

**Planning and Borough Development**  
Kensington Town Hall, Hornton Street, LONDON, W8 7NX

**Executive Director Planning and Borough Development**  
Mr Jonathan Bore



THE ROYAL BOROUGH OF  
**KENSINGTON  
AND CHELSEA**

Richard Aylard  
External Affairs and Sustainability Director  
London Tideway Tunnels  
The Point (7th floor),  
37 North Wharf Road  
Paddington, London, W2 1AF

My reference: **Response to the Thames Tunnel  
phase two consultation**

Please ask for: Patricia Cuervo

7 February 2012

Dear Mr Aylard,

Please see enclosed the Council's draft response to the above consultation. Please note that this response is undergoing a Key Decision process which requires public consultation. This response will be confirmed formally after the 24 February, but given the closing date of your consultation, a draft response is enclosed.

Please do not hesitate to contact my officer, Patricia Cuervo if you have any queries regarding this matter.

Yours sincerely,

Jonathan Bore  
Executive Director Planning and Borough Development

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## **The Royal Borough of Kensington and Chelsea response Thames Tunnel phase two consultation**

### **1. Introduction**

- 1.1. The Council is still uneasy about the Thames Tunnel Scheme and the impact it will have. Its growing cost of £4.1 billion on current estimates will increase a Londoners' water bill by up to £70-80 a year. The Council reiterates that the delay or abandonment of other badly needed projects will be unacceptable.
- 1.2. We are concerned that the proposed tunnel will still result in the flow of sewerage into the River Thames. Currently, in a typical year 39 million cubic metres of untreated sewerage flows into the Thames, but even after all this work, it is estimated that 2.6 million cubic metres will spill into the Thames.
- 1.3. Nevertheless, the Council has been working closely with Thames Water to ensure that the design of the sites has the least impact possible. The Council has responded to all the consultations on different issues such as the Community Consultation Strategy; Statement of Community Consultation; Site Selection Methodology; EIA scoping Report; Site Selection Proforma; Code of Construction Practice; Phase One consultation and the Flood Risk Scoping Report. The Council has also responded to a related consultation on "Streamlining the Planning Process for NSIP: Wastewater Transfer and Storage" which confirms that the Infrastructure Planning Commission's successor will be the decision-making body for the Thames Tunnel. All the responses are included in our dedicated Thames Tunnel website (<http://www.rbkc.gov.uk/planningandconservation/planningpolicy/thamestunnelproject.aspx>) which aims to increase transparency and improve communications with our residents.
- 1.4. The Royal Borough's response to the Phase Two consultation is therefore principally focused on both of our sites at Cremorne Wharf and Chelsea Embankment, the impact of construction and operation, and the Preliminary Environmental Information Report (PEIR) Thames Water have gathered.

### **2. Project information papers**

- 2.1 These documents cover general issues on the design, changes with regard to sites, funding, construction of the tunnel and associated impacts, consultation and route of consent. The Council has already responded to these issues and does not have any further comment.

### **3. Site information Papers: Cremorne Wharf**

#### **3.1 Changes**

- 3.1.1 The Council welcomes the changes to the site, which have been discussed in several meetings with Thames Water. The principal change is the use of the waste depot as the preferred site with no need of access through Cremorne Gardens.
- 3.1.2 The phase one consultation included a temporary access constructed along the western edge of Cremorne Gardens. The Council did not agree with the use of the Gardens and the impact this would have with regard to residents' amenity and the issue of ecology. We therefore welcome this change which will eliminate the impact on the Gardens.

3.1.3 The Council considers that the impacts of a permanent structure on the foreshore leading to river encroachment may outweigh those of the temporary use of the waste transfer station as a site for the construction of the Thames Tunnel. Moreover, the ventilation building is no longer needed and the shaft diameter has been reduced from 12 m to 8m. Therefore, the use of the waste station for the temporary access, construction works and the location of the permanent structures (shaft, ventilation columns), will be acceptable providing the site is given back with new facilities to support the current waste use. Furthermore, the potential future use of the site should not be blighted by any of the permanent structures that will need to be accessed and maintained – indeed it should be optimised by the careful siting of these structures. The provision of the Thames path should also be safeguarded.

## 3.2 Policy Considerations

### **Safeguarded Wharf (Policies: CE2 Flooding, CE3 Waste)**

3.2.1 Cremorne Wharf is a Safeguarded Wharf and is also the Royal Borough's only licensed waste management site. The Council explained in the response to the Phase One consultation that, "if Thames Water can persuade the Mayor of London that the temporary loss of Cremorne Wharf is acceptable without triggering the obligation to reprovide a wharf and waste management site, the Council will discuss with Thames Water the temporary use of the Wharf as a construction site with a view to minimising the disruption and nuisance likely to be experienced by residents in and near Lots Road." As this is still the case and Thames Water are proposing the provision of improved facilities, the Council agrees with the temporary use of the waste station. The Council will seek from Thames Water appropriate compensatory provision during the use for the temporary loss of its facilities at the Wharf.

3.2.2 We note that the site layout is indicative only and request that we are consulted on any changes to the layout to ensure that no adverse impacts are created over and above those proposed.

3.2.3 In terms of the impacts during operation the site will have the following permanent structures:

- underground structures with ground level access covers including an eight-metre diameter drop shaft; connection tunnel to the main tunnel; connection culverts; interception chamber; valve chamber and passive filter chamber;
- two main ventilation columns up to 6m high;
- a small diameter ventilation column to the interception chamber up to 6m high;
- maintenance vehicle access; and,
- electrical and control equipment installed within the existing pumping station (to respect the setting and interior of the listed building).

3.2.4 There are discrepancies in the number and height of the ventilation columns that are required. The Site Information papers makes reference to 3 columns of up to 6m height and the PEIR non-technical summary and volume 15 (paragraph 3.2.12) refer to 2 columns of 4 m height. We therefore wish to seek confirmation on the number and height of the ventilation columns.

3.2.5 Access will be required once every three to six months for a few hours and once every ten years for an inspection that is likely to take several days which will require temporary fencing around the shaft. Also unplanned visits may take place

if required. The Council wishes to ensure that the location of the permanent structures and the access to the site minimises the impact on the site both for its current use as a waste station and any other potential future use.

### **Thames Path (CP18 Lots Road/World's End, CT1 Improving alternatives to car use)**

3.2.6 As explained in the Phase One consultation, the Council will oppose the lack of provision and connection to the existing path. We welcome the current proposal which leaves a 5 metre wide cleared area along the riverside edge to potentially provide the path in the future, subject to health and safety considerations for the use of the site as a waste facility. The extension of the Thames Path will be fulfilled as part of the redevelopment of the Lots Road Power Station and Chelsea Wharf.

## **3.3 Heritage and Design considerations**

3.3.1 The site requires extensive subterranean works: the construction of a chamber to intercept the combined sewer overflow and a connection culvert to link the interception chamber to a 45m deep drop shaft located on the foreshore, through which flows would pass down a short connection tunnel to join the main tunnel beneath the Thames. Above ground the new infrastructure comprises of access hatches for tunnel maintenance, electrical and hydraulic equipment and ventilation columns. The new equipment will be housed within a replacement waste depot building adjacent to the Lots Road Pumping Station. Two 5m high ventilation columns are the most conspicuous features of the Thames Tunnel works at this location. They are positioned in the southwest corner of the depot site, away from the riverside. Material details of the columns have yet to be confirmed, although it is understood that Thames Water wishes to make a signature structure of them, providing a common distinctive feature across all super-sewer sites along the Thames.

3.3.2 The tunnelling works require the demolition of the existing depot and the temporary use of the site. Following completion of the tunnelling works, Thames Water propose to provide a replacement depot building, and propose a 2-storey equivalent double-apex industrial shed facility with part brick and metal clad elevations, featuring green roofs with rooflights.

3.3.3 The relevant policies in the adopted Core Strategy and saved Unitary Development Plan (UDP) for considering the proposals are:

- CL1(a, d) – architecture and urban design, riverside development
- CL2(a) – high design quality
- CL4(g) – setting of a listed building/structure
- CR4(d, h) – street furniture and public art
- CR5(b, h) – protected open space, public access to the Thames
- Saved UDP Policy CD1 – riverside views and vistas
- Saved UDP Policy CD63 - conservation area setting,
- CT1(a) – riverside development, and
- Conservation Area Proposals Statement (CAPS) for the Thames (21)

3.3.4 The current proposals are a welcome change from the earlier scheme which previously had sought to build a large cofferdam into the River Thames. With regard to the design matters, the revised scheme has been rescaled and repositioned, significantly reducing the amount of infrastructure required and

relocating it as far as possible onshore and below ground. The revised scheme plays down the visual presence of the super-sewer system, locating the control equipment within the listed Pumping Station building where it will be unseen by the public and will also be secure. The location of these structures will require listed building consent and should not harm the interior of the listed building. The only visible presence is the pair of large ventilation columns, which are positioned in an off-street car parking area adjacent to the site's western boundary wall. The columns will be seen from Lots Road through the current entranceway to the pumping station, but are unseen from the riverside.

