East Lane / Chambers Street which improves crossing options but the visibility of drivers and pedestrians is obscured by parked cars. The TA should confirm how more vulnerable non motorised users on the Thames Path will be accommodated at Chambers Street.

3.147 The application proposes to close the northern footway on Chambers Street. They have proposed a crossing facility on the northern end of Bevington Street just south of the junction with Chambers Wharf and guard rail on Bevington Street between the crossing and the junction. Guard rail on Bevington Street between the new crossing and Chambers Street is likely to encourage pedestrians to cross above this i.e. on Chambers Street to Loftie Street creating a conflict point here with HGVs.

Points of concern:

3.148 *Inadequate consideration has been given regarding the impact of the proposals on pedestrian amenity.*

3.149 *Chambers Street makes up part of the London strategic walk network and the Thames path. This street is also used by children and their parents / carers on their way to and from local schools. The modifications proposed in the TA to accommodate the drive site do not provide a suitable environment to facilitate the level of walking anticipated.*

Cycling environment

3.150 Southwark Council share the concerns put forward by Parsons Brinckerhoff on behalf of TfL in particular with regards to cycling in the vicinity of the proposed drive site:

Cycles

3.151 During the construction period, cycle routes which currently follow Chambers Street and the Thames Path will be diverted to George Row, John Felton Road and East Lane. Site visit observations confirmed the proposed cycle route diversion to be acceptable. However, it is unclear how this diversion will be enforced to prevent eastbound cyclists from accessing Chambers Street. According to construction period proposals, cyclists will still have access to Chambers Street. Additional measures may be required to discourage cyclists from using Chambers Street.

3.152 Chambers Street makes up part of the National Cycle Route 4 as shown on the cycle route map. Thames Water has proposed a diversion of this route (as shown on the same map).

Point of correction:

3.153 *The diversion shown does not start from the existing NCN route, instead it starts from Bermondsey Wall West – it is likely TW have confused the NCN with the Thames Path (pedestrian route which runs along the river). The diversion signs would be incorrectly located and would not in fact divert cyclists if the diversion route was signed as proposed.*

3.154 Thames Water have stated in their TA that the proposed diversion would add an extra 2 minutes 25 seconds to the journey time of those using this route[9]. In addition the diversion requires cyclists to cross Bevington Street from Scott Lidgett Crescent. Given that Bevington Street is the priority road and Scott Lidgett Crescent may be difficult to cross requiring cyclists to dismount and cross on foot which will further add to journey time.

3.155 The NCN4 is designed to be the quiet alternative to the main road (Jamaica Road) to be used by less confident cyclists and/or leisure cyclists. These are the types of cyclists who are unlikely to feel confident around HGVs or on the new CS4.

3.156 There are a number of potential conflict points with HGVs depending on the route cyclists take when attempting to follow the NCN. Please see the cycle map for locations of conflict points, these are listed below;

- If cyclists follow the diversion – junction of Bevington Street and Scott Lidgett Crescent. Cyclists will be required to cross Bevington Street which will have increased numbers of HGVs travelling north and south.
- If cyclists follow the diversion but turn left on Bevington Street (at the junction with Scott Lidgett Crescent) – junction between Chambers Street and Bevington Street. A left turn on Bevington Street (from Scott Lidgett Crescent) would be easier for a cyclist and closer to their desire line (back to the river edge).
- If cyclist ignore the diversion – Chambers Street at the site entrance.

[9] TTT Transport Assessment, Chambers Wharf, Thames Water, January 2013, 20.5.32

Point of clarification:

3.157 *Details on how the proposed diversion would be enforced have not been provided and it is suggested that it is highly unlikely that any cyclist would follow a diversion that added over 2 minutes to their journey when pedestrians and motor vehicles had not been diverted.*

Points of concern:

3.158 *The proposed diversion of NCN4 represents an unacceptable journey time penalty for cyclists on this route.*

3.159 *Alternative main road routes are not suitable for novice, less confident or child cyclists*

3.160 *The increased number of conflict points with HGVs raises serious concerns about safety and the desirability of the route as cyclists are likely to be put-off cycling in the area*.

Connection to the strategic road network

3.161 The Transport Assessment for Chambers Wharf includes an assessment of the impact of site traffic on the Jamaica Road / Bevington Street junction[10]. This junction forms the proposed interface between the local traffic network providing access to the site and the strategic road network. The construction development case suggests that the impact on the junction will result in an 18 second increase in average delay on the Bevington Street arm with minimal impact on other arms. The sensitivity test for the 'All by road' scenario however show a dramatic deterioration in conditions at this junction, with a massive increase in delay on the Jamaica Road eastbound arm of 218 seconds.

3.162 The adjacent principal routes in the Chambers Wharf area are already highly congested at peak times, particularly at the junction of Jamaica Road and Lower Road (Rotherhithe tunnel access) and around the Lower Road gyratory system. As well as serving local traffic these are key strategic routes providing access to the river crossings at Rotherhithe and Tower Bridge. Any delay caused at Bevington Street junction will therefore have consequences for the wider network.

3.163 Jamaica Road experiences significant congestion in peak hours, with queuing particularly severe east bound back from the tunnel roundabout in the evening peak. Data collected by TfL in May 2010[11] captures queue lengths at the Jamaica Road / Bevington Street junction between 05:00 and 20:00hrs. This showed queue lengths of up to 35 PCUs at peak times on the east bound carriageway. Trip generation from the Chambers Wharf site will exacerbate this issue, increasing journey time delay for general traffic on this route. In addition, queuing on Jamaica Road will affect journey time reliability of site traffic, adversely affecting the predictability of HGV arrival times.

Point of concern:

[10] Chambers Wharf Transport Assessment, 20.5 Construction assessment, Tables 20.5.2 – 20.5.6

[11] Jamaica Road bus lane operation assessment *data*, TfL, 2010

3.164 *Projected delays at the Bevington Street / Jamaica Road junction under the 'All by road' scenario will have a dramatic impact on both site traffic and wider traffic flows.*

3.165 *The impact of a large number of additional HGV trips over a sustained period will exacerbate existing congestion on Jamaica Road and affect journey time reliability for site traffic.*

3.166 *The* presence of significant queuing on Jamaica Road and the potential for Chambers Wharf construction traffic to exacerbate this must be a key consideration when considering whether Chambers Wharf can operate effectively as a drive site. The construction plan relies on a steady stream of lorries arriving at the site at precise times given the very limited capacity within the site for waiting vehicles and the absence of any provision for a holding area nearby.

Point of clarification:

3.167 *The TA implies that any vehicle arriving ahead of or behind their allotted time slot will be turned away from the site. Further information is required as to how this will work in practice and what the resulting traffic impacts will be. This should include an assessment of the punctuality levels required to allow the effective operation of the construction site and contingency plans for when these cannot be achieved.*

Point of concern:

3.168 *Given the impact of congestion on journey time reliability on construction traffic routes to the site, including congestion on Jamaica Road and at the Lower Road gyratory, it is unrealistic to expect that vehicles accessing the site will be able to comply with the strict timing requirements of the construction plan. As a consequence of this it is likely that either a) large numbers of vehicles will have to wait on local streets, or b) that large number of vehicles will be turned away. Both of these likely scenarios are unacceptable to the council and also likely to undermine the operational viability of Chambers Wharf as a drive site.*

Safety assessments

3.169 Southwark Council share the concerns put forward by Parsons Brinckerhoff on behalf *of* TfL in particular with regards to accidents and road safety:

Accidents

3.170 Accident data from the most recent available five year period has been summarised on a plan, and coloured according to severity. More specific details about a selection of the accidents have also been provided. In order to identify trends, however, the nature of each accident needs to be identified.

3.171 TW should indicate the type of users involved on a plan – e.g. cyclist/HGV or pedestrian/car and provide links to the actual accident details. Patterns can then be identified and the impact of an increase in HGVs, in particular, assessed. A full breakdown of accidents and causations should also be provided for review. Ideally accident statistics should be compared against

collision rates extracted from the document "Levels of Collision Risk in Greater London, Issue 12, February 2009" (LCR) to evaluate the significance of the potential hazards. The accident rate for the signalised junction of Jamaica Road / Bevington Street (2.8 / year) exceeds the borough average collision rate of 1.69 / year.

Other issues

Road Safety Audit

3.172 It is vital to ensure that the risks to all road users are considered, designed out or mitigated appropriately. Road Safety Audits should be undertaken for each of the proposed construction phases, to provide assurance that safety issues have been sufficiently considered in all proposed traffic management measures, including vehicular site access, pedestrian and cyclist diversion, traffic lane closure etc.

Potential Legacy Benefits to retain Pedestrian Crossing Facility

3.173 The TA states that the proposed pedestrian crossing on Bevington Street implemented for the construction period will be removed following the construction period, so that parking bays can be re-instated. The pedestrian crossing will improve the safety of pedestrians walking to and from Riverside school. Consideration should be taken to retain the facility post-construction, however it is acknowledged that this is the decision of the borough. Footway works at the southern footway on Chambers Street to remove inactive crossovers/accesses could provide space to re-locate parking bays which have been initially been removed during construction to facilitate the crossing. The council are very concerned about the impact of large numbers of HGVs on pedestrian and cyclists safety, particularly in an area where very few such vehicles are very seldom encountered.

3.174 In London in 2010, large vehicles were involved in 40% (20% were HGVs, 20% were construction vehicles) of pedal cyclist fatalities and 13% of collisions resulting in serious injury to a cyclist[12]. These are disproportionately high when considering the traffic composition on roads in London.

Point of correction:

3.175 *The TA states, regarding existing collisions at the junction of Jamaica Road and Bevington Street, that "none of the accidents were considered to be road geometry or failure of infrastructure"[p.45, 20.4.116]. Collisions are very rarely solely down to road geometry or failure of infrastructure. A collision is usually the combination of human behaviour and the environment in which they are interacting.*

3.176 *In addition the TA cites the contributory factors listed in the STATS 19 data as the causes of the collisions. These are factors which the police assess as "likely" or "possible" factors involved in the collision based on their assessment after the collision.*

Clarification and further information required:

[12] TfL, 2011 – Pedal cyclist collisions and casualties in Greater London

3.177 *Further information regarding the safety audits is required. Detailed site layouts to be assessed are required as are the assumptions made in the road safety audits. Assurances that all stages of the safety audit will be complete i.e. once changes are in place safety audits are carried out again to assess impacts, and funding will be made available should any changes to the road layouts be required.*

Point of concern:

3.178 *The introduction of large numbers or HGVs into a traffic sensitive environment will lead to significant increases in road danger for vulnerable road users.*

Required Mitigation:

Avoiding school opening and closing times

3.179 Reduced movements during peak hours are recommended by Parsons Brinkerhoff on behalf of TfL:

3.180 Where possible, TW should seek to minimise the construction lorry movements during the peak hour periods. Proposals to manage traffic should be included in a full Construction Logistics Plan which should consider the co-ordination of construction vehicle movements across all Thames Tunnel sites.

3.181 In order to remove the threat posed to vulnerable road users by large numbers of HGVs from the site it is recommended that site operational hours are restricted. This will become essential during any period of 'All by road' operation of the site.

3.182 In order for school children to avoid HGV movements it will be necessary to allow 30 minutes for pupils to arrive at the start of the day and 30 minutes for pupils to leave at the end of the day. It is also reasonable to allow parents up to 15 minutes to leave the area after dropping their children off and 15 minutes to arrive prior to picking them up.

3.183 Breakfast clubs usually allow pupils to arrive at any time after 8am and before the start of the school day so during these times HGVs would not be able to operate in order to avoid conflict. After school activities are usually less well attended so allowing 15 minutes for parents to arrive prior to them ending and 15 minutes for both parents and pupils to clear the area should be all that is required (the latter should generally be not applicable as HGV movements should cease by 18:00 anyway).

3.184 Confirmation of time taken for pupils to arrive and clear the surrounding streets should be established through on site observations and schools should be contacted to establish each term whether or not breakfast clubs and after school clubs are taking place.

3.185 The impact on site operation as a result of taking school related activity into account is summarised below under 'Restricting HGV movements'.

Improving conditions for pedestrian and cyclists

3.186 While no foreseeable mitigation short of time separation of vulnerable road users and site traffic could be effective under the 'all by road' scenario, a number of additional measures should be considered for the planned scenario or in the event of the use of Chambers Wharf as a receptor site.

3.187 In order to identify mitigation measures further work is required to establish the routes pupils currently take to school and to identify improvements to those routes. Improvement measures may include new and/or improved crossing points, school crossing patrols etc. As part of this process individual schools will need to be contacted to ensure their 'buy in' to any measures proposed.

3.188 Cycle Skills Network Audit maps could be used (see CSNA map of area) to find routes which are easier to cycle and improvements made where any barriers exist. This could also include locating and highlighting routes to school which avoid the construction routes.

3.189 Crossing Jamaica Road should be considered in particular an 'at grade' crossing facility on the western arm of the Jamaica Road / St James's Road / Bevington Street junction as this will reduce the need to cross Bevington Street.

Reducing conflict between cyclists and HGVs in the Chambers Wharf area

3.190 In order to manage the interaction between HGVs and cyclists it is recommended that a strategy is put in place for cyclists that choose to continue using Chambers Street despite the provision of any alternative route (or any proposed restriction which may be difficult to enforce). In any event, site staff will need to be on hand at all times to manage this interaction.

Reducing conflict between pedestrians and HGVs in the Chambers Wharf area

3.191 In order to improve conditions for pedestrians improvements to the southern footway of Chambers Street are required and consideration given to those crossing Chambers Street to reach Loftie Street. The latter could be achieved through the use of a crossing point or personnel to make the crossing safer (e.g. crossing patrols). It is also recommended that HGV movements are restricted to certain times (see below).

Restricting HGV movements

3.192 HGV movements should be restricted as follows for the following reasons:

Restriction	Reason
07:30 – 09:30	To allow school pupils to arrive at school, and parents to leave after dropping them off, without conflict with HGV traffic. To avoid peak cycle movements in the Chambers Wharf area. To reduce congestion on the highway network (see PB note below).
15:00 – 16:00	To allow school pupils to depart from primary school, and parents to arrive

	to collect them, without conflict with HGV traffic.
16:15 – 16:45	To allow school pupils to depart from secondary school, and parents to arrive to collect them, without conflict with HGV traffic.
17:15 – 18:30	To allow school pupils to depart from after school clubs, and parents to arrive to collect them, without conflict with HGV traffic. To avoid peak cycle movements in the Chambers Wharf area. To reduce congestion on the highway network (see PB note below)
18:30 – 07:30	To avoid the disturbance of residential amenity.

3.193 These restrictions would result in 6.25 hours of HGV movement time remaining and would require the condensing of HGV movements from 11 to 17.5 per hour. A review of the operational viability would be required with lorries arriving every 2 or 3 minutes.

3.194 Although the assumption that the local road network could cope when the river is not available is highly questionable, it should be noted that the projected 57 HGV movements per hour would be increased to 88 per hour should the above restrictions be put in place – approximately one every 40 seconds.

Points of clarification:

3.195 *The TA states that 'there is a possibility that river transport might not be available at a particular site....for short periods of time'[13]. Further predictive assessment is required as to the likely frequency and duration of such events – this should then be taken into account as part of the traffic impact assessment in the TA.*

Points of concern:

3.196 *Further work is required to understand the likely impact on pedestrians and cyclists in the area and to provide adequate mitigation for this impact.*

3.197 *The traffic sensitive nature of the proposed site will require significant restriction of lorry movements to protect vulnerable pedestrians and cyclists.*

3.198 *There is no foreseeable mitigation strategy that could adequately address the impact of the 'all by road' scenario with Chambers Wharf operating as a drive site.*

3.199 *If Chambers Wharf is used as a drive site, it is likely that construction would have to be suspended in the event of any limitation on river traffic movements, i.e. what is the maximum number of HGVs per hour that the construction site can cope with.*

Archaeology

[13] Chambers Wharf Transport Assessment, 20.5 Construction assessment, 20.3.27.

Policy Framework

3.200 *Ch*ambers Wharf is located within an archaeological priority zone. Southwark would expect any planning application to be accompanied by an archaeological assessment, evaluation of the impact of development and mitigation measures. Failure to demonstrate adequate mitigation of impacts would be contrary to Southwark Plan policy 3.19 and London Plan policy 7.8.

Applicants Assessment

3.201 The ES concludes that archaeological remains could include evidence of prehistoric occupation and Roman remains. Given this, prior to or during construction, a programme of archaeological investigation would take place to record any features of interest. Therefore, no significant effects on below ground historic features are predicted to result.

Impact

3.202 Paragraph 1.4.4 of the National Waste Water Policy Statement states impacts upon archaeology are one of the major negative effects of the NPS. This does not mean that the negative effect should be simply accepted, but the NPS provides for a structured programme of assessment, including archaeological evaluation, to ensure that the significance of heritage assets is properly understood. There are two sites in Southwark that will have impacts upon buried archaeology. At Chambers Wharf the archaeological resource has been assessed as of high significance and the impact upon it is total in the area of the shaft and highly significant archaeology on the foreshore will also be severely impacted. At Shad Thames the lesser impacts can be managed by recommendations.

3.203 The applicants have submitted desk-based archaeological assessments for the two sites within the London Borough of Southwark. Shad Thames Pumping Station is based within dry land at Southwark the works proposed for Chambers Wharf are to either side of the river wall on both dry land and the foreshore. It should be recognised that there is no essential difference between the archaeology of the foreshore and the archaeology behind the modern river wall except that different forces, the river, are acting upon it. Therefore an archaeological significance identified on the foreshore will relate to archaeology on the adjacent dry land site.