- 3.3.5 The minimal, low-key design approach of the new infrastructure is supported, minimising the visual impact upon the townscape and the setting of the adjacent pumping station. As proposed there are no visual impacts upon the Thames Conservation Area. However, the new vent columns remain large and fairly obtrusive structures that have no obvious functional relationship with the adjoining buildings, although they do not sit uncomfortably with the semi-industrial context. Whilst they are placed relatively discreetly at the moment, it is unclear whether the boundary wall and general industrial character of the area will remain in the longer term. It is therefore considered that the columns should be constructed of high quality materials and to a sensitive design. The notion of the columns as the project's signature structure is strongly supported and could provide for and/ or incorporate public art. Furthermore, should a high quality bespoke design be achieved, there would be little objection to locating the columns in a more visually prominent position towards the river, adjacent to or within the land set aside for the future riverside walk, where the structures could feature with the other sites along the river as part of the Thames-side experience.
- 3.3.6 Regarding the replacement depot building, again the low-key approach is supported, with the double-apex structure presenting an improvement in building mass compared to the existing depot facility. The building's western elevation, however, challenges the setting of the adjacent listed pumping station, and thought should be given to setting the new building line back from that of the pumping station, allowing the historic building space for its elevation to be read. It is unclear whether the two buildings are adjoining, or whether they are joined in which case listed building consent would be required. In terms of the material quality, the introduction of the green roof is supported and would further soften the appearance of the new depot and add visual interest, although the roof structure should include a good sized substrate to ensure a healthy, low maintenance green roof that can attenuate water runoff. The part brick/metal clad elevational finish is welcome, helping to reduce the visual bulk of the new building. However, the choice of materials will be important in reflecting the context. A corten steel finish rather than a galvanised metal finish would offer more visual distinction and visual interest. There are no window openings proposed currently on the riverside elevation, but these could add visual interest.
- 3.3.7 Overall, subject to the amended building footprint, material choice and elevational details, the current proposals for the replacement depot do not disrupt the setting of the adjacent listed building, and with the 5m set-back to allow for the Thames Path, are of sufficient architectural quality to make a positive improvement to the character and appearance of the riverside and the Thames Conservation Area.
- 3.3.8 It is acknowledged that there are operational requirements that largely determine the scale and position of the new infrastructure, especially that required above ground. It is welcomed that the scheme architects have sought to minimise the

visual impact of the infrastructure in terms of the location and visual quality of the above ground infrastructure. Further effort to ensure a high quality, bespoke design of the ventilation columns is strongly encouraged, which would be in line with Core Strategy Policies CL1, CL2 and CR4. On this basis, the new structures would not impact upon the visual quality of the open space, setting of the listed building and conservation area in general, and this would be in line with Policies CD1, CL4 and saved Policy CD63.

- 3.3.9 Regarding the new depot, the architecture is functional and not unattractive, presenting a softer and improved massing of a large depot facility compared with the existing building. Some change to the building footprint and design finish should ensure further visual interest and ensure that the building accords with Policies CL1, CL2, CL4, CR5, CD1 and CD63. The set-back allowing the new Thames Path is especially welcome, and would accord with Policies CR5 and CT1 of the Core Strategy.

### **3.4 Transport**

- 3.4.1 Cremorne Wharf Depot is situated on Lots Road, a borough road. Thames Water propose to intercept the Lots Road Combined Sewer Overflow (CSO) underneath Cremorne Wharf Depot. To achieve this significant excavation, building works will be required at the depot site for a period of three years. The current use of the depot, for the storage of highways maintenance materials, would cease. This activity would be relocated elsewhere within the area. There is extant planning consent (conditional) for the depot to be used as a waste transfer station. The use of the site for this purpose would not be possible whilst the Thames Tunnel works are underway.
- 3.4.2 During construction, vehicular traffic would use the two existing entrances to the depot from Lots Road. These are situated on either side of the listed Lots Road Pumping Station. A one way system would be in place with incoming traffic using the entrance to the east of the pumping station and outgoing traffic using an exit to the west of the pumping station. A maximum of 12 daily lorry visits are expected. Construction Traffic would be routed via the Lots Road/ Cremorne Road junction where it would join the strategic road network.
- 3.4.3 The Lots Road/ Cremorne Road junction is situated 150m to the east of the depot. The consultation material suggests that the Lots Road/ Cremorne Road junction may need to be modified. The Transport Assessment (TA) should provide a tracking diagram to confirm that construction vehicles can use the junction safely.
- 3.4.4 The stretch of Lots Road between the depot and Cremorne Road is of variable width. The carriageway is generally wide enough to allow two large vehicles to pass one another. However, there are pinch points through which it is not possible for large opposing vehicles to pass one another. This is not necessarily problematic if conflicts are infrequent. Traffic volumes on Lots Road are moderate. If a vehicle must temporarily stop to allow an opposing vehicle to pass it would not cause any undue disruption or delay. Given that there would be only 12 lorry visits to the site on a given day, it should be possible to schedule movement so that conflicts on Lots Road are minimised. It should be possible to hold outgoing vehicles within the site until a scheduled incoming vehicle arrives. This would prevent conflict occurring on Lots Road.

- 3.4.5 The consultation documents suggest that it may be necessary to suspend parking bays adjacent to the vehicular entrances. We would seek to avoid the need for parking suspensions. Tracking diagrams demonstrating how vehicles would access the site and egress the site should be included within the TA. We would only agree to suspensions if they are absolutely necessary. The depot is currently accessed by large vehicles so suspensions are unlikely to be necessary.
- 3.4.6 It is unacceptable that all deliveries to the site and spoil removal from the site are proposed to be undertaken by road. It is understood that the rationale is primarily economic. By virtue of its location, the low economic value of the materials, the lack of time constraints and the facilities that exist at the site, the river lends itself to be used in this location. Core Strategy (CS) Policy CT1 (n) (improving alternatives to car use) requires new development to take full advantage of the River Thames for transport including freight.
- 3.4.7 We note that contractors will not be prevented from using barges. However, it is unlikely that they would use barges without it being a requirement.
- 3.4.8 The site's extant planning consent for a waste transfer station would allow up to 75 lorry visits a day. Thames Water's proposal would produce significantly less traffic than this. It should be possible to manage the predicted volume of construction traffic effectively with an agreed Traffic Management Plan (TMP). It is noted that Thames Water intends to prepare a TMP. The Council wishes to agree any TMP with Thames Water in advance of the Development Consent Order submission. Adherence to the TMP must be appropriately secured by condition or legal agreement to satisfy Core Strategy Policies CT1 (b), (e), and (h). Any TMP will need to take account of other construction traffic flows in the area including flows generated by the Lots Road Power Station development.
- 3.4.9 The Thames Path currently leaves the river's edge between Cremorne Road and Chelsea Harbour. The TMP would have to set out how pedestrians and cyclists on Lots Road would be protected from construction traffic. It should be possible to put suitable arrangements in place (i.e. the positioning of banksmen at each of the site entrances when vehicles are arriving/ departing).
- 3.4.10 When complete, the Thames Water infrastructure would be predominantly underground. The only structures above ground would be a number of ventilation columns. These structures would be positioned to ensure that the site can continue to operate effectively as a depot. A vehicular route through the depot between the two gates will be maintained during the construction works and will be retained following completion. The works would not prejudice the site's designation as a Safeguarded Wharf.
- 3.4.11 Thames Water's plant on the site would generate a low servicing requirement of approximately two visits per year with more significant maintenance required every ten years. This servicing would take place off street using the vehicular route through the depot. No Conflict is envisaged on this basis with Policy CR7 (servicing).
- 3.4.12 Thames Water's proposals would not prejudice the future delivery of a five metre wide Thames Path at the river's edge. Although we would welcome the construction of a path within the site, we understand that the provision of a path through the site would prejudice its future use as a depot and its designation as a Safeguarded Wharf.

3.4.13 A potential alternative site is identified on the foreshore adjacent to the depot site. This site is not favoured by Thames Water as it would involve significant reclamation works. The alternative site would generate significantly more freight movements and is far less appealing than the Depot site.

### **3.5 Noise and vibration**

#### **Construction**

3.5.1 An assessment of the likely significance of noise has been made against the 'ABC' method of Annex E of BS 5228: 2009 Part 1. This method allows significance of construction noise criteria to be at least 5dB, but not more than 7.5dB above the ambient noise level. However, this method relates construction noise to ambient noise levels and currently these noise surveys are not complete. The assessment of noise is therefore preliminary only. During the construction it is considered that only enabling works and shaft sinking will generate significant air borne noise, other works being underground.

3.5.2 In the absence of ambient noise data a preliminary assessment has been undertaken. This assumes that ambient noise will put the site into the lowest noise significance criterion 'A' using the 'ABC' method of BS 5228:2009. On this basis noise is predicted to exceed the significant criterion 'A' at 15 and 48-88 Lots Road, Lots Road Power Station redevelopment and Chelsea Wharf.

3.5.3 Much of the detail of construction is not yet available. However we can confirm that the use of the 'ABC' method for assessing and establishing significance criteria for construction noise is acceptable. For those sensitive receptors where the criteria is exceeded additional mitigation will need to be considered and as stated in 9.7.6 presented in the ES.

3.5.4 In paragraph 9.2.7 of the PEIR, sheet piling to start the top of the shaft sinking is defined as driven piles. We will like clarification as to whether 'push in place' piling or 'hush' piling will be used.

3.5.5 It is not possible to assess the noise impact of construction related vehicles on existing traffic volumes on surrounding roads: Paragraph 9.5.15 states that construction traffic noise would be assessed in detail in the ES when more data is available. Our comments on transport will need to be addressed in the construction traffic noise assessment to be incorporated in the ES. It is confirmed that all material will be removed by road.

3.5.6 Paragraph 15 9.2.11 of the PEIR states that no assessment has been made of any potential surface activity over 24 hours as a result of boring the connection tunnel at this site. We assume that no access to the surface is therefore required at night at the site during the construction of the tunnel bore.

3.5.7 Vibration is predicted to be significant at Lots Road and the ES will need to consider available mitigation to reduce this where practicable.