3.204 Planning policy for the Thames Tideway Tunnel is contained in the National Policy Statement for Waste Water (March 2012). Section 4.10 of this document is relevant to archaeology. Section 4.10.8 discusses the applicant's assessment of archaeological matters. This document states, in line with current policy and practice, that where a desk-based assessment is insufficient to properly assess the interest of the archaeology it should be accompanied by an archaeological evaluation. There is a clear confusion in the application documents concerning the archaeological interest at Chamber's Wharf. The evidence from the foreshore detailed in section 7.4.36 of the Environmental Statement details the prehistoric potential of the site as a medium to high significance, depending upon survival. This is confirmed in section 8.4.3 of the Overarching Written Scheme of Investigation. This confident assumption is based upon evidence recovered from the Chambers Wharf foreshore where years of archaeological survey have demonstrated

intact early prehistoric stratigraphy and deposits. These deposits will continue beyond the river wall into the site. Paragraph L6.6 of the Heritage Statement for Chambers Wharf states that no highly significant archaeology has been identified that would merit preservation in situ. Prehistoric stratigraphy – sites that have developed and preserved sequences of use over time – are highly significant and rare in London and have been preserved where they have been identified elsewhere in the north Southwark area, specifically field systems and settlement evidence within the Shad Thames area. The assessment methodology for the Chambers Wharf site is therefore flawed and should be updated with an archaeological evaluation of the area of the shaft to comply with the requirements of the National Policy Statement. The evaluation would demonstrate whether this is a suitable site for the proposal.

3.205 **It is recommended that the applicants undertake an archaeological evaluation within the footprint of the shaft proposed at Chambers Wharf to enable their application to comply with the policies of the National Policy Statement for Waste Water.**

3.206 Should consent be granted the following points need to be addressed in order to protect the archaeological resource at both sites.

3.207 At Chambers Wharf the proposals for the foreshore have not been adequately assessed through on-site fieldwork other than through foreshore survey. The proposals for the removal of the existing jetty, and its piling, the construction of the coffer dam and fill are likely to have a significant impact upon any soft deposits within the foreshore. The applicants have not considered the continued survival of foreshore deposits once the scheme has been completed. At present it is likely that the continued preservation of foreshore archaeology is aided by the piled structure supporting the jetty. The change in conditions between the present jetty structure and the proposal to remove the piers, construct the coffer dam, cranes and increase the loading across the site, then construct the new river wall alignment and remove these temporary features has not been adequately assessed and it is simply assumed that there will be no ongoing impacts upon the foreshore archaeology due to the changed burial conditions. It is therefore necessary that an archaeological evaluation is undertaken on the foreshore to inform the design of proposals for the coffer dam and fill.

3.208 The Chambers Wharf proposals also locate the primary impact on site, the shaft, away from areas of know impact, such as the known basements from the buildings most recently occupying the site. Paragraph 4.10.18 of the National Policy Statement is clear that applicants should aim through design to avoid unnecessary damage to sites. This could involve the placement of the shaft in areas of known impact, such as the basements from the previous buildings, rather than partially outside the area of the proposed basement for the successor building increasing the archaeological impacts upon the site and reducing the potential areas of preservation in situ or more suitable recording, over a wider area, as part of the permitted scheme.

3.209 Should permissions be issued for the construction work at Chambers Wharf recommendations will need to secure archaeological work on the site – the evaluation and further recording of the archaeology impacted by the shaft. Further recording may take the form of full excavation of the site or other

schemes of work. Other land-based impacts include diversions of services, piling for cranes and other construction works.

3.210 As there has yet to be any evaluation at Chambers Wharf, either on the foreshore or in the area of the shaft a requirement should be applied to secure this, for the avoidance of any doubt., that is separate from the recommendation for mitigation works. The Written Scheme of Investigation will need to cover both the foreshore and works on 'dry land'.

3.211 Draft Development Consent Order: Section 23 of the draft DCO (removal of human remains) makes no provision for archaeological work should the human remains prove to be of archaeological interest. Human remains have been identified in locations on the Thames foreshore and potentially may be of interest. Chambers Wharf is also located near to a known area of Roman burials at Cherry Gardens. This section should be amended to reflect the potential for human remains of archaeological interest to be examined.

Land Quality

Applicant's Assessment

3.212 The previous use of the site as a wharf could have contaminated the site. Previous ground investigation indicates that the site is not grossly contaminated although some contamination was identified in the underlying soil. Minor adverse impacts are predicted in the EA for health impacts on adjacent land users (residential and schools) from exposure to wind-blown dust or vapours, and upon construction workers from exposure to contaminated soils, sediment, liquids, soil, gases and vapours. The EA notes that, although the effects are minor adverse, it is considered unlikely that the effect will occur.

Impact

3.213 Historic land uses and activities of the past have impacted on the quality of many areas of land within the borough. It is therefore the Council's requirement to ensure that all development take into consideration the area historical uses and undertake site investigations (phase I and II) to ensure environmental and health risks are identified and controlled so as not to impact on residents, existing environment and other receptors such as schools.

3.214 The historic data and activities pertaining to Chambers Wharf and its immediate surroundings are well covered within the documents and reports submitted by the applicant.

3.215 At Chambers Wharf there is a particular risk of impacts upon surrounding residential properties and schools given their close proximity to the site, particularly those properties immediately adjacent to the site and Riverside Primary School. It is therefore essential that the measures in the CoCP and associated requirements are strict enough to safeguard residents and school children in the surrounding area.

3.216 Chambers Wharf works involves the construction of a shaft to be used as a main tunnel drive site. The measures contained within the environmental statement if followed will ensure that the impact of these developments will be

minimal. The conceptual model and data from site investigation shall be submitted prior to the development.

3.217 The applicant should incorporate provision for a watching brief during construction and communicate to the Council any unusual observation that may require remedial works.

Ground and Surface Water

Policy Framework

3.218 Core Strategy policy 13, sets out how the Council will require developments to help reduce flood risk by reducing surface water run-off, using sustainable urban drainage systems and avoiding the paving over of gardens and the creation of hard standing areas.

Applicant's Assessment

3.219 The site geology is such that the below ground structures would be at a depth where ground water would be present. Due to the geology of the site and the past land use the removal of ground water at the site would be limited through the implementation of special construction techniques such as removing water from within the shaft as it is built, rather than from outside it. Given these measures, no significant effects on ground water resources are likely to occur.

3.220 A number of control measures would be applied to prevent contaminated waters from draining straight into the river. Surface water from the site would either go to existing drains or be collected on site in tanks that would allow the pollutants to separate from the water before it is released into drains whilst groundwater from dewatering would be treated prior to release. Base on these measures, no significant effects on surface water would occur.

Impact

3.221 Under the Flood and Water Management Act 2010 ("the Act"), Southwark Council as Lead Local Flood Authority (LLFA) has the responsibility of ensuring that, as far as is reasonably practicable, life and property are protected from flood risk arising from surface water, ground water and ordinary water courses. With respect to the Thames Tideway Tunnel Project, the LLFA seeks to ensure that the necessary arrangements are put in place to ensure that the proposed construction works do not have an adverse effect on water resources and that any risk of flooding arising as a result of the works or operation of the infrastructure are properly assessed and managed.

3.222 In this regard, we are covering for the following:

- The control of pollution to surface water, groundwater and water courses
- The control on abstraction

3.223 Ground treatment and dredging

- Flood risk

3.224 **Groundwater:** The Environmental Statement (Volume 20 para 13.2.4a) refers to bunded stores for fuel/oil that will be held on site in accordance with

the Construction Code of Practice to prevent spillages and subsequent contamination of groundwater and surface water. However, the proposed plans of the site do not show this facility.

3.225 Also, to prevent silty water from entering watercourses, surface water, drains and the roads a reference is made in the document for the use of settlement tanks but again no areas have been indicated in the applicant's illustrative drawings for this facility.

3.226 Part of the site has been identifies to have been historically used for tar, creosote and pitch works. Appropriate construction measures need to be provided to ensure there is no adverse effect upon workers and adjacent property.

3.227 Further information and clarification on above will be required in advance of construction and should be required through requirements.

3.228 **Site Drainage:** According to the Code of Construction Practice (Section 3.1), permeable paving should be incorporated to all temporary hard standing, as much as reasonably practicable, if there is no pollution risk from ground/water contaminates.

3.229 The document says all site drainage will be discharged to existing mains combined or foul sewers and if that is not practicable they will be directed to settling tanks and separators prior to discharge to existing drains. It also states there is no significant adverse effect identified due to surface water and no mitigation is required. The LLFA would like to see further details, secured by requirement, of areas in the proposed plans designated for permeable paving in compliance with the COCP. A description is also required of the areas of hard standing required for maintenance access that are likely to be used to reduce surface runoff rate.

3.230 **Code of Construction Practice:** In assessing the Code of Construction Practice Part A (General) and Part B (Site Specific) for each site, we observed the following points were significant for water resources and would like to have more detailed mitigation measures from Thames Water:

- To undertake works and implement working methods to protect surface water and groundwater from pollution.
- To protect the integrity of the flood defences in accordance with legislative requirement and industry guidance.

3.231 We note that various measures have been proposed to address;

- Preventing pollution of groundwater resources
- Protecting water courses
- Controlling pollution of surface water
- Flooding from various sources.

3.232 We do however wish to propose the following measures to further manage flood and pollution risk associated with construction and operation of the infrastructure on all sites in order to mitigate the impact of the project:

- The proposed structures and temporary structures required for works should consider rain gardens and water butts to attenuate surface water runoff. Construction of structures for air management, noise enclosure,

electrical and control kiosk should include a combination of green roofs and rain gardens.

- We would like to see initial calculations showing estimates of expected storm water, the amount that can be infiltrated onsite and the amount that will be discharged offsite.

3.233 **Surface Water:** For brownfield sites, or previously developed sites, the existing rate of surface water discharge must be reduced by a minimum of 50%. Our recommended approach is as follows;

3.234 Firstly, an assessment of the existing rate of discharge from the site should be calculated using the annual exceedance probability (AEP) in the table below.

Site Characteristic	Annual Exceedance Probability (AEP)	Equivalent Return Period
Average site ground slope greater than 1%	100%	1 in 1 year
Average site ground slope 1% or less	50%	1 in 2 year

3.235 The rate of surface water discharge for the 1% AEP design event (1 in 100 year return period) from the proposed development site (including an allowance for climate change of 20% allowance for non-residential developments) should be limited to a maximum of 50% of the above calculated brownfield rate. The difference in these flow rates will inform the need for some form of attenuation.

3.236 The general requirement for the management of surface water runoff is as follows and should be applied in that hierarchy. Measures lower the order should be applied only if it's proven that other higher order measures cannot be applied.

1. Harvest rainwater for use at a later time
2. Apply infiltration techniques where soil conditions will permit
3. Use ponds or open water features to attenuate rainwater for gradual release after the storm
4. Attenuate rainwater by storing in tanks sealed water features for gradual release after the storm
5. Discharge rainwater direct to a watercourse where possible
6. Discharge rainwater to the sewer network

3.237 **Groundwater:** Where the site has groundwater or soil contamination, use should be made of an impervious liner to prevent transfer of contaminant. Otherwise, additional leachability testing and hydrology modelling should be undertaken to confirm that the contaminants of interest would not be mobilised by storm water.

3.238 **Control of pollution to groundwater:** Provide protection measures to control the risk of pollution to groundwater through activities which cause cross-contamination either by upper and lower aquifers being connected together or by the movement of groundwater of different qualities.

3.239 Ensure that handling of excavated material from shafts and tunnels goes through the appropriate treatment processes and its storage does not lead to the pollution of groundwater.

3.240 Ensure materials used in the permanent or temporary works are not hazardous pollutants of groundwater.

3.241 Ensure ground treatment techniques do not affect both groundwater resources and water quality.

3.242 **Sustainable Urban Drainage Systems (SuDS):** In general for all three sites (Shad Thames Pumping Station, Chambers Wharf & Earl Pumping Station), the removal and restoration of hard standing areas in the carriageway and footway (e.g. coach and car parking bays, relocation of existing bus stops, modification of existing accesses, etc.) should determine source control SuDS requirements in discussion with the borough's Design Quality Manager and Flood Risk Manager. Possible measures are:

- Rainwater harvesting with storage in geocellular tanks or gravel located under footway.
- Permeable block paving, porous asphalt
- Gravel or reinforced gravel surfacing (e.g resin bound or self-binding)
- Rain gardens within footway or protruding into road
- Filter strips, soft landscaping and extended tree pits
- Green walls where feasible

3.243 Surface water runoff should be restricted by the use of a mix of attenuation techniques to ensure there is no increase in flood risk to the surrounding area.

3.244 Welfare/Office accommodation, workshop and stores, storage and handling areas, and other temporary structures should include surface water attenuation using water butts.

3.245 Proposed facilities for drainage attenuation should include rain gardens. Pits of removed trees should be extended, if possible, to rain gardens. Southwark Council's Streetscape Design and Tree Pit Design Manual Guide provide guidance on design detail.

Flood Risk

Policy Framework

3.246 Core Strategy policy 13 sets out how the Council will allow development to occur in the Thames flood zone as long as it is designed to be safe and resilient to flooding and meets the exceptions test.

3.247 Saved Southwark Plan policy 3.31, Flood Defences, states that planning permission will not be granted for development sited adjacent to the River Thames unless it is set back at a suitable distance from the river wall to allow for the replacement/repair of flood defences and for any future raising to be undertaken in a sustainable and cost effective manner. Nor will permission be

granted for any scheme that would undermine or breach flood defences in any way.

Applicant's Assessment

3.248 The cofferdam would be constructed in the foreshore to the same height as the existing flood defence and the flood risk assessment has found that there would be no change in flood risk as a result of construction works. Therefore no significant effects are predicted in respect of flood risk.

Impact

3.249 Currently there is a risk of tidal/fluvial, surface water and sewer flooding at the site and the proposed development has the potential to change the level of risk associated with all sources of flooding. The above is however not acknowledged by the Flood Risk Assessment (FRA) and suggests there is no change in flood risk.

3.250 The LLFA recommends that notice is taken of the following;

3.251 At brownfield sites such as this, site drainage shall comply with the Mayor of London's Surface Water Management requirement as follows:

- Use Sustainable Drainage Systems measures, wherever practical
- Achieve 50 per cent attenuation of the undeveloped site's peak surface water run-off.

Ecology

Policy Framework

3.252 Core Strategy policy 11, Open space and Wildlife, states that the Council will require new development to avoid harming protected and priority plants and animals and help to improve and create habitat.

3.253 Saved Southwark Plan policy 3.28, Biodiversity sets out how the Council will take biodiversity into account in its determination of all planning applications and will encourage the inclusion in developments of features which enhance biodiversity, requiring an ecological assessment where relevant.

Applicants Assessment

3.254 The River Thames provides an important habitat for river ecology. Due to the temporary loss of foreshore habitat associated with the in-river work, there would be a significant adverse effect on river based ecology.

3.255 Disturbance of habitats and species due to barge movements would be over a limited area and would not be significant.

3.256 Control measures would be put in place, including noise screening and avoiding direct lighting of the river and no significant adverse effects are therefore predicted. Such controls would also ensure there are no significant effects on land based species such as bats and wintering birds.

Impact

3.257 Section 11 of the Construction Code of Practice General Requirements addresses ecology (aquatic and terrestrial). This is supported by the Environmental statement and appendices.

3.258 The Chambers Wharf site is a brown field site with little vegetation or trees present. The procedures are considered to be appropriate with regards to most species. There are however a number of species that are particular to this type of environment most notably the Black redstart and invertebrates.

3.259 Bat surveys are valid for a year so further bat surveys will be required. This should include both roosting and activity surveys. It would help greatly if the timings of bats recorded over both Shad Thames and Chambers Wharf are included. This is so we can establish how close to the sites they are. The Continued surveys will be required to meet Para 11.4.11 of the CoCP on lighting.

3.260 With regards to Black redstarts Section 11.4.8 of the CoCP must be applied and should be supported by surveys during the Black redstart nesting season. There are a number of records of Black restart recorded in both the Shad Thames and Chambers Wharf areas.

3.261 Protection of the water course is more difficult to comment on in the absence of details on how the construction of the cofferdam and wharf will be undertaken. It would be expected that strict measures are taken to avoid any construction materials and lubricants polluting the river.

3.262 Further information on the design and construction of the cofferdam will be required to assess any environmental impact. A method statement for the demolition of the river wall will be required, as mentioned before a structure remains on Chambers wharf it would be expected that any plans for this structure are set out as soon as possible. Further bat and nesting Black redstart surveys are advisable.

3.263 The details of measures to manage air pollution appear to be left to later through the production of air quality management plans produced by the contractors.

3.264 It is advisable to consider soft landscaping solutions to this problem by installing green hoarding and planting of mature evergreen hedges.

3.265 It is also advisable at Chambers wharf to sow a grass and wildflower mix on the bare ground to reduce dust which would arise from bare ground.

3.266 CoCP B: The protection of the riverbed measures are fine as is the proposal for restoring the foreshore. It would be good to include creation of ecological features in the new river wall that is proposed in the design and access statement. There is a structure remaining on the site which should be checked for roosting bats before works commence.

3.267 **Pollution Prevention:** The project should minimise the use of toxic and potentially polluting substances such as herbicides, pesticides, fertilizers and petroleum products before, during and after construction to prevent the likelihood of spills and possible misuse leading to pollution of groundwater resources and water bodies.