#### **Operational**

3.5.8 Noise and vibration from plant and equipment in the operational phase will be designed to ensure compliance with RBKC LDF- Noise SPD. Noise and vibration emitted from plant and equipment will be required to comply with RBKC LDF Noise SPD. This will include air noise and fan noise from ventilation stacks. The

noise generated from cascade filling of the main shaft from the CSO is being assessed and will be included in the ES in due course. The incorporation of noise controls is currently being reviewed by the Thames Tunnel engineering team in time for inclusion in the ES.

### **3.6 Land Quality**

- 3.6.1 The land use history of the site and adjacent properties has been identified. There are a considerable number of past and present potentially contaminative former land uses directly adjacent to and on the site itself.
- 3.6.2 Paragraph 8.4.23 explains that the full results of the site investigation are currently not available so whilst some results have been shared it is not possible to say whether these are representative of all site conditions.
- 3.6.3 For BH SA1097, in Cremorne Gardens, it is stated that no contaminants above human health screen values were identified in the six samples tested. The locations of the boreholes should be justified and details should be included as to what depths each of these six samples were taken from. In addition, the author of the screening values, the values themselves and the suite of contaminants tested should also be included.
- 3.6.4 Results for boreholes SR6360 and 6361 appear not to have been included, presumably because they are not yet available. In the EIA it would be helpful if a diagram could be presented that shows the locations of the boreholes in relation to the proposed excavations. We would also recommend that further sampling is undertaken in the southern part of the site, where the connection tunnel to the main tunnel will be.
- 3.6.5 We agree with the components set out in the conceptual model. However, until we have viewed the site investigation report and discussed the results and proposed remediation it will not be possible to comment further.
- 3.6.6 In section 8.8 the assessment summary table is misleading. It implies that mitigation is not required at all. Elevated levels of contaminants have been identified and the risks posed will need to be addressed. This is a form of mitigation.

### **3.7 Air Quality**

- 3.7.1 Section 4 'Local Air Quality Management' makes no reference to the Council's Air Quality SPD. We will expect the EIA to refer to this and ensure that the methodology used meets our requirements.
- 3.7.2 In paragraph 3.3.27 we have assumed that all excavated material would be removed from site by road; material will only be removed by barge if the contractor finds this practicable. We believe that it is highly unlikely that contractors will use barges voluntarily and further consideration should be given to this requirement.
- 3.7.3 The results of the air quality modelling are not yet available. It is therefore not possible to comment on whether we agree with the conclusions made in the Phase Two consultation material.

- 3.7.4 We accept that air quality is unlikely to be affected significantly during the operational phase of the development as stated in paragraph 4.1.4, but it would be helpful if a summary could be included on how often it will be necessary to visit the site for maintenance or other purposes.
- 3.7.5 The highest number of lorry movements is predicted to occur during site set up and enabling works during year 1 of construction (paragraph 4.2.2). The peak number of vehicle movements at that time would be 30 lorry movements per day averaged over a one month period. Averaging these figures could mask the true impact on a given day and a maximum daily figure should be specified in the EIA. We have noticed that this figure is different from that in the leaflet for the site which shows 12 as the average daily lorry movements. Confirmation of the correct number is sought.
- 3.7.6 Paragraph 4.2.5 - construction plant, explains that there are a number of items of plant to be used on site that may produce emissions that could affect local air quality – further information needs to be provided on these together with information about mitigation. This should form part of a low emission section of the EIA.
- 3.7.7 Paragraph 4.2.8 states that appropriate measures are included in the draft COCP in relation to a number of different areas. Currently the COCP does not list the individual measures, it only lists the areas themselves.
- 3.7.8 Paragraph 4.4.3, together with table 4.4.1 examines at the existing monitoring that is in place, close to the Cremorne Wharf Depot. The tube known as KC39, on the corner of Lots Road and Upcerne Road, is very close to the annual objective level, in 2010 it was  $1\mu\text{g}/\text{m}^3$  above. Therefore, table 3.4.5, in Volume 5 which assigns a magnitude of change according to, in part, the increase in concentrations is therefore of concern. Any increase, however small, particularly when coupled with other small increases from other developments, will have a potential impact and could make the difference between us achieving the objective, or not. Mitigation will therefore be key.
- 3.7.9 It would be helpful if the EIA could include the justification for the locations selected for the diffusion tubes in paragraph 4.4.6; this section of the Phase Two consultation does not give this information or when the monitoring commenced. In addition, whilst we are satisfied with the locations selected, we would like to request that a further tube is sited on Lots Road close to the corner of Tadema Road.
- 3.7.10 We are not convinced by the sensitivity categories assigned to the receptors in paragraph 4.4.10. Commercial offices are said to have a low sensitivity to local air quality and medium sensitivity to dust nuisance, whilst schools and residential areas are said to have high sensitivity to local air quality and medium sensitivity to dust nuisance. Some offices may have outdoor areas where staff might sit during a break, or perhaps keep windows open whilst they work. In addition, due to the proximity of the residential area to the site, it would be expected that this receptor type (or at least those living closest) to be classified as high risk. Volume 5 states that the sensitivity of selected receptors is based on Defra Guidance TG09. It would be helpful if this could refer to the relevant section of the guidance document. In addition, in our opinion, Defra Guidance TG09 is more suitable for determining air quality management areas rather than assessing risk from construction sites.

- 3.7.11 The list of site specific details in paragraph 4.5.19 should also refer to the demolition and excavation works that will be taking place.
- 3.7.12 In paragraphs 4.5.20-22 the development has been classified as a medium risk site with regard to dust potential. It is stated that these effects would be reduced by the implementation of measures contained in the COCP which would then result in minor adverse effects at residential properties and negligible effects elsewhere. The mitigation measures have not been included in any detail and therefore it is not possible to offer an opinion on whether this is likely to be the case. Due to the close proximity of residential properties, and the demolition and construction works that will be required at this site, the Council will require real time particulate monitoring and will need to agree appropriate trigger levels and a procedure on how any alerts will be dealt with.
- 3.7.13 Paragraph 4.5.23 concludes that the overall significance of construction effects is likely to be minor adverse at residential properties and negligible elsewhere. However, the evidence has not yet been provided to support this.
- 3.7.14 Volume 5 (paragraph 3.4.94) seeks to quantify the magnitude of change in pollutant concentrations that will result. We are more interested in the changes in emissions, and it will be necessary for us to see these and understand how the mitigation measures proposed will minimise these.
- 3.7.15 In section 4.7- 'Approach to Mitigation' it is said that all measures are embedded in the draft COCP and that no mitigation is required. Mitigation will be required and this statement is misleading.

### **3.8 Ecology**

- 3.8.1 Surveys to establish the aquatic and terrestrial ecological baseline have been undertaken but are not reported in full in the PEIR.
- 3.8.2 In section 5.9 the aquatic ecology impacts using the preliminary data during the construction stages are shown to cause a probable low increase in suspended sediment impacting on downstream habitats. It is requested that the impact of increase sediment on the vertical river wall species be considered in the Environmental Statement (ES). Surveys of the vertical river walls are of interest and should be used to guide enhancements of the wall post development.
- 3.8.3 The RBKC bat survey of its main parks in 2010 indicated that a bat roost is likely in the building on or adjacent to this site (Section 6.4.9).
- 3.8.4 The provision of a biodiverse substrate based living roofs should be used to assess post construction ecological impacts (Section 6.9).
- 3.8.5 The proposals would involve the removal of what appears on the aerial photos to be a small group of shrubs and maybe one tree by the river. These have no public visibility and could easily be replaced on completion of the project.
- 3.8.6 Although it is not apparent it may be necessary to remove one or more of our street trees on Lots Road to allow vehicular movements to the site. None of the trees here are very old and so provided only a few specimens are involved these

could again be fairly easily replaced on completion of the project. We would expect the developer to bear the cost of any new or replacement trees.

### **3.9 Socio-economic impacts**

- 3.9.1 With regard to the socioeconomic impacts of the scheme in relation to Cremorne Wharf we acknowledge that the works would be unlikely to result in any significant loss of function of the use of the site for employment generating activities in the short term in view of the fact that the wharf/jetty facilities are not currently in use. However, the fact remains that the wharf is protected Employment Land in the Core Strategy and in a Borough where open land is in very short supply the use value of this largely open site should not be underestimated. As the environmental report states, the latest employment land estimate for the Borough shows very low vacancy rates and the total supply of employment land compared with need, is low. On this basis it is concluded that businesses would be somewhat sensitive to even small losses of employment land in the Borough. The main thrust of concern is that the site is not sterilised in the medium/longer term on the basis and that the siting of any permanent structures or other features associated with the tunnel do not compromise in any way its future use, whatever that might be. On this basis the Council would welcome further discussions to ensure that the best use of the site can be made in the future.
- 3.9.2 Whilst it is acknowledged that the site has currently a low key use in so far as it is used as a storage facility, and a collection and drop-off facility for the highway maintenance department, its value as an important strategic site for the Council should not be underestimated and alternative facilities which are equally accessible must be negotiated well in advance of any works. Given the short supply of alternative sites in the south of the Borough this may not be straightforward.
- 3.9.3 In relation to the Thames Path and the National Cycle Route (NCR) 4 it is acknowledged that for the duration of the works there is the capacity to provide alternative routes in the vicinity and the disruption from works is relatively low. However, the creation of the Thames Path and the NCR in the longer term must be safeguarded and the Council welcome the safeguarding line established by Thames Water.
- 3.9.4 With regard to the effect on the Cremorne Riverside Activity Centre, this provides a comprehensive programme of activities for young people and the wider community throughout the year. The Council run services at the Centre to cater for children from 9 to 19 years of age and of varied skill levels. It is acknowledged by Thames Water that the construction works would interrupt the current activities and that the availability of alternative river space that can be used with the minimum of inconvenience and disturbance should be explored. Thames Water state that a further consultation will take place to help determine what degree the Centre would be able to satisfactorily manage its activities and this will be carried out later in 2011. However, given the date it is assumed that this survey is running behind the original time schedule and in the absence of further information concern is expressed regarding the possible temporary loss of this important facility. Thames Water must therefore be in a position to offer a viable alternative well before any construction works commence.

3.9.5 The environmental information report indicates that the combined effects of a reduction in air quality, noise and vibration and visual impacts as a result of the proposed construction works could potentially combine to reduce the amenity experienced by nearby residents living adjacent to the site at Chelsea Wharf and at the proposed Lots Road Power Station development. It is also noted that the vibration (human response) effects are likely to be significant at one of the four residential receptors. Thames Water considers that the overall effect on residential amenity could be moderately adverse and therefore significant. Whilst it is understood that construction works can have a detrimental impact in the short term they must be of a tolerable nature and every effort should be made to mitigate the impact. The assurance that any works will be limited to the working day is welcome, but it is not clear whether any work will have to take place at the weekend or at antisocial hours. The mitigation works that are required are discussed elsewhere, but the Council expects their comments to the Thames Tunnel Code of Construction Practice Part A: General Requirements to be complied with as far as it is possible.

### **3.10 Water Resources and Flood Risk.**

3.10.1 We welcome the benefits in water quality that the interceptions of this combined sewer overflow (CSO) will bring locally and London wide. The non-technical summary explains that the reduction in the overflow will be of over a million cubic metres. This will have a positive impact on water quality by reducing the depletion of dissolved oxygen, the exposure of river users to pathogens and the sewage litter in the river. It will also have a positive aesthetic and health impact.

3.10.2 The impact on groundwater storage and flood risk as a result of physical obstruction from the shaft in the upper aquifer is still being modelled as explained in table 13.6.2. If any significant effect is identified it will need to be addressed through mitigation measures.

3.10.3 Mitigation measures should also be in place to reduce the potential of contamination from site drainage during construction and operation. The PEIR does not contain mitigation measures to cover construction.

3.10.4 In terms of flood risk, the report currently classifies as medium the risk of impact to the flood defences due to settlement during the alignment of the tunnel construction passing under the defences. This should be reduced or mitigated through measures which are not included in the PEIR. We are concerned that these measures are not outlined in the report.

3.10.5 Paragraph 15.3.6 of the PEIR identifies the Surface Water Management Plans (SWMP) due for completion in Autumn 2011. Our Draft SWMP is available from our website <http://www.rbkc.gov.uk/planningandconservation/planningpolicy/floodingissues/leadlocalfloodauthority.aspx> under the 'Flood Risk related documents' section.

3.10.6 The Site Information papers mention a green roof in the shed building which we welcome as it could potentially reduce the stormwater runoff and provide habitat. However, the non-technical summary of the PEIR refers to a brown roof. We will again seek confirmation on the provision of a brown or a green roof. Our Core Strategy Policy CE2 criterion (e) requires SUDs for all development in the Borough. Therefore the statement in paragraphs 15.5.10 and 15.5.11 should be changed to reflect this. The green roof could be part of the SUDs provided. However, the use of other SUDs should be investigated.

3.10.7 The PEIR refers to scour and deposition due to the presence of a cofferdam in the foreshore (paragraph 15.6.3 point b). The new site layout does not require the cofferdam and this should be included in the Level 2 FRA.

### **3.11 Odours and Ventilation**

#### **General Comments for both RBKC sites**

3.11.1 The Air Management Plan (AMP) defines how air from the proposed Thames Tunnel project is vented into and out of the tunnel system and how air releases are controlled and treated. It outlines operational and management procedures for controlling air movement, and treatment of air to meet regulatory requirements and limit the extent of nuisance odours.

3.11.2 The AMP focuses on the 23 locations (at 22 sites) that air can enter and exhaust from the system between the Acton Storm Tanks to Abbey Mills; some using active control treatment plants, others are passive, including those in the Royal Borough. As the tunnel system controls combined sewer overflows, it would receive flow intermittently, depending on rainfall. The operation of the ventilation plant will then vary depending on the level of filling.

3.11.3 It is estimated that in a typical year of rainfall, the tunnel would be empty for about 70-75 per cent of the time, with no air emissions from the majority of sites during this time except at Acton, Carnwarth Road Riverside and Abbey Mills, which would operate at a low level (at least once per day) to maintain an exchange of fresh air within the tunnel.

3.11.4 During a CSO event, simulations indicate that an average event storage time is 13 hours, with the longest storage duration in a typical year of about 49 hours.

3.11.5 The Council wishes to understand what qualifies as typical (para 1.1.5) and what happens during an atypical year and how many of those events have there been in the last ten years?

3.11.6 During a rain storm of sufficient intensity the CSO's will begin to fill the main tunnel. This filling will be gradual from the lowest point in the main tunnel in the east going westward. There is a difference in level of the Acton site at -30m to Beckton at -75m. The slope of the main tunnel (west to east) is designed to maintain a self cleansing velocity and prevent the build up of settled solids or sewage sludge. When the tunnel is filling, a limited amount of air would be exhausted at sites, depending on how full the tunnel becomes. Air exhausted will be treated to ensure acceptable air quality. In a typical year, individual sites would have emissions lasting for between five to 50 hours in total, spread over one to 15 events. When the main tunnel is empty the exposure of settled solids to the air circulation may exacerbate odour nuisance and the Council requires assurance that the carbon filter technology will be adequate.

3.11.7 Air will be managed at two sites in the Royal Borough – at Cremorne Wharf and Chelsea Embankment, both by passive control treatment plants. Figure 2.3 shows the air management system in operation. Passive sites are also the main location for air intake. Both air intake and exhaust are controlled by dampers and exhausted air is passed through passive carbon filters.

- 3.11.8 Passive sites have ventilation columns set at a height of 4 metres to comply with hazardous zoning requirements.
- 3.11.9 In respect to Odour sources, paragraph 2.4 of the AMP, air would be released from the system at 22 sites. For 99.7 per cent of the time, this would be treated air and therefore not odorous. For rare occasions, associated with very heavy rain a portion of air releases would bypass treatment and vent to the atmosphere. The Council would like to know what rainfall has been classified as heavy and how many occurrences of this have there been in the last ten years. It is stated that the quality of the air released would be similar to the air quality that is associated with the current CSO discharges and would not cause nuisance or odours. We would like to know how close the current discharges are to the nearest sensitive receptors in RBKC compared with the layout proposed.
- 3.11.10 Hydrogen sulphide (H<sub>2</sub>S) is also associated with sewerage. Odour and H<sub>2</sub>S generation is based on the amount of odour forming constituents in combined sewerage and how air moves through the system and is exhausted. With simulation of air displacement and the quality of air based on odour and H<sub>2</sub>S generated, estimates of exhaust rates and quality have been produced.
- 3.11.11 The draft National Planning Statement for waste water has set an impact exposure standard to be applied at sensitive receptors such as housing, hospitals and schools of 1.5ou<sub>E</sub>/m<sup>3</sup> for the 98<sup>th</sup> percentile of hourly average concentrations. The Environment Agency also uses this standard. All sites will meet the 98<sup>th</sup> percentile odour criterion. Preliminary modelling shows the number of hours in a year with concentrations above the standard.
- 3.11.12 Paragraph 2.3.9 of the AMP explains that under unusual and infrequent rapid tunnel filling conditions, displaced air could exceed the capacity of the odour treatment units. Under these conditions, air would be released through a bypass vent, which is normally combined with the odour unit vent as one structure.
- 3.11.13 Under very extreme conditions (said to be about once every 15 years), generally associated with rapid tunnel filling, air displacement rates can be high and would exceed the design airflow rate of the air management facilities. This high pressure air would be released via weighted dampers and exhausted to the atmosphere for a short time (estimated to be less than ten minutes). The pressure relief is incorporated into the design of all shafts. The Council would like to know what is meant by 'extreme conditions' and when the last one was. We would also like to know how 'climate change' has been considered and taken into account for the future.
- 3.11.14 At locations with passive odour treatment, air intake and air release would be regulated by weighted dampers or modular passive filters. No air is released until rising wastewater during tunnel filling seals the shaft and the pressure rises within the shaft to open the weighted dampers/passive filters leading to the OCUs. Displaced air is released through the dampers/passive filters into an underground chamber containing OCUs.
- 3.11.15 As a further precaution against possible adverse air releases when the system is full and CSOs revert to the river, small diameter vents similar to current sewer vents will be included in the design of the interception chambers. We are

informed that these air vents will allow the intake of air to the interception chamber and could possibly result in air discharge, depending on river levels and CSO flow rate. Possible short duration air discharge could occur (said to be on average for a total of about ten hours in a typical year at about half the sites discharged over separate short term events) whenever CSOs have reverted to the river. We would like confirmation that discharges from these vents will form part of the odour risk assessment and would like to understand what odour levels these are likely to be.

3.11.16 As a final comment on the proposed air management system, it would be helpful if the plan could comment on where else in the world such a system has operated and how well it has worked. What problems or issues arose and how the lessons learnt have been accommodated.

3.11.17 In terms of odour during operational phase (paragraph 4.6.4) the maximum ground level odours have been predicted based on Environment Agency Guidance for the number of hours that odours will be detectable above 98<sup>th</sup> percentile criterion of 1.5 ou<sub>E</sub>/m<sup>3</sup>. At ground level, adjacent to the ventilation columns, this is six hours and at buildings it is 0.0. No information has been provided for how much above 1.5 it could be; this needs to be understood, along with the distance that the odour will travel and be experienced by anyone in the vicinity. Para 2.2.2 of the Air Management Plan stated that the distance at each air release site to each receptor type will be identified as part of the odour risk assessment process undertaken and we look forward to receiving this information.