3.268 Materials like chemically treated ties, timber and galvanised metal should not be used as components of storm water systems as they can leach pollutants or pose a risk to human and wildlife.

3.269 The feasibility of designing new parking areas with storm water systems for treatment and discharge should be considered at every opportunity on the project.

3.270 Infiltration systems should be set back 5m from a property to protect the building and its foundation.

3.271 **Mitigation:** To help to offset the adverse impacts of the proposals, including upon ecology and noise, the following mitigation measures are required.

3.272 To reduce noise and air pollution Green hoarding should be used around the site. Ivy is a good plant for the green hoarding. Other climbing plants could be planted to provide ecological interest such as honeysuckle.

3.273 Creation of ecological features within a 250 M radius of the development will help mitigate against the impact of the works and for the increased air and noise pollution.

3.274 The following features should be included:

- Planting of native evergreen hedges
- Planting of trees
- Creation of Green walls on housing estates
- River wall enhancement to include ecological niches in the new wall
- Creation of meadow on Chambers Wharf site to suppress dust
- Creation of meadows in surrounding area.

Impacts on local schools and the education of local children

Applicant's Assessment

3.275 Chapter 10 (Socio-economics) of the ES considers the impacts of the proposed works at Chambers Wharf on the three schools located in close proximity to the site[14]. These being:

- Riverside Primary School
- St Michael's Secondary School
- St Josephs Primary School

3.276 The ES (Para. 10.4.22) recognises that children are generally considered to be relatively more sensitive in comparison to adults to certain amenity related impacts, particularly with regard to effects on their learning capabilities related to noise from sources of road traffic. The ES goes onto conclude that pupils and employees of the schools would have a medium level of sensitivity to impacts.

3.277 Turning to specific impacts the EA considers that:

[14] The location of the schools is shown in Volume 20 Figure 10.4.1 of the Environmental Statement

3.278 **Air quality:** There would be minor adverse air quality effects at the Riverside School building and negligible effects at the outdoor teaching area. Air quality impacts at St Michaels and St Josephs Schools would be negligible. Dust impacts would be negligible at all three schools.

3.279 **Noise and Vibration:** Noise effects would not be significant at St Michaels School. Noise effects have not been considered for the other two schools.

3.280 **Visual:** No visual receptors have been identified as requiring assessment in relation to the schools.

3.281 The ES goes onto to conclude that the overall amenity impact magnitude upon the schools will be low with the only significant impacts reported to be minor adverse impacts upon Riverside Primary School due to air quality.

Southwark's assessment of local Impact

3.282 The approximate number of pupils at each school are:

School	Number of pupils
Riverside Primary School	320
St Michael's Catholic College	750
St Josephs Roman Catholic Primary School	345

3.283 Of the three schools, Riverside Primary and St Michaels Primary School have the potentially to be most affected by the construction works being located closest to the site. However, whilst St Josephs School is located the furthest from the site, school children will be affected on their way to and from school by the high levels of construction traffic (both HGVs and light vehicles) resulting in safety concerns, particularly for pedestrians and cyclists.

3.284 Whilst noise and vibration effects have been considered for St Michaels School, they have not been considered for either Riverside or St Josephs Schools. The ES states (paras. 9.4.6/7) that this is because St Michaels school is the closest non-residential receptor to the site and beyond this there are other sensitive properties which are screened from the site by intervening buildings, or are located further from the site than the buildings in the assessment (including Riverside School which has been considered as a *secondary receptor* to 1-13 Loftie Street. This does not take account of the following factors:

- Riverside School is located adjacent to the Bevington Street and therefore will be subject to noise impacts from construction traffic as well as site works.
- The single storey class rooms at the front of the school site are located with windows only a few matters from the edge of the Bevington Street highway.
- The building is old and requires windows to be opened for ventilation and cooling on warm days.
- The school is close enough to the site to receive significant impacts from the proposed works.

3.285 The Council also disagrees that pupils and employees of the schools should be considered as having a high level of sensitivity to impacts from the proposed works, rather than a medium level of sensitivity as stated in the EA.

The ES underplays the proximity of the schools to the application site and construction traffic routes (particularly Riverside and St Michaels's Schools), the need for windows to be opened during warmer periods, the importance of education to a child's life and the need for a quiet and undisruptive atmosphere to enable concentration levels and a suitable learning environment.

3.286 The construction works are programmed to continue for at least six years, and may take even longer given the complexities of a project of this magnitude. Six years represents a very long period of time in the education of a child going through school. It needs also to be borne in mind that once the Thames Tunnel works are complete there is likely to be a further two to three years of intensive construction activity for the permitted residential development upon the site, in addition to the construction activity currently ongoing on the land to the south of Chambers Street, adjacent to both Riverside and St Michaels Schools.

3.287 The World Health Organisation (WHO) has produced guidelines [15] on *community noise,* including sources of noise from construction sites and road traffic. The guidelines highlight the impacts from noise pollution, including performance effects, physiological effects, annoyance and interference with intended activities. In relation to children, the WHO states that noise can adversely affect performance of cognitive tasks with reading, attention, problem solving and memorization among the cognitive effects most strongly affected by noise.

3.288 The WHO guidelines suggest that background noise levels should not exceed 35dB LAeq in class rooms and for outdoor playgrounds background noise levels should not exceed 55dB LAeq. The DfES guidelines for the acoustic design of schools[16] also set a level of 35dBLAeq as the recommended design standard for classrooms. For hearing impaired children, a still lower level may be needed.

3.289 With windows closed these internal noise levels would be met in relation to construction works, however when windows are open for cooling and ventilation, the internal noise levels would greatly exceed the guidelines at both Riverside and St Michaels Schools for works involving the demolition of the river wall and construction of the coffer dam.

3.290 The application documents including the ES propose that 90% of excavated or imported materials in relation to the construction of the coffer dam and tunnelling activities will be by barge. However, there is nothing in the application binding or committing the applicant and/or those implementing the project to this figure. This is a significant concern, as it has been demonstrated in the noise study by Bureau Veritas commissioned by the Council (Appendix 2) that even a small decrease (as little as 2%) in the proportion of materials moved by barge will result in significant noise impacts upon Riverside Primary School along with other residential receptors. Given the long period of construction works and the proximity of class rooms at Riverside School to Bevington Street this will have an adverse effect on the concentration and learning ability of pupils and would be unacceptable.

[15] World Health Organisation – Guidelines for Community Noise 1999
[16] DfES Building Bulletin 93: Acoustic Design of Schools 2003

3.291 Even if traffic movements are restricted to the levels outlined in the application (peak levels predicted to be 110 HGV movements per day and 504 light vehicle movements and typically 70-80 HGV movements per day for a 18 month period of the works[17]) the resulting noise impact will adversely impact upon the learning environment of pupils.

3.292 Whilst the ES includes a high level assessment of the impacts upon the *amenity* of the schools (missing out noise impacts on Riverside and St Josephs Schools), the application does not consider in any detail or depth, the impacts of the construction works upon the learning environment and experience of children at the schools including impacts upon concentration, reading, memory and attention.

3.293 During examination times, disturbance from construction noise and vehicular activity is will be most acute for pupils sitting the exams and could have far reaching consequences should a pupil's performance be adversely affected. It is therefore essential that the noisiest construction activities are programmed so they do not occur during school examinations.

3.294 Whilst the ES predicts that minor adverse air quality impacts will result for Riverside Primary School, no assessment has been made of such impacts would impact upon the health of pupils, or of existing health conditions such as asthma at the schools. Located in an Air Quality Management Area any increase in impacts upon local air quality is a significant concern, particularly so close to local schools.

3.295 Many school children also live within the vicinity of the site and so will not only be affected at school, but will also be affected at home and play in the local area. In assessing the impacts on school children, consideration should be given to the overall cumulative impact rather than looking individually at each specific impact in isolation. Taking the overall impacts into account, the most acute impact will result for the pupils at Riverside Primary School where impacts from noise, air quality, visual, and highway safety will all result. These impacts would be extenuated through the uncertainty provided in the application details on the details of works and vehicle movements.

Southwark Plan

Applicants Assessment

3.296 The applicant's Health Impact Assessment concludes that the main potential health and wellbeing impacts are from changes to the following determinants:

- Access to open and green spaces and physical activity,
- Air quality, noise and vibration,
- Quality of life,
- Personal safety and security.

3.297 The health-related design measures that have been developed and incorporated into the project's design and management, to mitigate the potential negative health and wellbeing impacts, are likely to ensure that the significance of the residual negative impacts are negligible to minor adverse.

[17] Volume 20 Plate 12.3.1 (Transport – estimated construction lorry profile) of the ES.

Impact

3.298 Given the disruption resulting from the construction works over a period of six years or more, the works have the potential to result in significant impacts upon health and well-being of residents in the vicinity of the site, as well those who use the area including for education, leisure, work, business and primary care.

3.299 In addition to those listed by the applicant, the Council considers that climate change, perception of risk and waste generation are also material determinants as they may exert an adverse impact on health during the construction works.

3.300 As well as considering the impacts on the physical health, the Council also considers that the impact on psychological well being is also very relevant, although this has not been adequately considered within the application. The impacts on the psychological well-being of those whose everyday life will be affected and constrained by a construction project of the duration and intensity proposed. It is well recognised in medical literature that the psychological impact of events as subjectively perceived exerts effects on physical as well as mental health. Some of the pathways by which these effects are created are summarised in Figure 1 below.

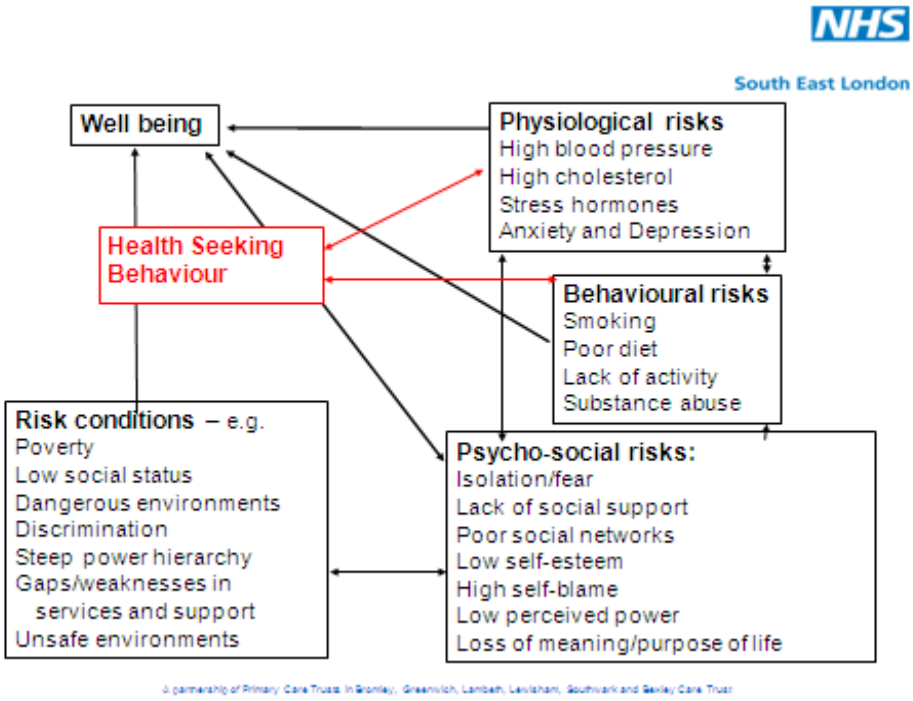


Figure 1

3.301 The application documents considered in the drawing up of this response were:

1. Health Impact Assessment,
2. Environmental Statement – Non Technical summary
3. Environmental Statement – Volume 20: Chambers Wharf site assessment
4. Code of Construction Practice (Parts A & B)
5. The Thames Tunnel Guide to Compensation

3.302 The area around Chambers Wharf is characterised by a high residential density as well as a high in flow of people to the area visiting schools, businesses and other facilities. The net result of this is that a large number of people will be affected by the construction works at Chambers Wharf. One the Thames Tunnel works are complete it is likely that a further three years of construction works will take place on the approved residential scheme (approximately 300 dwellings).

3.303 The community profiles (based on 2001 Census data) state that there are 34,375 people living within 1 km of the site and 2,500 within 250 metres. There is a higher than average (for Southwark) proportion of older people (15%). Across the whole population 16.5% suffer from long term limiting illness. There is a relatively high level of socio economic deprivation within 250 m of the site**.**

3.304 Within 250 m of the site there are approx. 14,000 jobs and 260 businesses and three schools. St Michael's Secondary Schools has approximately 750 pupils, Riverside Primary School has approximately 318 pupils and St Joseph's Primary has approximately 315. Each of the schools has been rated as outstanding by OFSTED – a very considerable achievement for schools serving a relatively deprived inner city area.

3.305 There is also a busy general health practice at 1 Wolsey Street with approximately 5700 registered patients. In addition, just to the south of Jamaica Road, there is a third primary school, St James Primary School and 32 units of sheltered housing for older people at 1-63 John Rolls Road.

3.306 On any given day therefore, the number of people in the area over and above the existing residents, will be considerably swelled. Although some children, young people and school staff may live locally, most of the school population, and the supplies/contractors needed for the school infrastructure, will need to enter the area on a daily basis during term time. In addition there will be parents and carers escorting younger children; commuters, and patients visiting the GP practice for consultations and clinics. All this in an area which is bounded on two sides by water (St Saviour's dock and the Thames), thus having a limited number of access roads.

3.307 Given the high residential density of the site and the numbers of other users, the Council considers that the magnitude and intensity of the construction works will impact unacceptably upon people's quality of life, giving rise to long term conflicts of interest between the Thames Tunnel project, local residents and other users of the area. Residents of Axis Court, Luna House and 8-14 Fountain Square, Bevington Street and Chambers Street in particular will suffer significantly detrimental impacts over the life of the project from noise and vibration, light pollution, dust and loss of visual amenity. These impacts would be significantly reduced should the direction of the tunnel drive be reversed between Chambers Wharf and Abbey Mills.

3.308 If the scheme proceeds, many risks to health and well-being will need to be anticipated and pre-empted. The application states that the process of the Health Impact Assessment involved the development of health related design measures to mitigate the potential negative health and well-being impacts of the construction phase which have been have been integrated into the design and implementation of the project, particular via the CoCP Parts A and B.

3.309 Given the complexity of the project, and the number of unknowns and interactions between different elements of the project, further work is required to secure and implemented the health related design and management measures, and make sure they achieve their intended results. Ongoing monitoring will also be required. It is also essential to ensure that at the local level, when more specific guidance is developed that the links to mitigation/avoidance of negative health impacts are retained (or indeed the enhancement of positive impacts) and that these documents not simply become technical manuals in which the impacts on health and well-being have been lost.

3.310 It is also important for local people to understand what is being done to avoid adverse impacts and to be able to ensure that the construction companies are fulfilling their obligations. A key component to this is how the community liaison group is recruited, supported and deployed and the information will flow from the project to the group and the wider community.

Mental Well-Being Assessment:

3.311 In order to ensure that the impact of the scheme upon mental well-being, and by extension, quality of life, has been fully considered, the Council has conducted a scoping Mental Well-being Impact Assessment (MWIA) covering a wide variety of quality of life issues, along with suggestions for mitigation. This assessment is attached as Appendix 3 and summarised below:

3.312 Mental wellbeing is about how we all think, feel, behave and function. It is fundamental to achieving a healthy, resilient and thriving population. It underpins healthy lifestyles, physical health, educational attainment, employment and productivity, relationships, community safety and cohesion and quality of life. Action to improve mental well-being will therefore contribute to a wide range of positive outcomes for individuals and communities in addition to the prevention of mental health problems.

3.313 Mental Well-being Impact Assessment (MWIA) is an established, evidence-based methodology for assessing the potential for projects and proposals to impact on the mental well-being of a population.[18]Full MWIA supports effective community engagement and the outcome of the process is a range of evidence based recommendations aimed at strengthening the positive and mitigating against the negative impacts. It also incorporates mechanisms for measuring and monitoring outcomes to ensure that recommendations are followed and their outcomes recorded. Screening is the first stage.

3.314 The core protective factors for mental well-being used in MWIA are grouped under three areas:

- Enhancing control
- Increasing resilience and community assets
- Facilitating participation and promoting inclusion

[18] More on MWIA at the Health Impact Assessment Gateway
http://www.apho.org.uk/resource/view.aspx?RID=70539

3.315 A wide range of potential impacts on the determinants of mental well-being on the entire population over many years (seven?) duration were identified by the screening.

3.316 Significant potential negative impacts on the wider determinants of mental well-being were identified including housing, transport, noise, feelings of safety, ability of children and local people to use amenities and play areas, and impairment of the quality of the local environment. There were some potential positive impacts in terms of access to training and employment for local people and additional trade for local businesses.

3.317 In summary, with a particular focus on early years, adolescence, older people and people with disabilities, it is important to identify how to:

a) Mitigate **potential negative impacts**:

- on young people's learning and education
- on the ability of both older and younger people to feel safe to move around and use the local area and public spaces
- by ensuring less vocal residents are not further marginalised.
- by preventing the development of a general sense of having no control or ability to make any difference to the project and how it impacts on local people.

b) Maximise the **potential positive impacts by:**

- making the best use of opportunities for local employment and local economy
- ensuring that there are ongoing opportunities for local people to have a voice and feel that there are some aspects of mitigation that they identify as being important and that they can make a difference to and derive benefit from
- creating a sense of belonging and common bond in the local community through realising its ability to take collective action
- investing in building a positive respectful relationship between Thames Water, its sub-contractors and the local community

3.318 MWIA screening is an initial process to see if it is worthwhile undertaking a full MWIA but is a useful standalone short assessment in its own right. The Council recommends that a full MWIA is undertaken prior to work beginning on the Chambers Wharf site. This will be a valuable opportunity to listen to the concerns of residents and ensure that mitigation is undertaken which will be effective in improving the quality of life in the area and alleviating the many fears and concerns which will arise as the commencement of the project becomes closer.