#### **Cremorne Wharf**

3.11.18 Paragraph 4.29 of volume 15 explains that Carbon passive filter is housed below ground. The passive filter would treat 0.5m<sup>3</sup>/s – the Council is keen to understand how this figure was derived. The maximum air release during a typical year is expected to be less than 0.1 m<sup>3</sup>/s therefore within the capacity of the filter. Air would be released from the ventilation column (low level vent) for 14 hours in a typical year, all of which will have passed through the filter. For the remaining hours, no air would be released.

## **4 Site information Papers: Chelsea Embankment**

4.0 The documents for consultation present the Chelsea Embankment foreshore as the preferred location for the shaft following from the Phase One consultation. However, the Council will respond to the Phase Two consultation considering the potential positive and negative effects of the preferred site and the shortlisted site in Ranelagh Gardens. The Council will take into account the permanent impact of a structure on the foreshore leading to river encroachment and a disruption of the elegant linearity of the embankment wall which is a rare feature in London. The proposal will have an impact on conservation areas and the setting of listed buildings and structures. The impact on Ranelagh Gardens, even temporarily, could have an important effect on the ecology of the Gardens as well as a loss of open space and amenity for users and a disruption to well known exhibitions and events such as Masterpiece London and the Chelsea Flower Show.

## **4.1 Changes**

4.1.1 The Council welcomes the changes to the preferred site, which have led to the combination of the drop shaft and interception chamber foreshore projections into one structure in the foreshore rather than the two separate structures proposed in the phase one consultation. The diameter of the shaft has also been reduced from 18m to 12m which will reduce the footprint of the structure. The number of ventilation columns has increased although their size is smaller.

## **4.2 Policy Considerations**

4.2.1 The principal policy considerations relate to the impact on the setting of listed buildings and structures (the Grade II listed embankment wall; Grade II listed Chelsea Bridge; Grade II listed Bull Ring Gates; Grade II listed sewer ventilation column to the east of the site; Grade I listed Royal Hospital Chelsea; Royal Hospital Chelsea South Grounds and Ranelagh Gardens Grade II registered park and garden) and the views across the river which will be covered under the 'Heritage and Design Considerations' section.

4.2.2 During operation the site will have the following permanent structures:

- underground structures with ground level access covers including a twelve metre diameter drop shaft; connection tunnel to the main tunnel; connection culverts; interception chamber; valve chamber and passive filter chamber;
- two main ventilation columns of 4m and 6m in height;
- two small diameter ventilation columns to the interception chamber up to 6 m high;
- two electrical and control kiosks,
- maintenance vehicle access; and,
- an extended river wall around the edge of the development once it is built to maintain river defences.

4.2.3 As with the Cremorne Wharf site, access will be required once every three to six months for a few hours and once every ten years for an inspection that is likely to take several days and require temporary fencing around the shaft. Also unplanned visits may take place if required. The Council will seek that access needs are minimised to reduce the impact to the site and its users.

### **Chelsea Embankment foreshore**

4.2.4 The Council aims to create opportunities to provide public access to the river and the creation of new open space with public access. Works on the foreshore could improve views and appreciation of the river; enhance the riverside, the gardens and its surroundings. The Council is, however, concerned with the maintenance of the reed terraces on both sides of the foreshore structure. These terraces could trap unsightly flotsam on the foreshore when the tide is out. We seek confirmation of the maintenance regime and the body responsible for its maintenance. The maintenance arrangements for the permanently reclaimed parts of the river will need to be agreed with the Council and Transport for London (TfL). It is important to mention that this is an ongoing cost to the scheme, and will need to be picked up by either the water rate payer or the tax payer. A scheme with minimal ongoing management implications would not incur these costs. If a proper maintenance scheme cannot be put in place prior to submission to the IPC the Council will object to this option.

4.2.5 In terms of the Thames path, the preferred site shows its reprovision in the new structure on the foreshore, which is welcomed.

## **Ranelagh Gardens**

- 4.2.6 Despite construction works being closed for three months during the Chelsea Flower Show, some space in the gardens will be unavailable for the Show. The construction of the shaft will severely disrupt the Show for three years. The main impact will be in the hospitality area in on the south grounds which could see the income of the Royal Horticultural Society and the Royal Hospital dramatically reduced. The Council recognises that these income streams are extremely important and must therefore be assigned significant weight when the two options are assessed.

## **4.3 Heritage and Design considerations**

### **Chelsea Embankment foreshore**

- 4.3.1 This site requires extensive subterranean works and above ground new infrastructure including access hatches for tunnel maintenance, electrical and hydraulic equipment and ventilation columns. In this instance, the drop shaft is positioned within an extension of the embankment into the river foreshore, constructed using a cofferdam.
- 4.3.2 The extension provides a new paved open space at street level, and inter tidal reed terraces either side at lower level. Access hatches are set flush within the paving, and the electrical and control equipment is housed in two large kiosks. Two 5m ventilation columns are located to the western edge of the extension and a 6m column to the east. Material details of the columns have yet to be confirmed, though it is understood that Thames Tunnel wishes to make a signature structure of them, providing a common distinctive feature across all super-sewer sites along the Thames.
- 4.3.3 The proposals include the resurfacing of the Bull Ring. The new design is conceived as a large oval arranged on a northwest-southeast axis, following the line of Monument Walk and the historic axis that runs through the Royal Chelsea Hospital and Royal Avenue beyond. The vehicle drop-off area and grassed roundabout by the gates are retained, but the highway is resurfaced in granite setts. A new central reservation is proposed, surfaced in granite setts to match, improving access to the riverside and to the new build-out. The latter is surfaced in the same granite setts, which are raised to form a large curved granite bench adjacent to the new riverwall, with feature linear strip lighting at its base and an arc of pavement lights. A stone inlay marks the historic axis. New tree planting is proposed, offsetting the loss of the existing plane tree.
- 4.3.4 An additional area of works is proposed on the northside of the Embankment, which partly falls within Ranelagh Gardens. This is the site of the new interception chamber. Thames Tunnel proposes to excavate the site, install the chamber and re-cover, reinstating the walls and railings to match the existing and provide replacement tree cover.
- 4.3.5 The relevant planning policies for considering the proposals are:
- CL1(a, d) – architecture and urban design, riverside development
  - CL2(a) – high design quality
  - CL4(g) – setting of a listed building/structure
  - CR4(d, h) – street furniture and public art
  - CR5(b, h) – protected open space, public access to the Thames

- Saved UDP Policy CD1 – riverside views and vistas
- Saved UDP Policy CD8 - Royal Hospital views and vistas
- Saved UDP Policy CD9 – Royal Hospital open space
- Saved UDP Policy CD63 - conservation area setting, and
- CT1(a) – riverside development
- Conservation Area Proposals Statements (CAPS) for Royal Hospital (20) and the Thames (21)

4.3.6 The site is highly prominent being midway along a stretch of riverside that is characterised by the continuous embankment wall and unbroken foreshore and general backdrop of trees and historic buildings, and sitting in the foreground of the grade I listed Royal Hospital, grade II listed Bull Ring gates and registered gardens, as viewed from the Embankment, Chelsea Bridge and Battersea Park opposite. These views are highlighted as important in the Thames CAPS. Though a listed structure for much of its length, the embankment wall is not listed immediately opposite the Bull Ring, having been rebuilt at the time of the construction of Chelsea Bridge.

4.3.7 The current proposals are a welcome change from the earlier proposals, having scaled back considerably the infrastructure requirements for this visually sensitive site. Nevertheless, the current proposal still presents a disruption to the long linearity of the embankment and a visual intrusion. This has to be weighed against the provision of new publicly accessible open space. Thames Tunnel has opted to make a bold intervention in terms of aligning the disruption with the axis running through the layout of the Royal Hospital, which could well prove effective and provide an attractive new public open space from which to enjoy local views, subject to the design quality and maintenance of the new public open space.

4.3.8 The current proposals are for a simple, hard landscaped area with bench seating, detailed in high quality granite setts, which draws in the attractive listed Bull Ring gates opposite and celebrates the axial alignment in a low-key way. This could be supported by visual interpretative material provided on-site, which should be encouraged. The new space, however, remains uneventful rather than understated, lacking a sense of focus within the space itself. The calmness is undermined by the clutter of the very large equipment cabinets located to either side of the axis, the two large vent columns to the west and the single tall vent pipe to the east that detract from the visual quality of the new streetscape. The cabinets should be further minimised in their visual impact, reviewing the equipment needs or relocating the cabinets below ground or providing interesting bespoke structures. Similarly, the notion of the columns as the project's signature structure is strongly supported and Thames Tunnel is encouraged to recast the structures as public art or incorporating public art, reducing their negative visual impact, perhaps providing the need focus to the space.

4.3.9 Currently the material quality of the paving is high and the resurfacing of the Bull Ring to match is a welcome improvement. The use of granite setts or similar high quality paving material (e.g., York Stone) is a key feature of the designs and must be retained in subsequent design stages to ensure the scheme's high quality. It is unclear, however, whether the site is treated as a single surface, which is not supported, as it may encourage the mis-use of the new public open space as a vehicle drop off. Similarly, whilst the new pedestrian refuges are welcome in easing public access across the embankment road, care needs to be taken in detailed design to prevent street clutter, which would impede the sense of a

single space. Though not shown, a pedestrian guardrail may well be required, which would regrettably add clutter the area.

- 4.3.10 Regarding the reed beds, they provide added visual interest and a softening of the incursion into the river at low-tide, though the contribution is limited. The positive visual effect, however, should not be undermined by any accumulation of flotsam and rubbish dumping. Regular maintenance must be secured, if the visual quality of the terraces is to be maintained. Careful control is needed of any apparatus required for access to the reed beds and should not present further visual clutter to the structure.
- 4.3.11 It is acknowledged that there are operational requirements that largely determine the scale and position of the new infrastructure and especially that required above ground. It is welcomed that the scheme architects have sought to design a new public open space that is low-key and celebrates the axial alignment of the Royal Hospital and its gardens, though this must be weighed against the disruption to the characteristic linearity of the embankment wall and foreshore. The quality and future maintenance of the new public open space is very important in assessing this balance, and as currently shown requires further details if a positive outcome is to be ensured. In view of outstanding concerns regarding maintenance and the effect on the linearity of the Thames embankment wall, the Council will welcome further discussions on how best to make a positive intervention at this very sensitive location and concur with the view of English Heritage that an exceptional structure is required.

#### **Ranelagh Gardens**

- 4.3.12 It is understood that Thames Water considered an alternative site for the Ranelagh CSO infrastructure located within Ranelagh Gardens itself. This would remove the need for the build-out and disruption of the riverside wall, preserving the character and appearance of the Thames and of the local townscape in general. The new structures would be located within the wooded area of the gardens, effectively masked from general sight. It may, however, cause disruption to tree cover, ecology and the operation of the Chelsea Flower Show, though the impacts would be largely temporary. The new ventilation and cabinet structures could be set amongst the retained trees and/or designed into a new walled garden. The alternative proposals could preserve the setting of the riverside and views of the Royal Hospital. However, the effect on events such as the Chelsea Flower Show which provide an important income stream for the Royal Hospital to maintain the fabric of their historic buildings and on the Royal Horticultural Society must be borne in mind.
- 4.3.13 The alternative location within Ranelagh Gardens has the distinct advantage of avoiding any substantial riverside interventions. However, despite the need for careful consideration to minimise the disruption to the visual quality and amenity of the gardens, and to the operation of the Chelsea Flower Show, the Council is of the view that the temporary works will have a significant impact. Therefore, on balance, the Embankment Foreshore option is favoured, provided that the design and the maintenance arrangements for this solution ensure that the structure makes a permanent positive contribution to the character, appearance and functioning of the foreshore, the embankment and the setting of the Royal Hospital. The current proposals do not go far enough in providing this degree of comfort.

## **4.4 Transport**

### **Chelsea Embankment foreshore**

- 4.4.1 Chelsea Embankment is part of the Transport for London Road Network. Transport for London is the Highway Authority for this road. Thames Water propose to intercept the Ranelagh CSO underneath a new structure on the foreshore opposite the Royal Hospital's Bull Ring Gate on the Chelsea Embankment. It is also proposed to intercept a low level sewer which runs underneath the roadway. Two distinct construction sites would be established, one for each of the interceptions. In total construction works on the Embankment would last for up to four years.
- 4.4.2 The main construction site would be situated on the south side of Chelsea Embankment where a temporary work area would be established on the foreshore by filling a cofferdam with spoil. When the tunnel works are complete, the temporary work site would be largely removed leaving a permanent structure on the foreshore. This structure would provide a new area of public domain opposite the bull ring on the south side of the embankment. The intention is that the bull ring and the new area of public domain can be integrated with one another through a unified pavement treatment/ landscaping.
- 4.4.3 The main construction site would require the closure of the footway on the south side of Chelsea Embankment. It would also be necessary to cone off a 140m long site access lane for construction traffic on the southern part of the roadway. Chelsea Embankment provides two wide traffic lanes, one in each direction. There is sufficient width to provide a temporary site access lane while maintaining two reasonably wide lanes past the site (at least 3.5 metres each). Whilst there would inevitably be some impact on traffic flows this impact should be limited. We expect the TA to be submitted with the application to fully assess the potential impact of reducing the lane widths on traffic flows and different road user groups, especially cyclists. The temporary road layout should provide as much lane width as possible to minimise the impact on the quality of the cycling experience.
- 4.4.4 The site access lane would operate one way east to west. Construction vehicles would turn off the site access lane onto the temporary work site across the (closed) footway. Construction vehicles would leave the site heading west on the A3220 to the A4. The Phase Two consultation material does not identify the route construction traffic would use to reach the site. The TA must assess the impact construction traffic would have on the designated access routes and other affected streets.
- 4.4.5 This foreshore site would be accessible by barge and by road. Barges would bring and remove the material needed to fill the cofferdam. Two barges would visit the site daily, each capable of carrying 55 lorry loads of spoil. All other deliveries/ removals would be undertaken by road. Up to 33 lorries would visit the site on a daily basis. As set out above this is not acceptable. Core Strategy Policy CT1 (n) requires new development to take full advantage of the River Thames for transport including freight, and on this basis more thought must be given to transportation by barge.
- 4.4.6 The secondary construction site would be situated on the north side of Chelsea Embankment c. 100 metres east of the main site. The site would extend across the footway on the northern side of the road and would occupy the northern third of the roadway. Again sufficient width would be retained to maintain two way operation on the Embankment. Vehicular access to the works area would be

provided to the east and west. It should also be possible to access this area via Ranelagh Gardens. The TA should explain how vehicular access to the secondary site would be achieved and explain how the chosen arrangement would minimise disruption to traffic via a vis alternatives. It is accepted that the secondary site cannot be serviced by barge.

- 4.4.7 It should be possible to manage the predicted volume of construction traffic effectively with an agreed Traffic Management Plan (TMP). Thames Water intends to prepare a TMP. This should be submitted with the planning application. The Council will wish to agree any TMP with Thames Water in advance of the planning application submission if possible. Adherence to the TMP must be appropriately secured by condition or legal agreement to satisfy Core Strategy Policies CT1 (b), (e), and (h). Any TMP will need to take account of other construction traffic flows in the area including flows generated by other Thames Water sites and committed developments such as those at Chelsea Barracks, Battersea Power Station and Nine Elms.
- 4.4.8 One of the primary transport impacts of developing the foreshore is the fact that the riverside footway would have to close for an extended period. At present 95% of pedestrians on Chelsea Embankment choose to use the riverside footway which forms part of the Thames Path. While a diversion to the footway on the north side of the road would be provided, this would be less attractive and would take pedestrians away from their desire line. Pedestrians would have to cross the busy Chelsea Embankment twice at each end of the diversion. The development would discourage pedestrians from using Chelsea Embankment contrary to Policy CT1 (g).
- 4.4.9 We have requested that Thames Water arrange the foreshore site and their work programme in a way that would allow the riverside footway to remain open as often as possible during the four year work programme. Such opportunities should be possible at the weekends if deliveries are scheduled appropriately. The footway is busiest at weekend when it is used by up to 100 pedestrians an hour. If this site is taken forward we would expect the traffic management plan to include measures to allow the footway to be opened as often as possible. It is accepted that the footway would have to be closed entirely during some phases of the development.
- 4.4.10 The diversion of the Thames Path to the northern footway would require a new pedestrian crossing to be constructed across Chelsea Embankment between the primary and secondary sites. Although the crossing would be relatively lightly used, the flows on Chelsea Embankment are such that a signalised crossing should be provided to allow pedestrians to cross the road safely. The installation of an additional pedestrian crossing on Chelsea Embankment should be considered in the modelling work for the TA.
- 4.4.11 Thames Water's plant on the site would generate a low servicing requirement of approximately two visits per year with more significant maintenance required every ten years. This servicing would take place off the roadway on a newly provided area of public domain. The operation of the completed development would have no significant impact on the highway. On this basis there is no conflict with Policy CR7.
- 4.4.12 The proposal to create a new public space on Chelsea Embankment opposite the Bull Ring Gate is not objectionable in principle from a highways point of view. It

would have to be designed to ensure that it is not used for parking save for infrequent servicing. The space should be designed in accordance to the Council's Streetscape Design Guidance.

4.4.13 We note that the foreshore site would be built with the safeguarded area for Crossrail 2. We understand that Crossrail have agreed to this and are contributing to the design process.

#### **Ranelagh Gardens**

4.4.14 This site has some advantage over the Chelsea Embankment Foreshore site from a transport point of view. Firstly the riverside footway would not have to be closed. Secondly, the roadway would not have to be reduced in width to accommodate the site access lane to the foreshore site. The roadway would still have to be narrowed on the north side where the low level sewer is intercepted; however, this impact would only occur for a proportion of the works period.

4.4.15 The Ranelagh Gardens site is not accessible from the river so the option of taking deliveries by barge is not available. This is a potential disadvantage vis a vis the foreshore site. We understand that the volume of construction traffic that would be generated at the Ranelagh Gardens site would be similar to the volumes predicted at the foreshore site, although the foreshore site has greater potential to be serviced primarily by river transport.

4.4.16 The key consideration at the Ranelagh Gardens site will be how construction traffic will be managed at the site. We understand that a one way traffic route through the site is being considered from an existing gate on Chelsea Embankment to an existing gate on Chelsea Bridge Road (a borough maintained road that is part of the strategic road network) at the Ebury Road junction. The vehicular accesses at both junctions would have to be significantly modified to accommodate the types of vehicles that would be visiting the site. At Chelsea Bridge Road it would be necessary to modify the signals to incorporate a phase for egressing vehicles. All footways would have to be reinstated to their former condition following completion of the works.