3.319 Key issues and recommendations for mitigating adverse impacts on health are set out in Appendix 4.

Cumulative Impacts

Applicant's Assessment

3.320 No other developments are planned during the same time frame that would interact with the construction of the project as the site and so no significant cumulative effects have been identified.

Impact

3.321 The application has not properly assessed the cumulative impacts of the development. It has not assessed the continuing implications of the proposals being carried out alongside the construction of the residential properties to the south of Chambers Street and the construction of the remainder of the residential development on the site itself following the completion of the Thames Tunnel Works.

3.322 The application has also not adequately assessed the cumulative impacts of all the individual specific impacts upon people living, working and learning in the vicinity of the site.

Summary of required mitigation at Chambers Wharf

3.323 In addition to the lack of enforceable construction layout and detail in the applications drawings and details, the council is also of the view that the proposed mitigation measures (including the draft list of requirements and s106 obligations) are wholly inappropriate and, should consent be granted for the scheme in the current form (to which the council objects), would not provide appropriate safeguards, offset impacts, or protection measures to safeguard residents, schools and highway conditions within the surrounding area. Even should the proposals be amended so Chambers Wharf becomes a receptor site and is no longer utilised as a drive site, a range of additional requirements and obligations would be required.

3.324 In addition to those suggested in the application (which themselves require amendment), additional requirements and obligations would also be required. These include the following. Where these cover areas for which requirements exist in the draft DCO, those requirements and any documents to which they refer will require to be amended to make them consistent with the principles set out below.

Proposed Draft Requirements (Should consent be granted)

Construction phases

1. Prior to the commencement of each phase of construction works, a Construction Environmental Management Plan (CEMP) shall be submitted to and approved by the Borough Council. The CEMP will adhere to the approved Code of Construction Practice (Parts A & B).

2. The construction works shall be carried out in accordance with the approved (CEMP) with any subsequent variations being firstly agreed in writing by the Borough Council.

   The CEMP submitted for approval shall include the following:

   a) Pollution incident response plan
   b) Emergency preparedness plan

c) Lighting management plan
d) Traffic management plan
e) Noise and vibration management plan
f) Air quality management plan
g) Water management plan
h) Site waste management plan
i) Ecology and landscape management plan
j) Heritage management plan
j) Community liaison plan
m) Resource management and sustainability plan

**Note: This assumes that the CoCP (Parts A & B) has been agreed by the relevant parties prior to the end of the examination period. Should this not the case, an updated CoCP will need to be submitted to and approved by the relevant Local Authorities (in consultation with the Environment Agency, TfL, Natural England and English Heritage) prior to the commencement of any works.*

3. Detailed drawings of the layout of the site for each phase of the construction works shall be submitted to and approved by the Borough Council prior to the commencement of each phase of works. These details shall include the layout and siting of all buildings, structures, plant, working areas, storage, parking (for vehicles and cycles), turning space, access roads and manoeuvring areas. The construction works shall be carried out in accordance with the approved details with any subsequent variations being firstly agreed in writing by the Borough Council.

4. If, following approval, any of the facilities needs to be moved, the Borough Council shall be given 14 days notice of any intended move. Unless the Borough Council gives notice to the contrary within that period, the move can take place.

**Note: This condition overrides the provisions of Part 4 Class A of Schedule 2 of the Town and Country Planning (General Permitted Development Order) 1995.*

5. Before any of the following construction facilities are installed, or brought into use on the site, details of the siting, height and external appearance of that facility shall be submitted to and approved by the Borough Council:

   a) Any building or structure greater than 3 metres in height or a footprint of 25 sq ms,
   b) Concrete batching plant.
   c) Site power structure.

6. Elevation drawings of all buildings and structures on the site for each phase of construction works shall be submitted to and approved in writing by the Borough Council prior to the commencement of each phase of works. The construction works shall be carried out in accordance with the approved details, with any subsequent variations being firstly agreed in writing by the Borough Council.

7. Details of sound attenuation specifications for all buildings, structures and containers used for each phase of the construction phases shall be

submitted to and approved in writing by the Borough Council prior to the commencement of each phase of works.

8. Details of all site hoardings, including noise attenuation specification, location, materials, height and design shall be submitted to and approved inn writing by the Borough Council prior to the commencement of construction works. Any subsequent variation to the approved details shall first be submitted to and approved in writing by the Borough Council.

9. Details of all external lighting, including luminance, light contour drawings and times of operation shall be submitted to and approved in writing by the Borough Council prior to the commencement of construction works. Any subsequent variation to the approved details shall first be submitted to and approved in writing by the Borough Council.

Construction noise and vibration

10. No works shall commence until a scheme for noise monitoring, assessment and mitigation for all construction plant and processes has been submitted to and approved by the Borough Council.

11. The scheme shall include:
    - The identification of noise sensitive premises to be used as the location for noise monitoring,
    - A methodology for monitoring noise to ensure compliance with Requirement 9,
    - The location of representative monitoring points outside residential properties and schools,
    - Contingency measures to be taken if noise limits specified in requirement 9 are exceeded,
    - The noise parameters to be measured,
    - The arrangements for reporting the results of noise monitoring to the Local Planning Authority,
    - The arrangements for submitting applications for consent under s61 of the Control of Pollution Act 1974,
    - The arrangements for implementing mitigation measures during construction for sensitive premises.

12. Noise from construction works shall give rise to noise levels no higher than 65dB LAeq (1 hour) and 70dB LAeq (1 minute) at any educational premises measures at 1m from the facade of the building during school hours in term time.

13. Noise levels at any residential property shall not exceed:

    Phase 1: From 8.00am to 6.00pm –
    From 6.00pm to 10.00pm-
    From 10.00pm to 8.00am-

    Phase 2: From 8.00am to 6.00pm –
    From 6.00pm to 10.00pm-
    From 10.00pm to 8.00am-

Phase 3: From 8.00am to 6.00pm –
From 6.00pm to 10.00pm-
From 10.00pm to 8.00am-

Phase 4: From 8.00am to 6.00pm –
From 6.00pm to 10.00pm-
From 10.00pm to 8.00am-

Phase 5: From 8.00am to 6.00pm –
From 6.00pm to 10.00pm-
From 10.00pm to 8.00am-

Phase 6: From 8.00am to 6.00pm –
From 6.00pm to 10.00pm-
From 10.00pm to 8.00am-

14. No works shall commence until a schedule of premises containing people or equipment potentially sensitive to disturbance from vibration, or any buildings potentially at risk of damage from vibration, has been submitted to and approved in writing by the Borough Council. This shall be accompanied by proposals for monitoring vibration levels, where necessary, ensuring that vibration levels do not exceed the thresholds set out in the Code of Construction Practice and that appropriate mitigation or remedial measures are to be employed.

15. Prior to the commencement of Site Demobilisation Works (Phase 5) details of site restoration and landscaping works, along with a timetable for their implementation and an on going management plan shall be submitted to and approved in writing by the Borough Council. The site restoration and landscaping works shall be carried out in accordance with the approved details unless otherwise agreed in writing by the Borough Council.

. a) Prior to undertaking any excavation a Site Specific Archaeological Written Scheme of Investigation for a programme of archaeological evaluation works (WSI) (which shall accord with the Overarching Archaeological WSI) shall be submitted and approved in writing by the local planning authority.

. b) The archaeological works shall be undertaken in accordance with the Site Specific Archaeological WSI and carried out by a suitable qualified person or body.

. a) Prior to the commencement of any works, a site contamination investigation and remediation strategy, according with CoCP Part A, along with a programme for its implementation, shall be submitted to and be approved in writing by the Borough Council in consultation with the Environment Agency. The investigation and remediation works shall be carried out in accordance with the approved strategy.

b) If, in undertaking any works on the site, contamination not previously identified is found to be present, then unless otherwise agree in writing by the Borough Council, no further development or works shall be carried out in the part of the site in which the contamination has been identified until a remediation strategy has

been submitted to and approved in writing by the Borough Council, in consultation with the Environment Agency. The remediation works shall be carried out in accordance with the approved strategy before re-commencement of the works.

Air Quality

16. Monitoring of air quality throughout the duration of the works and adjustments to the method of working and transportation to ensure maximum pollutant levels are not exceeded.

Operational Phase

17. Regular air management performance checks to be conducted throughout operation.

18. Site Operation Manual to be submitted for approval and relevant data to be submitted on an annual basis.

19. Environmental Management System to be approved and implemented.

20. Acoustic report detailed rated noise level from any plant, together with any associated ducting, to be approved, implemented and maintained.

Highways and Public Realm Mitigation Measures (including to offset impacts)

21. Requirements to cover:
    - Travel Plan to be implemented including measures to be specified
    - Local junction improvements (and/or contribution via obligation)
    - Signage improvements (and/or contribution via obligation)
    - Cycleway improvements (and/or contribution via obligation)
    - Pedestrian and public realm improvements (and/or contribution via obligation)
    - Wayfinding improvements (and measures during construction) (and/or contribution via obligation)
    - HGV impact monitoring and review scheme – including automatic number plate recognition system for tracking actual HGV movements, with commitment to clearly identifiable TTT vehicles (colours etc.)
    - Thames Tideway Tunnel (TTT) Local Transport Impacts Forum to be established including local residential, local business and local schools representation;
    - An annual report on travel plan's effectiveness to completion of construction phase;
    - Minimum of 90% of materials relating to Chambers Wharf to be transported by barge.

- Restrictions on construction traffic including routing, times, frequency, types of vehicles, signage and repair of highway.

4 Earl Pumping Station

Description of Site and Surrounding Area

4.1 Although Earl Pumping Station is located within the London Borough of Lewisham its northern and western boundaries are adjacent to the boundary with the London Borough of Southwark.

4.2 The site, measuring 0.6 hectares, is an existing Thames Water pumping station. Within Southwark, and adjacent to the west boundary of the site, there is a six storey building of flats on Croft Street (108-136 Chilton Grove) facing towards the site. Immediately to the north of the site on the opposite side of Chilton Grove, and also located within the London Borough of Southwark, is a four storey residential building (2-32 Chilton Grove) with gardens facing the site along with a further block of flats (1-39 Chilton Grove) located adjacent to the north west corner of the site. Beyond these buildings are further residential buildings including properties located along Chilton Grove which is a proposed vehicular access route to and from the site.

Relevant Planning History

4.3 There is no planning history within Southwark of relevant to the application proposals.

Application Proposals

4.4 A combined sewer overflow is proposed at this site to intercept an existing sewer which currently discharges sewage into the River Thames. Construction works are expected to last for four years, starting in 2017 and ending in 2021. Following demolition of the existing depot and industrial buildings, a shaft measuring approximately 51 metres wide and 17 metres deep will be constructed along with a chamber and culvert to transfer flows.

4.5 Plans have been provided with the application, but they are only illustrative and therefore provide no guarantee as to the actual layout of the site during the construction process. A significant element of the works are proposed in close proximity to the residential properties on Croft Street adjacent to the western boundary of the site.

Assessment of Local Impacts

Noise and Vibration

Applicant's Assessment

4.6 The ES recognises that significant noise impacts will result at 1-39 Chilton Grove, 108-136 Chilton Grove within the London Borough of Southwark. The ES does not predict that adverse impacts would result from vibration for properties within Southwark although this is dependent on ground conditions.

LBS Assessment of Local Impacts

4.7 Noise: The Council concurs with the conclusion that significant impacts would result from noise but considers that the applicant has underestimated the full extent of the impacts. A greater number of properties would be significantly affected by noise from the proposals including 2-32 Chilton Grove and other properties to the west of the site on Chilton Grove (e.g. 70 to 106 Chilton Grove) which would also be adversely affected from traffic noise in connection with the construction works, the impacts of which has been underestimated in the application. For example, the traffic noise would be particularly acute for those properties close to the application site on Chilton Grove due to the additional noise impacts of vehicles accelerating as they move away from the site.

4.8 The application notes that [19] the owners of properties that would affected by noise ***may*** be eligible to apply for noise insulation through the *Thames Tideway noise insulation and temporary re-housing policy* and that application of these measures would mean that there would be no significant noise effects. The application goes onto state that *where the noise level would not trigger the provisions for noise insulation* ***some*** *of the properties may be* ***eligible*** *for compensation through the Thames Tideway Tunnel Compensation Programme. Where this is the case the noise effects would remain significant.* This ambiguity offers no reassurance to the Council or residents as to how the impacts will be controlled and mitigated. The noise and re-housing policy does not set appropriate criteria for residents to apply given the noise impacts that would result and is flawed in its operational requirements. The same is applicable to the Compensation Programme which does not appear to enforceable under the currently proposed terms of the draft DCO.

4.9 The lack of detail on how the construction works will progress, the use of only illustrative plans, the need further controls within the Code of Construction Practice and the lack of the necessary rigidity in how mitigation will be provided and enforced extenuates these concerns.

4.10 As with other matters, the detail provided with the application is generally unsatisfactory and the Council reserves the right to make further comments on noise impacts when it has assessed the further information to the supplied by the applicant in response to the First Written Questions.

4.11 Vibration: Whilst the Environmental Statement indicates that vibration levels would not reach a level which could cause impacts on residents amenity, it notes that specific ground conditions encountered would not be known until piling is underway. It may therefore not be possible to use low impact vibration methods. This is a significant concern for residential amenity and, from the information available, it is not possible to determine whether or not adverse impacts would result from other methods of vibration. This concern is extenuated by the lack of any robust measures within the draft DCO, CoCP, requirements and s106 as proposed in the application to ensure that the contractor will utilise low vibration piling methods unless it is absolutely not possible. If it should not be possible to use these methods, there is then serious risk of further significant impacts upon the surrounding area for residents. Furthermore, the Thames Tunnel compensation programme is not sufficiently robust to offset the significant impacts.

[19] Para 24.3.8 of the Environmental Statement Non-Technical Summary

Transport

Local area context

4.12 The proposed site is bounded by a developing residential neighbourhood still retaining some light industrial uses within the London Borough of Lewisham. Significant development is planned in the vicinity of the site at Convoys Wharf and Marine Wharf East. To the north in Southwark the Canada Water area which is undergoing significant growth and the strategic road network is expected to be re-configured to facilitate this.

Point of concern:

4.13 Any assessment of the traffic impacts of the site needs to take into consideration the projected growth planned for the wider area, both in Lewisham and Southwark as well as planned changes to the highway network.

Traffic context

4.14 Although Earl Pumping Station (EPS) is located within the London Borough of Lewisham, significant traffic impacts will be felt across the border in Southwark on the strategic road network, specifically the Lower Road gyratory.

4.15 The A200 Lower Road / Jamaica Road corridor is a key strategic route for traffic accessing central London. This corridor will form part of Barclay's Cycle Superhighway Route 4 (CS4) from 2015.The A200 is a busy bus corridor with multiple routes linking to the transport interchange at Canada Water.

4.16 As well as the impacts from EPS, the same corridor is the designated construction route for the proposed drive site at Chambers Wharf.

Point of concern:

4.17 The combined effect of EPS and Chambers Wharf has the potential for significant local impacts in Southwark and will affect a wide range of road users.

4.18 As detailed in the Transport Assessment[20], vehicles accessing the EPS site on Chilton Grove are expected to use the Lower Road gyratory system. As identified in the Canada Water Area Action Plan, the current road layout is relatively impermeable with regards to local access. For example, vehicles wishing to access Chilton Grove from the south east are required to take a convoluted route via Evelyn Road, Bestwood Street, Bush Road, Rotherhithe New Road, Rotherhithe Old Road, Lower Road and Plough Way. Assuming larger vehicles must stay on the SRN, negotiating the one-way system is currently unavoidable.

4.19 The gyratory system lacks resilience – even minor traffic events can cause significant disruption which is compounded by the complexity of the network in the area. Any disruption at the Rotherhithe tunnel has significant

[20] TTT Transport Assessment, Earl Pumping Station, Thames Water, January 2013, 22.2.16

consequences for the wider network as does disruption to alternative river crossings.

4.20 The geometry of the Lower Road gyratory, although adequate, is far from ideal for larger vehicles to negotiate, in particular the 180 degree turn from Rotherhithe Old Road into Lower Road.

Point of concern:

4.21 The Lower Road gyratory suffers from congestion at peak times and lacks resilience generally. Any additional traffic generated by the EPS site will exacerbate this issue.

4.22 The council has plans to address a number of the above issues by re-configuring the road network, removing much of the one-way system. Nonetheless, all major junctions are expected to remain near capacity when local traffic growth is considered. The aspiration for CS4 is to provide dedicated road space for cyclists on Lower Road and this may reduce effective capacity for other traffic.

Point of concern:

4.23 Given the pressures on the network at peak times it is desirable to limit any additional trips to and from the proposed site, especially HGV trips, to the off peak period. This measure will also be essential to reduce potential conflict between large vehicles from the site and very high level of cyclists traversing the area on CS4. Additionally, it would be appropriate for the TTT project to make a financial contribution toward CS4 / gyratory removal, in order to mitigate these impacts.

4.24 The TA suggests that the maximum number of additional lorry movements from the site will be 68 per day[21], with 146 vehicle movements overall[22]. Traffic generated by the pumping station site will directly impact the strategic roads in the Rotherhithe area. While these impacts alone have the potential for negative impacts on congestion and safety, they cannot be considered in isolation, but rather the combined impact of both this site and the Chambers Wharf site on the strategic road network must be considered.

4.25 Limited modelling work has been carried out to support the proposal, with only the junction of Lower Road and Plough Way covered[23]. This junction is a key node in the surrounding gyratory system and any impacts here are likely to be replicated across the wider area. The TA suggests that only a single additional lorry movement would affect Lower Road[24] and that this would result in a negligible impact at the Plough Way junction, however this calculation lacks transparency.

4.26 The council has carried out its own analysis in relation to the impact of TTT site traffic on the Lower Road gyratory system. A traffic model has been developed for this area as part of plans to revise the local network. Various scenarios relating to TTT impacts have been tested against this model, with

[21] Ibid, 22.218
[22] Ibid, 22.5.30
[23] Ibid, 22.3.6
[24] Ibid, 22.5.34

the following results for the combined effect of site traffic from Chambers Wharf and EPS under an 'all by road' scenario:

- Junction capacity is affected at various locations on the gyratory with 'degree of saturation' increasing by up to 16% in the AM peak and 12% in the PM peak[25].

- Average delay in the network is increased by up to 25 seconds per pcu in the AM peak, representing an increase in delay of 32.9%[26].

4.27 It should be noted that the council is currently considering significant changes to the Lower Road gyratory system which may affect the impacts described above.

Point of concern:

4.28 The TA concludes that the impact of TTT sites on the strategic road network will be almost zero, but this claim is not fully explained.

4.29 The council's own analysis shows that the 'all by road' scenario at Chambers Wharf combined with the impact of EPS will result in significant additional delay at the Lower Road gyratory. It is therefore considered that Chambers Wharf is unsuitable as a drive site.

Vulnerable road users

4.30 Lower Road / Jamaica Road already form part of one of the busiest cycle routes in Southwark, while Lower Road is a busy high street area with a high level of pedestrian activity.

4.31 Recent counts[27] show pedal cycles comprising up to one third of all vehicles at peak times on Lower Road[28]. On this corridor 80% of cycle movements occur in the peak periods 7-10am and 4-7pm.

4.32 Evidence from existing Cycle Superhighways shows that their implementation results in a step change in usage. For example, after the implementation of Cycle Superhighway Route 7 in Southwark, cycle flows increased by 60%[29]. Forecasts for cycle flows around the time of peak operation of the Chambers Wharf site also need to consider the projected rapid growth in background cycling levels over the interim period. Cycling levels in Southwark and other inner London boroughs are increasing rapidly, with cycle trips expected to comprise around 8% of all trips in Southwark by 2020[30].

4.33 Considering the above factors, it is quite reasonable to expect that at peak times pedal cycles will make up the majority of vehicles on the Lower Road corridor by the time of the peak TTT construction period.

[25] Thames Tideway Tunnel Impact Assessment, P.5, Southwark Council, August 2013
[26] Ibid, P.8
[27] Lower Road gyratory traffic surveys, Southwark Council, May 2013
[28] Jamaica Road mode share survey, TfL, 2010
[29] Churchyard Row pedal cycle counts, Southwark Council, 2010-2011
[30] Lip delivery plan Cabinet report, Southwark Council, September 2013

4.34 Of the collisions recorded in the TA assessment area five involved cyclists and nine pedestrians[31] - confirming that these are high risk groups. All of these collisions occurred on routes expected to be used by construction traffic[32].

4.35 Cycle delay is calculated in relation to the Plough Way junction with up to 5 seconds projected[33]. The TA does not consider the impact on related junctions around the gyratory system which construction traffic will have to traverse (the same principle applies when calculating bus delay) or the cumulative delay that this will represent to cyclists.

Point of concern:

4.36 The proposed construction routes have a high level of recorded collisions involving pedestrians and cyclists.

4.37 Considering that cyclists are likely to represent a majority of peak time road users on Lower Road by the time of construction, interaction between lorries and cycles will be frequent, especially during peak hours. It is therefore recommended that HGV movements be restricted to off-peak hours.

4.38 The cumulative delay to cyclists through the affected local network has not been considered.

Required Mitigation Should Consent be Granted

4.39 The level of mitigation proposed in the application through the draft DCO, requirements, s106 obligation or CoCP falls well below what is required to mitigate and offset the significant impacts resulting from the proposed construction works at Earl Pumping Station. This includes:

- Measures and restrictions to mitigate the adverse impacts in relation to construction noise and vibration
- Measures to monitor and protect residential living conditions
- Measures to monitor and mitigate against air quality impacts
- Measures to mitigate against transport impacts and ensure local highway safety
- Parking and waiting restrictions
- Employment and local procurement measures
- Public realm enhancements
- Measures to offset community impacts
- Costs of administration and monitoring.

[31] TTT Transport Assessment, Earl Pumping Station, Thames Water, January 2013, 22.4.120
[32] Ibid, 22.4.124
[33] Ibid, 22.5.34

5 Shad Thames Pumping Station

Description of Site and Surrounding Area

5.1 Site comprises an existing Thames Water pumping station incorporating a brick building fronting onto Maguire Street, along with a section of adjacent land including part of the adjacent highway (Maguire Street). Residential and commercial properties are located immediately adjacent to the site including Grade II listed Wheat Wharf apartments adjoining the sites north east boundary, Taramind Court adjoining its south west boundary and the Clove Building to the east on the opposite side of Maguire Street. Residential apartments in Vanilla and Sesame Court are located further to the west of the site.

5.2 The site is located within the Tower Bridge Conservation Area. The St Saviours Dock Conservation Area is located immediately to the east of the site. The site is also located within the Borough, Bermondsey and River Archaeological Priority Zone.

Relevant Planning History

5.3 There is no planning history relevance to the application proposals.

Application Proposals

5.4 Works are proposed to control the Shad Thames Pumping Station combined sewer overflow. The required works include modifications to the existing pumps and associated chamber needed to house the pumps. The new chamber would be located within the existing pumping station and would require excavation within the pumping station. The existing three storey facilities building at the rear of the pumping station would be demolished and replaced with a new electrical switch gear and facilities building measuring 9.5m in height. A 9.5 metre high ventilation column would be located adjacent to this new building.

5.5 Construction is proposed to start in 2018 and end in 2019.

5.6 The pumping station and existing combined sewer overflow would not be connected to the main tunnel at this location.

General Planning Policy Framework

5.7 Saved Policies 3.12 and 3.13 of the Southwark Plan and Strategic Policy 12 (Design and Conservation) of the Southwark Core Strategy seek to ensure that development achieves a high quality of both architectural and urban design, enhancing the quality of the built environment.

Assessment of Local Impacts

Noise and Vibration

5.8 Significant noise impacts would result from construction works and associated traffic upon residential and commercial properties surrounding the site. In

particular, properties within Tamarind Court and Coriander Court. As these impacts cannot be mitigated by on site controls this is a significant concern and contrary to both the NPS and local planning policies.

5.9 The noise and re-housing policy does not set appropriate criteria for residents to apply given the noise impacts that would result and is flawed in its operational requirements. This mitigation is therefore not acceptable to overcome the impacts from the construction works. The unacceptable impacts from noise will be exacerbated by the associated impacts from vibration from construction works. The ES highlights that significant adverse impacts will result from vibration at Tamarind Court, Clove Building and Coriander Court.

5.10 Whilst the Environmental Statement indicates that vibration levels would not reach a level which could cause impacts on residents amenity, it notes that specific ground conditions encountered would not be known until piling is underway. It may therefore not be possible to use low impact vibration methods. This is a significant concern for residential amenity and, from the information available it is not possible to determine whether or not adverse impacts would result from other methods of vibration. This concern is extenuated by the lack of any robust measures within the draft DCO, CoCP, requirements and s106 as proposed in the application to ensure that the contractor will utilise low vibration piling methods unless it is absolutely not possible. If it should not be possible to use these methods, there is then serious risk of further significant impacts upon the surrounding area for residents. Furthermore, the Thames Tunnel compensation programme is not sufficiently robust to offset the significant impacts.

5.11 Throughout the operational stage of the development, appropriate controls need to be maintained and monitored to ensure no disturbance results from surrounding residential and commercial properties.

Air Quality

5.12 Significant air quality impacts would result for residents of Wheat Wharf and Tamarind Court resulting from the increase in emissions during construction works. It is not sufficient for the applicant to argue that the pollution levels will be lower than they are now due to an expected improvement in background air quality due to improvements in vehicle technology.

5.13 Throughout the operational stage of the development, appropriate controls need to be maintained and monitored to ensure there are not adverse impacts from odour emitted from the ventilation column.

Design and Visual Impact

5.14 This site is located within the St Saviour's Dock Conservation Area. Careful consideration is needed to be given to the design of the three storey extension along with other alterations to the building including the new vehicular access doors on the front elevation. The plans included in the application are only indicative and lack sufficient detail for a building located in the conservation area and in close proximity to adjacent residential properties. Furthermore the Design Principles proposed in the application do not provide sufficient surety to allow the building works to go ahead without detailed drawings of all elevations along with detail 1:20 plans of the revisions

to the front elevation being submitted in writing for the approval of the Council.

5.15 The new electrical equipment building to replace the existing three-storey facilities building should incorporate green roofing to produce a suitable attractive rooftop in close proximity to residential properties and to promote the bio-diversity credentials of the development.

Archaeology

5.16 The proposed works may potentially have an impact upon buried archaeological remains and upon standing structures that will be demolished. Proposals for the recording of buildings to be demolished are included in the application. Other site works are adequately provided for in the documentation supplied with the application.

5.17 The Draft Development Consent Order includes no separate condition for building recording, although there is a site-wide condition, at Shad Thames or for archaeological work. The following should be included as a requirements should consent be granted

1) Prior to undertaking any excavation a Site Specific Archaeological Written Scheme of Investigation (WSI) (which shall accord with the Overarching Archaeological WSI) shall be submitted and approved in writing by the local planning authority.

2) The archaeological works shall be undertaken in accordance with the Site Specific Archaeological WSI and carried out by a suitable qualified person or body.

5.18 The application of this condition reflects the impacts of the proposals and section K6.1 of the heritage statement that state recording will be in accordance with the overarching WSI and K6.2 that confirms there will be a programme of archaeological recording on below site impacts.

Transport Impacts

5.19 The site is tightly constrained with very little space available for the parking, turning, loading and unloading of vehicles. Maguire Street and adjoining roads are well used by residents, workers and tourists. Without appropriate controls being put into place there is potential for significant disturbance upon the streets surrounding the site. The controls and mitigation proposed need to be significant enhance in order to provide this reassurance.

Proposed mitigation should consent be granted

5.20 The level of mitigation proposed in the application through the draft DCO, requirements, s106 obligation or CoCP falls well below what is required to mitigate and offset the significant impacts resulting from the proposed construction works at Earl Pumping Station. This includes:

- Measures and restrictions to mitigate the adverse impacts in relation to construction noise and vibration
- Measures to monitor and protect residential living conditions
- Measures to monitor and mitigate against air quality impacts

- Measures to mitigate against transport impacts and ensure local highway safety
- Details designs required of new buildings and alterations to existing
- Details of green roof on new building
- Archaeological mitigation
- Parking and waiting restrictions
- Employment and local procurement measures
- Public realm enhancements
- Measures to offset community impacts
- Costs of administration and monitoring.

6 Blackfriars Bridge Foreshore

Description of site and surrounding area

6.1 Blackfrairs Bridge Foreshore is located on the north bank of the River Thames (within the City of London) and therefore has the potential to result in adverse impacts upon Southwark. It comprises sections of the river foreshore and adjacent land. It is split into two parts, the larger construction area located to the west of, and under, Blackfriars Road Bridge, and a smaller secondary area located to the east of Blackfrairs Rail Bridge.

Application proposals

6.2 The proposed works are required to intercept a sewer which currently discharges sewage into the River Thames. Flows would be transferred from the relatively shallow depth of the existing pipework to the deeper level of the proposed tunnel via a drop shaft. Construction is proposed to last for five years, starting in 2016 and ending in 2021.

Assessment of local impacts

6.3 Adverse air quality, noise and highway impacts are likely to result within the London Borough of Southwark, with departing construction vehicles proposed to be routed into Southwark, including towards the Elephant and Castle where several major construction and regeneration projects are likely to be being developed at the same time as the Thames Tunnel construction works.

6.4 The council is also concerned that, if not properly controlled and restricted, there is potential for adverse noise impacts upon Southwark residents on the opposite side of the River Thames.

Mitigation required should consent be granted

6.5 It is essential that Southwark is consulted and involved with any matters relating to this site, including requirements and planning obligations.

6.6 In addition to those already proposed (which themselves need amendment to be acceptable) further requirements and obligations are sought in order to mitigate against the resulting impacts. These include measures and restrictions to mitigate the adverse impacts in relation to construction works and impacts, noise, traffic routes and air quality.

7 Project wide transportation impacts

Southwark sites strategic road context

7.1 Traffic from the proposed drive site at Chambers Wharf is expected to access the site via the A200, Lower Road and Jamaica Road. Traffic from the Earl Pumping Station site is also expected to use the A200 via the Lower Road gyratory system. As well as serving local traffic this key strategic corridor provides access to the river crossings at Rotherhithe and Tower Bridge.

7.2 The A200 is already significantly congested at peak times and when traffic events disrupt normal flows. In particular, the junction of Jamaica Road and Lower Road (Rotherhithe tunnel access) is prone to significant queuing due to blocking back at the roundabout. Any disruption at the tunnel itself has significant consequences for the wider network as does disruption to alternative river crossings. The Lower Road gyratory system is also already near capacity at peak times and lacks resilience – even minor traffic events can cause significant disruption which is compounded by the complexity of the network in the area.

7.3 The Lower Road / Jamaica Road corridor will form part of Barclay's Cycle Superhighway Route 4 from 2015. Plans are currently being developed with TfL to deliver significant enhancements to cycle facilities on this route which is already one of the busiest in Southwark.

7.4 The A200 is a busy bus corridor with multiple routes linking to the transport interchange at Canada Water.

7.5 Both Jamaica Road and Lower Road provide direct and indirect access for school pupils accessing a larger number of schools on foot and by bicycle. High levels of general pedestrian activity are present at key locations such as high street areas and Bermondsey and Surrey Quays stations.

Point of concern:

7.6 *Increased volumes of heavy vehicles on the A200 corridor will have far reaching impact on a wide range of road users, well beyond the immediate vicinity of proposed project sites.*

Thames Water assessment of strategic impacts

EIA scenario

7.7 Site specific TAs developed to support the proposals are very limited in their consideration of wider impacts, considering only the 'fine grain' of the local road network and only its connection to the strategic network. Assessment of strategic impacts is left to the project-wide transport assessment which considers broad geographical areas as represented by area highway models – a 'broad grain' approach. Neither approach evaluates in any detail the impact on key links in the strategic road network and specific local impacts that may result.

7.8 The impacts from Chambers Wharf and EPS will mainly be felt in the ELHAM model area. Even without traffic related to the TTT, background traffic growth

to 2021 in the ELHAM area is expected to increase travel time by 10% in the AM peak[34], equating to around 10,000 additional pcu hours. Travel distance is also expected to rise by 11%. These figures are 15% and 11.5% respectively for the PM peak. These estimates form the construction base case.

7.9 The TA then examines the cumulative traffic impact of 'clusters' of TTT activity across the various model areas against the base case. The conclusion is that, for each of the model areas, the additional impact will be less than 0.5%[35]. It must be noted, however, that the total delay across the ELHAM model is within the order of 100,000 pcu hours, so that even a small increase in travel times is likely to have a notable impact. Furthermore, the figure of less than 0.5% considers the whole network modelled by ELHAM, whereas the impact of TTT traffic will be only be felt on a subset of links within the wider model. It is therefore realistic to expect that the impact on affected routes will be of different magnitude altogether. The TA acknowledges this weakness and refers to the site specific TAs for further information[36], but as discussed above these studies are extremely limited in this respect. Furthermore, the limited consideration that is given within the project-wide TA regarding the impact on specific links highlights the Rotherhithe tunnel as a key concern. Additional delay at the Jamaica Road / Lower Road junction in the AM peak is estimated at 66 seconds due to blocking back at the roundabout[37].

Points of concern:

7.10 *While detailed analysis of site specific as well as area wide TTT impacts has been carried out, insufficient consideration has been given to the 'real' effect on specific strategic routes, notably the A200 corridor.*

7.11 *Background traffic growth forecast for the area in question will worsen existing congestion and network resilience even before the additional impact of the TTT.*

7.12 *Reliance on area highway models covering wide areas of the network and comparison of the impacts of project sites with total traffic levels across such wide areas inevitably results in the conclusion that impacts will be limited.*

7.13 *Where link specific results have been included, delay at Jamaica Road / Lower Road is identified as an issue.*

All by road scenario

7.14 The analysis discussed above relates to the Transport Strategy scenario which anticipates that the vast majority of materials at certain sites including Chambers Wharf will be transported by river. The 'sensitivity test' where this is not the case is explored in Appendix J to the main report.