4.4.17 Given the volume of construction traffic anticipated, which is up to 33 vehicles a day, the proposed routing arrangements within the site should work satisfactorily provided that appropriately designed temporary vehicular access points are constructed. Inbound vehicles turning left into the gardens from Chelsea Embankment would not unduly disrupt traffic flows. Egressing vehicles exiting on Chelsea Bridge Road would only trigger their phase at the traffic signals several times an hour. This should have no significant impact on the throughput of the junction. The TA should explain fully how the signals would be controlled to minimise disruption. It may be desirable for egressing vehicles to leave in small platoons rather than individually to ensure as little disruption to traffic flows as possible. On leaving the site, it is not clear how traffic would be routed. There is no right turn from Chelsea Bridge Road onto Chelsea Embankment. Given that this junction is close to capacity it is unlikely that a right turn movement could be provided without impacting on traffic flows. It would be preferable for this traffic to be routed over Chelsea Bridge.

4.4.18 We expect that a traffic management plan for the site would be prepared in advance of the planning application submission. The TMP should incorporate measures to safeguard pedestrians and cyclists on Chelsea Embankment and Chelsea Bridge Road.

4.4.19 The traffic management plan should consider how the works traffic to Ranelagh Gardens would interact with the traffic to the Chelsea Flower Show and Masterpiece London events. Including set up and dismantling these events are on site for nearly three months in late spring/ early summer. It would be preferable if works on the Ranelagh Gardens site could be suspended for this period. It is understood that there is sufficient flexibility in the work program to allow this to be achieved. The closure of the site during the outdoor event season at the Royal Hospital should be a requirement.

## **4.5 Noise and vibration**

### **Chelsea Embankment foreshore: construction**

4.5.1 The assessment of the likely significance of noise has been made against the 'ABC' method of Annex E of BS 5228: 2009 Part 1. This method allows significance of construction noise criteria to be at least 5dB but not more than 7.5dB above the ambient noise level. The assessment and predictions of noise affecting surrounding dwellings determines, from the existing ambient levels, the significance criteria. Construction noise has then been predicted and assessed against this significance criterion.

4.5.2 For daytime operations, that are proposed for this site, the predictions of construction noise are substantially below the significance criterion and at the majority of dwellings noise is below the existing ambient noise levels.

4.5.3 Construction traffic noise has not yet been assessed as data is not available. This will be done in the ES, however it is unlikely that the additional traffic from construction vehicles will add significantly to the existing traffic noise on surrounding roads.

4.5.4 Human response to vibration during construction is predicted to be well below that of 'Low Probability of Adverse Comment' as per BS 6472:2008 at the worst affected floor of the existing dwellings. The peak vibration velocity is also predicted at well below that such as to cause cosmetic building damage. At these distances vibration affects would be anticipated not to be significant. However, the existing baseline vibration magnitudes are not presented, this should be included for comparison, if not here, but in the ES.

### **Chelsea Embankment foreshore: Operational Phase**

4.5.5 Noise and vibration from plant and equipment in the operational phase will be designed to ensure compliance with RBKC LDF- Noise SPD. Noise and vibration emitted from plant and equipment will be required to comply with RBKC LDF Noise SPD. This will include air noise and fan noise from ventilation stacks. The noise generated from cascade filling of the main shaft from the CSO is being assessed and will be included in the ES in due course. The incorporation of noise controls is currently being reviewed by the Thames Tunnel engineering team in time for inclusion in the ES.

### **Ranelagh Gardens: Construction Phase**

- 4.5.6 We agree with section 7.9 in the Site Suitability Report for Ranelagh Gardens that in term of noise emission options 1 and 2 are better than 3; as 3 is closer to occupied premises in Chelsea Bridge Road.
- 4.5.7 Options 1 and 2 would have similar noise and vibration impacts to the foreshore site which are unlikely to be significant. However option 3 in Ranelagh Gardens does move the facility much closer to occupied dwellings and would not be our preference of the three. However if there are overriding considerations that highlight option 3 then construction noise and vibration predictions need to be undertaken for this option. This may require a hoarding in excess of 2.4m to protect upper floors of neighbouring dwellings from noise or other mitigation if noise and or vibration exceed significance criteria.
- 4.5.8 Paragraph 16 9.2.13 of the PEIR states that no assessment has been made of any potential surface activity over 24 hours as a result of boring the connection tunnel at this site. We assume that no access to the surface is therefore required at night at the site during the connection tunnel bore for either the Ranelagh Gardens or the Foreshore site for the drop shafts.

### **Ranelagh Gardens: Operational Phase**

- 4.5.9 Noise and vibration emitted from plant and equipment will be required to comply with RBKC LDF Noise SPD for any of the three options in Ranelagh Gardens. This will include air noise and fan noise from ventilation stacks. The noise generated from cascade filling of the main shaft from the CSO is being assessed and will be included in the ES in due course. The incorporation of noise controls is currently being reviewed by the Thames Tunnel engineering team in time for inclusion in the ES.

## **4.6 Land Quality**

### **Chelsea Embankment foreshore**

- 4.6.1 The land use history of the site and adjacent properties has been identified. Whilst we are not aware of any potential industrial sources being present on the sites themselves, it is common for ambient levels of pollution within the soil to be elevated, for example benzo a pyrene. The presence of contamination therefore cannot be discounted entirely and could present a risk.
- 4.6.2 We are concerned about the locations that have been selected for soil sampling. It seems from figure 8.4.2 that only one further borehole is proposed, which is not adequate. We would welcome a discussion about proposed sampling locations for all sites within the Borough.

### **Ranelagh Gardens**

- 4.6.3 A brief land use history has been included within the suitability report which suggests this site should be suitable for use from a soil contamination point of view; however, before we can comment further we will require a more detailed desk top study and soil sampling must be undertaken to confirm conditions. As mentioned above, it is common for ambient levels of pollution within the soil to be elevated, for example benzo a pyrene. The presence of contamination therefore cannot be discounted entirely and could present a risk.

## **4.7 Air Quality**

### **Chelsea Embankment foreshore**

- 4.7.1 No reference has been made to the Council's Air Quality SPD. We will expect the EIA to refer to this and ensure the methodology used meets our requirements.
- 4.7.2 We are pleased to see in paragraph 4.2.2 that the 90 per cent of cofferdam material will be transported by barge. However, all other material will be transported by road, which is extremely disappointing, given the proximity of the river to the site. As previously stated, the amount of material transported by barge needs to increase.
- 4.7.3 Paragraph 4.2.3 states that the peak vehicle movements in year 3 would be 70 lorry movements per day averaged over a month, but paragraph 12.5.25 states an average peak of 92 vehicle movements a day is expected. Again there is a discrepancy on the average daily lorry visits shown in the leaflet for the site. The leaflet states a maximum number of 33. This discrepancy should be clarified. We would like to understand what figures are going to be used as part of the air quality modelling exercise and ensure they are consistent with the results of the transport survey. We would also like to know the proportion of diesel vehicles.
- 4.7.4 It has been identified that some congestion may arise on the roads through lane closures during construction. The transport assessment will need to provide sufficient information to quantify the times when any queuing around junctions may occur and to consider the potential impact of reducing the lane widths on traffic flows. Particular care should be taken in selecting appropriate traffic speeds. The modelling should also take account of other traffic flows in the area including flows generated by other Thames Water sites and committed developments such as those at Lots Road Power Station, Chelsea Barracks, Battersea Power Station and Nine Elms. All transport data that feeds into the air quality modelling should be approved by our Transportation team before it is used.
- 4.7.5 We disagree with the statement in paragraph 4.4.10 about the classification that Ranelagh Gardens and Royal Hospital Gardens as having a low sensitivity to local air quality. It is quite feasible that people will use these parks and sit for more than hour at a time, especially during the summer months.
- 4.7.6 Paragraph 4.5.7 – Construction effects includes many conclusions made based on professional judgements. Whilst valuable, we will wait to see the results of the modelling assessments before we decide whether we agree with these. We will be keen to see the results reported as emissions as well as changes in concentrations.
- 4.7.7 In paragraph 4.5.20 – construction dust, the development has been classified as a medium risk site with regard to dust potential. It is stated that these effects would be reduced by the implementation of measures contained in the COCP which would then result in minor adverse effects at residential properties and negligible effects elsewhere. The mitigation measures have not been included in any detail and therefore it is not possible to offer an opinion on whether this is likely to be the case.
- 4.7.8 Section 4.7 – approach to mitigation explains that all measures embedded in the draft COCP of relevance to air quality and odour are summarised in section 4.2. These are mitigation measures, so to say no mitigation is required is misleading.

### **Ranelagh Gardens**

- 4.7.9 One of the main disadvantages for the alternative site at Ranelagh Gardens is that there are no proposals to use the river for importing and exporting materials. Only the road is considered. We will need to understand the difference in air quality emissions that this will lead to together with the difference in impacts from the construction traffic. Until the results of the assessments are ready, we cannot make any further comments.
- 4.7.10 It is also noted that this option brings the construction site closer to residential properties, albeit in the City of Westminster and areas of open space. Residents living nearby and people using Ranelagh Gardens may consequently be exposed to increased levels of pollution, although as stated above, we will need to see the results of the assessments to understand if this is likely to be the case.

### **4.8 Ecology**

- 4.8.1 The full ecological assessment will be presented in the Environmental Statement which will be published in late 2012. This timetable allows for further ecological assessments to be undertaken.
- 4.8.2 Assessments of both terrestrial and aquatic ecology have been undertaken at both the Chelsea Foreshore and Chelsea Embankment sites. Some preliminary ecological surveys have also been completed at the Ranelagh Gardens site; however, these findings are not reported in these consultation documents.