7.15 A complete 'all by road' scenario where all materials over the life of the project are transported by road is not presented as a realistic prospect in the

[34] Environmental Statement Vol. 3, Project-wide effects assessment, 12.4.62, Thames Water, January 2013

[35] Ibid, 12.5.63

[36] Ibid, 12.5.67

[37] Ibid, Table 12.5.9

TA, but the potential impact of short disruptions to river access caused by certain 'trigger' events[38] is recognised. Procedures to deal with any such event, including derogations to contractors, are expected to be included in the relevant traffic management plan, although the council is not party to any discussions around this[39]. Given the difficulty of forecasting such events it proved easier for the TA to evaluate a complete all by road scenario, but covering only a short period of time – 1 month disruption, with 11 months of normal operation in any given year. This is known as the 'ABR (1 month)' scenario.

7.16 The ABR (1 month) scenario considers the impact of 'all by road' operation in the context of its averaged annual impact i.e. the number of additional trips generated in the single ABR month is then spread across a period of 12 months to give an average monthly increase. This is a convenient method of dealing with the unpredictable nature of trigger events which may last for a day or several weeks (but no longer than a month which is not considered as a possibility). Assuming disruption were to be continuous for a month, however, the real impact in terms of congestion would obviously be concentrated within that period only as would the impact on site operation.

7.17 Even in the context of annualised impacts (AADT / AAWT[40]), Chambers Wharf comes out only second to Kirtling Street in terms of additional traffic impacts, with an additional 36 lorry movements predicted[41]. While traffic impacts on the A2 and A205 are considered separately[42], no consideration is given to the impact on the A200 – despite this being identified as a primary construction route. Further analysis of AAWT impacts relating to Chambers Wharf nonetheless shows that on key links under the ABR (1 month) scenario HGV composition would increase by 34%[43]. Overall though, the TA concludes that such increases do not result in any 'material change' to overall impacts[44].

Point of clarification:

7.18 *Procedures to deal with any period of 'all by road' operation, including derogations to contractors, "are being discussed" with various parties, but not with the council. The council is the Highway Authority for the roads in immediate vicinity of the Chambers Wharf site as well as for Lower Road (A200). Any discussions must therefore involve the council.*

Points of concern::

7.19 *The ABR (1 month) scenario rests on the assumption that it is highly unlikely that river access could be disrupted for more than one month in any period of 12 months. Nonetheless, the type of 'trigger' events postulated, e.g. weather, unsuitable loads etc, do no appear to preclude this possibility.*

7.20 *The presentation of the impacts of the ABR (1 month) scenario understates the real impact of any such scenario. Impacts are presented in purely abstract terms as if they were not experienced as real traffic events, but rather*

[38] Environmental statement Vol. 3, Appendix J, J.1.16, Thames Water, January 2013
[39] Ibid, J.1.17
[40] Ibid, J.1.26
[41] Ibid, J.1.41c
[42] Ibid J.1.42
[43] Ibid, Table J.5
[44] Ibid, J.1.55

statistical variations. The decision to spread the real impacts of any event over 12 months serves to dilute the actual impact on real trips during course of the disruption. It will be no consolation to road users that severe congestion on a given day averages out to barely noticeable congestion when considered over a whole year. This methodology also fails to take account of the potential safety impact of huge increases in lorry movements during unspecified periods (see below).

7.21 Despite the reduced impact resulting from the methodology chosen, the ABR (1 month) scenario still shows a significant negative effect in terms of increased lorry movements at Chambers Wharf, something not properly considered in the site specific TA.

7.22 The A200 is not considered to be major construction route by the project-wide TA, despite this being the stipulated route for both Chambers Wharf and EPS. Nonetheless the HGV composition of traffic on key links in the area is expected to increase significantly.

Further Assessment of strategic impacts

Jamaica Road

7.23 *Jamaica* Road experiences significant congestion in peak hours, with queuing particularly severe east bound back from the tunnel roundabout in the evening peak. Data collected by TfL in May 2010[45] captures queue lengths at five locations on Jamaica Road between 05:00 and 20:00hrs. The table below shows maximum queue lengths at these locations.

Location	**Maximum queue length**	**Arm**	**Interval**
Abbey Street	41	Jamaica Road westbound lanes 1-3	08:35 – 08:40
St James Road	35	Jamaica Road eastbound lanes 1-3	15:45 – 15:50
Bermondsey station	25	Jamaica Road westbound lanes 1-2	07:55 – 08:00
Southwark Park Road	54	Jamaica Road westbound lanes 1-2	08:05 – 08:10
Tunnel roundabout approach	37	Jamaica Road eastbound lanes 1-2	17:30 – 17-35

7.24 The data presented above demonstrates significant queuing on Jamaica Road, including westbound in the morning peak hour. Trip generation from the Chambers Wharf site will exacerbate this issue, increasing journey time delay for general traffic on this route. In addition, queuing on Jamaica Road will affect journey time reliability of site traffic, adversely affecting the predictability or HGV arrival times.

Point of concern:

7.25 *TfL data shows the extent of existing delay on Jamaica Road. The impact of a large number of additional HGV as a result of any 'trigger' event will*

[45] TfL queue length surveys, May 2010

exacerbate existing congestion and affect journey time reliability for site traffic.

7.26 The Transport Assessment for Chambers Wharf includes an assessment of the impact of site traffic on the Jamaica Road / Bevington Street junction[46]. The construction development case suggests that the impact on the junction will result in an 18 second increase in average delay on the Bevington Street arm with minimal impact on other arms. The sensitivity test for the 'All by road' scenario, however, shows a dramatic deterioration in conditions at this junction, with a massive increase in delay on the Jamaica Road eastbound arm of 218 seconds. The impact on this junction cannot be considered in isolation and the queue length data presented above provides grounds to assume that similar, or worse impacts will be experienced at other junctions on Jamaica Road.

7.27 Of particular concern is the junction of Jamaica Road and Lower Road at the approach to the Rotherhithe tunnel. There is already a significant issue with blocking across the exits of the tunnel roundabout and the presence of large numbers of HGVs at this location is likely to have a particularly severe impact in this regard, having disproportionate impacts on queue lengths in the area.

7.28 As well are regular peak hour congestion, consideration should also be given to the impact of specific events affecting network resilience. Most notably there is the impact of alternative river crossings becoming unavailable. For example, the closure or restriction of traffic at the Blackwall tunnel, planned or otherwise, results in significant traffic impacts in the Rotherhithe area, causing gridlock on tunnel approaches.

Point of concern:

7.29 The TA identifies significant increases in delay in the event of 'all by road' operation and this is likely to be replicated across the wider network.

7.30 Further analysis is required of the impact of site traffic on key junctions on Jamaica Road including the Rotherhithe tunnel roundabout where the impact of large vehicles is likely to significantly affect traffic flows.

Lower Road

7.31 The council has carried out its own analysis in relation to the impact of TTT site traffic on the Lower Road gyratory system. A traffic model has been developed for this area as part of a separate review of the operation of the local network. Various scenarios relating to TTT impacts have been tested against this model, with the following results for the combined effect of site traffic from Chambers Wharf and EPS under an 'all by road' scenario:

- Junction capacity is affected at various locations with 'degree of saturation' increasing by up to 16% in the AM peak and 12% in the PM peak[47].

- Average delay in the network is increased by up to 25 seconds per pcu in the AM peak, representing an increase in delay of 32.9%[48].

[46] Chambers Wharf Transport Assessment, 20.5 Construction assessment, Tables 20.5.2 – 20.5.6
[47] Thames Tideway Tunnel Impact Assessment, P.5, Southwark Council, August 2013

7.32 It should be noted that the council is currently considering significant changes to the Lower Road gyratory system which may affect the impacts described above.

Point of concern:

7.33 The 'all by road' scenario at Chambers Wharf combined with the impact of EPS will result in significant additional delay at the Lower Road gyratory.

Journey time reliability

7.34 The presence of significant queuing on Jamaica Road and the potential for Chambers Wharf construction traffic to exacerbate this must be a key consideration when considering how the construction site will operate in practice. The traffic management plan relies on a steady stream of lorries arriving at the site at precise times given the very limited capacity within the site for waiting vehicles and the absence of any provision for a holding area nearby. We understand that any vehicles arriving ahead of or behind their allotted time slot will be turned away.

Points of concern:

7.35 No analysis of the operational viability of sites under the 'all by road scenario', including for Chambers Wharf, is presented. This is a critical omission as the proposed traffic management arrangements do not appear to allow for any such event.

7.36 Under the strict timing regime proposed for Chambers Wharf HGVs – necessary given the constraints of the site - and given the impact of congestion, both on Jamaica Road and at the Lower Road gyratory on journey time reliability, it is entirely unrealistic to expect that vehicles accessing the site will be able to comply with the traffic management plan.

7.37 As a consequence of this it is highly likely that either a) large numbers of vehicles will have to wait on local streets, or b) that large number of vehicles will be turned away. Both of these likely scenarios are unacceptable to the council and likely to also undermine the operational viability of the site and therefore the project as a whole.

Impact on sustainable modes

7.38 The project-wide TA does not consider it necessary to carry out a 'detailed' assessment of changes to pedestrian and cycle networks as significant impacts are only considered to occur in the immediate surroundings of each site and should therefore be picked up by the site specific TAs[49].

7.39 The highway models used to assess the network impacts of the TTT sites take account of a variety of planned developments[50], but significantly for the ELHAM area no consideration is given to the impact of Cycle Superhighway 4

[48] Ibid, P.8
[49] Environmental Statement Vol. 3, Project-wide effects assessment, 12.3.4, Thames Water, January 2013
[50] Ibid, 12.4.57

(CS4). CS4 is expected to be delivered on Jamaica Road and Lower Road by 2015 (see map).

7.40 Lower Road / Jamaica Road already form part of one of the busiest cycle routes in Southwark. Recent counts[51] show pedal cycles comprising up to one third of all vehicles at peak times on Lower Road and 38% of all vehicles on Jamaica Road[52]. On Jamaica Road 80% of cycle movements occur in the peak periods 7-10am and 4-7pm.

7.41 Evidence from existing Cycle Superhighways shows that their implementation results in a step change in usage. For example, after the implementation of Cycle Superhighway Route 7 in Southwark, cycle flows increased by 60%[53]. Forecasts for cycle flows around the time of peak operation of the Chambers Wharf site also need to consider the projected rapid growth in background cycling levels over the interim period. Cycling levels in Southwark and other inner London boroughs are increasing rapidly, with cycle trips expected to comprise around 8% of all trips in Southwark by 2020[54].

7.42 Considering the above factors, it is quite reasonable to expect that at peak times pedal cycles will make up the majority of vehicles on the Lower Road / Jamaica Road corridor by the time of the peak construction period at Chambers Wharf.

Points of concern:

7.43 The project-wide TA neglects to consider the wider impacts beyond the immediate vicinity of TTT sites that fall outside the scope of the site specific TAs.

7.44 Consideration of the impact on Jamaica Road and Lower Road neglects to consider the impact of CS4.

7.45 Jamaica Road and Lower Road are already popular routes for cycling and pedal cycles are expected to make up over half of all vehicle movements by the time of peak construction at Chambers Wharf.

7.46 Given the very high levels of cycling on these routes it is not considered that allowing any period of ‘all by road’ operation would be responsible, particularly during peak hours.

7.47 A full assessment of the impact of the TTT on CS4 is required.

7.48 Jamaica Road forms part of a key bus corridor serving the transport interchange at Canada Water. Although bus lanes are provided along sections of the road in other places and at most junctions buses are affected by general traffic delay. In particular, delays occur at the Rotherhithe roundabout with vehicles blocking entry and exit points at busy times.

7.49 The project wide TA recognises that bus services may be affected by additional traffic from TTT sites[55], but again refers to the site specific TAs

[51] Lower Road gyratory traffic surveys, Southwark Council, May 2013
[52] Jamaica Road mode share survey, TfL, 2010
[53] Churchyard Row pedal cycle counts, Southwark Council, 2010-2011
[54] Lip delivery plan Cabinet report, Southwark Council, September 2013
[55] Environmental Statement Vol. 3, Project-wide effects assessment, 12.3.12, Thames Water, January 2013

which do not in fact cover this beyond the impact in the immediate vicinity of the site. No assessment of the wider impact on bus journey times is included.

Points of concern:

7.50 No proper assessment of the impact on bus journey times has been carried out.

7.51 Projected delay at the Rotherhithe roundabout will have a particularly severe impact on bus journey times.

Safety assessment

7.52 The project-wide TA includes a 'broad and high-level' estimate of the impact of the TTT on road user safety[56]. The assessment is of potential risk, not actual risk. The site specific TAs consider risk in greater detail, but their geographical scope is very limited. Overall, it is estimated that the TTT will result in additional seven collisions over the life of the project. In the context of London wide collision data this amount is not considered significant and the project-wide impact is described as 'negligible'.

7.53 No specific analysis has been carried out to assess the safety impact of the TTT on the A200 corridor including analysis of the impact on Cycle Superhighway route 4. The cyclist collision heat maps attached show areas with existing high numbers of cyclist collisions along this route. The cyclist/HGV collision map shows existing collisions between cyclists and HGVs. The CS plus collisions map shows locations of cyclist casualties, HGV collisions and those collisions where a cyclist has been injured in a collision with a HGV.

7.54 The council has signed up to the London Cycling Campaigns 'Safer Lorries' pledge and is taking a lead in reducing the danger posed by lorries to cyclists. The most effective way to achieve this is remove / reduce the source of danger i.e. the need for frequent interaction between lorries and cyclists. Around 80% of cycle trips on the A200 are made in peak hours – if physical separation is not provided then increased lorry movements should be avoided during these times.

7.55 In addition to the above, no specific analysis has been carried out in relation to the impact on pedestrians away from the immediate vicinity of TTT sites. The pedestrian casualty map shows clusters of collisions on Lower Road at the junctions with Surrey Quays Road and Hawkstone Road and at the junction of Rotherhithe Old Road and Rotherhithe New Road on the gyratory system.

Points of concern:

7.56 The analysis carried out does not focus on real impacts on specific corridors, instead diluting the potential risks across the entire network to reach the conclusion that impacts will be 'negligible'. No analysis is carried out regarding the real safety impact on the A200 corridor.

[56] Environmental Statement Vol. 3, Project-wide effects assessment, 12.5.78, Thames Water, January 2013

7.57 The presence of large numbers of additional HGV trips over a sustained period will increase road danger, particularly for vulnerable road users.

7.58 While improvements to equipment, technology and training of drivers and cyclists can help to reduce the risk posed to cyclists by HGVs, traffic planning should seek to tackle road danger at source by minimising the need for interaction between lorries and cyclists.

7.59 The council challenges the appropriateness of imposing a significant increase in lorry movements along the Jamaica Road / Lower Road corridor, particularly at peak times.

7.60 A full safety assessment of the impact of the TTT on CS4 is required.

7.61 In order to reduce the threat that hundreds of daily lorry movements would pose to cyclists, any such movements should be restricted to the off peak period.

7.62 In order to reduce conflict points and better manage the interaction between HGVs and cyclists it is recommended that proposals to implement major changes to the Lower Road gyratory be bought forward to pre construction with additional funding from Thames Water.

8. Conclusions

- The proposed construction works across the Borough will result in very significant disturbance, loss amenity and traffic impacts seriously affecting many residents, business and schools.

- The impacts would be most acute at Chambers Wharf, a proposed drive site requiring 24 hour working as part of a minimum six year construction programme.

- Chambers Wharf is very tightly constrained by residential properties and schools located in very close proximity, and in some cases, immediately adjoining the application site.

- Due to its limited site capacity and sensitive local environment Chambers Wharf is a 'high risk' location for a Drive Site and a potential risk for the delivery of the project as a whole. Construction at the site has no margin for error and does not appear viable in the event of any loss of access to barge transport.

- The site at Chambers Wharf is too small for the works proposed which, when coupled with the proximity to sensitive receptors will result in disturbance and suffering for hundreds of local residents and school children along with significant highway safety and capacity impacts upon the surrounding road network.

- With three schools located in close proximity to the site, including one primary school located immediately adjacent to the main access route, the proposed construction work will detrimentally impact upon the cognitive and learning ability of children.

- The cumulative impacts of the various individual effects have been greatly underestimated in the application and will severely impact upon the amenity, quality of life and health of both residents and school children.

- The impacts of the proposal across all sites affecting Southwark is exacerbated by the lack of detail, preciseness and certainty of construction layouts and processes. Furthermore, the mitigation proposed by the applicant is wholly insufficient in view of impacts that would result.

- Chambers Wharf is unacceptable as a Drive Site and the application should be amended so the tunnel is drive from Abbey Mills to Chambers Wharf with Chambers Wharf becoming a Receptor site for three tunnels. This would still result in significant impacts, but these would be much reduced and more manageable than as a Drive Site.

- Notwithstanding objection, significantly greater mitigation required at CW to mitigate and offset the significant impacts

- Adverse impacts will also result at Earl Pumping Station, Shad Thames and from Blackfriars Bridge Foreshore, all of which required significantly great mitigation than currently proposed.

APPENDIX A

SCHEDULE OF APPENDICES

Local Impact Report

London Borough of Southwark (Ref.10018659)

Application for Development Consent for the

Thames Tideway Tunnel

November 2013

Local Impact Report Schedule of Appendices

Appendix 1 Location of residential properties and schools

Appendix 2 Noise assessment

Appendix 3 Mental well-being Impact Assessment

Appendix 4 Health impacts recommendations

Appendix 1 Location of residential properties and schools

Appendix 2 Noise assessment

Appendix 3 Mental well-being Impact Assessment

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MENTAL WELL-BEING IMPACT ASSESSMENT (MWIA): SCREENING REPORT
The impact of the development of Chambers Wharf as a drive site for the Thames Tidal Tunnel (TTT) on the mental well-being of local residents

Report by
Tony Coggins, Head of Mental Health Promotion, South London and Maudsley NHS Foundation Trust

Screening Meeting held on:
8th August 2013

Present:
Kate Johnson, Planning Policy Southwark Council
Sarah Totterdell, Corporate Strategy, Southwark Council
Alex Trouton,Policy Officer, Public Health Southwark Council
Zayd Al-jawad, S106 Legal Agreements ManagerSouthwark Council
David Cliff, Development Management Southwark Council
Judith Eling,Senior Registrar, Public Health, Southwark Council

What is an MWIA Screening?
The desktop Mental Well-being Impact Assessment (MWIA) screening tool has been designed to help people who are planning or providing policies, services, programmes or projects to begin to find out how they might make a difference to mental well-being. The process is designed to help people decide whether it's worth undertaking a more intensive MWIA involving a wide range of people: screening is the *first* stage in MWIA but can also be a valuable stand alone short assessment.

Thames Tidal Tunnel
The proposed construction of the Thames Tidal Tunnel (TTT) to alleviate the overflow of sewerage into the Thames will have long-term health benefits to the wider London community. However any 6-year programme of construction is likely to have negative impacts on the mental well-being of people living close to the site. The question is how to minimise negative and maximise any positive impacts on local people during the construction period. Key to this will be choosing a site that affects the least number of people and where the impacts will be less serious and can be most easily mitigated.

To this end Southwark Council have commissioned the South London and Maudsley NHS Foundation Trust (SLaM) to screen the proposed development of Chamber's Wharf as one of the main drive sites for the TTT, focusing on the potential impacts mental well-being of people living, working and visiting the vicinity.

Summary of Impacts

A wide range of **potential** impacts on the determinants of mental well-being have been identified by the screening. These are summarised below.

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Groups who may be disproportionately affected::

Number of key population groups were identified as potentially being more at risk of having their mental health negatively impacted on than others.

Early Years
Early years are key to mental health and well-being. The foundations for good mental health lie in pregnancy, infancy and early childhood. The quality of the home learning environment, opportunities for play, quality of pre-school and amount of time in pre-school are all associated with greater self-regulation, an attribute strongly associated with improved educational outcomes. The screening identified particular negative impacts of construction at Chamber's Wharf on the home learning environment through levels of noise as wells as negative impacts on opportunities for outside play from increased traffic, noise and pollution/air quality. Two local primary schools and a secondary school are located very close to the construction site. The screening identified that some children's entire primary education (from 5-11) will be affected by the proximity of their school to the construction site. **Adolescence:**
Protective factors for mental health in adolescence include attachment to school, family and community. Social capital indicators (e.g. friends, support networks, valued social roles and positive view on neighbourhood) are closely related to risk and severity of emotional disorders. As with the primary school, some young people will have their entire secondary education disrupted by the construction and it was also likely to have a negative impact on their view of the neighbourhood that they live in.

Later Life:
The key areas that influence mental health in later life are age discrimination, participation, relationships, physical health and poverty. Fear of crime and lack of transport are also consistent themes with 'daily hassles' contributing more significantly to psychological distress than major life events. The screening identified that older people may feel less safe going out due to increased traffic and may be more affected by the busyness, noise and general 'hassle' created by the construction than some other population groups.

Disability:
Life chances (notably education, employment and housing), social inclusion, support, choice, control and opportunities to be independent are key factors in influencing mental health of people with disabilities. The screening identified particular impact of those people with depression and other mental health problems that could be exacerbated by the noise and vibration from the construction. It also identified challenges for people with mobility issues caused by extra traffic, additional difficulties in road crossing, and the impact on pavements.

Wider determinants of mental well-being affected
Significant negative impacts on wider determinants of health were identified including housing, transport and environment. The screening suggested that particular thought needs to be given to how the increased traffic will be handled and impact on both air quality and the ability of children and local people and families to safely use amenities and play areas. There is also the need to ensure that the environment does not degenerate in terms of

upkeep, e.g. preventing increased litter/smoking debris, dirt and dusts, graffiti, protecting exisiting plants and trees, maintance of road surfaces in the face of greatly increased traffic eetc.

There were some potential positive impacts on the wider determinants of health in terms of access to employment for local people and additional trade for local businesses.

The potential to build links between the construction site and learning opportunities for the local schools was flagged up. It was felt that building a good relationship between Thames Water and the local schools could create interest, hope and aspiration for a career in engineering and construction for young people.

Protective factors affected by the proposal

Control, resilience, participation and inclusion:
The construction of a drive site at Chamber's Wharf is likely to have a major impact on the sense of control of local people. The construction process will involve lengthy periods of 24 hour working along with other long periods of extended working hours (8.00-10.00pm). The completion of the project is likely to be followed by a further two to three years of further major construction works for the residential development that has been permitted on the site.

The lack of control or ability to do anything about this is likely to have a significant negative impact on people's sense of control and self-determination. This is perhaps the area that will have the most impact and be the most difficult to mitigate. Identifying areas where local people can have some semblance of control over aspects that are identified by the local community as important to them may offer some mitigation.

There is potentially a key role for the council in enabling people to have their say and be heard and supporting the local communities ability to take collective action to influence the construction.

The potential for conflict and poor relations between local people and construction workers was flagged up. Efforts to build respectful relationships between both Thames Water and construction workers and the local community will need consideration. Also putting in place a process for conflict resolution and mediation at an early stage may be helpful.

In summary, with a particular focus on early years, adolescence, older people and people with disabilities, it is important to identify how to:

a) mitigate **potential negative impacts**;

- On young people's learning and education
- on the ability of both older and younger people to feel safe to move around and use the local area and public spaces
- by ensuring less vocal residents are not further marginalised.
- by preventing the development of a general sense of having no control or ability to make any difference to the project and how it impacts on local people.

And

b) maximise the **potential positive impacts by:**

- making the best use of opportunities for local employment and local economy
- ensuring that there are ongoing opportunities for local people to have a voice and feel that there are some aspects of mitigation that they identify as being important and that they can make a difference to i.e. exercise some semblance of control
- creating a sense of belonging and common bond in the local community through realising its ability to take collective action
- investing in building a positive respectful relationship between Thames Water and its sub-contractors and the local community

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1 FINDINGS FROM THE MWIA – SCREENING

Initial questions

Why do you want to look at the impact of the development of the TTT on the mental well-being oflocal residents?

- To identify the potential impacts of the proposal for a drive site at Chamber's Wharf on metal well-being of local people
- To identify how negative impact can be mitigated and any positive impacts can be maximised
- To see if a full MWIA should be undertaken

Is there an opportunity to influence or change anything about the ways people are working or supported?

Yes

2 Population groups

Table 1 presents an assessment of impact on mental well-being for different population groups – these are clustered into groups that the evidence suggests are more vulnerable to poorer mental well-being.

Table 1: MWIA Screening of the Impact of the development of the TTT on the mental well-being of local residents?

Population group	Likely impact e.g. Positive (+ve) or Negative (-ve)
Early Years	**-ve:** • Young families are at risk from increased traffic movement – Up to 55 HGV lorry movements a day in and out of the site with additional traffic from smaller vehicles • Impact of noise and vibration. • 24 hour lighting, • The local primary school, Riverside, is very close to the site affects and will be affected by noise, vibration, traffic and air quality. St Joseph's Primary School is also close by. The schools between them have over 700 pupils. • Quality of home learning environment will be affected • Parental anxiety, child going out to play, to shops,
Adolescence	**-ve:** • A secondary school, St Michael's College, Lewelleyn Street is in close proximity to the construction site including outdoor play space . • There is a safeguarding issue re. going out during lunch breaks with the

	young people who go off site, interaction with construction plant, workers etc. . • According to the EIA noise level will not be 'significant'. However noise will continue throughout some children's entire secondary education including exam periods. • The quality of home learning environment, not just at school, will also be affected • The potential negative impact on the educational attainment of young living in the areas and subsequent life long implications is a key concern **Actions:** • **Check out the expected noise level.** • **Monitor noise levels and put in place a system of action that responds promptly if they reach unacceptable levels** • **Measure educational attainment and school performance over the construction phase against a baseline.**
Later life	**-ve**: • Isolation as an issue for older people. The noise and increase in traffic has the potential to make older people feel unsafe leaving their homes. The local shops are on the corner of a road when there will be lots of additional traffic
Gender	**-ve:** • More female parents than male parents, many concerns are from women who are at home looking after children and who will need to live with the impact of continuous noise.
Race and ethnicity	**Unclear** • 80.5% residents in 2001 were white British this may have changed - There is a potential negative impact if people do not speak the language and therefore do not understand the implications of the construction.
Socio-economic position (SEP)	**-ve:** • There is significant Council and social housing for families around the site • In addition 180 affordable houses are being built adjacent to the construction site and will be occupied by the time construction starts. • People in social housing appear to be less aware of the process. As the responses to the consultation tend to come from privately own properties • People from lower SEP are more likely to have a lack of other options in terms of mitigating impacts, or just affording to get away from the site due to having less disposable income. • This is supported by the fact that the site profile states that 29.4% of area within 250m of the site lies in the 20% most deprived areas nationally. **Potential action:** • Employ an independent community liaison person to support the local community, facilitate communication and problem solving between the community, Thames Water and the Council.
Physical health	**-ve:**

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	• Impact of noise pollution, dust and health risk associated with continuous vibration
Disability	**-ve:** • People with mental health problems are potentially more likely to be affected by constant levels of noise and sleep disruption. • Less accessible for people with mobility problems because of losing pavements or constrained, heavily trafficked roads.
Sexuality and transgender	**-ve:** • Some concern from the school about potential inappropriate interaction with construction work force and local school children **Actions:** • Introduction of a code of conduct and training for workers. The Considerate Constructors Scheme Site Registration Monitors' Checklist offers a useful starting point: http://www.ccscheme.org.uk/images/stories/site-registration/downloads/2011sitemonitorchecklist.pdf • Distribute final version of monitoring checklist widely within local community so everyone is aware of expected standards.
Other population groups	None identified
Others in settings	

3 Wider determinants Table 2 presents the assessment of the impact of xxxxxon the wider determinants of health

Table 2: Wider determinants of health

WIDER DETERMINANTS (often at a socio-economic/environmental level)	Likely impact? Positive, negative or is it an indirect impact?
Access to quality Housing e.g. security, tenure, neighbourhood, social housing, shared ownership, affordable and appropriate	**-ve:** • The construction site will potentially have a major impact on access to quality housing for local people if there are significant levels of the noise, dust and vibration • Potential structural impact or just fear of structural impact • No space to decant if families find their housing too badly affected
***Physical Environment** e.g. access to green space, trees, natural woodland, open space, safe play space, quality of built environment	**-ve:** • Acute, potentially losing access to green space on the corner of Chamber Street

	(community severance) • Parents will not want children to play on existing local spaces due to noise and traffic, • Losing access to the Thames Path, which is used a lot and the Sustrans quiet cycle way. • School play grounds will be heavily affected • Some schools run outdoor classrooms, which may have to stop • Potential impact on break time for pupils • Possible that the intensity of use will degrade the environment – litter, smoking debris, poor road surfaces, damage to plant life.
Economic security e.g. access to secure employment (paid and unpaid), access to an adequate income, good working conditions, meaningful work and volunteering opportunities	**+ve:** • For local shop owners who are likely to have additional trade from construction workers. • Increased job opportunities for local people - % of jobs will be for local people
Good quality food e.g. affordable, accessible	Unclear
Leisure opportunities e.g. participate in arts, creativity, sport, culture	**-ve:** • Lots of people run along the river and Thames path and will no longer be able to do this • There will be an impact on informal recreation, kids' play grounds and play times due to noise and traffic.
Tackling inequalities e.g. addressing relative deprivation and poverty	**Not clear** • depends on make up of the local population and if it's a marginalised group negative impacts will increase inequalities • what area will be covered, what if some lives just outside the areas for receiving mitigation? **Action:** • **Ensure less vocal members of the community have a say.** • **Ensure that the compensation programme is well-publicised,**

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	straightforward to apply for and that claims are promptly and sympathetically dealt with.
***Transport access and options** e.g. providing choice, affordability and accessibility	**-ve:** Huge impact on transport • Loss of parking spaces • Fear of traffic, • HGV's mixed with bikes and pedestrians • Massive increase of traffic with other site vehicles • Traffic congestion • Idling • Not enough room for manoeuvring of vehicles • Damage to road surfaces from heavy traffic
Local democracy e.g. devolved power, voting, community panels	**+ve:** • Potential positive to increase engagement with local democracy and voting in next election, • Greater engagement by local politicians with local community **Action:** **Contact local community council and local development worker to try and increase wider representation of local people**
Ease of access to high quality public services e.g. housing support, health and social care	**-ve:** • Access to school, walking and cycling will be more limited **Unclear:** Unclear if access to GP surgery in Wolsey Street will be affected by transport impacts or if surgery caseload may increase if the project has adverse effects on health. • .
***Access to Education** e.g. schooling, training, adult literacy, hobbies	**-ve:** • Covered above in terms of access due to issues with transport and impact on learning at home and at school and informal hobbies thorough impact of noise access to green space etc**.**
Challenging discrimination e.g. racism,	

sexism, ageism, homophobia and discrimination related to disability, mental illness or faith **Other?**	**Actions:** • **Code of conduct for construction workers with training included in site induction** • **Put in place mechanisms for feedback of concerns and observations** • **Support a strong and active TRA's** Who is representing the locals community are they representative of the groups identified as most at risk?

4Protective factors

The MWIA toolkit suggests a four-factor framework for identifying and assessing protective factors for mental well-being, adapted from Making it Happen (Department of Health 2001) and incorporates the social determinants that affect mental well-being into four factors that evidence suggests promote and protect mental well-being:

- *Enhancing control*
- *Increasing resilience and community assets*
- *Facilitating participation and promoting inclusion.*

These three factors are made up of a set of 'components' which the evidence base states are important contributory elements that contribute to each factor. Such as Protective Factor: Enhancing Control – component is Maintaining independence e.g. support to live at home when severely disabled or frail elderly. The screening asks to assess the potential positive or negative impact that the proposals likely to be having on these factors and components. Tables 3-5 shows prioritised findings identified through the Screening activity.

Tables 3-5: Protective factors

Enhancing Control	Likely impact? Positive, negative or is it an indirect impact?	Comments or recommendations
Individual level		
***A sense of control** e.g. setting and pursuit of goals and ability to shape our circumstances	**-ve:** • Potentially a big impact cannot control noise, open window, 24 hour working for 2 years, no respite • what if it turns into 3 years?	
***Belief in own capabilities and self determination** e.g. sense of purpose and meaning	**+ve** • Could be boosted if local people get involved in community liaison, speaking at meeting writing letters, may	An outreach programme by the developer engaging with local schools could enlarge young people's horizons, hope and aspirations

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	benefit limited numbers however. • Potentially increased if able to secure employment **-ve:** • Could give you a sense of hopelessness – " what the point going to happen anyway, I don't have the ability to do anything."	
Knowledge skills and resources to make healthy choices e.g. understanding what makes us healthy and being able to make choices	**+ve:** • Potential if lots of information about how you can change things is provided in a manageable and absorbable way.	
Maintaining independence e.g. support to live at home, care for self and family	**-ve:** • Perhaps older and disabled people, people with depression may feel less able to cope in their own home due to fear of going out/noise • impact on things like television reception?	How will the developers make themselves welcomed by the local community, whether the project can be presented so as to engage people's interest.
Community/organisation level		
Self-help provision e.g. information advocacy, groups, advice, support	**+ve:** • Room for improving if can provide a facilitating structure	Through community liaison post?
***<u>Opportunities to influence decisions</u>** e.g. at home, at work or in the community	**+ve:** • if have local people have some success in pushing though additional mitigation **-ve** • if makes no difference.	How honest is the planning process about what can really be changed? Importance of managing expectations?