### **Chelsea Embankment foreshore**

- 4.8.3 The works associated with this site involve the creation of cofferdams, the occupation of intertidal and subtidal foreshore and potential for dredging.
- 4.8.4 The construction of permanent structures on the foreshore will result in a permanent medium negative effect through the loss of intertidal habitat. There is limited mitigation available for this loss of habitat.
- 4.8.5 If the Embankment is to be used 3 of the mature London planes on the Embankment would have to be felled. Approximately 10 trees will be lost from a southern portion of Ranelagh Gardens although these appear to be fairly small specimens. In summary, the impact on the avenue of trees, which, runs more or less continuously from World's End to the City of London, will actually be fairly limited. We note that 2 new trees would be planted onto new area which protrudes into the river and this would certainly help to mitigate the above mentioned tree losses.

### **Ranelagh Gardens**

- 4.8.6 Ranelagh Gardens does offer a viable option to the foreshore site. It is likely that the impacts on the terrestrial environment could be compensated / mitigated more easily than any losses of intertidal foreshore. However, full terrestrial ecological surveys would need to be undertaken to assess the impacts of using this site. The site is a Site of Nature Conservation Importance and therefore restoration and compensatory habitat creation should be undertaken on site.

- 4.8.7 The potential impact on the trees in Ranelagh Gardens is less clear. It is not clear how many trees would have to be removed but it appears that it would be a greater number than for the foreshore scheme. One point which does require careful consideration is the access road which would run within the gardens parallel and close to Chelsea Bridge Road. The London Plane trees on this eastern boundary are in poor condition having suffered years of ground compaction and root disturbance during the Flower Show and which has caused in some cases severe dieback. The installation of a road, if not carefully executed, could finally kill off some of these highly visible mature trees. Notwithstanding the above the best group of trees on the site is the fine avenue of planes along the Eastern Avenue which would remain unaffected by the proposals.
- 4.8.8 If a more detailed observation is required plans showing the juxtaposition of existing trees and proposed structures and details of access routes will be needed.

#### **4.9 Socio-economic impacts**

##### **Chelsea Embankment foreshore and Ranelagh Gardens**

- 4.9.1 The availability of alternative options in the Thames Path whilst the work is taking place is an important consideration. It is noted that the presence of both a pavement on the northern side of Chelsea Embankment and the pathways running through Ranelagh Gardens could provide alternatives to pedestrians using the Thames Path, although the pathways through Ranelagh Gardens are subject to limited opening hours. The Council concur that users of the path will only be inconvenienced in a minor way by the works, whether they take place on the foreshore or in Ranelagh Gardens. In a similar manner, there is little to choose between the two options in terms of the longer term effect on amenity space – the long term effects in Ranelagh Gardens are limited and landscaping will largely mask their impact whilst the new amenity space created by the Embankment Foreshore option, will offer some additional hard landscaping, but it will not provide any further views of the Thames than is currently the case and there is the question of how it will be maintained.
- 4.9.2 With regard to the users of the National Cycle Route 4 (NCR4) the route is traffic free in this location, which cannot be said for the majority of the route. However, cyclists will be able to use the Embankment road at this point without any significant detour and the extent of the works is limited. On this basis it is considered that the impact will be low, both in terms of Ranelagh Gardens and the Foreshore option.
- 4.9.3 The effect on public open space, both in the short and the longer term for Ranelagh Gardens and the Chelsea Embankment needs to be considered carefully as there are likely to be short term implications for income generation for the Royal Hospital and the Chelsea Flower Show organised by the Royal Horticultural Society (RHS). These should not be underestimated and in the Council's view should be assigned significant weight. Whilst the longer term impact of works in Ranelagh Gardens is likely to be limited the ability of the Royal Hospital to utilise the space in Ranelagh Gardens whilst construction works are taking place, is of concern. The Council recognise that the Royal Hospital must be able to undertake income generating activities if they are to maintain the fabric of their historical buildings and the other activities to which they are associated such as the welfare of the pensioners. Any works which may threaten this income

stream must be given due weight and on this basis the Council has outstanding concerns regarding the utilisation of Ranelagh Gardens.

- 4.9.4 In a similar manner, any works which may have an effect on the Chelsea Flower Show and the ability of the RHS to generate the income which is necessary to continue their activities would be of great concern to the Council. If the RHS were forced to find an alternative site, even for the three year duration of the construction works this could have serious implications for the Borough, both in terms of the economic spinoffs of locating the Show in the Borough, but also because the Flower Show and Chelsea Hospital are synonymous with one another and it is one of the celebrated national events. The RHS have supplied an estimation of how much money they may lose each year because of the temporary works and the figure is significant.
- 4.9.5 In terms of the value of Ranelagh Gardens to local residents it is acknowledged that the Gardens are heavily planted with trees, shrubs and flowers. This landscape arrangement forms a barrier between traffic on the Chelsea Embankment roadway and the users of the park and provides a valued secluded environment in this busy and somewhat noisy location. The Gardens also provide a contrast with the more formal planting in the Royal Hospital grounds which are characterised by open lawns and avenues of mature trees. During pedestrian surveys by Thames Water the use of the Gardens was noted as light, but it was used by young families. There are also residential properties on the opposite side of Chelsea Bridge Road in the City of Westminster and two institutions in relatively close proximity – the Lister Hospital and the Royal Hospital infirmary. However, given the extent and duration of the temporary works it is considered that the effects on the Gardens themselves and the Foreshore option are limited and there is no significant advantage or disadvantage in either option. It is noted that for the Embankment Foreshore the noise effects on residents are unlikely to be significant, and in view of the fact that the construction works will generally be confined to the day, it is considered that there will not be a significant effect on residents if the Ranelagh Gardens option is selected.

#### **4.10 Water Resources and Flood Risk.**

- 4.10.1 We welcome the benefits in water quality that the interceptions of this combined sewer overflow (CSO) will bring locally and London wide. Even though the reduction in the overflow will be much smaller than that of the Cremorne Wharf site (about 18,000 m<sup>3</sup>), this will have a positive impact in water quality.
- 4.10.2 The impact in the flood defences as a result of construction in the foreshore and the operation of the site is not clear from the results and may require mitigation measures which will be included in the Environmental Statement. It is paramount that the integrity of the flood defences is maintained. We welcome the project-wide study into the potential impacts of the tunnel excavation on the integrity on the flood defences to be included in the Chelsea Embankment Foreshore Level 2 FRA section.
- 4.10.3 The PEIR does not consider the potential impact on water resources and flood risk if the site is located in Ranelagh Gardens. Water runoff during operation is likely to be minimal in the gardens as it will be potentially absorbed by the soil, whereas in the foreshore the infiltration is likely to be minimal unless the

pavement is permeable. We agree with paragraph 15.4.47 of the PEIR which explains that surface water runoff drains naturally to the River Thames without inundating the surrounding land. However, we will welcome the provision of permeable paving in the foreshore structure in line with Policy CE2 (flooding) criteria (e) which requires SUDs.

#### **4.11 Odours and Ventilation Chelsea Embankment**

4.11.1 Paragraph 4.6.5 of volume 16 explains that the maximum air release during a typical year is expected to be less than 0.3 m<sup>3</sup>/s so within the capacity of the filter, again, we would like to understand how this has been calculated. Air would be released from the ventilation column for 18 hours in a typical year, all of which will have passed through the filter.

4.11.2 Paragraph 3.3.1 of the Air Management Plan covers performance checks. Assessment of odour abatement performance at each location and continuous recording of H<sub>2</sub>S levels in extracted air is only proposed for three years after start of operation – we are concerned that this is an insufficient length of time. After three years the quarterly check could reduce to a six monthly assessment for a further three years rather than being dropped altogether.

4.11.3 The impact for the Ranelagh Gardens option is unknown and further information will be required to assess this.

### **5 General comments on the Preliminary Environmental Information Report (PEIR)**

5.1 Please note that at the time this response was finalised, comments from the Environment Agency or other statutory consultees have not been received.

5.2 If Ranelagh Gardens is considered as the preferred site after the Phase Two consultation, the final Environmental Statement should include an assessment of all the potential impacts for the site.

#### **Ecology**

5.3 In terms of ecology, it is considered that some aspects to safeguard the Ecology can be conditioned such as the need for repeat ecological surveys if more than 1 year lapses between the last survey and construction works. However, these elements may be addressed in the Environmental Statement and associated management plans. Planning conditions should also be used to secure the ecological enhancements used to assess the impact.

#### **Transport**

5.4 The Transport Assessment to be submitted with the planning application must model the cumulative impact of all Thames Water's interventions across Central London against agreed background traffic scenarios. These interventions include construction traffic flows, restricted lane widths, additional pedestrian facilities, new vehicular access points and junction modifications. The TA should demonstrate that there would be no significant impact on local traffic conditions to satisfy Policy CT1 (b).

- 5.5 The traffic impact of the development can be significantly reduced by not providing staff car parking. This is a particular concern in relation to the Ranelagh site where space would be available for parking. No staff parking should be provided to satisfy Policy CT1(e). The planning application submission should be accompanied by staff Travel Plans.

**Flood Risk**

- 5.6 Levels 2 and 3 FRA should be made available for review to the Royal Borough before their submission with the Development Consent Application.

**Ground borne noise and vibration from tunnel boring and works underground**

- 5.7 For both sites in RBKC there is no mention of an assessment of this aspect. There should be an indication that these works have been considered even if the assessment indicates that are not significant. However, this can be discussed in the future consultation on Part B of the Code of Construction Practice.

**Cumulative impact**

- 5.8 We understand that not all the assessments have been finalised and included in the PEIR; however, we are concerned by the lack of mitigation measures outlined generally in the report. The phasing of the construction of the sites throughout London should be looked at carefully to try to minimise the impacts of the project. As the Borough is located in the middle of the project, if phasing is not carefully planned we could potentially be impacted for many years mainly through traffic generated in nearby sites.