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***Opportunities for expressing views and being heard** e.g. tenants groups, public meetings ***Workplace job control e.g. participation in decision making,** work-life balance	**+ve:** • Potential to increase via the community liaison plan **-ve:** • If impact of noise disrupts sleep and affects people's ability to function at work • If noise affects those working from home close to the site	This is very key – importance of having an independent person
Collective organisation and action e.g. social enterprise, community-led action, local involvement, trades unions	**+ve:** • Opportunities to strengthen collective organisation and action for the local community though local TRA's	Importance of supporting local community voice and ability to make themselves heard
Resources for financial control and capability e.g. adequate income, access to credit union, welfare rights, debt management	**+ve:** • Opportunities for additional income though gaining work •	
Other? None other identified	None identified	

Table 4

Increasing resilience and community assets	Likely impact? Positive, negative or is it an indirect impact?	Comments or recommendations
Individual level		
***Emotional well-being** e.g. self esteem, self worth, **confidence**, hopefulness, **optimism**, life satisfaction, **enjoyment and having fun**	**-ve:** • The thought of lasting 6 years particularly the 2 year 24 hour work • Social tenants will be unable to move away/ those offered new tenancies in area will be unable to refuse • Uncertainties for private landlords if tenants move out, • Owner occupier will not be able to sell or may have to sell at a loss. • Will impact negatively on property prices over the next	

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	6 years	
***Ability to understand, think clearly and function socially e.g. problem solving, decision making, relationships with others, communication skills**	**-ve:** • Lack of sleep will impact negatively on this. • If people do not know what they can do about impacts of construction or are unclear as to what is going on. • Impact on family relationships if cannot sleep • Wider family might be less likely to visit or want to stay	Have as much clear/accessible information as possible and get messages across through multiple channels Again importance of community liaison worker
Have beliefs and values e.g. spirituality, religious beliefs, cultural identity	**Unclear**	
***Learning and development** e.g. formal and informal education and hobbies	**+ve:** • Opportunities to learn about lobbying and influencing **-ve:** • Noise impacts on learning both at home and school • Negative effect on hobbies outdoors	Importance of supporting people to learn to work together to get things done, lobbying
Healthy lifestyle e.g. taking steps towards this by healthy eating, regular physical activity and sensible drinking	**-ve:** • Less likely to walk to school or cycle. • Inhibits physical activity e.g. running, • Potential to turn to unhealthy behaviours (drinking, smoking drugs) to mitigate impacts	Enhance schools grounds as part of mitigation Role for community health/health promotion?
Community /Organisation level		
Trust and safety e.g. belief in reliability of others and services, feeling safe where you live or work	**-ve** • level of trust in Thames Water plus the council is likely to reduce • Feel locally less safe due to additional traffic • Feel less safe due to extra outsiders milling about.	How to address the council being blamed for decisions out of their control?
***Social networks and relationships e**.g. contact with others through family,	**-ve:** • Family might not want to visit	

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groups, friendships, neighbours, shared interests, work	**+ve:** • Might create some community unity and new relationships through adversity	
Emotional support e.g. confiding relationships, provision of counselling support	**+ve:** • Possible increase in confiding relationship if the community pulls together • Increase in informal networks? **-ve:** • Impact on GP surgery through increased visits by local patients due to sleeplessness and depression	Provision of sleep workshops Put in place additional counselling and psychological therapies in local GP surgery
Shared public spaces e.g. community centre, library, faith settings, café, parks, playgrounds, places to stop and chat	**-ve:** • Huge impact initially **+ve:** • if public realm is improved	
Sustainable local economy e.g. local skills and businesses being used to benefit local people, buying locally, using Time Banks	**+ve:** • Local shops should do well	Make the most of local employment opportunities
Arts and creativity e.g. **expression, fun, laughter** and play	**Unclear**	Engagement of Thames Water and contractor with the local community and schools will be important. E.g opportunities around using hoarding and lighting to do something creative and interesting with the local community
Other?	None identified	

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Table 5

Facilitating participation and promoting inclusion	Likely impact? Positive, negative or is it an indirect impact?	Comments or recommendations
Individual level		
***Having a valued role** e.g. volunteer, governor, carer	**+ve:** • For those who take on a if role in community • If gain employment	Could have a key link/liaison person for each block of flats to work alongside the TRA like the traveller sites model system
Sense of belonging e.g. connectedness to community, neighbourhood, family group, work team	**+ve:** • Common threat bringing people together **-ve:** • Don't want to be associated with the community or areas because just too grim, unable to move away or sell house.	
***Feeling involved** e.g. in the family, community, at work	As above	
Community /Organisation level		
Activities that bring people together e.g. connecting with others through groups, clubs, events, shared interests	+ve: • TRA and community groups coming out of adversity	Involvement of community engagement (note potential large impact on local officer time that should be part of the mitigation)
Practical support e.g. childcare, employment, on discharge from services	**+ve:** • There is going to be a skills academy to train people in in tunnelling	
Ways to get involved e.g. volunteering, Time Banks, advocacy	+ve: • Increase people's desire and need to get involved in local community - but will be for the minority	
Accessible and acceptable services or goods e.g. easily understood, affordable, user	**+ve:** • In long term better quality water and better	

friendly, non-stigmatising, non-humiliating	redeveloped areas over 10 years **-ve:** • Local shops might be busier so might improve quality of local shops	
Cost of participating e.g. affordable, accessible	**-ve:** • Parking might be more expensive/unavailable • Impact on property prices • Who gets mitigation e.g. double glazing and who does not etc. • The likelihood having to pay higher water bills to fund the project despite also paying a high price for living adjacent to the construction work. •	
***Conflict resolution** e.g. mediation, restorative justice	**-ve:** • Potentially huge, initially very negative • People under stress will cause conflict in families as well as between local people and Thames Water • Potential conflict with construction workers and local people's frustrations. E.g. Where are workers going to park, eat at lunch times, what if there is direct action by local people affecting contractors on tight time schedules • Potential conflict between those who qualify for mitigation & those who don't **+ve:** • Potential to be positive if good mediation processes	Thames Water must treat local population with consideration and dignity. Maybe more of an issue with sub-contractors if its sub-contracts. Need to ensure good human resource /health and safety practices amongst all contractors as careless treatment is more likely to encourage uncivil behaviour in employees. How do the council set conflict resolution systems?

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	are put in place.	
Cohesive communities e.g. mutual respect, bringing communities together	**+ve:** • If the community works together and feels supported • council needs to ensure it represents the whole l community **-ve:** • potential to create conflict and divisions between different members of the community e.g. those who get mitigation and who do not e.g. within the line of 250 metre and those just outside.	Depends on how Thames water treats local people and its own employees

5 Scale of impact and population

There are two more aspects to consider:

A) Scale of the impact on mental well-being

If known (or suspected) at this stage, what is the duration of the likely mental well-being impacts of your proposal?

Please tick (this could be more than one period of time)

Brief , Weeks , Months , Years

B) Scale of the population whose mental well-being is impacted

What is the scale of the whole population that your proposal will impact upon?

A small part of the population

A majority of the population

The entire population

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6. Having completed the screening assessment process the following sections will help determine what to do next.

Favouring further appraisal	Question	Not favouring further appraisal
Yes	Does your proposal affect in a negative way any of your population groups in Table 1?	
Yes	Does your proposal affect in a negative way any of the wider determinants and protective factors in Tables 2- 5	
Yes	For some of the wider determinants and protective factors of mental well-being, are some of the impacts of your proposal unknown?	
Yes	Are the impacts likely to be over a long period of time (one year or more)	
Yes	Is there an opportunity to influence the delivery of the proposal you are screening?	

If there are two or more answers of yes or 'don't know' then it is advisable that there is likely to be value in undergoing further MWIA investigation.

Outcome:

If Chambers Wharf does go ahead as a drive site it recommended that a full MWIA is undertaken to reach a full understanding of the potential impacts on the mental well-being of local people and to identify **with the community** how to minimise the negative and maximise the positive impacts.

Appendix 4 Health impacts recommendations

Appendix 4: Health Impacts and Mitigation

Health Determinant	Key impacts	Mitigation
1. Changes to open and green space and physical activity		
	This densely inhabited area is already deficient in open space and there will be no access to the Thames. The open space in front of Wrayburn House may become less accessible or have its use and amenity affected in other ways. The environment may become forbidding or visually degraded for pedestrians and cyclists and thus discourage active transport. There will be disruption to the school travel plans encouraging children to walk and cycle to school	The HIA deems the residual impact on this determinant to be minor. The Council does not agree with this and recommend that prior to work commencing in 2016 there be: • Enhancement of open spaces in the vicinity that may serve the affected population (e.g. amenity space overlooked by Rudge House, Cherry Gardens, other open space on the Dickens Estate) • Maximisation of the amenity of green space around social housing and schools in the area. • Addition of trees/green walls/hedges/trellis and pergolas with climbers where possible both to increase green infrastructure but also to help improve air quality and decrease noise. • An audit of the green space in front of Wrayburn House followed by action planning to ensure it will provide use and enjoyment over the years of the construction project and that community severance will be avoided • Consideration of where there may be opportunities to install play equipment/open air gym equipment to help facilitate outdoor recreation and encourage physical activity. Research shows that residents living in “greener” surroundings report lower levels of fear, fewer incivilities, and less aggressive and violent behavior.Thus enhancement of green infrastructure my help to buffer other negative, if unintended, consequences of the construction phase. Other issues related to active transport will be picked up under the heading of Transport
2. Air quality		
	Although the HIA deems the residual impact on air quality to be negligible to minor adverse, it is unclear if the greatly increased emissions from traffic – both HGVs and ancillary vehicles - have been considered. The site is an existing AQMA. Diesel traffic, particularly when proceeding slowly/idling may increase the proportion	Air pollution contributes to many health problems including asthma, heart disease and lung disease. Children are particularly at risk from air pollution because of their smaller lung capacity, and their height which means that they are often closer than adults to tail pipe exhaust emissions from vehicles. To mitigate adverse impacts of poor air quality and to reassure the affected community, open and transparent monitoring of air quality is recommended throughout the construction phases with the results being fed back to Southwark Environmental Protection and the local community. Given the emergent evidence around the damaging impact of particulates on cardio-vascular and pulmonary health, NO_2 monitoring is not considered to be sufficient. As it

	of $PM_{2.5}$ and $PM_{10.}$ in the vicinity. There is no known safe threshold for these pollutants and they do particular long term harm to the immature lungs of babies and young children. The site lies in the Thames Basin and the micro-climate of this area may mean that polluted air collects and is slow to disperse.	is also acknowledged that dust will be created (though it is appreciated that there will be dust control procedures in place) $PM_{2.5}$ andPM_{10} concentration should be monitored over the project and prompt action taken in respect of exceedences of acceptable standards. One of the recommendations of the MWIA is that Thames Water seek create positive relationships with schools and the supporting schools in taking the citizen science approach to air quality monitoring may well be relevant here. Clean Air for Primary Schools toolkit available at: http://www.london.gov.uk/sites/default/files/CA4S%20Toolkit%5B1%5D.pdf
3. Climate change		
	This health determinant was scoped out of the HIA. Whilst overall it is recognised that the TTT will provide London wide resilience in the face of heavy rain/flash floods, in the short term the project may interfere with people's ability to deal effectively with heat waves by spending more time out of doors and opening their windows.	At the moment it is not clear which properties will be eligible for help in terms of secondary glazing, mechanical ventilation etc. Mention is made of 'exceptional hardship' but there is no clarity as to how this is defined or how it will be implemented. There is a scientific consensus that heat waves(an average temperature of 30°C by day and 15°C by night triggers a government health alert) will become more frequent. It is important to make sure that people are able to take self-help measures to deal with heat waves and therefore it is recommended that consideration be given to the issue of heat waves in offering mitigation works to residential, educational and workplace properties. It will be important to avoid either the actuality or the community perception that the bar for mitigatory help is set so high that genuine cases of hardship are deemed ineligible. Increasing green infrastructure wherever possible as described in section 1 will also help in terms of producing a cooler, shadier microclimate and a more pleasing environment for people to live, learn and work in. Noise, vehicle exhaust and dust can all make it less appealing to be out of doors/have the windows open. Particular attention therefore needs to be paid to maintaining and enhancing environmental quality in the area over the period of construction activity.
4. Noise and vibration		
	The HIA states that the residual impact of noise and vibration of the scheme will be negligible to minor adverse. This is not agreed because of the large number of interacting factors that cannot be properly	A number of noise mitigation measures are possible to reduce overall impact. If these can be agreed and succeed, then the objective effects on health may be reduced, however the acoustic shed itself will result in loss of day light and be a detrimental visual intrusion in the area. However, people's sensitivity to noise varies, those with ill health or who are housebound, may be more troubled by it and this can significantly affect sleeping

	quantified and the high residential density in the vicinity of the site. In addition to causing annoyance and sleep disturbance, persistent environmental noise can have negative impacts on health, for example, contributing to heart disease, hearing impairment and poor mental health, particularly anxiety. A project investigating Hypertension and Exposure to Noise near Airports [reference] found that in residents living around four European blood pressure levels rose with higher noise levels Some evidence suggests that the negative effects of noise may be more profound in children as chronic exposure to noise can lead to poorer reading ability and reduced memory.	problems, anxiety etc. The application documents make clear that neighbouring properties will be significantly affected. The long duration of the noise, 24 hour working, and its inescapability cannot but be a factor particularly if it comes to be coupled with other grievances about the construction project which are likely to arise. Thus it will be important for full consideration to be given to the community perspectives on noise and that concerns are not dismissed if a particular industry threshold defining noise nuisance is not reached. The community also needs to be clear that there are robust procedures for dealing with the occasions where noise is greater than predicted. It is suggested that the two affected schools, Riverside and St Michael's, be supported in monitoring and logging the impact of noise on school activities, children's behaviour and the quality of teaching and learning. Evidence of a detrimental effect will need to be acted on to prevent damaging he education prospects of the children and the welfare of school staff. The community liaison plan will need to make provision for the activities suggested above. It is currently uncertain whether low vibration piling methods can be used. This needs to be clarified as early as possible so that the full impact of the proposals can be assessed including the impact on residential properties and schools? Documentation suggests that this cannot be known prior to work starting which is unlikely to allow residents to apply for compensation etc. and may cause considerable distress and uncertainty. This uncertainty is replicated throughout the application details due to the lack of robust and defined information on how the construction works will proceed.
4. Quality of Life		
	Within the HIA ,quality of life is defined as 'compound' effect of other determinants which may cause nuisance. However from a health perspective it needs to be defined more widely as encompassing: mental well-being, social relationships, capital and cohesion; resilience; and people's sense that they are included and have an opportunity to participate if they wish to with respect to	Many quality of life issues are set out in the Mental Well-being Impact Assessment (appended).

	consultation, communication and monitoring activities related to the project.	
6. Personal safety and security		
	Construction sites with their changes to street layouts, disruption of walking, cycling, parking and transport routes, high hoardings and influx of construction workers can make the area feel unsafe for residents.	The residual impact of this determinant is deemed by the HIA to be negligible to minor adverse. However this cannot be taken for granted and is an issue that will need to be kept under review during the life of the project. In order to ensure that there is a designated person available to deal with concerns, liaise with the Riverside Safer Neighbourhood Team etc, funding for a community warden presence over the life of the construction scheme is required. Graffiti on hoardings will need to be removed within 24 hours by TW and lighting will need to be well-maintained. Care needs to be taken to maintain community surveillance and avoid creating spaces which may offer opportunity for robbery/snatches – both current priorities for the local Neighbourhood Safety Team. As proposed in the MWIA, thorough and consistent application is required of the Considerate Contractor Schemehttp://www.ccscheme.org.uk/images/stories/site-registration/downloads/2011sitemonitorchecklist.pdf Strengthening the community warden presence would provide someone who could help check compliance with the Considerate Contractor scheme on the ground and pick up infractions promptly.
7. Perception of risk		
	The perception of risk can generate stress, worry and anxiety that in turn can lead to reduced well-being and potentially mental and physical health effects (See Figure 2)	This issue is dealt with in the MWIA. Perceptions of risk are contingent on how Thames Water goes about the project, its adherence to the highest Considerate Contractor Schemes, and the quality of its liaison and communication with the local community. As the MWIA states, providing opportunities for local people to have a voice and provide feedback to TW which results in improvements to how the project is and minimising detriment to the area will be crucial here. The Community Liaison Plan will need to be drawn up in such way that it enhances protective factors for mental well-being. These are: • Enhancing control • Increasing resilience and community assets • Facilitating participation/inclusion It is also suggested that the Council's own Community Engagement Team could be involved (and remunerated) in advising on the overall strategy and helping ensure that it is well-disseminated at local level.
8. Transport and access to services such as		

medical or social		
	Increases in road traffic are associated with an increase in road traffic injuries and deaths, community severance, mental health problems and a reduction in well-being. Disruption of access to services, parking and amenities lead to adverse effects on wellbeing, stress, annoyance etc. At peak times Jamaica Road, Bevington Street and Chambers Street will see 55 estimated HGV movements a day (110 as the vehicles will also need to leave the site) and an unquantified number of ancillary vehicle movements. If there were to be any disruption to using barges to remove spoil this number would increase exponentially. Both of the side streets are narrow and bordered by residential properties/schools. Bevington Street has a number of mature trees which may be damaged by the vehicle movements.	It is clear that people's daily access to schools, their homes, getting out and about in the area will be significantly affected both by the greater volume of traffic and by the anxiety generated by the perception of risk from such a large number of vehicles moving in such a tight space. There will need to be very carefully managed which places pedestrians/cyclists at the top of the hierarchy. Vehicle movements would need to be carefully co-ordinated and timed, particularly during term-time in order to prevent danger and congestion in what is effectively a cul-de-sac. We note that the construction site itself has very limited space for HGV parking and unloading. Thought could be given to enhancing the green infra-structure in such a way that properties bordering the road are shielded – e.g. by trellised fencing/pergola walkways with quick growing climbers. Thames Water could commission a landscape architect to a design this kind of solution – maintenance and upkeep would be the responsibility of TW over the life of the scheme.
9. Waste generation, transport and disposal		
	Construction waste and debris may cause deterioration in the quality of the local environment and reduced well-being. Environment may become dirty and neglected - more litter, dumping etc. A vicious circle in terms of diminishing well-being and usage of the public realm positive perceptions of the local	It is unclear why this was scoped out of the HIA as the use of CW as a main drive site will result in a huge volume of waste being excavated over the life of the project. There are many imponderables associated with the removal of the spoil by barge – noise of loading, odour from excavated material, the adequacy of three barge movements a day to remove it, the possibility of some waste needing to be transported by road. In general more information is needed to assess the impacts of this method of disposal. There is also the potential for an increase in litter in the neighbourhood particularly from fast food, soft

	environment were associated with higher levels of physical activity, and lower levels of obesity and poor self-rated health	drink containers and smoking refuse. Workers should not smoke on the street outside the site. Provision of additional litter bins is necessary along with strict compliance with the Considerate Contractor's scheme. Monitoring and collection of litter and refuse in the area is required.